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CPNP 2019 Annual Meeting Poster Abstracts

Research Trainee Award Finalists

Creation & Implementation of a Urinary Tract Infection Diagnostic & Treatment Algorithm for Psychiatric Inpatients With a Communication Barrier

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Abstract Type: Work in Progress. **Background:** Urinary tract infection (UTI) is often considered a common cause of mental status changes, particularly in elderly patients and patients with a primary psychiatric condition. Additionally, the presence of genitourinary symptoms is essential to confirm diagnosis and determine the appropriate treatment course. Patients with a communication barrier may be unable to clearly convey the presence or absence of genitourinary symptoms, complicating an accurate diagnosis when mental status changes occur. Little evidence exists on diagnosing UTIs in patients who cannot communicate genitourinary symptoms; however, some guidance in long-term care facilities suggests assessing specific symptoms that do not rely on patient report. **Objectives:** The primary objective of this project is to provide assistance in the diagnosis and treatment of UTIs in patients who cannot communicate genitourinary symptoms through the creation of an algorithm. Secondary objectives include reducing inappropriate antibiotic use and increasing symptom documentation in this patient population. **Methods:** A UTI treatment algorithm for noncommunicative patients was developed using existing literature and through extensive collaboration with physicians, PhDs, and pharmacists working in the fields of emergency medicine, geriatric psychiatry, infectious diseases, microbiology, and urology. The final algorithm included comprehensive information on evaluating urinalysis (UA) results and identifying UTI symptoms, and offered guidance for antibiotic selection, dosing, and duration. Educational materials were created to enforce the most appropriate use of this algorithm, and provider education is ongoing. To limit the initial scope and allow for preintervention and postintervention data analysis, the algorithm will be utilized within the psychiatric emergency department. Adults admitted to the psychiatry service with a UA ordered and collected in the emergency department as well as an ICD-10 code representing dementia, delirium, autism spectrum disorder, or developmental delay will be included. Pregnant patients will be excluded. **Outcomes:** The preintervention cohort includes 56 admissions. Patients are predominantly female, with an average age of 60 years. Provider education will be completed in January, with postintervention data collection and analysis completed in February. This timeline allows for reporting on the impact of the intervention by comparing changes in UA ordering, antibiotic prescribing, and symptom documentation between preintervention and postintervention cohorts.

BDNF Val66Met Polymorphisms, Antidepressant Use, and Cognitive Performance: A Moderation Analysis in Patients With Psychotic Disorders

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Abstract Type: Original Research. **Background:** Brain-derived neurotrophic factor (BDNF) is a neuropeptide essential for neuronal development and plasticity. It is suggested to be a mediator of antidepressant efficacy in depression, and more broadly has been associated with cognitive performance. Antidepressants may be used to

treat depressive symptoms in psychotic disorders, however, with unclear benefits for cognitive symptoms. The BDNF Val66Met (rs6265) polymorphism may affect the expression and stability of BDNF, but its relationship with cognitive performance in the context of antidepressant medications in psychosis has not been examined. **Objective:** This study investigated the moderation of BDNF Val66Met genotype on the relationship between antidepressant use and cognitive performance in clinically stable patients with psychotic disorders. **Methods:** Participants (total N = 640) with schizophrenia spectrum (n = 428) and psychotic bipolar disorder (n = 212) from the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) study were examined. Regression-based moderation analyses were conducted to investigate interactions between Val66Met genotype and antidepressant use in relation to cognitive performance assessed by the Brief Assessment of Cognition in Schizophrenia (BACS). **Results:** Val66Met genotypes (Val/Val = 474, Val/Met = 150, Met/Met = 16) did not deviate from Hardy-Weinberg Equilibrium ($P = .32$). BACS scores did not significantly differ across genotype or antidepressant status groups before accounting for interactions with Val66Met genotype. In patients with schizophrenia spectrum disorders, Val66Met genotype significantly moderated the relationship between antidepressant use and composite BACS scores ($F_{(1,422)} = 8.426$, $P = .004$), whereby there was no association between antidepressant use and composite BACS scores in Val/Val genotype groups while among Met allele carriers, a lower composite BACS score was associated with antidepressant use. Among BACS subtests, Verbal Memory and Digit Sequencing were most associated with antidepressants moderated by Val66Met genotype. Examining the influence of depression (MADRS) or psychosis (PANSS) symptoms did not change these findings. This relationship was not detected in psychotic bipolar disorder. **Conclusions:** The Val66Met polymorphism known to influence BDNF gene expression and stability may moderate the impact of antidepressant use on cognitive performance in patients with schizophrenia spectrum disorders. These findings indicate that genetic factors related to neuroplasticity may be important determinants of drug action, and they explain interpatient differences that have been previously observed in antidepressant effects on cognitive performance.

Innovative Practices Award Finalists

Interdisciplinary Implementation of Mental Health Screenings and Treatment in a Human Immunodeficiency Virus (HIV) Clinic at a Federal Health Care Center

Eileen Mintz, PharmD[1]; Roberta Dume, PharmD[1]; Robin Hieber, PharmD, BCPP[1]; Suzanne Molino, PharmD, BCPS[2]

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Abstract Type: Innovative Practices. **Background:** Prevalence rates for mental health disorders are high among patients with HIV, with around 35% of patients and 49% of veterans having comorbid depression. Nonadherence is the primary reason for treatment failure among those infected with HIV, and depression is a barrier to adherence of antiretroviral therapy (ART). Additionally, depression has been linked to poor attendance to HIV clinic appointments, accelerated clinical progression of HIV, and higher mortality rates. Therefore, identifying and treating patients with coexisting mental health conditions, especially depression, can help to improve adherence and prevent treatment failure. **Description of Innovative Service:** The service takes place in an HIV clinic at a federal health care center starting October 2018. It involves the clinical pharmacy specialist or pharmacy resident providing depression screenings using the patient health questionnaire (PHQ-9) on one day of clinic. Those screened positive are further evaluated, and based on the individualized scores and other clinical factors are either referred to mental health services or receive medication initiation, titration, or adjustment in conjunction with psychiatry residents. **Impact on Patient Care:** Since October 2018, about 20 patients have been screened and provided with resources for mental health care if needed. Of those screened, 1 patient screened positive and was referred to a psychologist. Some screened were already well controlled on antidepressants or currently receiving mental health care. **Conclusion:** Mental health disorders are high among patients with HIV, with around 35% of patients and 49% of veterans having comorbid depression. The implementation of depression screening services is connecting those in need to mental health services to better optimize patient care and improve medication adherence. With this implementation, there are plans to further initiate other mental health services, such as anxiety and substance use screenings.

Adult Attention-Deficit/Hyperactivity Disorder (ADHD) Clinic: A Collaboration Between Psychiatry, Primary Care and Pharmacy to Improve Access, Care Experience, and Affordability

Tyler Casey, PharmD, BCPP[1]; Corinne Johnson, PharmD, BCACP[1]; Donald Love, RPH[1]

[1] *Kaiser Permanente Northwest Region*

Abstract Type: Innovative Practices. **Background:** Demand for Kaiser Permanente Northwest Region (KPNW) mental health services and adult attention-deficit/hyperactivity

disorder (ADHD) treatment has increased drastically during the past several years. Primary care physicians (PCPs) sought assistance and support for ADHD diagnosis and medication management. Patients with ADHD found access to care difficult, with long wait times before appointments and start of care. Follow-up by a mental health provider or PCP was often delayed or insufficient. KPNW Mental Health and Clinical Pharmacy Services determined that ADHD patients may benefit from a more collaborative team-based approach to their care. **Description of Innovative Service:** In 2015, KPNW implemented a collaborative, team-based adult ADHD service. In this model, uncomplicated patients are assessed by a psychiatrist for diagnosis and care guidance. A pharmacist, working under a collaborative drug therapy management, then initiates and manages the patient's medications via telephone encounters until the patient is stable. The care of the patient is then transitioned back to primary care and is not added to psychiatry's case load. **Impact on Patient Care/Institution:** The service improved access to psychiatry and the satisfaction of psychiatry and primary care with the care delivery process and transition of care. Additionally, it has improved the care experience through shared decision-making, and care standardization and coordination. As of January 2019, more than 800 patients have been assigned to the clinic, and nearly 600 have been successfully stabilized on medication by a pharmacist. The service helped lower treatment costs due to use of preferred medications and regimen optimization. Subsequent pharmacy initiatives relating to the clinic achieved pharmacy cost savings of more than $2 million from 2016 to present. The clinic also provided impetus for developing the KPNW Adult ADHD Guidelines for Diagnosis and Treatment, which are used region-wide by psychiatry and primary care to ensure evidence-based practice. **Conclusion:** The implementation of a collaborative adult ADHD service has been a profound success at KPNW. In addition to increased efficiency and evidence-based practice, the adult ADHD clinic has resulted in significant cost savings and improved access to mental health care. Psychiatry and primary care clinicians also expressed great satisfaction with the clinic and a desire to expand its services.

Therapeutic Case Report Award Finalists

Naltrexone Extended-Release Injection in a Patient With Alcoholic Cirrhosis of the Liver: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Naltrexone extended-release (ER) is a monthly injection indicated for treatment of alcohol use disorder (AUD). It is typically avoided in severe hepatic impairment due to potential hepatotoxicity risk and lack of pharmacokinetic or clinical studies in this population. **Review of Literature:** Pharmacokinetics of naltrexone ER injection are not altered in mild to moderate hepatic impairment but have not been evaluated in severe impairment. In contrast, studies of oral naltrexone show increased exposure in patients with mild to severe hepatic impairment. The ER formulation results in gradual delivery of naltrexone to the liver and hepatic elimination that is absorption rate limited ("flip-flop" kinetics); therefore, reduction in hepatic blood flow due to impairment may not result in clearance alteration. The impact of liver disease on enzymes involved in naltrexone metabolism is not well understood. Naltrexone ER prescribing information contains a warning for hepatotoxicity due to observed cases of hepatitis and clinically significant liver dysfunction. The concern for naltrexone worsening advanced liver disease is hypothetical, and no controlled trials have been performed in this subset of patients with AUD. **Patient History:** The patient is a 63-year-old white male recently diagnosed with Child-Pugh Class C alcoholic cirrhosis of the liver and AUD, with 3 recent hospitalizations for cirrhosis complications. Records indicated a history of medication nonadherence and no previous AUD treatment. Prior to hospital discharge he was initiated on naltrexone ER injection due to high mortality risk with continued alcohol use and concern for oral medication nonadherence. During outpatient follow-up, the clinical pharmacist was consulted for recommendations on naltrexone ER use in severe hepatic impairment and coordinated monitoring of hepatic bloodwork and naltrexone plasma concentrations. Naltrexone and 6-beta naltrexol plasma concentrations were undetectable when tested twice immediately before his next injection and were 22 and 14 ng/mL the day following injection. Liver transaminases and bilirubin levels declined after abstinence from alcohol with continued naltrexone administration. The patient reported decreased alcohol craving and continued abstinence. **Conclusion:** In this case, naltrexone ER injection was safely and effectively used to achieve abstinence from alcohol in a patient with AUD and Child-Pugh Class C alcoholic cirrhosis.

Never Say Never: Successful Clozapine Rechallenge After Multiple Episodes of Neutropenia

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Abstract Type: Therapeutic Case Report. **Background:** Clozapine is an atypical antipsychotic with a superior

efficacy for the management of treatment-resistant schizophrenia, but one which is underutilized due to potential side effects, which include myocarditis, metabolic syndrome, and agranulocytosis. **Patient History:** A 59-year-old male veteran was transferred from the long-term care unit to acute psychiatry due to suicidality with plan to hang himself by his pajama bottoms. He was noted as having a longstanding history of psychosis with significant referential and paranoid delusions. The patient had experienced 2 prior trials of clozapine; while he had significant response in the past, both trials ended in neutropenia and absolute neutrophil count (ANC) <500 cells/μL. This is despite the second trial also including supplemental "as-needed" doses of pegfilgrastim to manage decline in neutrophil counts. **Review of Literature:** It was determined that a weakness of the second trial was its reactionary nature. A PubMed search identified recent literature which discussed preemptive dosing of filgrastim to prevent neutropenia. Thus, a protocol was established to administer filgrastim 0.3 mg SC 3 times weekly concurrently with clozapine initiation. Doses were to be adjusted up or down to maintain ANC between 2000/μL and 8000/μL. Should the ANC decrease below 1000/μL, the patient was to be admitted to acute medicine, and hematology consulted for additional guidance. This plan was discussed on a local and a national level to achieve consensus before its initiation. **Conclusion:** Using a revised, patient-specific protocol led to successful initiation of clozapine and the ability to maintain the regimen for 12 months without drops in neutrophil count or any further suicidal ideation.

Original Research Award Finalists

Pharmacoepidemiologic Assessment of Selective Serotonin Reuptake Inhibitor Effect in Patients With Posttraumatic Stress Disorder and Opioid Use Disorder

Andrew C. Naglich, PharmD, BCPP[1]; E. Sherwood Brown, MD, PhD[2]; Bryon Adinoff, MD[3]

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Abstract Type: Original Research. **Purpose:** Despite increased rates of opioid use disorder (OUD) in patients with PTSD, no prior studies have examined the efficacy of pharmacologic treatments for posttraumatic stress disorder (PTSD) in patients with PTSD and OUD. This study explores the efficacy of selective serotonin reuptake inhibitors (SSRIs) in patients concurrently diagnosed with PTSD and OUD. **Methods:** This study is a quasi-experimental multicenter new-user cohort study of 4157 patients with OUD and PTSD treated between the years 2000 and 2016 at any of 4 VA Integrated Service Networks in the Mid-Atlantic, Midwest, and Southeast regions of the United States. Patients were identified using 2 rounds of a validated case-finding algorithm and were excluded if they received an SSRI prior to the beginning of the trial period. High-dimensional propensity score adjustment techniques were used to control for the likelihood of initiating SSRIs and/or PTSD-specific therapy within 30 days of initial PTSD diagnosis. Marginal structural models were used to generate inverse probability of treatment weights which adjusted for treatment adherence. Following weighting, logistic regression was used to examine relationships between SSRI initiation and outcome measures, including all-cause and opioid-related emergency room (ER) visits, medical admissions, and psychiatric admissions. **Results:** The study population was mostly male (94.7%), white (52.2%) or black (39.8%), aged 44.88 ± 11.7 years. Patients who initiated SSRIs within 30 days of initial PTSD diagnosis were significantly less likely to experience opioid-related ER visits (OR = 0.532; 95% CI = 0.396-0.715; $P < .0001$), medical admissions (OR = 0.529; 95% CI = 0.413-0.679; $P < .001$), opioid-related medical admissions (OR = 0.355; 95% CI = 0.236-0.53; $P < .0001$), psychiatric admissions (OR = 0.755; 95% CI = 0.644-0.885; $P = .001$), or opioid-related psychiatric admissions (OR = 0.596; 95% CI = 0.486-0.731; $P < .0001$). **Conclusion and Future Directions:** This investigation demonstrates a strong association between initiation of SSRI medications within 30 days of initial PTSD diagnosis in patients with PTSD and OUD, and significant reductions in rates of all-cause and opioid-related hospitalizations and opioid-related ER admissions. Clinicians treating these patients should strongly consider initiating SSRI medications soon after PTSD diagnosis to reduce rates of hospitalization in these patients.

The Effect of Olanzapine on Skeletal Muscle DNA Methylation: A Randomized, Double-blind, Placebo-Controlled Pilot Trial in Healthy Volunteers

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Abstract Type: Original Research. **Introduction:** Atypical antipsychotics cause acute and direct insulin resistance independent of significant weight gain and psychiatric disease through a reduction in glucose uptake. Despite the skeletal muscle's essential role in peripheral glucose uptake, this tissue has not been thoroughly investigated for its role in atypical antipsychotic-induced insulin

resistance. We aimed to investigate changes in skeletal muscle DNA methylation with a pilot randomized, double-blind, placebo-controlled trial of olanzapine in healthy volunteers. **Methods:** Healthy volunteers were given blinded placebo or olanzapine for 7 days. Anthropometrics, energy expenditure, an insulin sensitivity test, and muscle biopsies were obtained before and after drug administration. Changes in global DNA methylation via 5-methycytosine (5-mC), 5-hydroxymethylcytosine (5-hmC), and 5-formylcytosine (5-fC) were measured using enzyme-linked immunosorbent assays. Methylation levels were normalized and change in methylation was compared between groups using Student *t* tests. A *P* value less than .05 was considered statistically significant. **Results:** Twelve healthy volunteers (6 olanzapine, 6 placebo) completed the pilot trial. The average age of the cohort was 25.8 $\pm$ 4.1 years, 40% were female, 30% were white, and 60% were Asian. The treatment groups did not differ based on demographic factors. The olanzapine group had a significant increase in insulin resistance, but no differences were observed for weight, fasting glucose, or lipid panel. There was a trend toward an increase in energy expenditure in the olanzapine group. In the olanzapine group skeletal muscle global methylation of 5-mC and 5-hmC was increased (both $P < .05$), and 5-hmC trended toward a significant correlation with insulin resistance (Pearson correlation = 0.66, $P = .07$). The change in 5-fC was not significantly different between the groups ($P = .4$). **Conclusion:** Within our study we identified acute changes in skeletal muscle DNA methylation that co-occurred with a decrease in insulin resistance. This may suggest that atypical antipsychotics cause insulin resistance by altering gene regulation in the skeletal muscle. Future work will need to expand on these findings through gene-specific analyses and correlations with insulin resistance.

CPNP Foundation Strategic Goals Award Finalists

Pharmacist and Pharmacy Student Wellness and Mental Health Analysis

Abby MacCauley, PharmD Candidate[1]; Ashley Kang, PharmD Candidate[1]; Suzanne Harris, PharmD, BCPP, CPP[1,2]; Heidi Anksorus, PharmD[1,3]

[1] University of North Carolina Eshelman School of Pharmacy; [2] University of North Carolina Medical Center; [3] University of North Carolina School of Dentistry

Abstract Type: Work in Progress. **Background:** Literature on pharmacist wellness has separately examined stress levels, job satisfaction, and burnout in distinct areas of pharmacy practice. Studies answer isolated questions about well-being; however, little is known about possible trends among practice settings or about doctor of pharmacy (PharmD) students and elements of wellness. To obtain a comprehensive picture of well-being, evidence describing the impact of mental, physical, and personal health across all areas of pharmacy practice and PharmD programs is needed. In this study, pharmacist and pharmacy student wellness will be examined in parallel through distinct surveys. **Objectives:** To survey a large sample of pharmacists and pharmacy students in various practice areas and pharmacy school settings, respectively, to assess 3 areas of wellness: mental, physical, and personal health. **Methods:** The Qualtrics surveys have 2 arms with Institutional Review Board approval: PharmD students and practicing pharmacists. In December 2018, the North Carolina Board of Pharmacy disseminated a survey to all actively licensed pharmacists in North Carolina. In January 2019, directors of the Office of Student Affairs of 10 accredited US pharmacy schools will disseminate the survey for the student arm. Selected schools are partners interested in collaborating on this project and were identified through the CPNP Teaching Community or other professional connections. Funding support is provided by the CPNP "Defining the Future" research grant. Surveys will collect pertinent demographics and assess mental (stress, anxiety, depression, substance use), physical (diet, exercise, sleep habits), and personal (school- or work-life balance, hobbies, burnout, career and relationship satisfaction) health, incorporating previously validated tools adapted to create a comprehensive survey, and will be open through February 2019, with full analysis anticipated in March. Statistical analysis consultation will be provided by the Odum Institute for Research in Social Science. **Outcomes:** When looking at contributors to wellness, it is anticipated that connections will be identified among the 3 domains assessed, allowing employers and pharmacy schools to better understand the needs of their respective populations and hopefully leading to increased resources and programs to support wellness.

Impact of a Pharmacist-Led Medication Management Clinic on Medication Safety and Deprescribing of Sedative-Hypnotics in Rural Elderly Veterans

Kali Savoca, PharmD[1]; Amber Heaton, PharmD[1]; Jenni-Lyn Ladutko, PharmD, BCPS[1]; Shardool Patel, PharmD, BCPS[1]

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Abstract Type: Work in Progress. **Background:** Sedative-hypnotic prescribing in the elderly is a significant medication safety issue, because inappropriate prescribing can result in falls, fractures, motor vehicle accidents, and other serious adverse events. Elderly veterans residing in rural areas represent a disadvantaged population due to

reduced access to services that provide routine medication safety assessment and prospective intervention. As medication experts with scopes of practice, Veterans Health Administration (VHA) clinical pharmacists are uniquely positioned to provide these services. From October 2018 to March 2019, Veterans Affairs Salt Lake City Healthcare System piloted the Rural Medication Management (RMM) telephone pharmacy clinic, a population health program to decrease inappropriate use of high-risk medications in rural, elderly veterans receiving sedative-hypnotics. This pilot program evaluation will examine the impact of the RMM clinic to better understand the role of clinical pharmacists in reducing medication safety disparities for rural veterans. **Objectives:** The purpose of this project is to evaluate the impact of a pharmacist-led clinic on medication safety/deprescribing interventions in rural veterans, and to compare medication safety interventions in rural veterans with veterans receiving care in the urban setting. **Methods:** This quality improvement project utilizes a nonexperimental cohort design based on exposure to clinical pharmacy services. Veterans ages $\geq$65 years with active sedative hypnotic prescriptions and corresponding primary care providers are identified and matched through the VHA Corporate Data Warehouse, a repository of pharmacy, diagnostic, and administrative data. For those enrolled in the RMM clinic, a PharmD performs medication reconciliation/evaluation of all high-risk medications, then implements appropriate interventions and follow-up. Exposure to RMM will be based on presence of clinical progress notes specific to the RMM clinic. Medication safety evaluations and subsequent interventions will be identified via defined health factors in the Computerized Patient Record System (CPRS), and analyzed using χ^2 tests and descriptive statistics. **Outcomes:** The primary outcome will compare the proportion of patients who received medication safety evaluations in rural patient panels exposed to RMM, versus rural patient panels not exposed to RMM, versus urban patient panels. Secondary outcomes will include number of controlled substance monitoring program queries, number of mental health screening tools administered, and number of high-risk medications discontinued/dose reductions.

Evaluation of Depression Interventions in Patients With Diabetes at a Federally Qualified Health Center

Katie Barrett, PharmD Candidate 2019[1]; Bridget Bradley, PharmD, BCPP[1,2]; Cole Dawson, PharmD Candidate 2020[1]; R. Brigg Turner, PharmD, BCPS[1]; Joselyn Benabe, PharmD, BCPS[3]

[1] Pacific University School of Pharmacy; [2] Virginia Garcia Memorial Health Center; [3] University of Colorado Health

Abstract Type: Original Research. **Background:** During the 2017-2018 residency year, a resident project evaluated the impact of PHQ-2/9 screening by clinical pharmacists on depression treatment of patients. This project identified observed that some patients with a PHQ-9 score of $\geq$20 had no change in treatment. The American Psychiatric Association recommends that at this PHQ-9 score, immediate pharmacologic and/or behavioral interventions be made. The goal of this analysis is to identify explanations for why some patients presenting with severe depression received no interventions for treatment. **Research Question:** In a federally qualified health center (FQHC), what, if any, interventions were made (pharmacologic, behavioral) in diabetic patients presenting with a PHQ-9 score of 20 or greater, and what reasons are linked to no intervention? **Methods:** Adult (age $\geq$18 years) diabetic patients, seen at an FQHC between February 1, 2015, and February 28, 2017, with a PHQ-9 score of $\geq$20 were eligible for inclusion. Chart review was completed identifying if an intervention was completed for depression treatment. Interventions were further identified as pharmacologic or behavioral. Interventions made during mental health appointments were excluded. Patients with no intervention were further investigated and categorized as (1) provider did not mention in visit, (2) patient started on medication at previous visit, (3) more pressing diagnosis, (4) documented patient refusal, (5) patient managed by outside mental health agency, (5) future follow-up planned. Patients that were previously started on medication were further categorized based on medication start date. **Results:** There were 261 PHQ-9 questionnaires completed with a score $\geq$20, representing 206 patients. A total of 121 of these instances had no intervention, with the most common reason being a ''more pressing diagnoses'' at time of visit (29.8%), followed by ''previous pharmacotherapy started'' (28.9%), with 65.7% of those patients having been started on an antidepressant more than 6 weeks previously. Of the 140 patients with an intervention completed, 32.9% had a medication change, 29.2% had a behavioral health warm handoff, and 37.1% had both a medication change and a behavioral health warm handoff. **Conclusions:** Education regarding PHQ-9 interpretation and appropriate corresponding interventions to providers is needed to improve depression treatment in the clinic.

A Comparative Analysis of Mental Health Stigma Among Health Care Professionals

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Abstract Type: Original Research. **Purpose:** The purpose of this study was to compare levels of stigma toward mental health between pharmacists practicing in inpatient and outpatient settings within the Midwest. Secondary purposes included exploring other potential factors

related to mental health stigma among pharmacists. **Methods:** This cross-sectional study utilized a questionnaire to survey practicing pharmacists in the Midwest. Approval by Drake University Institutional Review Board was obtained. Boards of Pharmacy and state pharmacy associations were contacted to reach licensed pharmacists via email. An introductory email with an active link to the questionnaire was sent in December 2018. Measures of interest included: participant characteristics (primary practice setting, gender, years in practice, level of personal involvement) and level of stigma (Stigma Scale for Receiving Psychological Help). Level of personal involvement was a summed score of personal, family, or friend history of diagnosed mental illness. Frequencies and descriptive statistics were conducted on all variables. Independent *t* tests and 1-way analyses of variance were conducted between participant characteristics and levels of stigma. **Results:** Nearly 27 000 pharmacists were invited to participate (25 551 emailed directly and 1200 via state association). Of the 1588 respondents, most identified as women (64.6%) and had received either a PharmD (59.9%) or BSPharm (36.2%) degree. Primary practice sites most commonly included community (29.8%) and hospital (29.3%) practice, followed by independent community, ambulatory care, specialty, and academia. Inpatient pharmacists held higher levels of stigma toward mental health than outpatient pharmacists ($P = .035$). Participants who had personal experience with mental illness had significantly less stigma than those without ($P < .001$). Men expressed higher levels of stigma than women ($P = .032$), whereas women were more likely to know someone with mental illness and felt more confident counseling patients with DSM-5 diagnoses ($P = .002$). **Conclusions:** This study identified increased stigma toward mental illness among inpatient pharmacists compared with outpatient ones. These findings also highlight demographic variables that may be related to greater amounts of stigma. Further exploration is needed to determine the applicability of these results to other regions, areas of practice, and health professions, as well as the impact this has on a patient's ability to receive adequate care for mental health.

A Retrospective Analysis of the Effects of Benzodiazepines on Posttraumatic Stress Disorder Symptom Severity

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Abstract Type: Original Research. **Background:** US veterans are 5 times more likely to be diagnosed with posttraumatic stress disorder (PTSD) compared with the general population. Current Veterans Affairs/Department of Defense (VA/DoD) PTSD treatment guidelines strongly recommend against the use of benzodiazepines (BZDs) as either monotherapy or for augmentation, given an unfavorable risk versus benefit profile. We examined whether the prescription of BZDs in our PTSD patients affected changes in symptom severity over time and psychiatric hospitalizations. **Methods:** We conducted a retrospective study of PTSD patients who received care from our facility from 2011 through 2017. Patients ages $\geq$18 years with PTSD who received a 2017 VA/DoD PTSD guideline–recommended antidepressant were included. Individuals with anxiety disorders or non–traumatic brain injury cognitive disorders were excluded. Individuals who received long-term BZD prescriptions were compared to those who did not. Changes in PTSD severity over time and psychiatric hospitalizations for a maximum of 1 year of observation were assessed by PCL scores and chart review, respectively. Inferential statistics were used to identify demographic and clinical differences between the groups. **Results:** We had 132 patients in our study, of whom 33 received BZDs and 99 did not. Most patients were white males, with median ages of 35 and 42 years in the non-BZD and BZD groups, respectively. Significant ($P < .05$) differences between the groups included interval in days between PCL scores (217 in non-BZD versus 154 in BZD group) and comorbid sedative use disorder prevalence (0% non-BZD, 9.1% BZD). Treatment with BZD was associated with a -0.12 ± 16.161 difference in PCL scores, compared with 5.43 ± 15.441 in the non-BZD group ($P = .079$). No difference was seen in the rate of psychiatric hospitalizations. **Discussion:** Only one quarter of our PTSD patients were prescribed long-term BDZs. Although we did not find significant differences in changes in PTSD severity and hospitalization in our study, the non-BZD group experienced a mean reduction in PTSD symptoms, whereas the BZD group worsened over time. Our study was limited by unequal intervals between PCL assessments, our sample size, and the unclear temporal relationship between BZD prescription and PCL assessment. Despite limitations, we recommend avoiding the use of chronic BZDs in PTSD patients.

Access to Naloxone at Community Pharmacies Under the Massachusetts Statewide Standing Order

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Abstract Type: Original Research. **Purpose:** In August 2018, updates to the Massachusetts General Laws c. 94C section 19B required that all community pharmacies maintain a sufficient naloxone supply for dispensing under a statewide standing order. The purpose of this study was to describe access and barriers to naloxone at community pharmacies throughout Massachusetts following imple-

mentation of this update. **Methods:** Community pharmacies were identified from a list of all actively licensed pharmacies provided by the Massachusetts Department of Public Health (N = 1222). A random sample of 500 pharmacies was selected and categorized by pharmacy type (chain, independent, supermarket, etc). Pharmacies were excluded if they were closed to the general public or if they served predominately as medical suppliers. From September 2018 through December 2018, a trained "secret shopper" posed as a customer seeking naloxone and conducted a telephone-based survey of the randomly selected pharmacies. Summary statistics were used to quantify rates of stocked naloxone, perceived need for identification or a prescription, and pricing. SPSS software was used to compare these measures between pharmacy types using χ^2 analyses and 1-way analyses of variance. **Results:** Of the 447 pharmacies included in the survey, 97.3% (n = 435) reported routinely stocking naloxone. Of those, 89.9% (n = 391) had naloxone in stock on the day of contact. Most pharmacies with naloxone in stock did not require an outside prescription (95.7%, n = 371), although identification was required by 39.4% (n = 154) of these pharmacies. Naloxone nasal spray (Narcan) was the most commonly stocked formulation (390 of 435 pharmacies that routinely stock it). Average prices for naloxone nasal spray between pharmacy types were comparable and ranged from $118.55 ± 48.60 to $141.82 ± 36.04, although compounding pharmacies were outliers, with an average cash price of $188.00 ± 90.07. **Conclusions:** A vast majority of Massachusetts community pharmacies routinely stock naloxone as required by state law; however, misperceptions remain regarding perceived need for identification. This and high out-of-pocket cost represent significant barriers to access.

Analysis of Relapse in Gabapentin and Pregabalin Use in the Substance Abuse Treatment Program at the Chillicothe Veterans Affairs Medical Center

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Abstract Type: Original Research. **Background:** Gabapentin and pregabalin misuse has been increasingly reported during the past decade, especially in patients with substance use disorders. Both medications are highly prescribed in patients with concomitant pain and substance use disorders; however, few studies have assessed their impact on relapse. **Objective:** This study aimed to determine if patients prescribed gabapentin or pregabalin and enrolled in the Substance Abuse Treatment Program (SATP) were more likely to relapse. **Methods:** A retrospective chart review was completed assessing patients who were enrolled in SATP during November 2014 to November 2017 and who were prescribed gabapentin or pregabalin. Patients who were enrolled in SATP and were not prescribed gabapentin or pregabalin served as the control group. Patients were excluded if they were prescribed both gabapentin or pregabalin during the study period or if they had previous misuse of pregabalin or gabapentin. The primary outcome was to investigate the number of patients relapsed on gabapentin or pregabalin versus the control group. A post hoc analysis was completed to assess if patients prescribed higher dosages of gabapentin were more likely to relapse. **Results:** Of the 832 patients included in the study, 603 patients relapsed. In the gabapentin group, 208 of the 290 patients relapsed. In the pregabalin group, 7 of the 11 patients relapsed. In the control group, 388 of the 531 patients relapsed. There was no significant difference in the number of patients relapsed between the control group versus the gabapentin group (95% CI = 0.765-1.488, $P = .6831$). The pregabalin group failed to meet predetermined sample size. There was a significant difference between the number of patients relapsed between patients who completed SATP versus patients who did not complete SATP (95% CI = 0.0878-0.406, $P = .0000015$). There was no difference in relapse in those prescribed high-dose versus low-dose gabapentin (95% CI = 0.807-2.565, $P = 0.2039$). **Conclusions:** Patients prescribed gabapentin at any dose were no more likely to relapse than patients not prescribed gabapentin. No changes to gabapentin and pregabalin prescribing were made at our facility. Providers are encouraged to continue referring patients with substance use disorders to programming.

Antipsychotic Titration and Response in Acute Psychiatric Episodes: The ATRAPE Prospective Cohort Study

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Abstract Type: Original Research. **Background:** Patients with acute psychotic or manic episode receive many psychotropic drugs to manage agitation, insomnia, and their primary condition. Clinicians sometimes titrate antipsychotics rapidly toward therapeutic doses to speed up the response or sometimes favor conservative titration to ensure better tolerability. Most guidelines do not provide specific information on the best way to initiate an

antipsychotic or how to combine tranquilizers with the main treatments. Prescription patterns vary according to the patient's characteristics and the prescribers' experience. Response to treatment evolves according to different trajectories, and data on the association between those trajectories and the different prescription patterns are nonexistent. **Objective:** Explore the prescription patterns and response trajectories during hospitalization in patients with an acute psychotic or manic episode. **Methods:** Observational, prospective, single-arm cohort pilot study. The prescription patterns were obtained with the collection of antipsychotic doses (maintenance and as-needed therapy) between admission and hospital discharge. The response trajectory was defined as the variation over hospital stay of the Brief Psychiatric Rating Scale (BPRS-26). **Results:** A total of 37 patients were included in the study. Three prescription patterns were identified: mean olanzapine equivalent dose at week 1 of 6.9 mg in group 1, 10.4 mg in group 2, and 16.0 mg in group 3. A therapeutic response was achieved in 16.7% of patients in group 1, 33.3% in group 2, and 100% in group 3, with a statistically significant relation between group and response. Patients stayed a mean of 17.3 days in group 1 compared with 42.1 in group 2 ($P = .034$) and 59.5 in group 3 ($P = .008$). **Conclusion:** There is heterogeneity in the prescription patterns. The group with the larger antipsychotic doses had longer length of stay and was able to achieve better therapeutic response before discharge.

Aripiprazole Lauroxil Dosing: Simplifying the Options for Individual Patients

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Abstract Type: Original Research. **Background:** Aripiprazole lauroxil (AL) is a long-acting atypical antipsychotic for the treatment of schizophrenia, with efficacy initially established in a pivotal study of 2 doses, 441 mg and 882 mg every 4 weeks (q4wk). These doses then established the upper and lower ranges of plasma aripiprazole concentrations associated with the known efficacy for AL therapy. Since then, pharmacokinetics (PK) modeling has resulted in the approval of 3 other AL regimens: 662 mg q4wk, 882 mg q6wk, and 1064 mg q8wk. These 5 regimens, therefore, consist of 4 separate dose strengths and 3 separate injection intervals. This offers clinicians a range of aripiprazole concentrations and the flexibility to tailor dose intervals to the individual patient. However, clinicians may find it challenging to integrate dose strength and dose interval when recommending a specific AL dosing regimen for an individual patient. **Objective:** To outline a simple strategy for selecting an appropriate AL regimen, considering how the PKs resulting from the various available dosing intervals and dose strengths relate to each other. **Methods:** Plasma aripiprazole concentrations were simulated based on a population PK model derived from observed data for the 5 available AL regimens. The effect of a combined dose strength and dosing interval on steady-state plasma aripiprazole concentrations is described. **Results:** All 5 AL regimens achieve steady-state plasma concentrations within the upper and lower ranges established in the pivotal efficacy study. The key concept is that the specific AL regimen selected can be based on choosing one of the approved combinations of the 3 dose intervals (monthly, every 6 weeks and every 2 months) and the 4 dose strengths (441, 662, 882, and 1064 mg) that best matches the clinical needs of the patient. The 3 dose interval/dose strength combinations that deliver plasma concentration exposures between that of the 441 mg q4wk and 882 mg q4wk regimens (662 mg q4wk, 882 mg q6wk, and 1064 mg q8wk) provide comparable steady-state aripiprazole concentrations. **Conclusion:** The multiple dosing regimens available for AL allow clinicians the flexibility to individualize the AL regimen.

Assessing Mental Health Knowledge Amongst Historically Black College and University (HBCU) Students

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Abstract Type: Original Research. **Background:** According to the 2017 American Psychiatric Association, approximately 18% of US adults have a diagnosable mental disorder. Of the US population, 13.3% are identified as African Americans, and of those more than 16% had a diagnosable mental illness in the past year. People from racial or minority groups are less likely to receive access to care due to access to care, stigma, inadequate support for services, and more. Particularly, African American males are less likely to seek help from mental health services because of being stigmatized. Additionally, according to a study conducted by Ward et al, African Americans are hesitant to get help because of their trust in providers. Despite documented disparities in mental health treatment in African Americans and Hispanic populations, there is a paucity of literature devoted to the opinions and knowledge of mental illness in Historically Black Colleges and Universities (HBCUs). Based on current literature on minorities in regard to cultural opinion of mental health, we hypothesize that there is a lack of utilization in mental health resources on an HBCU campus. **Objectives:** To establish baseline knowledge and utilization of resources at an HBCU in order to effectively promote and develop

mental health interventions for students. **Methods:** A total of 271 students attending Xavier University of Louisiana (XULA) were randomly recruited from a student body of 2293 students to complete a survey that assessed perceptions of personal mental health, opinions on the current state of mental health, and knowledge of available resources. All students currently enrolled at XULA were eligible for participation. Consent was obtained by the researchers prior to the survey, and confidentiality was ensured by submission of the anonymous survey, with results hidden. The primary outcome of this analysis is to assess the perception and utilization of mental health resources among students at an HBCU. **Outcomes:** We will conduct a statistical analysis of the knowledge and utilization of mental health resources at an HBCU based on classification, race, age, and gender. The 5-question survey, composed of personal mental health, opinions on mental health, and knowledge of available resources, will be reported by number and percent.

Assessing the Social Distance Between Pharmacists and Patients With Substance Use Disorder

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Abstract Type: Original Research. **Background:** Often, patients with substance use disorder (SUD) fail to receive treatment because of the perceived stigma of health care professionals, such as pharmacists. Currently, there are no data that focus on pharmacists and stigma toward patients with SUD. It is unknown if this relationship is strained due to social distance. **Methods:** Pharmacists who attended a 3-hour training related to opioids and naloxone were recruited to participate in a survey prior to the training. Exclusion criteria included being a pharmacy student, not currently practicing, and not completing the entire survey. The survey consisted of 8 demographic questions, 15 work practice questions, and 6 questions pertaining to social distance that were designed based on the Social Distance Scale (SDS). The SDS identifies a person's willingness to interact with an individual with SUD by utilizing scenarios and a 5-point Likert scale to rate each interaction, ranging from 1 = definitely unwilling to 5 = definitely willing. Lower scores are associated with a greater preference for social distance between the pharmacist and patient with SUD, and therefore a larger degree of stigma. **Results:** A total of 172 participants took the pretraining survey. The participants' responses were recorded and the total of the 6 SDS questions was summed to give an overall SDS score. The total SDS scores ranged from 13 to 27, with a mean score of 19.68. The most evident correlation was between the SDS scores and age, with older pharmacists having lower scores: twenties (20.34), thirties (19.67), forties (19.48), fifties (19.42), sixties (19.39), and seventies (18.00). Female pharmacists were more likely to have a lower SDS score when dealing with personal matters like renting a room to a person with SUD, and higher scores for questions like counseling patients with SUD versus male pharmacists in the same situations. It was also noted that pharmacists who believed that patients with SUD require excessive time and effort had lower SDS scores compared with pharmacists who disagreed with that statement or were neutral. **Conclusion:** These results can be used to design targeted interventions toward specific groups of pharmacists to reduce stigma toward patients with SUD and improve the care provided.

Assessment of Pharmacy Student Attitudes and Beliefs Toward Patients With Mental Illnesses on Inpatient Psychiatric Units

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Abstract Type: Original Research. **Purpose:** People with mental illness continue to face stigma, despite these illnesses being common in the United States. As future health care professionals, pharmacy students will serve this patient population, regardless of practice setting, throughout their careers. In order to best prepare pharmacy students, it is important to identify what level of stigma students possess and whether exposure to patients with mental illnesses during pharmacy school can help reduce stigma. The primary objective of this study was to compare Opening Minds Stigma Scale for Health-care Providers (OMS-HC) total scores before and after completion of an advanced pharmacy practice experience (APPE) at an inpatient psychiatric hospital. **Methods:** This was a prospective, multicenter, survey study of pharmacy students on an APPE rotation at an inpatient psychiatric hospital conducted during 3 academic years. After providing informed consent and prior to starting their rotation, the participants completed the OMS-HC and provided demographic information. At the end of the rotation, the participants completed the OMS-HC and provided information about activities completed during their experience. Wilcoxon signed rank test and McNemar test were used to assess for differences between outcome measures. **Results:** A total of 26 students participated in the prerotation survey, with 88.5% (n = 23) of those completing the postrotation survey. The primary outcome showed a significant decrease in total OMS-HC score ($Z = -2.376$, $P = .017$), indicating a decreased level of stigma at the completion of the APPE rotation. Analysis of

the subscales of the OMS-HC for attitudes of health care providers toward people with mental illness and attitudes of health care providers toward self-disclosure of a mental illness also yielded significant decreases ($Z = -2.425$, $P = .015$; $Z = -2.462$, $P = .014$, respectively). **Conclusions:** Future pharmacists may have stigma toward patients with mental illness, which could impact the care they provide. This study showed that APPE rotations at inpatient psychiatric hospitals may help decrease stigma among pharmacy students. Pharmacy schools should consider increasing access to and encouraging completion of psychiatric pharmacy rotations to help reduce stigma prior to graduation.

Assessment of Plasticity-Related Proteins in the Hippocampus in Alcohol-Dependent Rats During Abstinence

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Abstract Type: Original Research. **Purpose:** The current standard pharmacotherapy to reduce alcohol relapse (disulfiram, naltrexone, and acamprosate) acts as aversive and anticraving agents and provides only moderate efficacy for patients suffering from alcohol use disorder. Due to current knowledge gaps in the neuropathology for the propensity of relapse, there is no current therapy available to treat the underlying neurologic mechanism for alcohol relapse. In this study, we investigated the synaptic and neuronal changes in the dentate gyrus of the hippocampus in rats made dependent to alcohol during days to weeks of forced ethanol vapor inhalation followed by withdrawal and protracted abstinence. **Methods:** Twenty-four male Wistar rats underwent chronic intermittent ethanol vapor inhalation (CIE) that produces an alcohol-dependent phenotype. Following the CIE procedure, rats were killed at 4 time points during abstinence, which include: 1 day (1d), 7d, 21d, and 42d. Twenty-five CIE-naive adult male Wistar rats were used as controls for each time point. The brain tissue was collected, preserved, and used for Western blotting. Membranes were incubated with antibodies for phosphorylated calcium calmodulin kinase at Tyr-286 (pCaMKII), total CaMKII (tCaMKII), and the GABAa receptor subunit. Immunoreactivity and the percent of protein expression that is present in the experimental samples, compared with the control sample, were measured and assessed. **Results:** There were significant ($P < .05$) alterations in all 3 proteins, specifically at the 21d time point. At this time point, there was significant increases in both pCaMKII and tCaMKII expression, and a significant decrease in GABAa expression compared with controls. Additionally, there was a significant increase in the expression of calmodulin kinase at Tyr-286 at the 42d time point. **Conclusions:** At the 21d time point, the inhibitory neurotransmitter, GABAa, is significantly reduced, indicating a hyperexcitability state. This is further supported by the significant increase in pCaMKII expression in rats that abstained from alcohol for 21 days and 42 days, suggesting increased glutamate activity and excitability in the hippocampus. The state of hyperexcitability seen in the hippocampus within 21 days of abstinence suggests that the increased propensity for relapse at this time point is triggered as a means to curb the neurotransmitter imbalance following withdrawal or prolonged abstinence.

Association of Appropriate Lithium Monitoring and Clinical Outcomes in an Outpatient Psychiatric Setting

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Abstract Type: Original Research. **Purpose:** Lithium is widely used for controlling mood disorder symptoms. Due to its pharmacokinetic and toxic properties, regular therapeutic drug monitoring is recommended to evaluate lithium safety. Lithium can potentially cause serious renal adverse effects, hypothyroidism, and electrolyte disturbances. The Agency for Healthcare Research and Quality (AHRQ) Psychiatry Guidelines have identified quality measures for lithium monitoring. This study investigated appropriate monitoring of lithium in outpatient psychiatry clinics at an academic medical center. **Methods:** This was a retrospective medical record review of patients who were prescribed lithium for at least 6 months during an outpatient psychiatry clinic visit between August 1, 2017, and August 1, 2018. The primary outcome was the percentage of patients with recorded lithium levels in the preceding 4 months of the initial lithium prescription. Secondary objectives included (1) percentage of patients on lithium with recorded serum creatinine (Scr), thyroid-stimulating hormone (TSH), and serum sodium (Na) levels in the preceding 9 months, and (2) number of patients with supratherapeutic or subtherapeutic levels of lithium with associated clinical interventions in response to the lithium level. Comorbidities and concomitant medications that may interact with lithium were also reviewed. Outcomes were analyzed with descriptive statistics and χ^2 tests. **Results:** Of the 73 patients, most were white (77%), female (54%), and had mean age of 43 ± 17 years. Most patients (70%) did not have a lithium level in the preceding 4 months of the lithium prescription. In addition, 56%, 53%, and 55% of Scr, TSH, and Na levels, respectively, were drawn in the preceding 9 months while on lithium therapy. The most common comorbidity was hypertension, and 25% of patients received concomitant

nonsteroidal anti-inflammatory drugs. Three patients had lithium levels resulting in out-of-target range: 1 supratherapeutic level at 1.6 mEq/L resulting in a decrease in dose, and 2 subtherapeutic levels at 0.4 mEq/L with no changes in dose. **Conclusions:** The frequency of appropriate lithium monitoring in outpatient psychiatry clinics at our medical center was lower than current AHRQ Guidelines recommendations. There is a need for further investigation, and potentially the implementation of timely monitoring of patients on lithium therapy within outpatient psychiatry clinics.

Association of Proton-Pump Inhibitor Use With Neurological Disorders Using Postmarking Data Analysis

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Abstract Type: Original Research. **Background:** Proton pump inhibitors (PPIs) are one of the most widely prescribed and sold drugs globally. Recent studies have revealed associations between PPI use and neurologic adverse events (AEs), including Alzheimer disease, whereas other studies have shown that the risk is not significant. The growing concern over potentially serious neurologic AEs associated with PPI use warrants an evaluation of postmarketing surveillance of US Food and Drug Administration Adverse Event Reporting System (FAERS) data sets. **Objective:** The goal of this study was to evaluate PPI postmarketing AE reports from FAERS for any significant risk of neurologic disorders. **Methods:** This is a retrospective study of 10.3 million voluntary AE reports to the FAERS from January 2004 to March 2018. Two cohorts were constructed from these reports: (1) PPI (n = 723 696) and (2) histamine receptor antagonists (H2Ras; n = 162 189). Any report of patients taking concurrent medications was excluded, resulting in 42 537 PPI and 8309 H2RA AE reports for analysis. Neurologic AE outcomes investigated were migraine, seizures, neuropathy, and visual, hearing, and memory impairment, defined by coding data. Frequencies of all reported AEs and corresponding odds ratios (ORs) were calculated in each cohort. **Results:** Patients who received PPIs had a significant increase in the number of reports for neurologic AEs. Hearing impairment (OR = 11.6, 95% CI = 5.2, 26.1) and neuropathy (OR = 8.6, 95% CI = 3.8, 19.5) had the greatest association with PPI use. Memory impairment (OR = 3.3, 95% CI = 2.3, 4.7), migraine (OR = 2.2, 95% CI = 1.3, 3.7), visual impairment (OR = 1.8, 95% CI = 1.4, 2.4), and seizures (OR = 1.5, 95% CI = 1.1, 2.2) also showed significant associations with PPI use compared with the H2RA cohort. **Conclusion:** In this study we demonstrated the association between PPI exposure and the increased risk of a broad spectrum of peripheral, central, and sensory neurologic disorders. To our knowledge, this is the first large-scale study showing a significant association of PPI use with a wide array of neurologic side effects using FAERS data sets.

Benefit of Naltrexone Therapy in Veterans With Methamphetamine Use Disorder

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Abstract Type: Original Research. **Background:** Within the United States, more than 12 million people have reported using methamphetamine in their lifetime. Usage has also increased within the veteran population aged 18 to 25 years. Pharmacologic treatment options for methamphetamine use disorder (MUD) are unclear. Ongoing research suggests naltrexone shows promise for management of MUD, which is thought to be related to it binding opioid receptors within the dopamine reward pathway. **Objectives:** We assessed if naltrexone improved rates of and time to relapse, along with health service utilization (HSU) and cravings in veterans with MUD and comorbid alcohol use disorder (AUD) and/or opiate use disorder (OUD). **Methods:** We conducted a retrospective study on patients who received care from the VA San Diego Healthcare System between January 1, 2012, and December 31, 2016. Demographic, clinical, and HSU information, including urine drug screens, Brief Addiction Monitor (BAM) scores, emergency department visits, and hospital admissions, were collected automatically via the Microsoft SQL platform. **Results:** A total of 97 of 654 patients who met criteria for this study were on naltrexone. Significant differences were seen between the control and naltrexone groups, respectively, in age in years (48.2 ± 11.2 versus 43.5 ± 12.1, $P = .001$), posttraumatic stress disorder rates (42% versus 56%, $P = .011$), and time to first relapse in days (100 ± 99 versus 185 ± 107, $P = .002$). Rates of relapse and HSU were 23% versus 15% ($P = .054$) and 10% versus 8% (not significant [NS]), respectively. Median number of relapses was 1.00 ± 1.12 and 2.00 ± 1.75 (NS) between naltrexone and control groups, respectively. Improvement in BAM scores for questions favored naltrexone for questions 4, 6, and 7D, whereas results favored control for questions 8 and 9. **Conclusions:** Prescription of naltrexone was associated with lower rates of and time to first relapse as well as decreased cravings, as evidenced by fewer days of illegal street drug and methamphetamine use. We attribute unanticipated outcomes, such as higher rates of relapse and HSU with the naltrexone group, to sample size

differences between our groups. Additional limitations included inconsistent BAM administration and potential confounding due to inclusion of AUD and OUD. Nonetheless, naltrexone's theoretical, coupled with our observational, benefits warrant further examination of its utility as a treatment for MUD.

Changes in Skeletal Muscle DNA and RNA Methylation Modifications May Associate With Psychiatric Disease, Psychopharmacologic Treatment and Hemoglobin A1C

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Abstract Type: Original Research. **Introduction:** Both severe mental illness and atypical antipsychotics have been independently associated with insulin resistance. The molecular mechanisms by which this occurs are poorly understood; however, altered regulation of the genome through DNA and RNA methylation may play a role. The skeletal muscle is the primary tissue for glucose uptake, and its dysregulation is considered a primary feature in insulin resistance. We aimed to evaluate DNA and RNA methylation modifications in human skeletal muscle samples to further understand its potential role in observed insulin resistance in psychiatric patients and drug treatment. **Methods:** Participants were included in our study if they had a bipolar diagnosis and were currently treated for 12 or more weeks with a mood stabilizer or atypical antipsychotic. A healthy control group free of physical or psychiatric disease was also included for comparisons. Anthropometric and hemoglobin A1C values (HbA1C%) were measured. Fasting skeletal muscle biopsies were obtained, and methylation levels of 5-methycytosine (5-mC), 5-hydroxymethylcytosine (5-hmC), 5-formylcytosine (5-fC), and N6-methyladenosine RNA (m6A) were obtained using enzyme-linked immunosorbent assays. Methylation levels were normalized and compared between groups using analysis of variance and post hoc Tukey tests. The association between blood glucose levels and global skeletal methylation was analyzed using Pearson correlations, with $P < .05$ considered statistically significant. **Results:** A total of 28 bipolar patients (13 on atypical antipsychotics; 15 on mood stabilizers) and 13 healthy controls were included. The average age of all bipolar patients was 43.7 $\pm$ 13.9 years, 43% were male, and 61% were white. The healthy control group was younger and had lower HbA1C%. Skeletal muscle global methylation of 5-mC, 5-fC, and RNA m6A showed statistically significant difference between bipolar and healthy controls groups and was influenced by treatment type. Significant correlations between measured methylation variables and HbA1C% was observed for 5-mC and 5-fC. **Conclusion:** Our study is the first to suggest that psychiatric disease and treatment may influence various methylation levels in the skeletal muscle of patients with bipolar disorder. Future work will need to replicate and identify gene-specific differences.

Clinical Outcomes of Patients Treated With Paliperidone Palmitate Initiated in the Inpatient Setting: A 4-Year Mirror Image Study

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Abstract Type: Original Research. **Background:** Randomized studies have shown that the use of long-acting injectable (LAI) antipsychotics reduces relapse rates compared with oral antipsychotics. Mirror-image studies of LAIs compare a period of oral antipsychotic treatment with a subsequent period of treatment with an LAI in the same patient population and may be more representative of patients in "real world" clinical practice. **Methods:** This retrospective mirror-image study compared the number of inpatient admissions, length of stay, and number of psychiatric emergency visits in patients who were prescribed paliperidone palmitate LAI for a period of 2 years after starting the medication compared with 2 years prior. Patients at least 18 years of age who received at least 1 initiation dose of paliperidone palmitate during an inpatient admission from November 1, 2010, through February 29, 2016, were included. Subanalyses were completed based on patient age, substance use, and diagnosis. **Results:** A total of 147 patients were included in the analysis. Overall, the mean number of hospital admissions decreased from 1.35 admissions per person to 1.12 after starting paliperidone palmitate, but this difference was not statistically significant ($P = .2170$). The mean number of psychiatric emergency visits per patient decreased from 0.89 to 0.67, and the total number of inpatient days decreased by 1.7 days per patient, but these differences were not significant ($P = .1063$ and $P = .3283$, respectively). Of the subanalyses performed, the only statistically significant outcomes found were a decrease in emergency visits in patients older than 35 years ($P = .0370$) and in patients with a diagnosis other than schizophrenia or schizoaffective disorder ($P = .0461$). **Conclusion:** Treatment with paliperidone palmitate did not seem to improve clinical outcomes aside from a small

decrease in psychiatric emergency visits in certain patients.

Closing the Gap: Pharmacist-Led Education Sessions to Raise Awareness and Perceived Proficiency of Healthcare-Associated Personnel Regarding Care of the Transgender Patient

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Abstract Type: Original Research. **Background:** Caring for the transgender patient requires knowledge of population-specific needs and risk factors. In a recent nationwide survey of pharmacy school administrators, most responders reported no coverage of lesbian, gay, bisexual, and transgender health content in their curricula. To address this gap, a pharmacist-developed transgender-care focused seminar will be presented to medical professionals and students, with an accompanying survey to provide data on participants' self-perceived proficiency before and after education. **Objectives:** (1) Identify areas of deficiency in providing exceptional care to transgender patients, and (2) assess effectiveness of pharmacist-led education in improving perceived proficiency of health care–associated personnel. **Methods:** The study will assess whether a 30- to 45-minute pharmacist-delivered seminar increases various health care–associated personnel's self-perceived proficiency in medical care of the transgender patient via survey administration before and after a seminar. The seminar will be presented to groups of health care professionals and trainees in a variety of settings by a pharmacy resident via Microsoft PowerPoint. Subjects covered by the seminar include terminology, Diagnostic and Statistical Manual of Mental Disorders, 5th edition; diagnostic criteria for gender dysphoria; prevalence of gender dysphoria; non–hormone therapy modalities; gender-affirming hormone therapy; and other primary care–related considerations. A survey of 8 questions with responses measured via a Likert scale from 1 to 5 will be used to assess participants' self-perceived proficiency regarding care of transgender patients. The same set of questions will be assessed immediately before and after a seminar, with 2 additional questions in the postsurvey, also on a Likert scale from 1 to 5, that assess the participants' confidence level and the direct clinical applicability of the seminar. Results of the surveys will be compiled and analyzed utilizing various descriptive statistical methods. **Outcomes:** We will report the number of participants who completed a seminar and the accompanying survey. Participants will be identified by occupation/status only (eg, medical resident, pharmacy student). Survey data will be analyzed to assess which areas were improved or unchanged from baseline, participants' confidence level, and perceived direct clinical applicability.

Combination of Olanzapine and Samidorphan Does Not Have a Clinically Significant Effect on the Pharmacokinetics of Lithium and Valproate

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Abstract Type: Original Research. **Background:** A combination of olanzapine and samidorphan (OLZ/SAM) is being developed for the treatment of schizophrenia and is being considered for development in bipolar I disorder as a monotherapy or as an adjunct to lithium or valproate. Samidorphan is an opioid receptor antagonist and is included in the OLZ/SAM combination to mitigate olanzapine-induced weight gain. **Objectives:** This study was conducted to assess the effects of multiple doses of OLZ/SAM on the pharmacokinetics of lithium and valproate, and to assess the safety and tolerability of concomitant administration of OLZ/SAM and lithium or valproate. **Methods:** Thirty-four healthy participants were assigned (1:1) to 1 of 2 treatment cohorts to receive twice-daily (AM and PM) doses of 300 mg of lithium (cohort 1) or 500 mg of valproate (cohort 2) on days 1 to 6, an AM dose of lithium or valproate on day 7, and once-daily (AM) oral doses of OLZ/SAM (10 mg of olanzapine/10 mg of samidorphan) on days 8 to 18. Participants resumed twice-daily doses of lithium or valproate on days 12 to 17, and then an AM dose along with OLZ/SAM on Day 18. Serial blood samples were collected prior to and after dosing of lithium or valproate on days 7 and 18. Ratios of geometric means of maximum concentration (C_{max}) and area under the curve (AUC) 12h of lithium or valproate in the presence versus in the absence of OLZ/SAM were compared using a mixed-effect model. No clinically significant effect of OLZ/SAM on the pharmacokinetics of lithium or valproate would be concluded if the 90% confidence intervals (CIs) for the ratios were within the equivalence interval of 80% to 125%. **Results:** The 90% CIs for the ratios of geometric means, in the presence and absence of OLZ/SAM, were within the equivalence interval of 80% to 125% for both C_{max} and AUC12h of lithium and valproate. Coadministration of OLZ/SAM and lithium or valproate was generally well tolerated. All reported adverse events (AEs) were mild or moderate in severity, and the most common AEs were somnolence and dizziness. **Conclusions:** Administration of multiple doses of OLZ/SAM did not have a clinically significant effect on the pharmacokinetics and safety profiles of lithium and valproate. The finding supports the concomitant use of OLZ/SAM with lithium or valproate.

Community Pharmacists' Engagement in Co-Dispensing Naloxone With Prescription Opioids

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Abstract Type: Original Research. **Purpose:** The objective of this study was to evaluate community pharmacists' engagement in codispensing naloxone to patients receiving prescription opioids and opioid replacement therapy as a strategy to reduce the incidence of accidental overdose. **Methods:** This National Institutes of Health–funded study was approved by the university's Institutional Review Board. Based on earlier qualitative work with pharmacists and prescribers, a paper-based survey instrument was developed to assess community pharmacists' behaviors and perceptions regarding codispensing naloxone in scenarios involving patients receiving opioid replacement therapy and patients prescribed a benzodiazepine and opioid analgesic simultaneously. Given 10 such patients, pharmacists were asked the number of patients with whom they would discuss codispensing naloxone (0 = never, 1-9 = sometimes, 10 = always). Demographic items were also included. The questionnaire was mailed to 2290 randomly selected community pharmacists who practice in the state of Tennessee, using a 4-wave Tailored Design Method approach. Small nonmonetary incentives valued at less than $2 were included in the initial mailing. Statistical analyses were performed using SPSS version 25. **Results:** The survey was completed by 433 community pharmacists (19% response rate) averaging 20.84 ± 14 years of community practice experience. Most participants (67.3%) indicated they had dispensed naloxone for opioid overdose reversal at least once in their career. However, when asked whether or not they would codispense naloxone to a patient being started on picking up a buprenorphine/naloxone prescription, 54.48% of pharmacists indicated that they would never discuss naloxone codispensing. For a patient attempting to fill a prescription for both a prescription opioid and a benzodiazepine, only 21.38% of pharmacists indicated that they would discuss naloxone with all 10 of 10 patients. Less than 7% of pharmacists strongly agreed their pharmacist peers discuss codispensing naloxone with their patients, and fewer than 16% of participants felt that discussing naloxone was expected of them. There was no difference in codispensing behaviors across pharmacists' perceptions of the privacy (private versus not private) of their counseling area ($P = .48$). **Conclusion:** Community pharmacist engagement in naloxone codispensing conversations is limited, even in situations that could be considered high risk. Future research is warranted to understand drivers of pharmacist behaviors, and to develop interventions that increase engagement in overdose prevention.

Comparison of Long-Acting Injectables in the Treatment of Mental Illness to Prevent Hospital Readmission in Less Than 30 Days After Discharge: A Retrospective Study

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Abstract Type: Original Research. **Purpose:** Long-acting injectable antipsychotics (LAIs) have been established since the 1960s. They were developed to improve medication adherence and reduce relapse. However, there is limited information when comparing LAIs in terms of their effectiveness in reducing hospital readmission. This retrospective study compared different LAIs in hospital readmission in <30 days in an acute care psychiatric hospital. **Methods:** Retrospective study of 607 patients ages ≥18 years with DSM-V criteria for bipolar I (n = 28), bipolar II (n = 26), bipolar mixed (n = 56), major depressive disorder (MDD) with psychosis (n = 41), MDD without psychosis (n = 10), psychosis (n = 165), schizoaffective disorder (n = 113), and schizophrenia (n = 168). Treatment outcomes of 4 LAIs—Abilify Maintena (AM), Aristada (AR), Haldol Decanoate (HD), and Invega Sustenna (IS)—were compared using data from the pharmacy dispensing the LAIs' tracking log from July 2016 to September 2018. Exclusion criteria included patient refusal for LAI and missed second loading dose of IS injection. The primary objective of the study was to compare the efficacy of LAIs in preventing hospital readmission in <30 days after discharge. Additionally, we examined whether patient diagnosis impacted hospital readmission. **Results:** A total of 607 patients who used AM (n = 198), AR (n = 68), HD (n = 106), and IS (n = 235) during the index hospitalization were analyzed. The IS group had significantly the lowest rate of readmission within 30 days (6.8%, $P = .028$). Logistic regression showed that the likelihood of being readmitted to the hospital within 30 days was 2.1 and 3.2 times higher for patients on AM and AR, respectively, compared with patients on IS (OR = 2.11; 95% CI = 1.07-4.17; $P = .031$; and OR = 3.16; 95% CI = 1.36-7.33; $P = .007$). The HD group had a lower likelihood of readmission compared with IS; however, there was no significant difference (OR = 0.70; 95% CI = 0.23-2.10; $P = .522$). There was no statistical difference in readmission <30 days by diagnosis. **Conclusion:** Among the 4 LAIs compared, Invega Sustenna was the most effective at reducing psychiatric hospital readmission in <30 days. Overall, LAIs are beneficial in preventing hospital readmission in <30 days.

Effect of a Simulation Experience on Anxiety, Confidence in Communication and Knowledge in Second Professional Year Student Pharmacists During a Neuropsychiatry Pharmacotherapy Module

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Abstract Type: Original Research. **Purpose:** Use of simulation in education has been increasing across health profession schools and therapeutic areas. Simulation provides realism while allowing students to make mistakes without causing patient harm. Use of high-fidelity simulators has been limited in psychiatric disorders due to a mannequin's inability to manifest psychiatric symptoms, such as depression or mania. There are scarce data supporting the use of standardized patients in psychiatric disorders in achieving educational outcomes. This study describes an educational intervention of simulation experiences using standardized patients and its impact on student pharmacists' anxiety, confidence in communication, and knowledge in psychiatric disorders. **Methods:** Seventy-three second professional year student pharmacists participated in 2 simulation activities during their neuropsychiatry pharmacotherapy module. First simulation experience was interviewing a standardized patient with alcohol use disorder and intimate partner violence. Second simulation experience was conducted with a standardized patient with schizophrenia. In both experiences, students were instructed to assess mental status and collect medication history. At the completion of the activities, students were asked to fill out a survey on their self-perception of anxiety, confidence in communication, and knowledge of psychiatric disorders comparing before and after simulation experience (retrospective pretest). The survey questions were developed by the author and used a numeric scale of 0 to 10 for the assessment of each of the areas. Students were asked if they had a prior negative experience with individuals with psychiatric disorders. **Result:** Sixty-two students completed the survey (response rate 85%). Most notable improvement was in the knowledge in psychiatric disorders (improvement by 2.6 on a 0-10 scale), followed by confidence in communication (improvement by 1.5) and anxiety (0.4). The baseline scores were not correlated with a previous negative experience with individuals with psychiatric disorders (correlation 0.142, −0.151, and −0.032, respectively). **Conclusion and Future Direction:** Simulation using standardized patients was associated with increased knowledge in psychiatric disorders and confidence in communication in second professional year student pharmacists during a neuropsychiatric pharmacotherapeutic module. It is unknown if a prior negative experience with individuals with psychiatric disorders would have an impact on the baseline score for the measured areas due to a small sample size.

Effect of New Jersey State Electronic Prescription Monitoring Mandate on Gabapentin Prescribing Pattern

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Abstract Type: Original Research. **Background:** Concerns have arisen in recent years over increasing instances of abuse on gabapentin, a federally noncontrolled prescription medication that is nonaddictive but can be misused to enhance the effects of opioids and other addictive drugs. Effective May 7, 2018, the New Jersey (NJ) Division of Consumer Affairs amended the Prescription Monitoring Program (PMP) rules to require New Jersey licensed pharmacies and a select number of registered out-of-state pharmacies to electronically transmit information to the NJPMP regarding prescriptions filled for gabapentin. The purpose of this study is to describe our practitioner's prescribing pattern of gabapentin prior to and in the months following the NJPMP. **Methods:** This study is a retrospective, descriptive analysis of the prescribing patterns of gabapentin at an acute psychiatric hospital 85 days prior to and the 85 days following the amended NJPMP on May 7, 2018. Doses administered were identified through an electronic health record for all gabapentin strengths, formulations, and number of doses given. Inclusion criteria were any gabapentin prescriptions for all patients during the study period. There were no exclusion criteria. An independent samples *t* test will be completed to compare the means of the 2 independent groups. All statistical tests are 2-sided, and a *P* value of $<.05$ was considered to indicate statistical significance. **Results:** In the 85 days studied prior to the amended NJPMP, the facility saw 264 patients who were prescribed gabapentin, and 5102 doses were dispensed. In the same 85 days following the NJPMP, the facility saw 223 patients on gabapentin, and 3956 doses of gabapentin were dispensed. There was a notable statistically significant ($P < .05$) decrease in prescriptions post-PMP for the number of patients who received gabapentin. **Conclusions:** There was a significant decline of prescribed gabapentin from our facility after the NJPMP went into effect. The number of doses given for 10 of the 11 strengths per dose of gabapentin decreased, and the number of patients who were given gabapentin in our facility also showed a decrease.

Evaluation of Anxiety in Doctor of Pharmacy Students in Their First Through Fourth Professional Years

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Abstract Type: Original Research. **Purpose:** There is a paucity of literature adequately describing the prevalence of anxiety among doctor of pharmacy students in their professional years. Anecdotally, anxiety is frequently reported among students and carries the potential of adversely impacting student performance. If severe enough, anxiety could impact student performance and negatively affect exam results. The primary aim of this study is to describe the prevalence of self-reported anxiety among first professional year (P1) through fourth professional year (P4) doctor of pharmacy students using a survey containing the Zung Self-Anxiety Scale (SAS). The secondary aims are to detail the proportion of students with clinically significant anxiety and compare findings among P1 to P4 students. **Methods:** A survey was shared via social media to all P1 to P4 students at a college of pharmacy. Questions from the SAS were built into the survey along with general demographic questions. The survey assessed the prevalence and severity of anxiety in P1 to P4 students. Both index and raw SAS scores were calculated. Clinically significant anxiety was defined as a raw score >36 or an index score >45. All responses were voluntary, and participants remained anonymous. **Results:** A total of 200 students responded to the survey. The median raw and index SAS scores for all respondents were 41 (interquartile [IQ] range, 32-48) and 51 (IQ range, 40-60), respectively. A total of 129 students (64.5%) were found to have clinically significant anxiety. Reported symptoms and SAS scores varied in severity by class. The proportion of clinically significant anxiety in each class ranged from 49% (P4, n = 49) to 80% (P2, n = 56). **Conclusions:** More than half of the student respondents in P1 to P4 classes met criteria for clinically significant anxiety. The P3 class had the highest proportion of students with clinically significant anxiety, whereas P4 students had the lowest. Further studies are warranted to determine what factors may contribute to varying anxiety levels at different points in the curriculum.

Evaluation of Concomitant Buprenorphine and Opioid Orders in an Academic Medical Center

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Abstract Type: Original Research. **Background:** Buprenorphine is an opioid approved for analgesia and opioid dependence, which has unique agonist-antagonist activity and high binding affinity at the mu receptor. However, nociceptive studies demonstrate that buprenorphine exhibits a bell-shaped dose-response curve. When administered concomitantly with full opioid agonists, buprenorphine will antagonize the full agonist, resulting in suboptimal analgesia. The pharmacokinetic/dynamic data are clear, but the clinical data regarding effectiveness of pain control are mixed and inconclusive. Steps have been taken on the federal and state levels to address outpatient opioid prescribing habits, but prescribing recommendations for inpatient hospitalizations are meager. The Providers' Clinical Support System for Medication Assisted Treatment attempted to bridge this gap in the literature by recommending home buprenorphine be held and replaced with opioids while acutely in pain. **Objective:** The aim of this study is to evaluate prescribing habits around buprenorphine-containing products in the hospital setting compared with guideline recommendations. **Methods:** Patients ages 18 to 64 years with concomitant inpatient orders for buprenorphine and opioids who were admitted to cardiology, family medicine, infectious diseases, and obstetrics services were identified through retrospective chart review from January 1, 2017, to June 20, 2018. **Results:** A total of 101 encounters were included; patients were an average of 46 years of age, and 89% were female. A majority of the patients (85%) were maintained on buprenorphine therapy prior to admission, with 84% of patients being continued on their home regimen. Of the 1750 doses of opioids administered, buprenorphine-containing products were the most common (50%), followed by oxycodone (34%), fentanyl (6%), morphine (6%), hydromorphone (4%), and methadone (1%). A large portion (46%) of the nonbuprenorphine opioids were ordered through standard pain order sets. Pain scores were assessed a total of 3119 times, with an average score of 4 out of 10. **Conclusion and Future Directions:** These data will be utilized to develop an inpatient pain protocol for patients on buprenorphine. A matched, cohort trial comparing milligrams of morphine equivalents utilized by patients on concomitant buprenorphine and opioid therapy versus opioids alone would be needed to further elucidate the clinical effects of this therapeutic duplication.

Evaluation of Pimavanserin Related Mortality in a Veterans Affairs Medical Center

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Abstract Type: Original Research. **Purpose:** During the course of Parkinson disease, approximately 50% of

patients will develop Parkinson disease psychosis (PDP). PDP consists of illusions, hallucinations, and delusions as a result of excess brain activity. Pimavanserin was developed to specifically target serotonin receptors while avoiding dopamine receptors. Postmarket safety is a concern because reports of adverse effects are on the rise. Frequently reported adverse effects consist of hallucinations, confusion, and death. The primary and secondary objectives of this study are to evaluate the 12-month mortality rate of pimavanserin and determine the appropriate use and safety of pimavanserin prescribing patterns at our institution. **Methods:** This is a single-site, retrospective chart review conducted at the Michael E. DeBakey Veterans Affairs Medical Center. All patients with current and past pimavanserin prescriptions were identified using Veterans Health Information Systems and Technology Architecture data. Patients 18 years and older with active pimavanserin prescription within December 1, 2016, through December 1, 2018, were included in the study. Demographic data, pimavanserin indication and refill history, baseline EKG, concurrent psychotropic medications, prescriber type, and progress notes were collected using the Computerized Patient Record System. Information on previous hospitalizations related to mental health, documented adverse reactions, and causes of mortality was also collected. Medication Possession Ratio was calculated for pimavanserin. Descriptive statistics were used to calculate differences in baseline data. **Results:** A total of 29 patients were included; all patients were male, with an average age of 74 years, 79.3% were receiving concomitant Parkinson disease medications, 20.7% were on 1 antipsychotic, 86.2% had a diagnosis of PDP, and 13.8% had a diagnosis of Lewy body dementia. Appropriate baseline EKG was done prior to therapy in 93.1% of patients. Of the 29 patients, 7 hospital visits were for mental health, 22 total hospital admissions, and 8 emergency department visits. Five of the patients on pimavanserin died during or shortly after therapy, resulting in a mortality rate of 17.24%. **Conclusion:** At our facility, we did have mortality with pimavanserin use; however, further research is needed to compare patients who are not on pimavanserin to statistically determine the effect on this patient population's mortality.

Graphic Representation of the Pharmacology of Opioids

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Abstract Type: Original Research. **Purpose:** The current multifaceted opioid crisis, harm-reducing treatment strategies, and the need for effective relief of acute pain have demonstrated the need to understand the complex pharmacology of these agents. For the opioids, the most clinically relevant dimensions are relative receptor binding affinity and functional activity at each of the 3 primary opioid receptors. Minor opioid receptors as well as several other receptor sites, transporters, or ion channels can be important as well. Functionally, medications can bind and act as superagonists, agonists, partial agonists, antagonists, partial inverse agonists, or inverse agonists. The number and types of binding sites complicate understanding the differences between agents. This work expands on the similar models developed for antipsychotics published in *The Mental Health Clinician* in 2017 and for antidepressants presented in poster form at the CPNP Annual Meeting in 2018. **Methods:** Binding data, preferentially human cloned, are obtained from primary literature, product labels, new drug applications, PDSP, and other sources. Median binding affinity data are converted into binding affinity ratios (BARs) relative to the most highly bound opioid receptor and represented as the diameter of a disk. If more than one of the primary opioid receptors is within 1% of the most highly bound, they are shown in a dashed circle, with the radius being the sum of the BARs contained within it. All nonopioid receptors that are bound $\geq$1% of the most highly bound opioid receptor are represented as spokes surrounding the primary opioid receptors. Functional activity is shown by shading each disk as a pie chart. **Results:** Graphic representations of binding and functional data of opioids are shown for all opioids where receptor binding data are available and have a significant use. **Conclusion:** Use of graphic models of psychotropic pharmacology improves clinician comprehension and may serve as an aid to improve rational therapeutics and patient outcomes. By using these alternative models to compare binding of opioids and understand their activity at the opioid and other receptor sites, clinicians can better anticipate the effects of these opioids on their patients.

Idaho Pharmacists' Attitudes, Barriers, and Perceptions of Naloxone Prescribing

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Abstract Type: Original Research. **Background:** In 2015 Idaho passed legislation giving pharmacists naloxone prescriptive authority. Despite the rise in opioid abuse, the need for overdose prevention, and the provision of prescription authority, the rate of naloxone prescriptions by Idaho pharmacists has not risen significantly since the law was passed. **Objectives:** The purpose of this study is to identify the attitudes, barriers, and perceptions of pharmacists regarding naloxone prescribing. **Methods:** A

survey was created using the Theory of Planned Action as a theoretical foundation to measure attitudes, normative beliefs, and control beliefs in relation to prescribing naloxone. Questions were developed to measure behavioral intention, self-reported prescribing behaviors, and barriers to prescribing. An invitation was sent to all pharmacists currently licensed in Idaho to complete an 80-question survey. **Results:** Of the 2612 invitations sent, 374 individuals started the survey and 249 completed it, for a completion rate of 67%. Of the 249, 158 (63%) indicated they are currently practicing in Idaho. The average age was 44 years (SD = 13.37 years), with a mean of 18 years since graduation from pharmacy school. Community pharmacists made up 70% of the sample. Most pharmacists have an overall positive attitude toward naloxone and believe prescribing naloxone would lead to positive outcomes, including reducing the risk of dying from an overdose. Most pharmacists believe it is their responsibility to discuss opioid use and overdose with their patients. Pharmacists believe they have support from their colleagues, employers, and community to prescribe naloxone. Barriers to prescribing naloxone include education about naloxone during the pharmacy school curriculum, the affordability of naloxone, and concerns about liability. In order to prescribe naloxone a pharmacist needs to be knowledgeable, participate in direct patient care activities, and support the availability of naloxone. Most pharmacists intend to prescribe and educate about naloxone; however, many do not believe that their colleagues will prescribe naloxone. **Conclusion:** Although pharmacists themselves have a positive attitude toward naloxone, we have identified some barriers that, if addressed, could increase prescribing rates. We also identified a discrepancy between personal intent to prescribe and perception of colleagues' intent to prescribe.

Impact of a Simulated Auditory Hallucination Exercise Coupled With a Schizophrenia Speaker on Mental Health Stigma in Pharmacy Students

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Abstract Type: Original Research. **Background:** Mental health stigma involves 3 domains: empathy, social distance, and attitudes toward mental illness. Hallucination simulations in education improve empathy but produce mixed effects on social distance and attitudes. Comparatively, direct contact with mental health patients improves social distance and attitudes. Combining hallucination simulation with direct contact may decrease mental health stigma without deleterious effects on social distance and attitudes. The objective of this study was to evaluate the effect of combining direct contact and hallucination simulation on mental health stigma among student pharmacists. **Methods:** A total of 121 student pharmacists at the University of California, San Francisco listened to a presentation by a speaker with schizoaffective disorder and then participated in a modified Hearing Voices exercise, which involved completing tasks while listening to an auditory hallucination simulation. The Opening Minds Stigma Scale for Health Care Providers (OMS-HC) was administered prior to the speaker and after the simulation. Students were asked to describe if and how their perception changed. Wilcoxon signed rank tests and thematic analysis of comments were conducted to identify salient themes. **Results:** Of the 121 students enrolled in the course, 63 of the students (52%) completed pre- and postsurveys. There was a significant decrease in overall OMS-HC score ($P = .005$), indicating a decrease in mental health stigma. There were significant decreases in the attitudes ($P = .004$) and disclosure/help-seeking ($P = .005$) subscales. There was no significant difference in the social distance subscale ($P = .182$). Students described new awareness, reduced stigma, sympathy/empathy, inspiration/admiration, discomfort, and a changed approach to patient care in their comments. Sympathy/empathy was the most common theme, being present in more than 80% of comments and commonly co-occurring with patient care. **Conclusion:** Combining a schizophrenia speaker with a hallucination simulation effectively decreased mental health stigma among student pharmacists, particularly across domains of attitudes and disclosure/help-seeking. Students commonly voiced feelings of sympathy/empathy when describing their changed perception.

Impact of Opioid Overdose Prevention Training and Outreach on Knowledge and Attitudes Among First-Year Pharmacy Students

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Abstract Type: Original Research. **Background:** To address the current crisis of opioid-related overdose deaths, every student pharmacist at the University of Texas at Austin is trained in overdose prevention and response during orientation. We hypothesized this training would result in an increase in knowledge scores and a more favorable attitude score, and that these would be more substantial for students who engaged in voluntary community outreach events. **Objectives:** (1) Assess first-year student pharmacists' overdose-related knowledge

and attitudes prior to, immediately after, and 3 months after initial training. (2) Compare knowledge and attitudes between students who participated in community outreach versus those who did not. **Methods:** First-year student pharmacists were trained in opioid overdose prevention and response via a 60-minute seminar with embedded case scenarios. Students completed an electronic assessment of overdose-related knowledge and attitudes immediately before and after the seminar. They were then given the opportunity to participate in community outreach events to educate members of the local public and distribute free naloxone. Three months after the initial seminar, students were asked to complete the assessment again. **Results:** A total of 117 students completed the pretraining and posttraining assessments, and 51 students completed the follow-up assessment. The cumulative mean knowledge score improved significantly from pre- to post- (46.6% versus 87.4%; SD = 18.0; $P < .001$), then decreased from post to follow-up but remained superior compared with pre. Similar changes were observed in the cumulative mean attitude score. Follow-up knowledge scores did not differ between the 19 students who participated in outreach events and the 32 who did not (70.9% versus 70.2%, $P = .89$). However, attitude scores were significantly higher for those who did participate (4.58 versus 4.34, $P = .043$). **Conclusion:** A 1-hour seminar is effective for achieving sustained improvement in overdose-related knowledge and attitudes among first-year student pharmacists. Participation in community outreach events may contribute to more positive attitudes, but greater immersion is likely needed to result in substantial changes.

Impact of Pharmacist and Student Counseling on Patient Comfort With Naloxone Use

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Abstract Type: Original Research. **Background:** Opioid-related deaths have risen dramatically during the past two decades. Individual states have implemented strategies to restrict the amount of opioids released into the community to deter prescription drug abuse and overdose. Interventions have also been initiated by making naloxone, a pure opioid antagonist, readily available to the public. In North Carolina, the NC Strengthen Opioid Misuse and Prevention (STOP) Act of 2017 includes programming to improve naloxone access. Pharmacists have historically provided counseling for outpatients on proper medication use; the role for inpatient education is generally serviced through patient medication education groups (PMEGs). These groups have been shown to improve patient usage and knowledge about medications in disease states such as hyperlipidemia and diabetes. The Opioid Overdose Knowledge Scale (OOKS) is an accurate indicator of knowledge on this topic and has been validated in previous literature. **Purpose:** Determine the effectiveness of a student and pharmacist-led naloxone PMEG on patient comfort with naloxone **Methods:** Twenty-four patients ages 18 to 65 years admitted to the University of North Carolina Crisis unit and deemed to be "at risk" for opioid overdose were included in this study. Patients were excluded if they were acutely psychotic or were unable to participate in the PMEG. Prior to group, participants completed a naloxone questionnaire and OOKS pretest. Participants then received education (treatment) or read education materials (control), and completed an OOKS posttest. The primary outcome was change in OOKS total score. **Results:** A total of 43% of patients in the treatment group (n = 16) received naloxone education prior to their index date, whereas 50% of those in the control group (n = 8) received prior naloxone education. The average total OOKS pretest scores were 24.9 and 24.4 in the control and treatment groups, respectively. The average total OOKS posttest score in the control group was 33.5, and it was 35.4 in the treatment group. **Conclusions/Future Directions:** Naloxone education appears to increase participants' short-term knowledge of naloxone administration and the signs and symptoms of opioid overdose. Future studies could assess OOKS scores after a designated follow-up period to assess retention of naloxone knowledge after active learning (PMEG) and reading of education materials and the effects on naloxone access.

Impact of Specialty Pharmacist Integration on Time to Medication Access for Pimavanserin

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Abstract Type: Original Research. **Background:** Patient access to treatment with pimavanserin, an antipsychotic agent used to treat Parkinson disease–related psychosis, is limited by insurance approval and navigation of a limited distribution network. Once initiated, safety and efficacy monitoring is needed to ensure adherence and clinical benefit. **Objective:** To determine the impact of specialty pharmacist integration on time to pimavanserin access. Secondary objectives are to describe change in prescribing

behavior and pharmacist interventions related to pimavanserin. **Methods:** This was a single-center, retrospective cohort study with a pre-post design. Patients prescribed pimavanserin through the center's neurology clinic May 2016 through July 2018 were included. We performed electronic chart review to collect data for patient demographics (age, race, gender), insurance information (type, prior authorization process), and pharmacist interventions. We defined the primary outcome as time to medication access (in days) between the initial intent to treat and insurance approval. Univariate analysis and multiple logistic regression were performed to assess the associations between medication access time and pharmacist integration. **Results:** Ninety-four patients met inclusion criteria. Patients were mostly male (80%) and white (96%). Median age was 74 years. Baseline demographics between the preintegration and postintegration cohorts were similar. Preintegration, 33 patients were prescribed pimavanserin, with 82% attaining insurance approval and 79% starting therapy. Postintegration, 61 patients were prescribed pimavanserin, with 95% attaining insurance approval and 93% starting therapy. Median time to access decreased following integration (3 days compared with 24.5 days). Patients prescribed pimavanserin preintegration had a 23-fold increase in odds of experiencing a longer time to access compared with postintegration (OR = 23; 95% CI = 8-69; $P < .001$). In addition, patients with noncommercial insurance were more likely to have a shorter medication access time compared with patients with commercial insurance. The pharmacist performed at least 1 intervention for 85% of patients, including medication counseling (n = 57) and interventions to improve clinical care (n = 44) and medication access (n = 76). **Conclusions:** Integration of a specialty pharmacist decreased time to pimavanserin access and facilitated pharmacy interventions to ensure safety and efficacy of use. Additional research is needed to evaluate the impact of faster medication access on clinical outcomes.

Implementation of a Pharmacist-Driven Tardive Dyskinesia Screening Tool

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Abstract Type: Original Research. **Purpose:** Tardive dyskinesia (TD) is defined as involuntary movements that can develop with prolonged antipsychotic use. The Abnormal Involuntary Movement Scale (AIMS), used to detect TD, is recommended to be conducted every 3 to 6 months but is underutilized. Although several studies have looked into risk factors that may be associated with TD, there is not a developed tool to preemptively screen patients who may be at increased risk. Riverside University Health System (RUHS) developed a pharmacist-driven screening tool to identify patients at higher risk of developing TD. The overall objective is to optimize standard of care and determine the effectiveness of this screening tool. **Methods:** The pharmacist-driven TD Screening Tool was implemented from August 20, 2018, to November 20, 2018. All patients admitted were screened daily by the clinical pharmacist. All patients who had 3 or more risk factors as determined by the TD Screening Tool were then screened for TD based on the validated AIMS tool. Patients who were screened had a progress note placed in their chart. In those who screened positive for TD, clinical recommendations were documented, which included: limit the amount of anticholinergic agents, consider a change in antipsychotic, or consider the potential use of a VMAT-2 inhibitor. In patients who screened negative for TD, the treatment team was advised to continue monitoring the patient due to the patient's increased risk of TD. Patient demographic variables were collected from the electronic medical record. Retrospective observational data were collected to identify the number of AIMs completed and to verify if treatment recommendations were accepted by the treatment team. **Results:** A total of 390 patients were screened with the TD Screening Tool. There were 75 of the 390 patients (19%) who had 3 or more risk factors. Of the 75 patients who had an AIMS attempted, 29 (39%) were too aggressive, disorganized, or refused participation, and 46 (61%) had an AIMS completed, of which 3 (7%) were positive. Although no patients were prescribed a VMAT-2 inhibitor, additional pharmacist interventions were made for 15 patients (33%). **Conclusions:** The TD Screening Tool was not effective in increasing treatment but allowed for an increased number of AIMS conducted, optimizing standard of care.

Medication Regimen Characterization in a Behavioral Health Intensive Care Unit

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Abstract Type: Original Research. **Purpose:** To describe patient demographics and psychotropic prescribing patterns on a behavioral health intensive care unit (BH ICU). **Background:** Inpatient psychiatric hospitalization may be necessary to stabilize patients who are experiencing acute psychiatric illness. Traditionally, BH ICUs are specialized units intended to provide a higher level of care than acute psychiatric units for a brief period during admission. They are usually smaller units designed to easily observe patients and have increased staff to patient ratios.

Additionally, there is limited literature to define BH ICUs as well as little guidance on psychotropic medications used on BH ICUs. Given these factors, it is difficult to generalize to other institutions. Therefore, an analysis of psychotropic medication use at the UPMC Western Psychiatric Hospital BH ICU is important to develop a better understanding of prescribing patterns. **Methods:** A retrospective cohort review using electronic health records will be conducted. Patients' first discharge or transfer from the UPMC Western Psychiatric Hospital BH ICU between November 15, 2017 (date of opening), and September 30, 2018, will be included in the descriptive analysis. **Results:** A total of 146 unique patients were admitted to the BH ICU during the study period. Patient demographics collected were age (average, 39.1 years), sex (63.7% male), and race (50% black). The most common primary psychiatric diagnoses include thought disorders (35.6%), bipolar disorder (27.4%), and schizoaffective disorder (15.8%). Most patients were prescribed psychotropic medications at discharge or transfer (98.6%), with antipsychotics (55.7%) and mood stabilizers (22.5%) being most commonly prescribed. **Conclusion and Future Directions:** This retrospective cohort review adds to the limited body of literature available. Further directions include assessment of factors contributing to BH ICU readmissions, as well as evaluation of restraint/seclusion rates following the opening of the BH ICU.

Multisite Pharmacoepidemiologic Analysis of SSRI and PTSD-Specific Therapy Treatment Effects in Patients With Posttraumatic Stress Disorder and Alcohol Use Disorder

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Abstract Type: Original Research. **Purpose:** Patients dually diagnosed with posttraumatic stress disorder (PTSD) and alcohol use disorder (AUD) experience more severe symptoms and worse treatment outcomes than patients with either condition alone. Previous trials demonstrate that treatment of PTSD- and AUD-diagnosed patients with selective serotonin reuptake inhibitors (SSRIs) effects small to moderate reductions in health care utilization outcomes. This study expands the methodologies of prior pharmacoepidemiologic evaluations of SSRI treatment in this population and extends them to patients treated with PTSD-specific therapy. **Methods:** This study is a quasi-experimental, multicenter new-user cohort study of 19 214 patients with AUD and newly diagnosed PTSD seen between the years 2000 and 2016 at any of 5 major Veterans Affairs hospitals in Texas. High-dimensional propensity score matching was used to create cohorts based on SSRI or PTSD-specific therapy initiation following first PTSD diagnosis. Marginal structural models were used to generate inverse probability of treatment weights, which adjusted for treatment adherence. Following weighting, logistic regression models were used to examine relationships between SSRI initiation and outcome measures, including all-cause and alcohol-related emergency room (ER) visits, medical admissions, and psychiatric admissions. **Outcomes:** The population was mainly male (94.5%), white (49.5%), black (21.9%), or Latino (18.9%), married (47.7%), aged 44.46 $\pm$ 13.7 years. Patients who initiated SSRI medications within 30 days of initial PTSD diagnosis were significantly less likely to experience ER visits (OR = 0.853; 95% CI = 0.800-0.911; $P < .001$), all-cause medical admissions (OR = 0.84; 95% CI = 0.752-0.939; $P = .002$), or alcohol-related medical admissions (OR = 0.789; 95% CI = 0.669-0.930; $P = .005$) compared with those who did not. Patients who initiated therapy were significantly less likely to experience an ER visit (OR = 0.908; 95% CI = 0.855-0.964; $P = .002$), medical admission (OR = 0.876; 95% CI = 0.787-0.975; $P = .015$), or alcohol-related medical admission (OR = 0.81; 95% CI = 0.685-0.958; $P = .014$) compared with those who did not. **Conclusions and Future Directions:** This study demonstrates that both SSRI medications and PTSD-specific therapy effect small albeit remarkably consistent reductions in all-cause and alcohol-related medical admissions, and all-cause ER visits within 2 years if initiated within 30 days of initial PTSD diagnosis.

Novel Techniques for Therapeutic Drug Monitoring for Clozapine Levels

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Abstract Type: Original Research. **Purpose:** Clozapine is an effective antipsychotic for treatment-resistant schizophrenia. Serum levels could guide therapy decisions. It is underutilized because it requires venous draws and several-day determination time with high-performance liquid chromatography–tandem mass spectrometry (LC/MS-MS). This project evaluates whether clozapine measured with a novel immunoassay technology, which could be developed into a fingerstick test, correlates with LC/MS-MS, and assesses the impact of demographic and clinical variables on assay results. **Methods:** A total of 117 serum samples (n = 48 with schizophrenia on clozapine, n = 24 with schizophrenia not on clozapine, and n = 45

healthy controls) were included. One aliquot was sent to a national reference laboratory (NRL) for determination by LC/MS-MS, and another was sent to Saladax for immunoassay (MyCare Psychiatry Clozapine Assay Kit). The agreement was compared using concordance correlation coefficient (CCC). Participants' age, sex, race-ethnicity, smoking status, ascorbic acid, comedications, and complete metabolic panel were collected. Linear regression and mixed model were performed for both technologies correspondingly to examine the impact of these variables. **Results:** NRL had 18 false-positive clozapine levels (mean, 42.39 ± 32.06 ng/mL; range, 21-159 ng/mL) in schizophrenia participants not on clozapine (n = 3) and in healthy controls (n = 15). The immunoassay had no false positives. A mixed effects model yielded a strong Pearson correlation ($r = 0.843$, $P < .0001$). In patients on clozapine, the mean clozapine level was 414.98 ± 186.29 ng/mL on the LC/MS-MS and 482.08 ± 270.88 ng/mL on the immunoassay. Although immunoassay was significantly higher than the LC/MS-MS measurement ($P = .013$), the agreement level was high (CCC = 0.76, 95% CI = 0.64, 0.84). No association was found between age, sex, smoking status, albumin, globulin, and ascorbic acid on clozapine levels higher by immunoassay. Additionally, for each unit increase in total protein an increase of 145.6 units (SE = 70.81) was predicted for LC/MS-MS and a 225.5-unit (SE = 104.60) increase for the immunoassay. **Conclusions:** Immunoassay results were in good agreement with LC/MS-MS results in clozapine-containing samples, indicating good assay performance. The lack of false positives in the immunoassay results may indicate higher specificity than LC/MS-MS methods. Total protein values may lead to changes in clozapine values. More work is needed to account for total protein values when making decisions with clozapine results.

Off-Label Use of Dronabinol for Non-Cancerous Pain Management at the Chillicothe Veterans Affairs Medical Center

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Abstract Type: Original Research. **Background:** With the opioid epidemic underway, providers have begun to pursue novelty pharmacotherapeutic approaches, such as cannabinoids, for inadequately treated analgesia. Delta-9-tetrahydrocannabinol (THC) is a partial agonist at the cannabinoid-1 (CB1) receptor. Stimulation of the CB1 receptor results in reduction of pain, inflammation, and hyperalgesia. Dronabinol, synthetic THC, is not currently approved by the US Food and Drug Administration for pain treatment. Unfortunately, the available research regarding cannabis-based medicine is conflicting. Therefore, guidance on the appropriate use of dronabinol for pain management is lacking. **Objectives:** The primary purpose of this medication use evaluation was to evaluate the prescribing practices of dronabinol for off-label treatment of noncancerous pain at the Chillicothe Veterans Affairs Medical Center (VAMC). **Methods:** A retrospective chart review was completed for each patient who had a dronabinol prescription filled during fiscal year 2017 (FY17). Patient demographics and prescription characteristics were collected to determine if dronabinol prescribing patterns were compliant with the proposed criteria for use. Data regarding the number of concomitant analgesics, morphine milligram equivalents (MMEs), and pain scores were collected in order to analyze change over time and assess analgesic benefit. **Results:** During FY17, 34 patients had a dronabinol prescription filled at the Chillicothe VAMC. A total of 23 patients (67.6%) were prescribed dronabinol for noncancerous pain. On average, 2 concomitant analgesics were prescribed when dronabinol was initiated and remained the same over time. At the time of dronabinol initiation, 8 of 23 patients (34.8%) were concomitantly prescribed opioid therapy, and the average opioid dose was 74.1 MMEs/d. For the 5 patients with opioid therapy who had appropriate follow-up, the average opioid dose was 42.7 MMEs/d. The average baseline pain score was 6.8 of 10 (n = 20). At the time of the most recent follow-up appointment, the average pain score was 6.5 of 10 (n = 17). **Conclusion:** Dronabinol use resulted in a minimal decrease in the number of concomitant analgesics, MMEs per day, and pain score over time. This suggests that dronabinol may not have been an effective analgesic option.

Pharmacokinetics of Synthetic Cathinones Found in "Bath Salts" in Mouse Brain and Plasma Using Liquid Chromatography–Mass Spectrometry

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Abstract Type: Original Research. **Purpose:** Two common synthetic cathinones or "bath salts," 3,4-methylenedioxypyrovalerone (MDPV) and 3,4-methylenedioxymethcathinone (methylone), have similar pharmacology to controlled psychostimulants, increasing levels of the monoamine transmitters norepinephrine (NE) and dopamine (DA). Increases in DA are associated with euphoric effects that promote drug misuse and account for the high addiction potential of MDPV and methylone. The purpose of this study is to determine the pharmacokinetic profiles of these drugs in plasma and brain. **Methods:** The pharmacokinetics of MDPV and methylone in the brain and plasma were

examined following intraperitoneal (IP) injection in mice. IP injections have similar pharmacokinetics to snorting, which is the manner in which MDPV and methylone are commonly misused. Briefly, adolescent male Swiss-Webster mice were injected with either 10 mg/kg MDPV or 10 mg/kg methylone, and brains and plasma were collected at the following time points: 1, 10, 15, 30, 60, and 120 minutes. Samples were then flash-frozen and stored at −70°C until analysis. Samples were spiked with deuterium-labeled MDPV or methylone (internal standards), and the drugs were extracted from tissue using a previously published solid-phase extraction method. Chromatographic separation of the compounds was achieved using a HILIC column with a gradient elution of acetonitrile and 5 mM ammonium formate at a flow rate of 0. 2 mL/min. Mass spectrometric detection utilized a Shimadzu IT-TOF system, with the electrospray source running in positive mode. **Results:** Following IP administration, both drugs quickly crossed the blood-brain barrier and entered the brain. MDPV trended toward higher concentrations in the brain than methylone, consistent with MDPV's higher lipophilicity (logP value), although the maximum concentration in brain was not significantly different between the 2 drugs. However, total exposure to MDPV (as represented by area under the curve) was higher in both plasma and brain, as compared with methylone. With regards to drug elimination, both methylone and MDPV have short half-lives in plasma and brain. **Conclusion:** In conclusion, the pharmacokinetics of these drugs reflect a quick uptake and distribution of the drugs into the brain, followed by the quick distribution out of the brain, which likely contributes to the binge use of these drugs.

Pharmacy Student Perception of School Related Stress and Awareness of Resources

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Abstract Type: Original Research. **Introduction:** Pharmacy school can be a difficult time for students. The scholastic challenge, diminished free time, and concerns about their future career are difficult for many students to manage and can affect students' well-being. By surveying students on stress and well-being, and knowing whether students are receiving appropriate support, adequate adjustments in campus resources to help combat issues can be addressed. **Methods:** A 12-question survey was sent out electronically to all students currently enrolled in the University of Colorado Skaggs School of Pharmaceutical Sciences PharmD program (n = 584). The questions on the survey covered perception of school-related stress, stress affecting health, awareness of school resources, and future career concerns. Survey questions were presented using a Likert scale with the options strongly agree, agree, disagree, and strongly disagree. After the survey was completed the student was presented with a list of campus resources for addressing and helping with management of stress. The study was approved by the Colorado Multiple Institutional Review Board. **Results:** A total of 257 students (43%) responded to the survey, 175 of which (68%) were female. There was representation across all 4 pharmacy classes. Results showed that 67% of respondents felt that pharmacy school had impacted their physical health and mental well-being. Eighty percent of respondents stated that school-related stress had caused them to lose sleep, and 79% stated that their life outside of pharmacy school had suffered since starting in the program. Only 44% of respondents felt that the university had sufficient resources to help them cope with stress. Finances and postgraduation career caused stress in 84% and 87% of respondents, respectively. Also, 36% responded that the stress from pharmacy school had caused them to regret their decision to enter pharmacy school. **Conclusion:** Impact of stress from school has impacted both the mental and physical health of pharmacy students, as well as affected their life outside of school. Increasing awareness of resources should be paramount from the educator's perspective in order to preserve students' health. Awareness of the impact stress has on the student should be considered when preparing students for their career postgraduation.

Prazosin Outcomes in Elderly Veterans with Posttraumatic Stress Disorder (PTSD) in a Pharmacist Managed Prazosin Titration Clinic

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Abstract Type: Original Research. **Purpose:** Minimal literature exists that reports the outcomes of elderly veterans treated with prazosin for management of posttraumatic stress disorder (PTSD)–related nightmares. This study assessed the outcomes of elderly veterans with PTSD under pharmacist management in our Prazosin Titration Clinic (PTC). **Methods:** This retrospective study included 32 elderly veterans (age ≥65 years) consulted to PTC who had a clinical diagnosis of PTSD. Changes from baseline to clinic discharge in nightmare frequency and intensity were evaluated using the Recurrent Distressing Dreams item of the Clinician Administered PTSD Scale (CAPS). Secondary outcomes included the PTSD Checklist (PCL-5), Insomnia Severity Index (ISI), and sleep hours; measures of tolerability, including blood pressure (BP) change and side effects, were assessed. Symptom changes were evaluated using nonparametric Wilcoxon signed rank tests. **Results:** Veterans were an average age of 69.7 (±3.3)

years. Approximately 94% served in the Vietnam era and more than 87% had combat history. All patients had at least one comorbid medical condition (commonly hypertension) and one comorbid psychiatric condition (commonly major depressive disorder). Median values, statistical measure, and *P* value for study outcomes at baseline and discharge (respectively) were as follows: CAPS nightmare frequency (3, 1; $z = -3.90$; $P = .0001$) and intensity (3, 1; $z = -3.89$; $P = .001$); total CAPS item score (6, 2; $z = -4.18$; $P < .00001$); PCL-5 (52.5, 32; $z = 3.79$; $P = .00016$); ISI (19, 12.5; $z = -3.11$; $P = .00188$); and sleep hours (6, 7.5; $z = -2.9867$; $P = .00278$). Prazosin was well tolerated; changes in BP were not clinically significant. Twelve adverse events were reported. Eight events were related to dizziness, which was transient in 50% of occurrences. Average final total daily dose of prazosin at clinic discharge was 5.1 ± 5.3 mg (median, 2.5 mg; range, 0-17 mg). Average dose change during time in clinic was 3.5 ± 4.6 mg (median, 2 mg; range, 2-15 mg). **Conclusions and Future Directions:** These results demonstrate prazosin to be well tolerated and significantly effective in symptom management of PTSD in elderly veterans. Prazosin therapy can be effectively managed in elderly veterans despite complex medical and psychiatric comorbidities, to provide favorable patient outcomes.

Qualitative Assessment of Current Clozapine Utilization, Perceived Barriers, and Prescribing Patterns After Implementing a Clozapine Treatment Team Consult Service

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Abstract Type: Original Research. **Purpose:** Clozapine is an effective treatment option for treatment-resistant schizophrenia, schizoaffective disorder, or suicide prevention related to schizophrenia. The American Psychiatric Association treatment guidelines recommend its use after patients fail 2 other adequate trials of antipsychotics. Providers may be hesitant to prescribe clozapine to patients given its stringent monitoring parameters and its risk for life-threatening adverse reactions. This study sought to assess the perceived barriers of prescribing clozapine, to provide a consult service in the form of a clozapine treatment team, and to assess whether the implementation of a clozapine treatment team consult service would change barriers and change in prescribing rates. **Methods:** Eleven psychiatry providers at Captain James A. Lovell Federal Health Care Center in North Chicago, IL, completed a 15-item survey assessing factors contributing to utilization of clozapine. The survey used a 5-point Likert scale (1) = strongly disagree to (5) = strongly agree. Following the survey, education on clozapine was provided and the clozapine treatment team consult service was made available for providers to request consults. Rates of clozapine prescribing were compared from 12 months prior to and after implementation of the service. Surveys were then redistributed to assess for changes in attitude toward prescribing clozapine. **Results:** A total of 16 patients in the outpatient setting were prescribed clozapine a year before starting the service, with 19 patients being prescribed the year after, representing an 18.75% increase. However, there were 8 new starts to clozapine, with 5 discontinuations in that year. There was an approximate 20% increase in provider comfort level seen with prescribing clozapine and associated monitoring requirements. More prescribers were comfortable with prescribing clozapine if there was a devoted clinic after implementation of consult service, compared with before, as seen by an approximate 35% increase in survey results. **Conclusion and Future Directions:** Implementing a clozapine consult service showed increased prescribing rates and provider comfort level with initiating clozapine. By utilizing the treatment team, potential candidates were identified and subsequently started on clozapine. Continued provider education will improve the utility of consult service and further optimization of treatment for resistant patients.

Systematic Review of Treatment of Dyslipidemia Secondary to Antipsychotic Medication Use in Pediatric Patients

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Abstract Type: Original Research. **Background:** Second-generation antipsychotic medications cause metabolic and endocrine side effects, including dyslipidemia. These effects may be of greater concern in children because they are more sensitive to fluctuations in lipid levels which have been linked to negative childhood physical outcomes. Although we are gaining a greater understanding of the risks of antipsychotic-induced dyslipidemia in pediatrics, there are no published treatment guidelines. **Objectives:** The purpose of this systematic review is to explore the interventions that have been studied for treating dyslipidemia secondary to atypical antipsychotic use in pediatrics and adults with the intention to develop a pediatric treatment algorithm. **Methods:** OvidMedline was utilized for a literature review using advanced search strategies with the search terms "not adult" OR "pediatrics" OR "adolescents" AND "antipsychotic agents" AND "dyslipidemia." Due to the established trend of translating adult pharmacotherapy interventions to pediatrics when pediatric data are limited, an additional literature review was

conducted using the terms "antipsychotic agents" AND "dyslipidemia" AND "secondary" with limit set to "all adult (19 plus years)." **Results:** Seven pediatric studies and 9 adult studies met inclusion criteria and were reviewed. Pediatric interventions studied included metformin (n = 50), vitamin D (n = 12), omega-3 (n = 1), monitoring (n = 130), and coprescribing habits of antidiabetic/antilipidemic agent (n = 4922). Adult interventions studied included metformin (n = 201), vitamin D (n = 19), omega-3 (n = 56), monitoring (n = 9317), statins (n = 72), fluvoxamine (n = 68), and switching to an alternate antipsychotic agent (n = 244). No significant adverse effects were reported in any studies. **Conclusions:** Given the paucity of data to guide treatment for dyslipidemia secondary to antipsychotic medications in pediatric patients, continued exploration is needed before a treatment algorithm can be developed. However, per the data identified by this investigation and the 2009 American Academy of Pediatrics guidelines for lipid screening, the following interventions may be considered for pediatric patients receiving antipsychotic medications: (1) baseline and regular metabolic testing; (2) diet/exercise education; (3) baseline and regular vitamin D levels with appropriate correction; (4) switch to an alternate atypical antipsychotic with lower incidence of dyslipidemia; (5) the addition of omega-3 in patients with resulting hypertriglyceridemia; (6) the addition of metformin in patients with elevated low-density lipoprotein cholesterol; and (7) the addition of pravastatin for dyslipidemia.

The Effects of Opioid Reduction on Risk of Suicide in Veterans With Chronic Non-Cancer Pain

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Abstract Type: Original Research. **Purpose:** Concerns exist regarding the potential increase in suicidality following opioid reduction. We assessed if veterans who had their opioid regimen reduced were more likely to experience an increased risk of suicide compared with veterans who did not have morphine equivalent dose (MEDD) reductions at our facility. **Methodology:** Patients reviewed by the Opioid Safety Initiative (OSI) committee from April 2014 to October 2017 were included in our retrospective study. Patients without a baseline Comprehensive Suicide Risk Assessment (CSRA) or prescribed opioids for cancer-related or palliative care diagnoses were excluded. Date of presentation to the OSI committee was considered the index date, and a 1-year look-back period was reviewed to gather baseline characteristics. A 1-year postindex period was examined to calculate MEDD and identify increased risk of suicide defined as having either an intensification of CSRA rating (low, moderate, high) or a visit or admission related to suicide ideation or attempt. Inferential statistics were performed to detect differences between the groups at baseline and over time. **Results:** A total of 61 patients were included: 41 whose MEDD was reduced and 20 with no MEDD reducation. The groups were similar at OSI presentation with respect to age, gender, presence of comorbid psychiatric diagnoses, baseline median MEDD, and percentage of patients with MEDD <90. Comorbid depression (71%) and PTSD (53%) were commonly observed. Percentage of patients with MEDD <90 (15% versus 39%, $P = .02$) at the end of the 1-year postindex date follow-up as well as the percentage prescribed adjuvant pain medications (60% versus 93%, $P = .004$) were significantly different between the nonreduced and reduced groups, respectively. There were 3 patients who had an increase in suicidality, 1 (2%) in the reduction group and 2 (10%) in the nonreduction group (NS). **Conclusion:** Opioid reduction did not increase suicidality risk in our study. This may be reflective of the multilayered approach to opioid tapers at VA San Diego Healthcare System or our small sample size. Future studies of larger samples are needed to explore the role of method and magnitude of opioid reduction, existence of supportive care, and other factors on suicidality.

The Future of CBD Oil as a Possible Pharmacologic Treatment Option in Psychiatry: The Current State of the Literature

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Abstract Type: Original Research. **Purpose:** Cannabidiol (CBD) is a nonpsychoactive component of the cannabis plant. Potential pharmaceutical use for CBD targets the stress receptors in the human cannabinoid system. In June 2018, the US Food and Drug Administration approved CBD oral solution for Dravet syndrome, which marked the first approved indication for CBD. This review explores the current evidence for CBD use in the treatment of psychiatric disorders. **Methods:** A literature search was done using OVID to compile articles related to the current place in pharmacotherapy of CBD and its potential for treating psychiatric disorders. Articles published between January 1, 2016, and July 31, 2018, were reviewed for inclusion. Additional articles published earlier were added if they were deemed relevant by the authors. **Results:** The search results yielded a total of 8 publications, including

preclinical trials and case reports. Three evaluated the use for posttraumatic stress disorder, 3 for psychosis and 2 for anxiety. Findings from these studies suggest that CBD may be a potential treatment option for these psychiatric illnesses. **Conclusion and Future Directions:** Currently, there are many patients with psychiatric disorders who may benefit from CBD therapy. However, due to CBD's narrow therapeutic index and insufficient pharmacokinetic data, further research is needed to elucidate appropriate dosing and to find the exact mechanisms responsible for the unique properties of CBD. Controlled clinical trials are needed to determine efficacy for psychiatric conditions.

The Impact of Interprofessional Collaboration in Finding Solutions for Opioids Case Studies

Carolyn O'Donnell, Student Pharmacist[1]; Keri Hager, PharmD, BCACP[1]; Heather Blue, PharmD, BCPS, BCGP[1]; Lucas Kosobuski[2]; Ann Brearly, PhD[3]; E. F. Northrop, BA[3]; Laura Palombi, PharmD, MPH, MAT[1]

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Abstract Type: Original Research. **Background:** Pharmacy and medical students have limited opportunities to collaborate on public health case studies. As the opioid epidemic has become more prevalent, it is important for future health care professionals to know what limitations patients might have to optimal care, what resources are available, and what skills other health care professionals have that can help to combat the issues surrounding opioid misuse. **Objective:** Evaluate the impact of case activities focused on opioids in educating pharmacy and medical students about gaps in health care, resources available, and enhancing interprofessionalism. **Methods:** A total of 52 second-year medical students and 15 first- through fourth-year pharmacy students at the University of Minnesota Duluth worked together to develop solutions to different opioid case studies. The case studies included problems associated with opioid misuse, including violation of pain management contracts, impaired health care professionals, and treating patients with comorbid conditions, such as mental illness. Each case also focused on issues related to the social determinants of health (SDOH) and their relationship with opioid misuse. Students were provided with 5 open-ended questions and the Interprofessional Collaborative Competency Attainment Survey, consisting of 20 statements assessing their ability to communicate and collaborate in interprofessional teams before and after the activity and determine the knowledge gained surrounding opioid misuse and SDOH. Open-ended questions were analyzed and coded to determine common themes, knowledge gained in opioid misuse and the SDOH, and areas for improvement. **Results:** The ICCAS results showed that participating in the opioids case studies enhanced communication skills between professions, increased interprofessional skills, and improved recognition of different health care roles. The open-ended questions indicated students found the case studies provided the most benefit in teaching students about controlled substance laws and policies, increasing communication and group dynamics, providing knowledge of various treatment options, and assisting patients in overcoming barriers, such as stigma and conditions related to the SDOH. **Conclusion:** Providing case-based studies to an interprofessional group of health care students is beneficial in helping them to identify public health resources, ethical considerations, and the role of the SDOH in opioid use disorders.

The Use of Group Concept Mapping to Improve Transitions of Care Between a Mental Health Center and a Family Medicine Clinic

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Abstract Type: Original Research. **Purpose:** The purpose of this project is to effectively engage stakeholders from separate primary care and mental health organizations to develop an ideal cross-organization communication system to improve metabolic monitoring for their comanaged patients prescribed second-generation antipsychotics using the mixed-method approach of group concept mapping. **Methods:** An interprofessional group of key stakeholders from the Human Development Center and the Duluth Family Medicine Clinic participated in group concept mapping meetings in April and May 2018. The group concept mapping method is useful for understanding how to bridge the gap between community mental health and primary care because it allows for stakeholders to come together and contribute their perspectives toward planning and developing an optimal communication system between the two clinics. By using this method, we can incorporate diverse perspectives in the planning process, which will optimize buy-in by stakeholders. **Results:** The 14 participants brainstormed 99 items to improve cross-organization care, which were sorted into a point map with 6 clusters: standardization of process and protocols; electronic health record (EHR) optimization; effective interclinic communication strategies; care team member roles and responsibilities, workflow, and care coordination; patient advocacy and access to behavioral health care; and patient-centered

care and education. Stakeholders prioritized items for initial quality improvement efforts and came to a consensus on the following: to have agreement on expectations for monitoring, have a standard protocol for release of information, have a way to easily see in the electronic health record which patients are comanaged, a specific "point person" to be responsible for ensuring that checklists and protocols are followed, to ensure that the patient's updated/reconciled medication list is generated prior to clinic visit, to know which clinic/provider is following up on behavioral health medications, and education surrounding monitoring for all involved in patient care. **Conclusions:** Care coordination across health systems is critical to optimize patient care for chronic medical and psychiatric conditions. Group concept mapping provides a strategic process to create buy-in and consensus among stakeholders to take steps toward solving more complex systematic problems, such as poor EHR interoperability across health systems.

Treatment of Anxiety in Parkinson Disease: A Systematic Literature Review

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Abstract Type: Original Research. **Objective:** To conduct a systematic literature review evaluating efficacy and tolerability of interventions for management of anxiety symptoms in patients with Parkinson disease (PD). **Background:** Symptoms of anxiety are common in patients with PD. However, a systematic literature review of interventions for this condition has not been previously published. **Methods:** A systematic literature search was performed to identify controlled trials of interventions for management of anxiety symptoms in PD. Searches were performed in PubMed, Cochrane Library, and EMBASE (1947 to December 2018) with no language restrictions. Eligible studies were randomized, blinded, and placebo- or comparator-controlled. Study methodology, and patient- and treatment-level data were independently extracted, verified, and summarized using descriptive statistics. The studies underwent quality assessment for risk of bias based on Cochrane metrics. Documentation of the inclusion and exclusion process is presented in the Preferred Reporting Items of Systematic Reviews and Meta-Analyses format. **Results:** There were 310 potentially relevant articles identified, and 7 randomized clinical trials (RCTs) met inclusion criteria for data extraction and synthesis. Of the 7 RCTs (total n = 165 participants), 4 (n = 137) involved cognitive behavioral therapies (CBTs), 2 (n = 28) pharmacologic therapies (bromazepam, levodopa), and 1 (n = 14) acoustic therapy. In 2 of the 4 CBT studies, anxiety symptoms significantly improved and CBT was well tolerated. Of the pharmacologic interventions, bromazepam significantly improved anxiety symptoms, but sedation and dizziness were common. Acoustic therapy was not associated with symptom improvement. Quality assessment indicates the CBT results are subject to high risk of bias due to performance bias (eg, blinding methods). **Conclusions:** Preliminary evidence suggests that non-pharmacologic therapies (eg, CBT) may be efficacious in improving anxiety symptoms in patients with PD. Evidence for pharmacologic interventions is extant and insufficient. Additional randomized controlled trials are warranted for both CBT and pharmacologic interventions for management of anxiety in patients with PD.

A Modified-Release Drug Delivery Technology Containing Amphetamine-Ion Exchange Complexes

Barry K. Herman, MD, MMM[1]; Thomas R. King, MS, MPH[1]; Judith C. Kando, PharmD, BCPP[1]; Lyle Laird, PharmD[1]; Antonio Pardo, MD[1]

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Abstract Type: Encore Presentation. **Previously Presented:** 2018 Neuroscience Education Institute Congress, Orlando, FL.

Association Between Heavy Metal Content in Drinking Water and Mortality Due to Suicide

Caitlyn Whitaker, BS[1]; Marshall E. Cates, PharmD, BCPP, FASHP, FCCP[1]; Danielle L. Cruthirds, PhD[1]; Greg S. Gorman, PhD[1]

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Abstract Type: Encore Presentation. **Previously Presented:** ASHP Midyear Clinical Meeting, December 2018, Anaheim, CA.

Cariprazine for Bipolar I Depression: A Randomized Double-Blind Placebo-Controlled Trial

Caroline Hostetler, PhD[1]; Willie R. Earley, MD[1]; Maria Victoria Burgess, MD[1]; Barbara Khan, MS[1]; Ludmyla Rekeda, PhD[1]; Trisha Suppes, MD, PhD[2]; Mauricio Tohen, MD, DrPH, MBA[3]; Joseph A. Calabrese, MD[4]

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Abstract Type: Encore Presentation. **Previously Presented:** Psych Congress October 25-28, 2018, Orlando, FL.

Clozapine Availability in Smith County

Denver Shipman, PharmD, BCPP[1]; Kathleen Galeano, PharmD Candidate 2019[1]; Reeka Belton, PharmD Candidate 2020[1]; Brittany Parmentier, PharmD, BCPS, BCPP[1]

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Abstract Type: Encore Presentation. **Previously Presented:** ABCs of Health Disparities Conference at The University of Texas Health Science Center at Tyler, October 5-6, 2018, Tyler, TX.

Comparison of Stroke/TIA Outcomes in Patients Who Have Undergone Testing for Antiplatelet Responsiveness and Pharmacist Intervention Versus Those Who Have Not

Erica S. Westphal, BA/BSc[1]; Jessica Greger, MS[1]; Rachael Wojcik, BSc[1]; Michelle Rainka, PharmD[1]; Vernice Bates, MD[1]; Fran Gengo, PharmD[1,2]

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Abstract Type: Encore Presentation. **Previously Presented:** American Society of Health-System Pharmacists (2018).

Determination of Combination Therapy Prescribing Patterns for the Treatment of Acute Agitation in Psychiatric Patients: A Regression Model of Patient Diagnoses and Demographics

Mark S. Maas, Pharmacy Student[1]; Karen E. Moeller, PharmD, BCPP[1]; Brittany L. Melton, PhD, PharmD[1]

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Abstract Type: Encore Presentation. **Previously Presented:** Student Poster at ASHP Midyear 2018, Anaheim, CA.

Early Morning Functioning in Stimulant-Treated Children and Adolescents With Attention-Deficit/Hyperactivity Disorder: Results of 2 Quantitative Research Surveys

Stephen V. Faraone, PhD[1]; Russell J. Schachar, MD[2]; Russell A. Barkley, PhD[3]; Rick Nullmeier, BA[4]; F. Randy Sallee, MD, PhD[5]

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Abstract Type: Encore Presentation. **Previously Presented:** Psych Congress 2016.

Effect of L-methylfolate on Depressive Symptoms in Patients With MTHFR Mutations

Michelle Rainka, PharmD[1]; Erica S. Westphal, BA/BSc[1]; Traci Aladeen, PharmD[1]; Jacqueline Meaney, PharmD[1]; Kaitlin Landolf, PharmD[1]; Patrick Galdun, PharmD[1]; Natalie Asbach, RPA-C[1]; Fran Gengo, PharmD[1,2]; Horacio Capote, MD[1]

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Abstract Type: Encore Presentation. **Previously Presented:** Western Psychological Association Convention (2015).

Effect of Lurasidone on Cognition in Adolescents With Schizophrenia: Analysis of a 2-Year Open-Label Extension Study

Philip D. Harvey, PhD[1]; Robert Goldman, PhD[2]; Michael Tocco, PhD[2]; Ling Deng, PhD[2]; Josephine Cucchiaro, PhD[2]; Antony Loebel, MD[2]

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Abstract Type: Encore Presentation. **Previously Presented:** American Academy of Child & Adolescent Psychiatry, October 22-27, 2018, Seattle, WA.

Effects of Brexpiprazole on Long-Term Personal and Social Functioning in Schizophrenia

Stine R. Meehan, PhD[1]; Peter Zhang, PhD[2]; Mary Hobart, PhD[2]; Catherine Weiss, PhD[2]

[1] *H. Lundbeck A/S;* [2] *Otsuka Pharmaceutical Development & Commercialization Inc*

Abstract Type: Encore Presentation. **Previously Presented:** May 2018 at the American Society of Clinical Psychopharmacology (ASCP) 2018 Annual Meeting.

Effects of Concomitant Medication Use on Tardive Dyskinesia Outcomes in Long-Term Valbenazine Trials

Jack Chen, PharmD[1]; Carlos Singer, MD[2]; John M. Kane, MD[3]; Khodayar Farahmand, PharmD[4]; Joshua Burke, MS[4]; Scott Siegert, PharmD[4]

[1] *Loma Linda University School of Medicine;* [2] *Miller School of Medicine, University of Miami;* [3] *Translational Neuroscience Research, Drexel University College of Medicine;* [4] *Neurocrine Biosciences Inc*

Abstract Type: Encore Presentation. **Previously Presented:** Annual Psych Congress Meeting, October 24-27, 2018, in Orlando, FL.

Efficacy and Safety of DR/ER-MPH, a Delayed-Release and Extended-Release Methylphenidate Formulation, in Children with ADHD: Results From a Pivotal Phase 3 Trial in a Naturalistic Setting

Steven R. Pliszka, MD[1]; Timothy E. Wilens, MD[2]; Samantha P. Bostrom, MD[3,4]; Valerie K. Arnold, MD[5]; Andrea Marraffino, PhD[6]; Andrew J. Cutler, MD[7]; Frank A. López, MD[8]; Norberto J. DeSousa, MA[9]; F. Randy Sallee, MD, PhD[9]; Bev Incledon, PhD[9]; Jeffrey H. Newcorn, MD[10]

[1] The University of Texas Health Science Center at San Antonio, San Antonio, Texas; [2] Massachusetts General Hospital, Boston, Massachusetts; [3] Westside Medical Family Practice, Clinton, Utah; [4] Focus Center Research, Clinton, Utah; [5] University of Tennessee Health Science Center, Memphis, Tennessee; [6] Meridien Research, Maitland, Florida; [7] Meridien Research, Bradenton, Florida; [8] Children's Development Center, Winter Park, Florida; [9] Ironshore Pharmaceuticals & Development Inc, Camana Bay, Cayman Islands; [10] Mount Sinai Medical Center, New York, New York

Abstract Type: Encore Presentation. **Previously Presented:** American Academy of Child and Adolescent Psychiatry (AACAP) Annual Meeting 2016, Neuroscience Education Institute (NEI) 2016, American Professional Society of ADHD and Related Disorders (APSARD) Annual Meeting 2017, Academy of Managed Care Pharmacy Annual Meeting 2017, World Congress on ADHD 2017, American Society of Clinical Psychopharmacology (ASCP) Annual Meeting 2017, American Academy of Pediatrics (AAP) Annual Meeting 2017, Society for Developmental and Behavioral Pediatrics (SDBP) Annual Meeting 2017, CHADD Annual International Conference on ADHD 2017.

Efficacy and Safety of DR/ER-MPH, a Delayed-Release and Extended-Release Methylphenidate, in Children With ADHD: Results From a Pivotal Phase 3 Classroom Trial

Ann C. Childress, MD[1]; Andrew J. Cutler, MD[2]; Andrea Marraffino, PhD[3]; Norberto J. DeSousa, MA[4]; Bev Incledon, PhD[4]; F. Randy Sallee, MD, PhD[4]

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Abstract Type: Encore Presentation. **Previously Presented:** American Academy of Child and Adolescent Psychiatry (AACAP) Annual Meeting 2018 and American Professional Society of ADHD and Related Disorders (APSARD) Annual Meeting 2019.

Efficacy of Lurasidone in Child and Adolescent Patients With Bipolar I Depression and Anxiety: A Post-Hoc Analysis

Mark S. Owens, DO[1]; Michael Tocco, PhD[2]; Andrei Pikalov, MD, PhD[2]; Ling Deng, PhD[2]; Robert Goldman, PhD[2]; Antony Loebel, MD[2]

[1] Department of Child & Adolescent Psychiatry, New York University School of Medicine, New York, New York; [2] Sunovion Pharmaceuticals Inc, Fort Lee, New Jersey, and Marlborough, Massachusetts

Abstract Type: Encore Presentation. **Previously Presented:** American Academy of Child & Adolescent Psychiatry, October 22-27, 2018, Seattle, WA.

Evaluation of Clozapine Augmentation Strategies in the Management of Treatment Resistant Schizophrenia at a Public Psychiatric Hospital

Chinwe Madu, PharmD Candidate 2019[1]; Cydreese Aebi PhD, RPh, BCPP[2]; R. Brigg Turner, PharmD, BCPS-AQ ID[1]

[1] Pacific University School of Pharmacy; [2] Oregon State Hospital

Abstract Type: Encore Presentation. **Previously Presented:** ASHP 2018 Midyear Clinical Meeting and Exhibition.

Evaluation of Obsessive-Compulsive Tendencies in Relation to Smartphone Use

Kim Ehrhard, PharmD Candidate[1]; Carly Kempf, PharmD Candidate[1]; Steven C. Stoner, PharmD, BCPP[1]

[1] University of Missouri-Kansas City School of Pharmacy

Abstract Type: Encore Presentation. **Previously Presented:** December 3, 2018, at ASHP Midyear Clinical Meeting.

Impact of Pharmacy-Driven Transitional Interventions in Hospitalized Patients With Psychiatric Disorders

Frank Tillman III, PharmD Candidate[1]; Joy Greenberg, PharmD Candidate[1]; Ina Liu, PharmD[1,2]; Seher Khalid, PharmD Candidate[1]; Nicolas McGuire, PharmD Candidate[1]; Suzanne C. Harris, PharmD, BCPS, CPP[1,2]

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Abstract Type: Encore Presentation. **Previously Presented:** 2018 American Society Health-System Pharmacists (ASHP) Midyear Clinical Conference.

Impact of the Clozapine Risk Evaluation and Mitigation Strategies (REMS) Program on Inpatient Utilization and Monitoring

Uzma Ahmed[1]; Ashley Cubley[1]; Lindsay Lamp[1]; Lisa Mican, PharmD, BCPP[1,2]; Kasey Pena, PharmD, BCPP[2]; Jamie Barner, PhD[1]

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Abstract Type: Encore Presentation. **Previously Presented:** ASHP Midyear Clinical Meeting in Anaheim, CA, December 3, 2018.

L-Methylfolate Calcium Supplementation in Adolescents and Children: A Retrospective Analysis

Traci Aladeen, PharmD[1]; Michelle Rainka, PharmD[1]; Erica S. Westphal, BA/BSc[1]; Jacqueline Meaney, PharmD[1]; Fran Gengo, PharmD[1,2]; Jessica Greger, MS[2]; Horacio Capote, MD[1]

[1] Dent Neurologic Institute; [2] University at Buffalo School of Pharmacy and Pharmaceutical Sciences

Abstract Type: Encore Presentation. **Previously Presented:** American Academy of Neurology 70th Annual Meeting (April 2018).

Long-term Effect of Brexpiprazole on Selected Items Affecting Social Functioning and Quality of Life in Early-Episode Patients: Results From a Post-Hoc Analysis in Patients With Schizophrenia

Catherine Weiss, PhD[1]; Peter Zhang, PhD[1]; Stine R Meehan, PhD[2]; Ross A Baker, PhD[1]

[1] Otsuka Pharmaceutical Development & Commercialization Inc; [2] H. Lundbeck A/S

Abstract Type: Encore Presentation. **Previously Presented:** May 2018 at the American Society of Clinical Psychopharmacology (ASCP) 2018 Annual Meeting.

Lurasidone for the Treatment of Major Depressive Disorder With Mixed Features: Results of a 12-Week Open-Label Extension Study

Stephen M. Stahl, MD[1]; Andrei Pikalov, MD, PhD[2]; Michael Tocco, PhD[2]; Yongcai Mao, PhD[2]; Antony Loebel, MD[2]

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Abstract Type: Encore Presentation. **Previously Presented:** American Psychiatric Association Annual Meeting, May 5-9, 2018, New York, NY; Neuroscience Education Institute Congress, November 7-11, 2018, Orlando, FL.

Modafinil for the Treatment of Stimulant Use Disorders: A Case Series

Erica Dimitropoulos, PharmD, BCPP[1]; Patricia Dickmann, MD[1,2]

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Abstract Type: Encore Presentation. **Previously Presented:** American Academy of Addiction Psychiatry Annual Meeting in Bonita Springs, FL.

Outcomes Related to Transition to Once-Every-3-Months Paliperidone Palmitate Among Veterans With Schizophrenia

Charmi Patel[1]; Antoine El Khoury[1]; Ahong Huang[2]; Li Wang[2]; Onur Baser[3]; Kruti Joshi[1]

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Abstract Type: Encore Presentation. **Previously Presented:** 2018 Psych Congress, October 25-28, 2018, Orlando, FL.

Pharmacokinetics of a Water-Soluble Benzodiazepine/Enzyme Intranasal Delivery System for Acute Management of Seizure Emergencies

Patricia D. Maglalang[1]; Davin Rautiola[2]; Narsihmulu Cheryala[3]; Kathryn M. Nelson[3]; Gunda I. Georg[3]; Jared M. Fine[6]; Aleta L. Svitak[6]; Katherine A. Faltesek[6]; Leah R. Hanson[6]; Usha Mishra[1]; Lisa D. Coles[1]; Ronald A. Siegel[2,5]; James C. Cloyd[1,4]

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Abstract Type: Encore Presentation. **Previously Presented:** Some of the work presented in this abstract was previously presented at the American Epilepsy Society Annual Meeting in 2016 in Houston, TX, and published in *Epilepsia* in August 2018.

Phase 3 Studies (EVOLVE-1 & EVOLVE-2) of Galcanezumab in Episodic Migraine:

Subgroup Analyses of Efficacy by Low Versus High Frequency of Migraine Headaches

Stephen Silberstein, MD[1]; Virginia L Stauffer, PharmD[2]; Katie Day, RN, MSN[2]; Qi Zhang, PhD[2]; Sarah Lipsius, MSc[3]; Maria-Carmen Wilson, MD[4]

[1] Thomas Jefferson University; [2] Lilly Research Laboratories; [3] Syneos Health; [4] Ochsner Health System

Abstract Type: Encore Presentation. **Previously Presented:** EHF–European Headache Federation, September 2018, Florence, Italy.

Platelet Response to Increased Aspirin Dose in Patients Whose Platelets Were Non-Responsive to Lower Aspirin Doses

Erica S. Westphal, BA/BSc[1]; Francis Gengo, PharmD[1,2]; Michelle Rainka, PharmD[1]; Matthew Robson, PhD[3]; Maurice Hourihane, MD[1]; Vernice Bates, MD[1]

[1] Dent Neurologic Institute; [2] University at Buffalo School of Pharmacy and Pharmaceutical Sciences; [3] James L. Winkle College of Pharmacy, University of Cincinnati

Abstract Type: Encore Presentation. **Previously Presented:** International Stroke Conference (2009) and American Academy of Neurology (2014).

Safety Data From Phase 3 Clinical Studies Comparing Galcanezumab and Placebo in Patients With Episodic and Chronic Migraine

Virginia L. Stauffer, PharmD[1]; Shufang Wang, PhD[1]; Mark E. Bangs, MD[1]; Tina M. Oakes, PhD[1]; Jeffrey N. Carter, PhD[1]; Sheena K. Aurora, MD[1]

[1] Lilly Research Laboratories

Abstract Type: Encore Presentation. **Previously Presented:** EAN–European Academy of Neurology, June 2018, Lisbon, Portugal; EHF–European Headache Federation, September 2018, Florence, Italy.

Student-Led Academic Detailing Regarding Naloxone Standing Orders at Chain Community Pharmacies in Texas

Sarah R. Piccuirro, PharmD Candidate[1]; Judith Rendon, PharmD Candidate[1,2,3]; Shelly Goyal, PharmD Candidate[1]; Lucas G. Hill, PharmD, BCPS, BCACP[1]; Kelly R. Reveles, PharmD, PhD, BCPS[1,2,3]; Kirk E. Evoy, PharmD, BCACP, BC-ADM, CTTS[1,2,3]

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Abstract Type: Encore Presentation. **Previously Presented:** ASHP Midyear 2018, Anaheim, CA.

The Development of an In Vitro Assay for the Prospective Determination of Aspirin Sensitivity and Its Validation in Patients Resistant to Low Dose Aspirin: A Proof of Concept Study

Erica S. Westphal, BA/BSc[1]; Caitlin Wisniewski, PharmD[1]; Michelle Rainka, PharmD[1]; Nicholas M. Smith, BSc[1]; Michelle Amsler, PharmD[1]; Traci Aladeen, PharmD[1]; Vernice Bates, MD[1]; Fran M Gengo, PharmD[1,2]

[1] Dent Neurologic Institute; [2] University at Buffalo School of Pharmacy and Pharmaceutical Sciences

Abstract Type: Encore Presentation. **Previously Presented:** International Stroke Conference (2017), American Academy of Neurology (2017), and American College of Clinical Pharmacology (2018).

The Effect of Adjunct Aripiprazole on Measures of Tobacco Use and Craving in Women With Psychotic Disorders

Heidi J. Wehring, PharmD, BCPP[1]; Megan M. Powell, BA[1]; MacKenzie A. Sayer, BS[1]; Ann L. Hackman, MD[2]; Robert W. Buchanan, MD[1]; Rebecca B. Nichols, BS[3]; Heather A. Adams, PsyD[1,4]; Charles M. Richardson, MD[1,4]; Gopal Vyas, DO[1,4]; Robert P. McMahon, PhD[1]; Amber K. Earl, MA[1]; Kelli M. Sullivan, MPH[1]; Sarah E. Luttrell, PharmD, BCPS[5]; Faith B. Dickerson, PhD, MPH[6]; Supriya Narang, MD[6]; Maju M. Koola, MD[7]; Jill A. RachBeisel, MD[2]; Joseph P. McEvoy, MD[8]; Fang Liu, MS[1]; Stephanie M. Feldman, MSW[1]; and Peter F. Buckley, MD[9]; Deanna L. Kelly, PharmD, BCPP[1]

[1] Maryland Psychiatric Research Center, University of Maryland School of Medicine; [2] Department of Psychiatry, University of Maryland School of Medicine; [3] Georgia Regents University; [4] Spring Grove Hospital Center; [5] Eastern Shore School of Pharmacy, University of Maryland; [6] Sheppard Pratt; [7] George Washington University; [8] Virginia Commonwealth University School of Medicine

Abstract Type: Encore Presentation. **Previously Presented:** International Congress on Schizophrenia Research 2019.

The Effects of Brexpiprazole on Sexual Dysfunction in Major Depressive Disorder: Results of Three Randomized, Placebo-Controlled Studies

Mary Hobart, PhD[1]; Peter Zhang, PhD[1]; Emmanuelle Weiller, PsyD[2]; Catherine Weiss, PhD[1]

[1] Otsuka Pharmaceutical Development & Commercialization Inc; [2] H. Lundbeck A/S

Abstract Type: Encore Presentation. **Previously Presented:** American Psychiatric Association (APA) 2017 Annual Meeting in May 2017.

The Impact of the Mental Health First Aid Elective on Pharmacy Students' Implicit and Explicit Biases

Jennifer Robinson, PharmD[1]; Anne Kim, PharmD, MPH, MIT[1]; Damianne Brand-Eubanks, PharmD[1]; Nancy Johnson, PharmD Candidate 2020[1]

[1] Washington State University College of Pharmacy

Abstract Type: Encore Presentation. **Previously Presented:** American Pharmacists Association Annual Meeting, March 22-25, 2019, Seattle, WA.

Transition From Buprenorphine Maintenance to Extended-Release Naltrexone: Hybrid Residential-Outpatient Randomized Controlled Trial

Paolo Mannelli, MD[1]; Sandra Comer, PhD[2]; Danesh Alam, MD[3]; Antoine Douaihy, MD[4]; Narinder Nangia, PhD[5]; Sarah Akerman, MD[5]; Abigail Zavod, MD[5]; Bernard Silverman, MD[5]; Maria A Sullivan, MD, PhD[2,5]

[1] Duke University School of Medicine; [2] Columbia University; [3] Northwestern Medicine; [4] University of Pittsburgh School of Medicine; [5] Alkermes Inc

Abstract Type: Encore Presentation. **Previously Presented:** Annual Conference Innovations in Addictions Medicine and Science (ASAM), April 12-15, 2018, San Diego, CA.

Treatment Decisions Guided by Combinatorial Pharmacogenomic Testing Lead to Decreased Side Effect Burden and Improved Outcomes for Patients With Depression

John F. Greden, MD[1]; Sagar V. Parikh, MD[1]; Shannon Zandy, PharmD, PhD[2]; Anthony J. Rothschild, MD[3]; Michael E. Thase, MD[4]; Boadie W. Dunlop, MD[5]; Charles DeBattista, DMH, MD[6]; Charles R. Conway, MD[7]; Brent P. Forester, MD, MSc[8]; Francis M. Mondimore, MD[9]; Richard C. Shelton, MD[10]; Matthew Macaluso, DO[11]; James Li, PhD[2]; Krystal Brown, PhD[12]; Alexa Gilbert, MSc, MBA[2]; Lindsey Burns, MBA[2]; Michael R. Jablonski, PhD[2]; Bryan Dechairo, PhD[2,12]

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Abstract Type: Encore Presentation. **Previously Presented:** American College of Neuropsychopharmacology Annual Meeting, December 10, 2018, Hollywood, FL.

Treatment Effect of Once-Monthly Paliperidone Palmitate Compared With Oral Antipsychotics in Black/African-American Patients Diagnosed With Schizophrenia and With a History of Criminal Justice System Involvement

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Treatment Options for Adolescents With Opioid Use Disorder

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Abstract Type: Encore Presentation. **Previously Presented:** 53rd American Society of Health-System Pharmacists Midyear Clinical Meeting & Exhibition, December 5, 2018, Anaheim, CA: Poster 8-393.

A Description of Antipsychotic Prescribing Patterns Based on Race in a Culturally-Diverse Population

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Abstract Type: Work in Progress. **Background:** Psychosocial factors, including cultural beliefs and socioeconomic status, can have a large impact on accessibility to treatment in mental illness. Considering the various

perceptions of mental health across cultures and stigmatization of health care providers, minority populations can potentially be prone to health disparities in regards to the treatment of mental health conditions. This pilot study will provide new data regarding drug selection of antipsychotic medications based on race/ethnicity, as well as other individual characteristics, and how it relates to possible unnecessary antipsychotic exposure. **Objectives:** (1) Describe the prescribing patterns of antipsychotic medications to patients from different racial/ethnic backgrounds, and (2) explore appropriateness to therapy, targeting potential mental health disparities related to antipsychotic medication exposure. **Methods:** A single-center, retrospective chart review will be conducted at the inpatient behavioral health center of an academic hospital. To be included, patients must be discharged with a prescription for an oral antipsychotic or be administered a long-acting injectable antipsychotic prior to discharge for a diagnosis of a formal mood or thought disorder. A target enrollment will be 500 patients from October 1, 2015, to December 31, 2017. Descriptive in nature, the study will relate the antipsychotics prescribed at discharge to race/ethnicity of the patient. Demographic information, including socioeconomic status, health care coverage, and past psychiatric and medication history, will be collected. For objective 1: descriptive statistics will be used to relate race to antipsychotic drug selection in order to further explore health disparities in antipsychotic prescribing practices in minority populations. For objective 2: descriptive statistics will explore whether current practices in pharmacotherapeutic care are appropriate to the patient, based on current evidence, in the treatment of mental health patients of various racial backgrounds. **Outcomes:** We will report the prescribing patterns of antipsychotics based on race/ethnicity to better target health disparities in the treatment of mental illness in future studies. Also, appropriateness of antipsychotic medications will be reported based on guideline recommendations in relationship to the patients' individual demographic information, socioeconomic status, psychiatric history, and previous treatment approaches.

A Retrospective Comparison of Efficacy of Supervised and Unsupervised Administration of Buprenorphine-Naloxone in the Treatment of Opioid Use Disorder

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Abstract Type: Work in Progress. **Background:** Medication-assisted treatment (MAT) is the use of medications with behavioral therapies and counseling to treat substance use disorders and prevent opioid overdose. With increased opioid prescribing, opioid overdose-related deaths have reached epidemic proportions since the 1990s. Poor access to MAT exacerbates the opioid overdose crisis. Buprenorphine-naloxone currently presents the greatest opportunity for expanding access to MAT. Unlike methadone opioid treatment programs (OTPs), which require supervised administration, office-based opioid agonist treatment (OBOT) allows for unsupervised administration of buprenorphine, thus expanding access to MAT. However, despite research demonstrating efficacy of OBOT with buprenorphine, the implementation of buprenorphine OBOT has been slow and variable among Veterans Health Administration facilities. **Objectives:** Compare the effectiveness of supervised administration of buprenorphine-naloxone in a Drug Dependence Treatment Center (DDTC) versus unsupervised administration combined with participation in an addiction treatment program (ATP). **Methods:** This is a retrospective, electronic chart review of patients at Jesse Brown Veterans Affairs Medical Center with an established diagnosis of opioid use disorder (OUD) who were newly started on buprenorphine-naloxone therapy between January 1, 2012, and October 1, 2017, and receiving supervised administration in DDTC or unsupervised administration in conjunction with an ATP. A patient list will be generated from Computerized Patient Record System (CPRS) and Addiction Management System (AMS) Enterprise. If the patient meets eligibility criteria, predefined data will be collected up to 3 years postinitiation to assess clinical outcomes. The primary endpoint is percentage of opiate-negative urine drug tests during treatment. The secondary endpoints include treatment retention, inpatient admissions related to opioid use, emergency department visits related to opioid use, death related to OUD, and residential treatment related to OUD. Descriptive statistics will be used to analyze the primary and secondary endpoints. **Outcomes:** This study will report the percentage of opiate-negative urine drug tests in patients receiving supervised buprenorphine-naloxone therapy versus unsupervised administration in conjunction with an ATP. It will also report on differences between treatment retention and OUD-related inpatient admissions, emergency department visits, death, and residential treatment in the two groups.

A Retrospective Review of Medication-Assisted Treatment for Alcohol Use Disorder and the Impact on Readmission Rate

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Abstract Type: Work in Progress. **Background:** Alcohol use disorder (AUD) is a chronic, relapsing disorder that is characterized by compulsive alcohol seeking, uncontrollable drinking, and a negative emotional state when not drinking. The prevalence of AUD among adults age 18 years and older in the United States is estimated to be 8.5%. Current US Food and Drug Administration–approved medications for the treatment of AUD include naltrexone (oral and long-acting injection), acamprosate, and disulfiram. Although medications for AUD have modest efficacy data in reducing the risk of binge-drinking and decreasing the likelihood of return to any drinking, they have been underprescribed. One of the Hospital-Based Inpatient Psychiatric Services Core Measures includes the assessment of whether AUD treatment was provided or offered at discharge. However, the short-term benefit of medications for AUD, such as reduction in 30-day readmission rate, is unclear, and more data are needed to determine the benefit of initiating medication-assisted treatment for patients diagnosed with AUD during their inpatient stay. **Objectives:** Evaluate the impact of medication-assisted treatment for AUD on 30-day readmission rate. The 30-day readmission rate in patients who received medication-assisted treatment will be compared to the 30-day readmission rate in patients who were admitted in the Detoxification Unit at a 100-bed community psychiatric hospital. **Methods:** This study has been approved by the Institutional Review Board. Adult patients with AUD admitted to the detoxification unit between June 1, 2017, and May 31, 2018, who were discharged on naltrexone, acamprosate, and disulfiram will be included in the study. This is a retrospective chart review, and data to be collected include: patient's age, gender, diagnosis, comorbidities, adverse drug reactions, and whether patient was readmitted within 30 days of discharge. Descriptive statistics will be used in assessing the collected information. **Outcomes:** We will report the number and percent of patients taking naltrexone (oral and long-acting injection), acamprosate, and disulfiram, who were readmitted within 30 days of discharge.

Addressing Non-Adherence of Newly Prescribed Antidepressants in Veteran Outpatients (MDD43h & MDD47h SAIL Metrics)

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Abstract Type: Work in Progress. **Background:** There are no definitive strategies adopted for measuring quality of antidepressant prescribing for optimal clinical practice. Encompassing aspects of quality and efficiency, national Veterans Affairs (VA) metrics are used to benchmark VA medical centers and are reported as a quarterly Strategic Analytics for Improvement and Learning (SAIL) performance star ranking. MDD43h and MDD47h objectively score the effective acute phase of antidepressant treatment (12 weeks), and the continuation phase of antidepressant treatment (6 months), respectively. **Objective:** The purpose of this quality improvement project is to identify reasons for antidepressant nonadherence in the VA Northern California Health Care System (VANCHCS), and to develop a sustainable process for addressing these barriers. **Methods:** Veterans at risk for nonadherence are identified using the national Antidepressant Non-adherence Patient Dashboard for MDD43h and MDD47h. Veterans are contacted, via telephone, to assess the reason for nonadherence. Concerns are addressed during this initial phone call, or forwarded to provider if needed. Interventions include education about therapy expectations, adverse effects, or navigation of the medication refill process, or referral to provider. Team members include a postgraduate year 2 psychiatric pharmacy resident, licensed clinical social worker, clinical psychologist, registered nurse, and medical support assistant. The reported reasons for nonadherence from the mental health clinic at the primary medical center (Sacramento-Mather) will be compiled to create a sustainable intervention strategy that can be rolled out to other clinics within the VANCHCS. **Outcomes:** The number of depression-diagnosed veterans who failed to demonstrate antidepressant adherence will be compared with those with intervention to assess efficacy of the intervention strategy at 114 and 231 days after index prescription date. Data presented will include antidepressant medication name, reason for nonadherence, and quarterly MDD43h and MDD47h SAIL metric scores before and after interventions.

An Active-Control Study of Pharmacy Students' Attitudes About Suicide Assessment Before and After a Standardized Patient Case

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Abstract Type: Work in Progress. **Background:** Suicide is a major public health epidemic; however, when proper screening is employed risky suicidal behavior can be correctly identified and lives can be saved. The Columbia Suicide Severity Rating Scale (C-SSRS) is a validated, widely accepted, and easy-to-use screening tool endorsed by a number of organizations, including the American Psychiatric Association. Pharmacy students should be trained to use this tool, as pharmacists are considered one of the most accessible health care professionals. Pharmacists have the ability to have an impact on suicide in a community pharmacy setting through proper training and

use of the C-SSRS screener. **Objectives:** The objective of this study is to examine pharmacy students' attitudes/feelings about their comfort with and ability to assess suicidality during a simulated patient scenario using the C-SSRS screener adapted for use in a community pharmacy setting. **Methods:** Pharmacy students in their third year of school (P3s) taking a counseling course at St John Fisher College in the Wegmans School of Pharmacy will be included in this study. This course consists of multiple therapeutic sections that each consist of a lecture on the material and a simulated counseling sessions with a standardized patient (SP) who presents to a community pharmacy to pick up a prescription (SP session). The students will be randomly assigned 1 of 3 cases for their SP session (cases include: dementia, depression without suicidality, and depression with suicidality). After completion of the SP session, the students will be given a pre/post survey on their attitudes about using the C-SSRS to assess suicidality. **Outcomes:** The hypothesis is that the students who get the suicide case (group A) will be significantly more comfortable using the scale than those who did not have practice using it during the SP session (group B). To analyze the data, measures of central tendency will be used to describe outcome variables. To compare pre- and post-outcomes, paired statistics will be used (eg, McNamara, paired *t* test, Wilcoxon signed rank test) depending on how the variables are used and how they are distributed.

Analysis of the Use of Prophylactic Therapy Agents in the Treatment of Migraines at the Chillicothe Veterans Affairs Medical Center

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Abstract Type: Work in Progress. **Background:** Migraines are the third most prevalent illness in the world. Migraines have a detrimental impact on everyday function and productivity at work, with 90% of patients reporting inability to function during a migraine attack. Costs associated with migraines are estimated to be about $36 billion annually in the United States. Migraines do not have a cure, but the use of preventive treatment to decrease the frequency and severity of headache attacks have been shown to improve health outcomes and quality of life. Available literature estimates low rates of patients taking prophylactic medications and a high number of patients taking abortive therapy; therefore, additional studies are warranted to determine if these medications should be utilized more in our patient population. **Objectives:** (1) Retrospectively determine the number of patients who meet criteria for prophylactic therapy for migraines based on the frequency of prescription refills of abortive therapy agents between treatment groups. (2) Investigate the reduction of migraine frequency with patients currently receiving prophylactic treatment. (3) Determine the percent of patients taking abortive therapy medications more frequently than recommended by manufacturer labeling. (4) Investigate the number of patients currently receiving nonpharmacologic treatment for management of migraine headaches. **Methods:** A retrospective analysis will be performed for veterans receiving outpatient prescriptions for triptans, butalbital-containing medications, and ergotamine/caffeine from January 1, 2017, to November 30, 2018. The VA Database will be queried and a computer-generated list will be obtained from CPRS/VISTA by the AD-PAC who is not involved in the study. Patients will be stratified to two treatment arms: abortive therapy alone versus abortive therapy in conjunction with prophylactic therapy. The investigators will then utilize the Computerized Patient Record System to assess each patient profile for the following: concomitant use of prophylactic migraine therapy, use of acute treatments $\geq$2 days/week or $\geq$3 times per month, reports of decreased quality of life, or acute treatments that are ineffective or contraindicated. This study is pending Institutional Review Board approval. **Outcomes:** Pending results of the study, there will be efforts to develop a pharmacist-integrated migraine prophylaxis clinic to improve health outcomes for migraine sufferers.

Antipsychotic Factors Related to Time to Competency for Forensic Inpatients in a State Psychiatric Facility

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Abstract Type: Work in Progress. **Background:** To be deemed competent to stand trial, a defendant must have the ability to consult with his or her lawyer and have a factual and rational understanding of the legal proceedings, which may be impacted by mental illness. If the defendant is determined to be incompetent to stand trial, he or she must undergo competency restoration, including mental health treatment and education. Although medications play an important role in competency restoration due to their ability to treat underlying psychiatric disorders, there is little information on how medications

affect competency restoration. **Objectives:** (1) Compare antipsychotic-related factors for time to competency restoration. (2) Compare length of stay between patients who could receive their antipsychotic in jail and those who could not. **Methods:** This is a single-center, retrospective chart review. Patients will be included if they were admitted to the inpatient forensic psychiatry unit at the Center for Behavioral Medicine in Kansas City, MO, for competency restoration, prescribed a scheduled antipsychotic, and had admission and discharge dates between July 2016 and February 2019. Patients will be excluded if they have not had a competency evaluation during the study period or if they have been opined permanently incompetent to stand trial. If a patient has more than one admission during the study period, only their initial admission will be included. A chart review will be conducted after discharge to collect baseline characteristics and data related to the primary and secondary outcomes. Analysis of variance, *t* test, or Mann-Whitney *U*, and χ^2 or Fisher exact test will be used to analyze outcomes, as appropriate. **Outcomes:** The primary outcome is the difference in time to competency between individual antipsychotics. Secondary outcomes are differences in time to competency and readmission rates between groups of antipsychotics (eg, first and second generation, long-acting injectable and oral), change in Brief Psychiatric Rating Scale scores from admission to month of competency for individual antipsychotics, the percent of patients who had a delay in hospital discharge due to lack of availability of their antipsychotic in jail, and difference in length of stay after opined competence between patients who could or could not receive their antipsychotic in jail.

Are Patients With Treatment-Refractory Psychotic Disorders (Schizophrenia and Schizoaffective Disorder) More Likely to Have Been Exposed to Adverse Childhood Experiences (ACEs)?

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Abstract Type: Work in Progress. **Background:** Psychotic disorders can be severely debilitating, and if left untreated may result in patients becoming a danger to themselves or others. Negative prognostic indicators associated with poor response to pharmacologic agents include drug and alcohol abuse, negative symptoms, neuropsychologic deficits, negative subjective response to antipsychotics within the first 48 hours of treatment, and poor therapeutic alliance with health care providers. Studies have shown that an increased number of adverse childhood experiences (ACEs) increases risk for medical and psychiatric morbidity, and Paterniti et al showed that exposure to ACEs can reduce recovery and remission in patients with depression. We are not aware of any published studies that have examined whether exposure to ACEs contributes to poor response to pharmacologic treatments or adversely alters the clinical course of psychotic disorders. **Objectives:** To determine if individuals with psychotic disorders who were exposed to $\geq$4 categories of ACE are less likely to respond to first-line antipsychotic treatment. **Methods:** We are conducting a prospective case-control study in patients with psychotic disorder at our facility. A comprehensive chart review to collect demographic data and interview will be performed for consenting participants to determine antipsychotic responsivity. Patients are categorized as refractory if they have failed $\geq$2 antipsychotics. Patients will complete the 10-item ACE questionnaire, and responses are categorized into 7 exposure categories: psychologic, physical abuse, sexual abuse, substance abuse, mental illness, mother treated violently, and criminal behavior in their household. Patients who endorsed exposure to 4 or more of the ACE categories are deemed to have experienced an adverse childhood experience. We plan to enroll 35 refractory cases and 35 controls (nonrefractory). An odds ratio will be calculated to determine if individuals with exposure to $\geq$4 ACE categories are more likely to have treatment-refractory psychosis. **Originality of Project:** Although several studies have demonstrated that individuals exposed to ACEs have a higher risk of developing psychosis, no studies to date have established an association with treatment-refractory psychosis. **Significance of Project:** Identification of significant childhood adversity as a predictor of poor antipsychotic responsivity may trigger a treatment plan that emphasizes psychotherapy and/or early initiation of clozapine.

Assessing Baseline Monitoring Parameters for Traditional Mood Stabilizers in an Inpatient Adult Psychiatric Population

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Abstract Type: Work in Progress. **Background:** Traditional mood stabilizers are a cornerstone in the treatment of bipolar disorder but are associated with the routine need for safety and efficacy monitoring. The Canadian Network for Mood and Anxiety Treatments and International Society for Bipolar Disorders (CANMAT-ISBD) guidelines for the management of patients with bipolar disorder define baseline monitoring prior to initiating therapy with these agents. Thyroid function tests (TSH), basic metabolic panel (BMP), urinalysis (UA), and electrocardiogram

(ECG) for all patients older than 40 years or with cardiovascular disease or cardiovascular risk factors are recommended for lithium. Liver function tests (LFTs) and a complete blood count (CBC) are recommended before initiating divalproex. When initiating carbamazepine, a baseline CBC and BMP should be obtained. Additionally, patients of Asian descent require HLA-B*1502 allele testing before initiating therapy with carbamazepine. The CANMAT-ISBD guidelines also recommend a trough level be obtained during the acute initiation phase to ensure therapeutic levels for lithium and divalproex. This analysis aims to evaluate the current practice of obtaining baseline monitoring parameters when initiating lithium, divalproex, and carbamazepine. **Objectives:** (1) Characterize trends in baseline monitoring of lithium, divalproex, and carbamazepine. (2) Determine rate of guideline-recommended monitoring. (3) Assess rates of serum drug concentration monitoring. **Methods:** Data will be collected for all newly initiated inpatient orders from June to December 2018 for lithium, divalproex, and carbamazepine. The following data will be collected: presence of ECG (if appropriate), TSH, BMP, and UA for lithium; presence of CBC and LFTs for divalproex; and presence of CBC, BMP, and HLA-B*1502 testing (if appropriate) for carbamazepine. Additionally, presence of drug serum levels within 4 days of initiation will be obtained for lithium and divalproex. **Outcomes:** The incidence of guideline-recommended baseline monitoring and serum drug level will be reported for the select traditional mood-stabilizing medications.

Assessing Clinical Outcome of Providing Comprehensive Medication Management (CMM) Pharmacist Services in a Community Mental Health Setting: A 24-Month Retrospective Study

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Abstract Type: Work in Progress. **Background:** A 2015 systematic meta-analysis of medication management services in outpatient settings found large variability of clinical results due to undefined patient populations, lack of a clearly defined intervention, and inconsistent implementation of the patient care process. To address these inconsistencies, a landmark paper entitled "The Patient Care Process for Delivering Comprehensive Medication Management (CMM): Optimizing Medication Use in Patient-Centered, Team-Based Care Settings" was published in July 2018. Currently, there is no known research methodology to consistently study the impact of providing CMM services on patient care outcomes in psychiatry. **Objectives:** The primary objective of this exploratory study of the impact of providing CMM services by analyzing baseline to endpoint outcome measures, including PHQ-9 scores, Clinical Global Impression scale (CGI), number of conditions, number of medications, and number resolved/unresolved drug therapy problems in a CMM practice in psychiatry during 24 months. **Methods:** This project is a retrospective 24-month review of a psychiatric pharmacist CMM practice in community mental health. All participants must have at least 2 CMM visits. Mixed-models analysis will be used to evaluate the retrospective changes from baseline and determine if follow-up visits outcome measures are statistically improved over baseline. An external review of the study results by nonclinic psychiatric pharmacist consultants and the clinic psychiatrist will determine clinical significance of outcome measure results to minimize performance bias. **Originality of Project:** The effectiveness of CMM services in mental health is focused on the optimization of medication therapy to improve patient function and achievement of goals that improve quality of life. The innovative use of the CGI scale to measure symptoms severity and functional improvement at follow-up provides the CMM provider with a measurement to assess medication intervention effectiveness over time. Regular review of CGI improvement scores annually will provide meaningful feedback for practice management quality improvement to ensure the continual effectiveness of the pharmacist's patient care process and effective delivery of CMM services. **Significance of Project:** Development of a methodology to consistently measure the effectiveness of CMM services will hopefully improve patient care outcomes across all mental health settings.

Assessing the Clinical Utility of Monitoring Lamotrigine Serum Levels: A Retrospective Review

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Abstract Type: Work in Progress. **Background:** Therapeutic drug monitoring (TDM) of mood stabilizers has been correlated with clinical efficacy and toxicity for several mood stabilizers; however, evidence is unclear as to the clinical utility of monitoring serum lamotrigine levels. Previous literature suggests using lamotrigine TDM as a tool to assess patient adherence or to monitor for potential adverse events in the presence of known drug interactions. Still, evidence of lamotrigine TDM in guiding dose adjustments during treatment is lacking. This study's purpose is to investigate the clinical utility of lamotrigine TDM guiding treatment of patients with bipolar disorder

and determine the incidence of dose-related adverse events at a large academic medical center. **Objectives:** (1) Determine the clinical impact of lamotrigine TDM (ie, serum levels) in guiding treatment decisions for patients with bipolar disorder, and (2) Determine the incidence of adverse effects, including dizziness, diplopia, ataxia, blurred vison, rash, nausea, and vomiting. **Methods:** Retrospective chart data will be obtained from electronic medical records for patients at least 18 years of age admitted to the Johns Hopkins Hospital psychiatry units who had at least one lamotrigine level from July 1, 2016, to November 30, 2018. Demographic variables (gender, age, ethnicity), lamotrigine status (indication, serum level, daily dose, number of treatment days, dose adjustments/discontinuation, drug interactions), and patient baseline characteristics (hepatic impairment, baseline treatment rating scale, and use of PRN antipsychotics or benzodiazepines) will be collected. The primary endpoints will be serum lamotrigine levels and dose adjustments/discontinuations following TDM. The secondary endpoints will be the incidence of dizziness, diplopia, ataxia, blurred vision, rash, and nausea/vomiting. Descriptive statistics will be calculated for objective endpoints (ie, mean and standard deviation for normally distributed data and median for nonnormal distribution). **Outcomes:** The number and percent of lamotrigine dose adjustments/discontinuations, concomitant drug interactions, and side effects will be collected and evaluated to determine the relationship between lamotrigine levels and treatment management of patients with bipolar disorder.

Assessing the Impact of Clinical Psychiatric Pharmacy Services; a Survey of Multidisciplinary Provider Experiences

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Abstract Type: Work in Progress. **Background:** The goal of clinical pharmacy services is to optimize drug therapy outcomes. This may be achieved through formal consult services, verbal drug recommendations, laboratory monitoring, adverse event monitoring, medication reconciliation, provider education, patient counseling, etc. There are many established measures of positive outcomes; however, the ultimate utility of clinical pharmacy services is often gauged by the opinions and experiences of fellow health care professionals. This study will survey the 5-year impact of the introduction of clinical psychiatric pharmacy services in a state hospital based on the opinions and experiences of multidisciplinary health care professionals. **Objectives:** (1) Evaluate the perceived impact of clinical psychiatric pharmacy services on patient care. (2) Evaluate the perceived impact of clinical psychiatric pharmacy services on the workload of nonpharmacy professionals. (3) Assess fellow health care professionals' understanding of the role and responsibilities of clinical pharmacists. (4) Determine whether views about the utility of clinical pharmacy services vary among different hospital disciplines involved in patient care. **Methods:** Participants will be recruited from a state psychiatric hospital in Kaneohe, HI. All prescribers, psychologists, social workers, and nurses directly involved in patient care will be eligible and approached for study participation, with a target enrollment of $\geq$200 employees. A survey will be used to assess participants' level of exposure to and understanding of clinical pharmacy services. Participants will evaluate the utility of pharmacy services in both improving patient care and reducing the work burden of non–pharmacy-related professionals. For all objectives, descriptive statistics will be used to report participant experiences and attitudes. **Outcomes:** We will report the number and percent of participants who are directly affected by the presence of clinical pharmacy services and analyze the perceived impact on patient care and professional workload. We will report an assessment of multidisciplinary health care professionals' understanding of clinical pharmacy services. Analysis will be done on both pooled results and results by profession.

Assessing the Utility of Two Lithium Dose Prediction Calculators for Use in an Inpatient Psychiatric Hospital

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Abstract Type: Work in Progress. **Background:** Starting lithium doses are commonly 300 mg 2 or 3 times daily with titration based on response, tolerability, and lithium levels. However, this method of lithium dosing can take several weeks to months to achieve therapeutic levels. Other methods exist that calculate daily lithium doses based on desired lithium level, patient characteristics, and laboratory values. These methods could potentially achieve therapeutic lithium levels more quickly and efficiently than traditional methods. **Objectives:** To compare lithium starting doses currently used in a 140-bed freestanding inpatient psychiatric hospital to those suggested by the dose prediction calculations developed by Abou-Auda et al and Pepin et al. The accuracy of the calculators among our patient population will also be assessed. **Methods:** Weight, age, TCA use, blood urea nitrogen, serum creatinine, lithium level, lithium dose, and sex were all determined from the electronic health record, and using both equations a calculated lithium daily dose was determined. Target lithium levels were obtained from the chart, and if not explicitly stated were assumed to be

1.0 mmol/L for patients with acute mania. Creatinine clearance was calculated using the same methods as Abou-Auda et al and Pepin et al, respectively. For patients who had lithium levels drawn after 5 days of therapy the doses reported by the calculators were compared to those doses actually administered to assess differences. **Outcomes:** Data collection is ongoing. We will report the number of patients reviewed and average differences in dosing, along with practice suggestions based on our findings.

Assessment of a Pharmacist-Run Specialty Mental Health Clinic Compared to the Standard of Care at VA Boston: A Quality Improvement Project

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Abstract Type: Work in Progress. **Background:** At VA Boston Healthcare System (VABHS), psychiatric patients are seen in numerous clinic settings, including general mental health, addiction psychiatry, and serious mental illness (SMI) clinics. The utilization of a pharmacist as a provider in mental health clinics has been well documented in clinic settings within the Veterans Affairs system and the private sector. At VABHS a clinical pharmacy specialist (CPS) serves as the primary outpatient provider for a panel of SMI patients while collaborating with an attending psychiatrist. Similar clinic models have been reported; however, there are limited data comparing patient outcomes when treated by CPS providers to patients treated by a psychiatrist. Mental health CPSs are well trained in ensuring safe and effective pharmacotherapy. Pharmacists frequently intervene regarding medication dosing, antipsychotic polypharmacy, adherence to metabolic monitoring, and drug-drug interactions. In comparing patient outcomes between a CPS and a psychiatrist, this project seeks to highlight potential advantages and disadvantages to a pharmacist-run SMI clinic. **Methods:** The patient panel for the VABHS Pharmacy SMI clinic and the patient panel for a VABHS Psychiatry SMI provider will be compared on a number of patient outcome measures. Patients reviewed will include patients with at least 2 appointments in their respective clinic from January 1, 2017, to December 31, 2017. Baseline demographics will be compared for each panel to determine any significant differences between the panels. Specific measures to be reviewed include reduction in psychotropic polypharmacy, reduction in antipsychotic dosing, addition and discontinuations of medication therapy, adherence to metabolic and therapeutic drug monitoring, and patient adherence to the medication regimen. The number of psychiatric admissions, psychiatric emergency department/urgent care visits, and the number of pharmacist/psychiatrist hours will be collected and utilized to estimate cost differences between both clinic models.

Assessment of Contraception Provision and Screening in Female Psychiatric Inpatients on Mood Stabilizers

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Abstract Type: Work in Progress. **Background:** Mood-stabilizing medications, such as valproic acid derivatives, lithium, and carbamazepine, are commonly prescribed to women of reproductive potential with psychiatric conditions. These medications are known teratogens, which are associated with severe congenital malformations. Preconception counseling is recommended for all women of reproductive potential being treated with these agents. This counseling should include recommendations for appropriate contraception and the potential risks to the fetus if the woman should become pregnant. This study will characterize current practices of contraception counseling and provision for females of reproductive potential prescribed mood stabilizers during an inpatient stay within a psychiatric hospital. **Objectives:** (1) Measure frequency of contraception counseling and provision for females of reproductive potential prescribed valproic acid derivatives, carbamazepine, or lithium during a psychiatric admission. (2) Evaluate appropriateness of pregnancy screening prior to mood stabilizer prescribing. (3) Assess features of contraception counseling, including timing of counseling during inpatient stay. (4) Determine the types of contraception methods prescribed or recommended. (5) Measure frequency of folic acid provision for women prescribed valproic acid derivatives or carbamazepine. **Methods:** This study is a retrospective chart review of females aged 18 to 50 years admitted to a psychiatric hospital from August 1, 2017, to July 31, 2018, and who received at least one dose of valproic acid derivatives, carbamazepine, or lithium during admission. Females with documented hysterectomy, menopause, or pregnancy at admission will be excluded. Demographic information (age, psychiatric diagnosis), type and dose of mood-stabilizing agent prescribed, urine pregnancy test timing and result, and type of prescription contraception and folic acid–containing product prescribed at discharge will be collected. Chart review will be performed to determine frequency of and characterize instances of contraception counseling, including timing of counseling and contraception method recommended. Descriptive statistics will be used for reporting of all objectives. **Outcomes:** We will report the frequency of contraception counseling and provision within this patient population and characterize counseling and prescribing practices. Completion of this

project is expected in March 2019. Results of this project will be used to design an intervention to optimize contraception counseling and provision practices at our institution.

Assessment of the influence That an Inpatient Psychiatric Experience Has on Psychotropic Medication Selection by Pharmacy Students

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Abstract Type: Work in Progress. **Background:** It is often difficult to assess the impact that an experience has on pharmacy students at the end of their psychiatric pharmacy practice experience on medication selection capabilities. The traditional assessments of case presentations, quizzes, exams, and reflective papers are useful, but these assessment tools do not always provide the preceptor/practitioner the medications that students have discovered to be most useful. This study analyzes the psychotropic medications selected by fourth-year pharmacy students upon completion of an Adult Psychiatry Advanced Pharmacy Practice Experience (APPE). **Methods:** Forty pharmacy students participated in a survey conducted at a private nonprofit freestanding psychiatric hospital and a private nonprofit community hospital with acute psychiatric units. Participants were asked to compose an adult psychiatric formulary list of medications based on their experience and knowledge to date at the start of the APPE in adult psychiatry. Each medication was presumed to be available in all dosage forms and could be used for multiple indications. The same students then participated in a survey at the completion of the experience. The survey responses were classified for analysis purposes into 9 categories: Psychotic Disorders (PD), Depressive Disorders (DD), Bipolar Disorders (BD), Anxiety Disorders (AD), Obsessive Compulsive Disorders (OCD), Psychoactive Substance Use Disorders (PSUD), Sleep Disorders (SD), Extrapyramidal Disorders (ED), and Alzheimer Dementia (ALD). **Outcomes:** A comparative analysis will be performed on the initial survey data compared with the postexperience survey data individually and collectively, and will be reported.

Assessment of Utilization of Academic Detailing on Prescription Drug Monitoring Program Query Rates When Initiating Opioids at the Boise Veterans Affairs Medical Center (VAMC)

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Abstract Type: Work in Progress. **Background:** Prescription drug overdose is an epidemic in the United States, resulting in 40 995 deaths in 2016. Opioid analgesics are associated with almost half of all prescription drug overdoses, accounting for 17 087 deaths (42%). Prescription Drug Monitoring Program (PDMP) databases are used to support safe and effective prescribing to patients. Currently the Boise Veterans Affairs Medical Center (VAMC) queries the state PDMP 1.6% of the time when initiating a new opioid prescription compared with the regional average of 17.8%. **Objective:** To evaluate the query rate of state PDMPs prior to initiating opioids and other controlled substances at the Boise VAMC preinitiation and postinitiation of academic detailing. **Methods:** The Veterans Affairs PDMP Dashboard will be utilized for preintervention and postintervention strategies to collect data of 50 patient profiles per locations of medicine, mental health, and surgery who qualify as initiating a new scheduled medication. Information collected will include patient age, gender, prescriber, location, medication, day supply, and PDMP date. Academic detailing interventions include: an educational in-service given to providers in each location, an online training module constructed for providers, pharmacists, and pharmacy technicians, and face-to-face individual education as follow-up to those providers not meeting a predefined threshold of 10%. The primary outcome is query rate of the PDMP prior to initiation of opioid prescriptions in the locations of surgery, mental health, and medicine after a 6-month period (August-February 2019). Secondary outcomes include the query rate of the PDMP prior to initiation of scheduled substances for patients under a mental health provider and percent change in $<$5-day supply of opioid prescriptions in surgery location during the same 6-month period. **Outcomes:** Descriptive statistics will be used to report the data from this evaluation. Rates will be calculated to describe the primary and secondary outcomes. These rates will be calculated as percentage of patients where provider queried PDMP prior to initiation of a scheduled substance. Subanalysis may include using χ^2 test or Fisher exact test to analyze prescribing rates by prescriber location and patient demographics. Rates of querying PDMP at baseline and after 6-month endpoint will also be compared using these statistical tests.

BoilerWoRx Outreach: Analyzing Changes in Attitudes Toward Substance Use Disorders, MAT Therapy, Harm Reduction, and Naloxone

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Abstract Type: Work in Progress. **Background:** The BoilerWoRx project is a Purdue College of Pharmacy mobile, public health initiative currently focusing on the opioid crisis. In partnership with the North Central Indiana Area Health Education Centers and the Tippecanoe County Health Department, BoilerWoRx has developed and implemented a continuing education (CE) program in substance use disorders, medication-assisted treatment (MAT), harm reduction, and naloxone training. CE will be delivered to health care providers in rural counties in north central Indiana to improve understanding of services and provide outreach and support. The educational programs provided with community partner support may aid in decreasing stigma and disinformation regarding substance use disorder and treatment modalities. This study will provide insight on current attitudes toward substance use disorders in Indiana rural counties and whether attitudes are improved after participation in this CE presentation. **Objectives:** (1) Analyze changes in attitude using deidentified prepresentation and postpresentation surveys. (2) Determine whether initial attitudes and changes are correlated with demographic data. (3) Analyze effectiveness of training/education based on pretest and posttest knowledge-based questions results. **Methods:** Participants will be grouped into 4 different cohorts for this research: health care professionals/community health workers, community members, BoilerWoRx student volunteers, and other university students. The initial cohort will be representative of rural county health care professionals and community health workers who are attendees at the CE presentations, with a target enrollment of $\geq$15 per presentation. Using descriptive statistics, demographic data, including age, zip code, sexual orientation, health care profession, highest level of education, professional satisfaction, and estimated success, will be collected. Each participant will be given a presurvey and postsurvey related to attitudes, formatted into a 5-point Likert scale, which will include 10 knowledge-based questions. Paired *t* test and Fisher exact test will be used to determine statistical significance of change in attitudes in the pre- and post-questionnaires. **Outcomes:** We will report on data regarding the change in attitudes in health care professionals and community health workers before and after participation in the continuing education presentation regarding substance use disorder, MAT therapy, harm reduction, and use of naloxone.

Building and Implementing New Adult Lamotrigine Order Sets to Include an Automatic Pharmacist Consult

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Abstract Type: Work in Progress. **Background:** Lamotrigine has a black box warning for serious skin rashes, including Stevens-Johnson syndrome (SJS). Mitigation strategies include dose titrations at therapy start and dose adjustments for drug interactions. Pharmacists have a crucial role in mitigating the risks associated with lamotrigine by ensuring appropriate starting doses, recommending dose adjustments for drug interactions, verifying the accuracy of home lamotrigine doses, evaluating patient compliance, and monitoring appropriate restart of lamotrigine orders held during a hospital stay. At St Vincent Evansville Hospital, approximately 315 orders for lamotrigine were entered into the electronic medical record in 2018. The current adult lamotrigine order sets do not include pharmacist consults, titration guidelines, or information about drug interactions necessitating lamotrigine dose adjustments. Recently at St Vincent Evansville Hospital an error involving inappropriate dosing of lamotrigine was reported, along with a case of SJS thought to be related to lamotrigine. **Objectives:** (1) To build and implement new adult lamotrigine order sets with an automatic pharmacist consult, (2) to have continuous pharmacist oversight and intervention on adult lamotrigine orders, and (3) to evaluate pharmacist impact on the number of reported lamotrigine order errors. **Methods:** New lamotrigine order sets with an automatic pharmacist consult will be built into the EMR for adult patients. Embedded into the new order sets will be a hyperlink opening guidelines for appropriate dosing, drug interactions, and mitigation strategies for lamotrigine. After the build is complete, pharmacists verifying a lamotrigine order and consult will ensure initial starting doses on new therapies are appropriate. Pharmacists will also be responsible for verifying the accuracy of home lamotrigine doses and patient compliance. Appropriate restart of lamotrigine if held will also be monitored. The pharmacist will follow the consult throughout the length of stay and make interventions when indicated. **Outcome:** Evaluation of the new order sets and consults will be ongoing. Descriptive statistics for adults will be generated from the event reporting system and external decision support software. Statistics will include the frequency of pharmacist intervention, order entry errors, adverse events, and incorrect medication histories. Data collected are anticipated to support pharmacist involvement of inpatient lamotrigine management.

Citalopram Titration in Early Non-Responder Patients With Major Depressive Disorder: A Randomized Controlled Pilot Study (CRY-MOOD)

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Abstract Type: Work in Progress. **Background:** Major depressive disorder (MDD) is the leading cause of disability worldwide. Early improvement following an antidepressant (AD) treatment (Tx) is correlated with response and remission. Although early escalation of the AD dose has been proposed to improve outcome, this has never been tested prospectively in a controlled study involving MDD nonresponders (NRs). **Objective:** To determine the feasibility of a randomized controlled (RC) trial assessing the impact of an early escalation dose of citalopram in MDD NR. **Methods:** Patients prescribed citalopram (CIT) following MDD diagnosis were eligible for this prospective, monocentric, double-blind, RC feasibility study. After a 2-week run-in period (CIT-20 mg PO daily), patients were assessed for nonresponse ($\leq$30% improvement on the Montgomery-Asberg depression rating scale). The NRs were randomized for early (week 2) or late (week 4) escalation of CIT-40 mg PO daily and were monitored during 8 weeks. Blinding was performed using over-encapsulation. Primary outcomes were the proportion (p) of NRs after the run-in period ($P \geq .45$) and the proportion of randomized NRs who completed the full course of Tx ($P \geq .65$). The target NR number was 24. **Results:** A total of 21 patients were screened, and 8 patients entered and completed the run-in period. Median MADRS (range) was 32 (25-36) at baseline. The proportion of NRs was 0.87 (IC95 = 0.76-0.93). The 8-week course was completed by all randomized patients, with 100% adherence. No unblinding occurred. **Conclusion:** This feasibility study suggests that the primary outcomes could be met. However, a multicenter design with longer recruitment period should be performed to meet the target for a successful RC trial.

Clinical Outcomes of Direct-to-Consumer Benzodiazepine and Sedative Hypnotic Patient Education at a Veterans Affairs Health Care System (VAHCS)

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Abstract Type: Work in Progress. **Background:** Benzodiazepines and sedative hypnotics are frequently prescribed in the elderly despite recommendations by various organizations to avoid these agents in patients 65 years and older. This warrants the need for interventions focused on decreasing the use of benzodiazepines and sedative hypnotics in this population. Sparked by the positive results of the EMPOWER study, two quality improvement projects conducted at the Salisbury Veterans Affairs Health Care System (VAHCS) demonstrated that direct-to-consumer interventions enhanced patient-provider conversations regarding benzodiazepine and sedative hypnotic use, but results were limited due to reliance on provider response to surveys. This study aims to further evaluate the clinical effectiveness of the direct-to-consumer intervention by assessing dose reduction or discontinuation of the medications independent of provider survey response. **Objectives:** (1) Evaluate the clinical outcomes of a direct-to-consumer education intervention measured by the rate of dose reduction and discontinuation of benzodiazepines or sedative hypnotics. (2) Assess the rates of each individual component of objective 1 and substitution of original benzodiazepine and/or sedative hypnotic with an alternative medication. (3) Assess average medication dose reduction. **Methods:** This project is a retrospective chart review of patients at the Salisbury VAHCS. The intervention group includes 77 patients, 75 years and older, who were flagged by the EMPOWER Mail Merge tool and received direct-to-consumer education regarding benzodiazepines and sedative hypnotics from December 2017 to April 2018. The EMPOWER Mail Merge tool will be utilized to identify a control group of patients who met the same criteria between November 2016 and October 2017 and did not receive direct-to-consumer education, with a target number of 77 patients. Demographic variables (age, gender), primary care appointment dates, and benzodiazepine/sedative hypnotic data (agent, dose at baseline and each follow-up appointment, duration of therapy, indication) will be collected. Objective 1 will be assessed using a composite outcome including benzodiazepine or sedative hypnotic dose reduction or discontinuation. For objectives 1 and 2, number and percentage of patients will be reported and analyzed using the χ^2 test. Descriptive statistics will be used to assess the average dose reduction for objective 3.

Clozapine/Norclozapine Plasma Concentration's Impact on Length of Stay: A Retrospective Chart Review

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Abstract Type: Work in Progress. **Background:** The utility of clozapine plasma concentrations is well studied, but routine use is not common practice. Guidelines recom-

mend targeting a therapeutic plasma concentration of at least 350 ng/mL. Clozapine's active metabolite, norclozapine, has similar pharmacology to clozapine and is thought to increase side effects. Studies and case reports suggest that the ratio of clozapine to norclozapine may play a role in efficacy and reducing adverse effects. Utilizing clozapine/norclozapine plasma concentrations to guide dosing may help patients achieve a therapeutic concentration and achieve psychiatric stabilization faster. **Objectives:** (1) Determine if drawing clozapine plasma concentrations affects length of stay (LOS). (2) Determine if patients who had a therapeutic clozapine plasma concentration had a shorter LOS than those who were subtherapeutic. (3) Determine if clozapine to norclozapine ratio affects LOS and incidence of adverse effects. **Methods:** This single-center retrospective chart review will be conducted at South Florida State hospital, a 350-bed state psychiatric hospital. Data from January 1, 2012, to January 1, 2018, will be collected and analyzed. All patients who were taking clozapine and discharged on clozapine during that time will be identified. In addition, all patients who had a clozapine/norclozapine plasma concentration will be identified. The hospital LOS, in days, will be determined for all patients included in the analysis. Each patient's medical record will be reviewed for documentation of adverse effects due to clozapine. Additional data collected will include: age, gender, ethnicity, clozapine dose on discharge, legal status, and concomitant medications. Regarding patients who had a clozapine/norclozapine plasma concentration drawn, number of clozapine/norclozapine plasma concentration drawn will be recorded. For patients with greater than one clozapine plasma concentration drawn, the last plasma concentration drawn will be included in this analysis. Clozapine to norclozapine ratios will be calculated for each patient factor impacting LOS and will be analyzed using a cumulative incidence model. Time to discharge will be event of interest. Categorical variables will be assessed using a χ^2 test. Descriptive statistics will be presented for demographic data. Subgroup analysis will be performed according to legal status: forensic and nonforensic patients

Comparison of Prescribing Patterns and Monitoring Parameters of Atypical Antipsychotics Between Primary Care Providers and Psychiatrists in a Pediatric Population

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Abstract Type: Work in Progress. **Background:** The prescribing of atypical antipsychotics for US Food and Drug Administration–approved and off-label indications in the pediatric population has varied during the past three decades. More recently, there have been reports of a decreased trend in the prescribing of these medications in this population. Despite this decrease, the significant side effect burden of atypical antipsychotics continues to raise concern for their use in children and adolescents. **Study Objectives:** The objectives of this study are to investigate the diagnoses for which atypical antipsychotics are prescribed in a pediatric population and to compare the quality of monitoring for adverse drug events in these patients managed by psychiatrists or primary care providers within a community health system. **Methods:** This study has been approved by our health system's Institutional Review Board. Patients will be included if they are younger than 18 years and prescribed an atypical antipsychotic between January 1, 2017, and July 31, 2018, in the outpatient setting for at least 3 consecutive months by either a primary care provider or psychiatric specialty provider practicing within our health system. Patients who are 18 years or older, patients who are prescribed an atypical antipsychotic for fewer than 3 consecutive months, or those who switch from a primary care provider managing psychiatric care to a psychiatric specialty provider during the monitoring period will be excluded from the study. The following data will be collected: demographics, comorbidities, prescriber type, diagnoses, antipsychotic medication details, history of inpatient hospitalizations, concurrent medications, and occurrences of adverse drug events. Compliance with the American Academy of Child and Adolescent Psychiatry guidelines for the monitoring of metabolic, cardiovascular, movement, and prolactin-related adverse events for atypical antipsychotics will also be recorded. **Outcomes:** We will compare the indications and quality of monitoring for adverse drug events for atypical antipsychotics prescribed by primary care providers and psychiatry specialty providers in the study population. We will report the frequency of atypical antipsychotics prescribed for off-label indications and the frequency of adverse drug events in each provider group.

Conversion Rates to Schizophrenia Spectrum or Bipolar Disorders Following Diagnosis of Substance-Induced Psychotic Disorder

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Abstract Type: Work in Progress. **Background:** Incidences of substance-induced psychosis will often result in a patient's admission into a psychiatric inpatient facility for treatment. This prompts the question, does an episode of

substance-induced psychosis predict a patient's risk for converting to a schizophrenic spectrum or bipolar disorder, and if so, is there a temporal relationship between the two diagnoses? Additionally, the duration of treatment following a substance-induced psychotic disorder is unclear. Current literature for brief psychotic disorders suggests a treatment duration of 1 to 3 months may be appropriate, but there is no general consensus for continued treatment duration when the initial psychotic disorder is substance induced. **Objective:** The primary objective of the study will be to analyze the rate and time to conversion to schizophrenia spectrum or bipolar disorder following a patient's diagnosis of substance-induced psychotic disorder. The results of the study are intended to help facilitate recommendations on duration of continued follow-up and treatment for patients presenting to an inpatient psychiatric facility with a diagnosis of substance-induced psychotic disorder. **Methodology:** The study will retrospectively analyze patients admitted with a diagnosis of a substance-induced psychotic disorder to the psychiatric inpatient units (AP1, AP2, AP3) at Monmouth Medical Center between January 1, 2012, and December 31, 2013. Patients with a diagnosis of a substance-induced psychotic disorder will be identified using the hospital's operating system's report generator to filter out those with a diagnosis of those predetermined ICD-9 and ICD-10 codes (as specified in the eligibility criteria). These patients' charts will be reviewed during a 5-year period, from the time of first admission until the time of diagnosis of a schizophrenia spectrum disorder or bipolar disorder, death, or the end of the 5-year period, whichever comes first. In each patient record, the following specific data points will be investigated: diagnosis code (initial and final), gender, age, family history of substance abuse, GAF score (initial and final), substance(s) involved, and dates of admission when diagnosis was made. All patient information will be deidentified at the time of data collection.

Decreasing the Co-Prescribing of Stimulants and Benzodiazepines: A Quality Improvement Study

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Abstract Type: Work in Progress. **Background:** After a chart review of patients with both stimulants and benzodiazepines prescribed to them, the data suggested that in some cases, the mechanisms and side effects of these drugs were being used to offset the undesirable effects of the other. This Veterans Health Care System is currently not meeting national measures for the coprescribing of these medications. **Objectives:** (1) Decrease the number of patients on the dual combination. (2) Increase the number of patients whose problem lists reflect a US Food and Drug Administration (FDA)–indicated need for the use of a stimulant. **Methods:** Data from a Veterans Affairs–created database on national performance measures for dual prescribing of stimulants and benzodiazepines were evaluated for this project. Prescribers of dual therapy were provided with an informational 1-hour group in-service presentation regarding the risks of using this combination, the addiction potential associated with each drug class, and possible methods to reduce dual prescribing, as well as alternative options. They were also given the opportunity to ask questions and to receive their individual patient panels for review at the completion of the presentation; the database was accessed monthly to determine if a reduction in dual prescribing or in prescriptions without an FDA-approved indication was apparent. As part of the national psychotropic drug safety initiative, these data will continue to be monitored by the Clinical Pharmacy Specialists, and re-education will be provided as needed to continue to improve prescribing practices. **Outcomes:** At data collection the following results were found: 91 veterans were prescribed both a benzodiazepine and a stimulant in the Gulf Coast Veterans Health Care System. There were a total of 21 prescribers writing these prescriptions. Of the 91 stimulant orders, 50 were written by 3 of the 21 prescribers, and 42 had no FDA indication for the stimulant use. Comorbid diagnosis included: anxiety (50 patients), bipolar disorder (12 patients), dementia (1 patient), depression (58 patients), insomnia (40 patients), posttraumatic stress disorder (55 patients), schizophrenia (1 patient), and a history of substance use disorder (17 patients).

Depressive Symptoms and Their Relation to Academic Performance in Pharmacy Students

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Abstract Type: Work in Progress. **Background:** Depression will affect more than 15% of individuals at some point in their life. Adults between the ages of 18 and 29 years have the highest risk. DSM-5 described major depressive disorder (MDD) as a 2-week period with depressed mood or loss of interest in most activities and 5 or more of the following: sleep disturbances, interest loss, guilt, energy loss, concentration difficulties, appetite disturbance, psychomotor depression/agitation, and suicidality. Due to these symptoms and students being at high risk for the disorder, it is possible that the illness could cause problems with academic performance. A review of the current literature found very few data on PharmD

students, rates of depressive symptoms, and academic performance. **Objectives:** The primary objective of this study was to determine if there is a relationship between depression and academic performance in pharmacy students. Secondary objectives include reporting on the rates of major depressive illness by severity in the student body and among the faculty. **Methods:** In order to screen for depression and other data, a survey was sent via email to pharmacy students on the Fort Wayne Manchester University campus using the software Qualtrics. The Beck Depression Inventory was used to screen for depression, and GPAs were self-reported. Other questions were added to assess student confidence in academic and social performance. When answering the questions, students were asked to respond based on their feelings of the most recent semester. The initial survey was open for 2 weeks during April 2018, and an additional period was opened during the fall of 2018. The study was open to P1, P2, and P3 pharmacy students as well as faculty. **Outcomes:** Of the 35 surveys that have been completed to date, about 2% of participants were considered to have borderline clinical depression, 23% had moderate depression, and 11% had severe depression according to their scoring on the Beck Depression Inventory. Additionally, those who reported the lowest satisfaction of their academic standing also reported the highest depression scores. Additional data analysis is currently being performed.

Design and Implementation of an Integrated Primary Care Mental Health Pharmacotherapy Clinic at the West Palm Beach Veterans Affairs Medical Center

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[1] *West Palm Beach Veterans Affairs Medical Center*

Abstract Type: Work in Progress. **Background:** The collaborative care model of managing mental health (MH) disorders in the primary care setting has been shown to impact quality of care, patient engagement, adherence rates, and wait times. Incorporating an MH clinical pharmacy specialist (CPS) into primary care clinics may be associated with improvements in medication access, adherence, and decreased referrals to MH specialists. Currently, there is an absence of pharmacy representation in the outpatient Primary Care Behavioral Health clinical setting at the West Palm Beach Veterans Affairs Medical Center. This project will provide information regarding the design and implementation of a pharmacist-managed primary care mental health integrated (PCMHI) clinic. **Objectives:** (1) Describe required processes for implementing a pharmacist-managed PCMHI outpatient clinic. (2) Define the role of an MH CPS in an integrated PCMHI clinic. (3) Identify MH CPS interventions and potential impact on patient satisfaction with pharmacist-managed care. **Methods:** Patients will be referred to the clinic through a consult service in the Computerized Patient Record System (CPRS) beginning November 24, 2018 (one half-day per week). Patients with mild-moderate MH diagnoses who are not followed by an outpatient MH clinic prescriber are candidates for PCMHI referral. Consults will be available to primary care providers, and CPS and will be reviewed by an MH CPS within 3 business days. Data will be collected through April 30, 2019. The MH CPS will be responsible for ordering and monitoring labs, patient education, and noncontrolled medication initiation, adjustment, and/or discontinuation. A Veterans Affairs-approved and validated patient satisfaction survey will be provided to each patient once during the project duration. Data will be reported using descriptive statistics. **Outcomes:** We will report the following data: patient demographics (including branch of service), number of consults placed, number of appointments (initial and follow-up), average number of past psychotropic medication trials, specialty of referring prescriber, number and description of MH CPS interventions, no-show rates, and patient satisfaction scores.

Development of a Multidisciplinary Approach to Benzodiazepine De-Prescribing in a Mental Health Clinic

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Abstract Type: Work in Progress. **Background:** Benzodiazepines are commonly used in the treatment of anxiety and insomnia, and are one of the most commonly prescribed classes of psychotropic medications. However, they are not currently recommended in the guidelines for long-term treatment of anxiety or insomnia, and their use has been associated with a number of adverse effects. When used in the long term, they can lead to problems associated with discontinuation and withdrawal symptoms and abuse. There have been a multitude of strategies published to attempt to decrease benzodiazepine use. These strategies include letters to patients, educational visits from pharmacists and general practitioners, and many others. A meta-analysis published in 2010 found that multifaceted approaches that target consumers and other health care providers are most successful. **Objectives:** (1) Develop a multidisciplinary approach to benzodiazepine deprescribing including psychiatry residents, psychologists, and pharmacists, (2) evaluate the number of patients who have discontinued or started tapering their benzodiazepine, and (3) Evaluate patient perceptions on the multidisciplinary approach. **Methods:** A multidisciplinary approach will be established at Parkland Behavioral Health Clinic in Dallas, TX. Patients

who are on benzodiazepines are eligible for study participation, with a goal of 10-12 patients. Patients will be approached by their resident physician and given a handout regarding benzodiazepine use. Patients who are interested in beginning a taper will be referred to group therapy led by a psychologist, a pharmacist to aid in managing the taper, and will meet with their provider monthly. Data will be collected on these patients to assess the number of patients who are tapered off of benzodiazepines or started on benzodiazepine taper plans. Additionally, surveys will be given to patients to evaluate patient perception of the multidisciplinary approach. **Outcomes:** We will report our multidisciplinary approach to benzodiazepine deprescribing, as well as the number of patients discontinuing benzodiazepines or starting a taper plan, and we will report the patient's perspective on the process.

Development of a Patient Satisfaction Measure for Rehabilitative Services in a Substance Abuse Population

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Abstract Type: Work in Progress. **Background:** Patient satisfaction is a key component in assessing the quality of medical treatment. Higher satisfaction is associated with positive clinical outcomes, treatment retention, and completion. Despite its recognized value, there is a gap in the assessment of satisfaction among patients with substance use disorder undergoing rehabilitative services. This pilot study aims to better understand the underlying dimensions of patient satisfaction, which will assist in the development of a patient satisfaction tool specific to substance abuse rehabilitation services. **Objectives:** (1) Assess dimensions of patient satisfaction relevant to substance use disorder rehabilitation using semistructured qualitative interviews, (2) develop a comprehensive disease-specific instrument to assess satisfaction among patients with substance use disorder, and (3) determine the relationship of patient satisfaction to treatment outcomes, such as programmatic retention, goal attainment, and treatment adherence. **Methodology:** The first phase of the study will include qualitative interviews conducted at The Salvation Army Harbor Light Center, an inpatient drug and alcohol rehabilitation center in Pittsburgh, PA. Inclusion criteria for participation is (1) adult males with a history of substance use disorder who are currently enrolled in the residential program, and (2) support/counseling staff at the Center involved in the care of these individuals. Approximately 20 participants (15 patients and 5 staff) will be recruited. An extensive literature review will form the basis for semistructured interviews, to be conducted individually with participants. In addition to the areas identified in the literature review, the guided interviews will explore new areas related to satisfaction. Directed content analysis of the interviews will identify the dimensions relevant to patient satisfaction, allowing the researchers to further design items for a patient satisfaction scale and conceptually extend the theoretical framework established by the literature review in a structured manner inclusive of participant ideas. **Outcomes:** Dimensions identified from the semistructured interviews content analysis will be analyzed to create a patient satisfaction tool specific to substance use disorder rehabilitation. In the second phase, the project will seek to validate the satisfaction tool and relate it to programmatic outcomes.

Development of a Pharmacist-Led Drug Level Monitoring Protocol for Critical Drug Interactions at a State Psychiatric Hospital

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Abstract Type: Work in Progress. **Background:** A drug use evaluation was performed to analyze the incidence of critical drug interactions at Oregon State Hospital (OSH). Results showed an increase in the use of critically interacting psychotropic medications plus scant documentation describing appropriate monitoring or provider acknowledgment of the potential consequences. This has prompted the need for a codified protocol that allows the clinical pharmacist to independently order drug-level monitoring labs at OSH. Concerns for patient safety and appropriate use of interacting medications are paramount, and the clinical pharmacist plays an integral role in mitigating potential harm. This protocol will include a guide for drug-level monitoring for a number of critical drug interactions that are encountered in a psychiatric setting. **Objectives:** (1) Develop a protocol to guide clinical pharmacists on appropriate drug-level monitoring. (2) Improve patient safety through drug-level monitoring initiated by the clinical pharmacist upon recognition of critical drug interactions. (3) Elevate the scope of practice of the clinical pharmacist at OSH. (4) Educate providers on the value of the clinical pharmacist in the arenas of patient safety and pharmacokinetic drug interaction management. **Methods:** Critical drug interactions that can be evaluated through drug-level monitoring will be identified as candidates for inclusion in the protocol. An algorithm will be developed for each of these interactions

guiding the clinical pharmacist on correct clinical and institutional procedures to manage the interaction. Once the algorithms have been approved by the Pharmacy and Therapeutics Committee, the protocol will be drafted to grant the clinical pharmacist the authority to order necessary drug levels, follow up with patients to assess for adverse effects, and prescribe medications for adverse effect management. Interventions performed by clinical pharmacists will be documented in the electronic health record for future audit by the clinical pharmacy manager. An additional tracking tool will be developed to assist the clinical pharmacist in appropriately managing and following potential side effects due to critical drug interactions. **Results:** Results detailing the impact of the intervention are pending.

Do Staff Capacity Levels Influence the Use of "As Needed" Agitation or Anxiety Medications?

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Abstract Type: Work in Progress. **Background:** Psychotropic medications are often given on an as-needed (PRN) basis as a part of a patient's treatment during a psychiatric hospitalization. However, the literature surrounding the usage of PRN medications in acute psychiatric facilities is scarce. These medications may be administered based on objective and subjective information, such as a scoring system, per patient request, or as a part of a treatment review committee (TRC) plan. These administrations are often documented within the electronic medical record (EMR); however, patient response to PRNs may not consistently be provided. This study seeks to identify correlations between use of PRN medications, patient demographics, and staff capacity levels. **Objectives:** The primary objective of the study is to evaluate if a correlation exists between the use of PRN medications and staff capacity levels. Secondary objectives include: investigating if patient-specific factors influence the use of PRNs, trends of medications used, and assessing documentation of patients' responses after PRNs are used. **Methods:** An EMR report will be used to identify patients diagnosed with psychosis, schizophrenia, bipolar mania, or bipolar disorder with psychotic features who received PRN medications for agitation or anxiety during an acute psychiatric hospitalization. A retrospective chart review will be conducted to determine what PRN medications were utilized, time of administration and indication, if the PRN was requested or part of a TRC regimen, if Broset scoring was completed, if the order was a new or standing order, and the response after receipt of the PRN. Other data to be collected from the EMR include: patient demographics, admission and discharge dates, reason for admission, and psychiatric diagnosis. This information will be used to analyze and determine correlation between PRN medication usage and staff capacity for 3 standardized daily shifts (morning, evening, and overnight). **Outcomes:** The authors will report the number of PRN medications used in an inpatient psychiatric unit per shift and analyze the data to determine if patient-specific factors or staff capacity levels affect the quantity of PRNs used.

Does Early Physical Therapy Intervention Reduce Opioid Burden and Improve Functionality in the Management of Chronic Lower Back Pain?

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Abstract Type: Work in Progress. **Background:** Chronic lower back pain is the second most common cause of disability in US adults and the most common reason for the loss of work days, costing individuals more than $200 billion annually. This is exemplified in a work-return rate in high-dose opioid use patients about 18% lower than the non–opioid-use patients. From 2007 to 2012 there was a 7.35% increase in opioid prescriptions per capita, but these numbers have begun to decrease after a 2015 review. Although more conservative practices have been adopted, the use of opioids in the management of chronic, nonmalignant pain continues to be controversial, especially with its potential for tolerance and addiction. **Objective:** The aim of this study is to evaluate the impact of early physical therapy intervention on the reduction of opioid burden and improvement in the disability index of patients with chronic lower back pain at Family Health Centers of San Diego. **Methods:** A retrospective review of 300 patients from January 1, 2014, to July 31, 2019, who are treated for at least 3 months with at least 6 physical therapy visits. Patients must be at least 18 years of age and treated with either opioid alone or physical therapy only as first-line therapy with or without Oswestry scores. Concomitant use of nonopioid pharmacologic and nonpharmacologic therapy will be permitted. Patient demographics, comorbidities, pain severity, activity level, functionality level, and stage of progression will be collected. **Outcomes:** Descriptive statistics and linear regression between groups will be conducted. Results and conclusions will be presented. This study was approved by the Scripps Health Institutional Review Board in collaboration with the Family Health Centers of San Diego research board.

Drug-Drug Interactions With Antipsychotic and Antiarrhythmic Medications

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Abstract Type: Work in Progress. **Background:** Antipsychotic medications have been associated with an increased QTc interval, which may potentiate the risk of Torsades de pointes (TdP), a life-threatening emergency. The risk of TdP may be further increased by concurrent use of other QTc-prolonging agents, such as antiarrhythmics. Unfortunately, there is limited guidance in the literature regarding the monitoring and management of this drug interaction. This quality improvement project is designed to assess the current monitoring practices of concomitantly prescribed antipsychotic and antiarrhythmic medications at the VA Northeast Ohio Healthcare System so that various process improvement strategies can be identified and implemented to improve monitoring of this drug-drug interaction. **Objectives:** The primary objective is to increase the number of patients receiving proper electrocardiogram monitoring to include all patients prescribed both an antipsychotic and antiarrhythmic agent concurrently and to implement a standardized process to guide cardiologists, psychiatrists, and pharmacists through the management of this drug-drug interaction. **Methods:** This quality improvement project will utilize data collected through chart review of patients prescribed both an antipsychotic and antiarrhythmic agent concurrently in the past 5 years. The data will be used to evaluate potential defects in the current monitoring process. Local monitoring guidelines have been set forth by the VA Northeast Ohio Healthcare System's electrophysiology department. Once potential defects are identified, various process improvement strategies will be implemented. **Outcomes:** Prospective data will be collected to assess the effectiveness of each implemented process improvement strategy.

Effect of Medication Assisted Treatment (MAT) on the Frequency of Emergency Department Visits: A Retrospective Chart Review

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Abstract Type: Work in Progress. **Background:** In our current public health landscape, deaths from opioid addiction and abuse have become a national crisis. Many hospitals impacted by increased opioid overdoses aim to develop effective, comprehensive treatment to help reduce emergency department (ED) visits in patients with opioid use disorder. With increased demands for prevention, medication-assisted treatment (MAT) provides an evidence-based model utilizing approved medications combined with counseling and behavioral therapies shown to successfully treat and sustain recovery. **Objectives:** The primary objective is to compare ED visits in patients who accept MAT services versus patients who refuse MAT services. The secondary objective is to compare retention rates of MAT in patients who accepted and participated in services stratified by various characteristics. **Methods:** This will be a retrospective chart analysis of the impact of MAT participation on ED visits. The electronic medical record will be utilized to identify patients older than 18 years with the order "MAT consult" in the patient profile. The primary outcome of this study is to determine whether MAT program participation shows a change in ED visits. Secondary outcomes will examine correlations in retention based on MAT duration, MAT regimen, polysubstance use, and intravenous drug use. Adverse effects to MAT regimen will be reported as well. The total study period will be from March 1, 2017, to September 31, 2018. For the primary outcome patients will be arranged into two groups; one group will consist of patients who accepted MAT services and followed up for induction and treatment. The second group will consist of patients who refused MAT services or did not follow up for induction. Each group will undergo stratification for an analysis of ED visits 3 months prior to acceptance or refusal of MAT services (pre-MAT analysis) and 3 months after acceptance or refusal of MAT services (post-MAT analysis). **Outcomes:** We will report the number and percentages of ED visits in patients who accepted or refused MAT services. Retention rate percentages will be reported as well and stratified by the various characteristics mentioned above.

Effectiveness of Mindfulness Meditation App for Pharmacy Student Perceived Stress

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Abstract Type: Work in Progress. **Background:** In recent literature, studies have found a correlation between mindfulness training and reduced perceived stress. More often than not, students within their first and second years of their doctoral programs are categorized as stressed. In most instances, to fully receive the benefits of mindfulness meditation, there are extensive trainings

and associated time commitments that are typically unrealistic for already tight schedules. This makes it difficult to earn the benefits of the training, even though this stress must be addressed, and meditation is an appropriate avenue in which to do so. **Objectives:** An app entitled Mindfulness Coach provides meditation sessions that are less than 10 minutes and are correlated with decreasing stress. This study seeks to characterize the relationship between usage of the Mindfulness Coach application and the (1) perceived stress of pharmacy students within their first 2 years of their program, (2) their general mindfulness, and (3) perceived change in academic performance. **Methods:** The P1 and P2 class at Belmont University College of Pharmacy were recruited for a 12-week study where each student was asked to do a pre- and post-survey concerning their current perceived stress. These surveys took place during orientation, as well as before their respective finals began. Between these periods, they were asked to do one session of Mindfulness Coach practice a day. Primary questions for the analysis included demographic parameters, the Mindfulness Attention Awareness Scale, and the Perceived Stress Scale. **Results:** The results stemming from the differences between the pre- and post-survey are currently in progress and were presented in full at the 2019 CPNP Annual Meeting.

Encouraging Safe and Effective Prescribing Practices With Simultaneous Use of Benzodiazepines and Stimulants

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Abstract Type: Work in Progress. **Background:** The Centers for Disease Control and Prevention reported 700 000 drug-related overdose deaths between 1999 and 2017, with more than 72 000 Americans dying in 2017 alone. This has led to intensified scrutiny over controlled substance polypharmacy as prescription drugs continue to be implicated in fatal overdoses. Among several agents of concern, benzodiazepine use has been specifically attributed to potential lethality in overdose. Additional dangers are presented when benzodiazepines are used concomitantly with stimulants. Amphetamines and methylphenidate can cause sympathetic activation, which acts in opposition to the sedative effects of benzodiazepines. Thus, coadministration of stimulants and benzodiazepines can lead to adverse and unpredictable effects. **Objectives:** The main objective of this study is to evaluate the use of electronic medication record (EMR) alerts to enhance provider awareness of benzodiazepine and stimulant coadministration in order to ensure safe and effective prescribing practices. **Methods:** A total of 81 patients who received simultaneous prescriptions for a stimulant and benzodiazepine during quarter two of fiscal year 2019 at North Florida/South Georgia Veterans Health System were identified as possible candidates for review of controlled substance polypharmacy. Prescribers will be alerted to concomitant administration and provided with pharmacovigilance and controlled substance management education. Provider interventions (or lack of) will be analyzed via a 2-proportion z-test to determine statistical significance of prescribing interventions using post data of EMR alerts. Secondary data analysis includes inquiry of the Florida Prescription Drug Monitoring Program (PDMP) and documentation of an annual urine drug screen (UDS). **Outcomes:** We will report provider acknowledgment of EMR documentation to determine significant changes in prescribing habits postalert. Additionally, we will analyze the proportion of patients with coprescribed stimulants and benzodiazepines who had PDMP and UDS documentation and will identify potential aberrant behavior.

Establishing a Pharmacist-Managed Outreach Clinic at a Day Shelter for Homeless Veterans

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Abstract Type: Work in Progress. **Background:** In 2009, Veterans Affairs (VA) announced its goal to end veteran homelessness. More than 40 000 veterans were experiencing homelessness in the United States according to a Point-in-Time count from January 2017. One study found homeless individuals are less likely to fill psychotropic medications. Several studies incorporated a pharmacist into a homeless clinic, which created noticeable benefits. In 2012, the VA developed Homeless Patient Aligned Care Teams (H-PACTs) to provide several health care services to the homeless veterans. Currently, the Reno VA does not have an H-PACT clinic, but it runs a day shelter for homeless veterans called Capitol Hill. There are no clinical services at this site. This quality improvement project adds a postgraduate year 2 psychiatric pharmacy resident to the care team at Capitol Hill to help fill clinical gaps in care for homeless veterans. **Objectives:** (1) Decrease time to provider follow-up for homeless veterans. (2) Provide referrals or medication prescriptions for untreated yet diagnosed conditions. (3) Improve medication adherence. (4) Decrease adverse drug reactions (ADRs) and drug-drug interactions (DDIs). (5) Decrease polypharmacy. (6) Decrease emergency department (ED) visits. **Methods:** All veterans visiting Capitol Hill from October 2018 to February 2019 will be eligible to participate in a walk-in pharmacy clinic appointment. The resident will meet with each veteran, perform an introductory chart review, and hold a discussion with the veteran regarding concerns. Interventions made during the visit will be documented in

the veteran's chart. A noninclusive list of interventions documented will include addition, change, or discontinuation of medication, adverse drug event detection/prevention, medication history/reconciliation, monitoring of lab orders, patient education, identification of non-VA medications, clinical assessments, pharmacokinetic monitoring, and prompting of medical follow-up. A retrospective review of the veteran's chart will later be performed to compare to those data impacted by the pharmacy resident. **Outcomes:** Will report the number of interventions performed by the resident over the duration of the clinic. Expected results include an increase in adherence rates, decrease in time to provider follow-up, and a decline in polypharmacy, untreated disease states, DDIs, ADRs, and visits to the ED for veterans who visit the clinic compared with the same veterans retrospectively.

Evaluating and Improving the Mental Wellness of Pharmacy Students at the University of Houston College of Pharmacy

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Abstract Type: Work in Progress. **Background:** The mental well-being of individuals may be affected in a rigorous health care professional program. These difficulties are often underreported due to the negative stigma surrounding mental health, thereby preventing students from seeking needed support. Signs and symptoms of poor mental health can be difficult to detect in students because they may not feel comfortable confiding their personal issues with another individual (peer, professor, family member, or friend) for fear of how others would perceive them. Students may have insufficient mental health literacy due to lack of education on the topic of mental wellness and self-care, thus establishing the fictitious belief that mental health complications are either unsubstantiated or easily dismissed. Resources may be limited for some students, allowing those who have a mental health concern to suffer unaided, in silence. Mental health development needs to be a priority in all health care graduate programs so that students who are improving their mental wellness can support their patients with the highest level of quality care. This project will provide insight into the student's mental wellness and assist the faculty with developing strategies to improve the student's overall mental being. **Objectives:** (1) Assess the mental wellness of pharmacy students at the University of Houston College of Pharmacy (UHCOP). (2) Formulate a Student Wellness Committee (SWC) to address risk factors appropriately using specific interventions. (3) Educate students on the importance of mental wellness and find ways to enhance mental health literacy and ultimately decrease stigma at the university. **Methods:** All pharmacy students (P1-P3) at the UHCOP will complete the Counseling Center Assessment of Psychological Symptoms-62, a 10-minute certified mental health assessment, every semester, which overviews depression, anxiety, stress, and family distress. Descriptive statistics will be used to assess and measure the student's mental wellness at baseline and over time. Deidentified results will be analyzed and an SWC will be implemented in order to formulate ideas to address risk factors through student-focused interventions and to improve the student's mental health. **Outcomes:** We will report the results from the mental health assessment, the specific risk factors associated with the UHCOP, goals of the SWC, and methods used to educate on mental health.

Evaluating Community Pharmacists' Stigma and Knowledge Regarding Substance Use Disorders (SUD) Patients and Their Care

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[1] *Xavier University of Louisiana College of Pharmacy*

Abstract Type: Work in Progress. **Background and Purpose:** Nationally, since 1999, overdose deaths due to opioid intoxication have been on a steady rise. Community pharmacists are uniquely placed to impact the epidemic because they interact with patients on a daily basis, assess controlled substance prescriptions, and routinely use prescription drug monitoring programs (PDMPs). We hypothesize that a pharmacist-led substance abuse continuing education course geared toward community pharmacists can significantly improve knowledge toward substance use disorders (SUDs) and therefore decrease stigmatization. Prior to implementing a continuing education course, this study will assess community pharmacists' regard and knowledge toward SUD patients. **Objectives:** (1) Assess stigma and knowledge in SUD patient care among community pharmacists. (2) Determine the level of interest for continuing education coursework on SUD knowledge among community pharmacists. **Methods:** Participants were recruited via email listserv provided by the Louisiana Board of Pharmacy consisting of current community/retail pharmacists practicing in the greater New Orleans area. A target of 400 participant responses will be evaluated to achieve a power of at least 80%. Solicitation emails along with an informed consent statement were sent to participants through RedCap. Baseline information, including race, gender, age, and practice setting, will be collected as well as responses to a 2-part survey: (1) Substance Use Literacy Scale and (2) Medical Condition Regard Scale. Participant responses are expected to support the hypothesis of a present stigma and to identify deficiencies in knowledge

among community pharmacists in regards to SUDs. For both objectives, raw percentages will be collected from pooled responses. **Outcome:** We will establish a report consisting of values reflective of community pharmacists' regard and knowledge toward SUDs. Data from the study will guide further pharmacist-led interventions in this area of health care by means of continuing education coursework.

Evaluating Impact of a Pharmacist-Led Intervention on Prescribing and Administration of as Needed Psychotropics for Acute Agitation in Older Adults

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Abstract Type: Work in Progress. **Background:** Older adults diagnosed with major neurocognitive disorder who are admitted to a psychiatric hospital are often prescribed psychotropic medications as needed "PRN" to manage acute agitation. These medications can increase fall risk and should be used with caution in elderly patients. A retrospective chart review conducted on the geriatric unit at UPMC Western Psychiatric Hospital found an association between inpatient falls and total number of psychotropic PRNs administered, male gender, and previous history of falls. Furthermore, agitation scores and PRN effectiveness were not documented consistently, nor was there a correlation with PRN administration. Providing clinicians and front-line staff with relevant data on current PRN psychotropic prescribing and administration patterns as well education on appropriateness and safety regarding treatment of agitation may minimize fall risk in this vulnerable patient population. **Objectives:** Compare psychotropic PRN prescribing and administration patterns, appropriateness, and incidence of falls before and after a pharmacist-led intervention. **Methods:** The pharmacist-led intervention was implemented on the geriatric unit in November 2018. The intervention consisted of both group in-services and one-on-one meetings with psychiatrists, nurses, and milieu therapists on the geriatric unit. Patients at least 65 years of age with an ICD-10 diagnosis of major neurocognitive disorder, administered at least 1 PRN for acute agitation, and discharged from the geriatric unit at UPMC Western Psychiatric Hospital will be identified and divided into 2 groups for analysis. The preintervention cohort will include patients discharged between August 2018 and October 2018, and the postintervention cohort will include patients discharged between December 2018 and February 2019. PRN prescribing and administration patterns, agitation scores and PRN effectiveness documentation, and inpatient falls will be compared between the 2 cohorts. **Outcomes:** PRN prescribing patterns will be evaluated by medication and dose, whereas PRN administration patterns will be evaluated by route and administration time. Appropriateness will be assessed in relation to Pittsburgh Agitation Scale (PAS) scores and documentation of effectiveness following PRN administration. Safety will be assessed by incidence of falls 24 hours after psychotropic PRN administration.

Evaluation of a Psychotropic Drug Safety Monitoring (PDSM) Service

Brittany Spitznogle, PharmD, BCPS[1]; Vineeta Risbood, PharmD, BCPS, BCPP[1]

[1] Western New York Veterans Affairs Healthcare System

Abstract Type: Work in Progress. **Background:** Antiepileptic medications are commonly used to treat numerous psychiatric disorders. However, evidence shows that these medications can cause significant adverse effects, cause or worsen medical comorbidities, and even cause toxicity. The Veterans Affairs/Department of Defense Clinical Practice Guideline for the Management of Bipolar Disorder in Adults recommends baseline and routine monitoring of serum drug concentrations and specific laboratory values to ensure safe and effective use of these medications. **Objectives:** The objective of this quality assurance/quality improvement project is to evaluate the efficacy of a pharmacist-managed psychotropic drug safety monitoring (PDSM) service in improving compliance to monitoring recommendations for 2 antiepileptic medications, valproate derivatives (VAD) and carbamazepine, when used for the treatment of psychiatric diagnoses. **Methods:** Patients included in the PDSM service are those who are receiving VAD and/or carbamazepine for a psychiatric disorder in an outpatient setting. The service excludes patients prescribed either of these medications for a nonpsychiatric reason. The primary outcome of the project is change in completion rate of VAD and carbamazepine serum drug concentrations prior to and after service implementation. Secondary outcomes include comparison of preservice and postservice completion rates of annual liver function tests, electrolytes, and complete blood count with differential for patients prescribed VAD and carbamazepine. Patients with active outpatient prescriptions for VAD and/or carbamazepine in February 2018 will represent the preservice cohort, and patients in February 2019 will represent the postservice cohort. Service personnel will assess patient and prescriber compliance with laboratory monitoring, order recommended laboratory tests, contact patients about pending laboratory orders, and provide recommendations to providers. Additionally, evaluation of laboratory monitoring that is ordered but not completed,

number and types of recommendations made by service personnel, and provider response to service recommendations will be completed. **Outcomes:** The efficacy of the PDSM service will be evaluated by comparing the percent change in laboratory monitoring compliance prior to and after service implementation.

Evaluation of Antidepressant Use in Veterans With Chronic Kidney Disease

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Abstract Type: Work in Progress. **Background:** Patients with chronic diseases, such as chronic kidney disease (CKD), may experience economic burdens and impaired quality of life, which can increase their risk for developing depression. At the Veterans Affairs (VA), 1 in 5 veterans with CKD are diagnosed with depression. Evidence regarding antidepressant efficacy among this population is limited, because patients with CKD are often excluded from large randomized controlled trials of antidepressant treatments due to safety concerns. The purpose of this retrospective chart review is to evaluate the use of antidepressants for the treatment of depression in veterans with CKD at Veterans Affairs Loma Linda Healthcare System (VALLHCS). **Objectives:** (1) Evaluate the use of antidepressants in veterans with renal impairment, and (2) assess the safety and tolerability of antidepressant use in veterans with renal impairment. **Methods:** Utilizing medical records from the VA Computerized Patient Record System (CPRS), this retrospective cohort study will review veterans diagnosed with depression who were initiated on a selective serotonin reuptake inhibitor (SSRI), serotonin-norepinephrine reuptake inhibitor (SNRI), bupropion, or mirtazapine from August 1, 2016, to August 31, 2017, at VALLHCS. Demographic variables, antidepressant use history, comorbid medical conditions, and relevant laboratory values will be collected. The primary outcome is to evaluate the response to SSRIs, SNRIs, bupropion, or mirtazapine for depression in veterans with renal impairment 6 months prior to initiation, index period, and 6 months after initiation. Response will be classified as "response to treatment" or "no response to treatment" per CPRS documentation. Secondary outcomes include reason for discontinuation of the antidepressant or whether the patient experienced any medication side effects. Descriptive statistics will be used to describe and analyze efficacy and safety outcomes. **Outcomes:** We will report the subjective antidepressant response, as well as its safety and tolerability profile, during the study period. This report may help guide clinicians in managing depression in patients with renal impairment.

Evaluation of Intramuscular Antipsychotics in Pediatric Population With Acute Agitation

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Abstract Type: Work in Progress. **Background:** Injectable antipsychotics are often utilized to control agitation, aggression, self-injurious behavior, and acute psychosis in the child and adolescent psychiatric population. Although other de-escalation techniques are preferred, patients who do not respond to these techniques are treated with pharmacotherapy as means of chemical restraint. The use of these agents is off-label in this population, and dosing strategies are extrapolated from the adult literature. The intent of this project is to assess the current utilization of acute intramuscular antipsychotics with an emphasis on dosing and adverse effects. **Objectives:** To review intramuscular antipsychotic dosing strategies and incidence of adverse events. **Methods:** A retrospective chart review of patients age $\leq$18 years who were admitted to the inpatient psychiatric unit and who received acute intramuscular injectable antipsychotics during a 3-year period will be completed. Patient demographics, past medical and psychiatric history, concomitant medications, vitals, and reason for administration will be collected. Antipsychotic dosing will be presented as mg/kg/dose and separated into child and adolescent groups; (ages $<$13 years and 14-18 years). Incidence of adverse events will be composite of physician charting, nursing documentation, and rescue medication administration (eg, diphenhydramine, benztropine, or others). Descriptive statistics will be used to express baseline characteristics and demographics. Mann-Whitney U and χ^2 tests will be used when comparing data between groups for continuous and categorical variables. **Outcomes:** The primary analysis will assess the average antipsychotic dosing and the need for additional psychotropics. Secondary analysis will review the incidence of adverse effects (eg, extrapyramidal symptoms, oversedation, tachycardia) per medication administered.

Evaluation of Marijuana Use and Its Potential Effect on Mental Health in Veterans Admitted to an Inpatient Psychiatric Ward

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[1] *Portland Department of Veterans Affairs Medical Center*

Abstract Type: Work in Progress. **Background:** Marijuana use in the United States is on the rise due to its

legalization for both medical and recreational purposes in several states. According to the World Health Organization, roughly 2.5% of the world's population uses cannabis on an annual basis. Patients use cannabis for a variety of conditions related to mental health, including posttraumatic stress disorder, depression, and anxiety. Cannabis exerts its effect on the brain through action at delta-9-tetrahydrocannabinol (THC) receptors. The exact mechanism is uncertain, but THC is thought to affect specific neurotransmitters, including dopamine, that can in turn impact thought and behavior. Specifically, THC is thought to cause selective stimulation of dopaminergic neurons in the ventral tegmental area, which could help explain its mediation of psychosis. Multiple studies have demonstrated a possible link between marijuana use and acute psychosis. This chart review aims to see if there is a correlation between marijuana use and increased risk of hospitalization for psychosis among veterans admitted to an inpatient psychiatric ward. **Objectives:** (1) Evaluate if there is a correlation between marijuana use and increased risk of psychosis-related admissions. (2) Determine if there are circumstantial factors contributing to psychosis-related hospitalizations in addition to recent marijuana use. **Methods:** This project is a single-center, retrospective chart review. Medical records for veterans who were admitted to the psychiatric ward for psychosis-related conditions from January 1, 2018, to June 30, 2018, will be reviewed. Data will be collected for age, gender, psychiatric diagnosis(es), type of psychiatric medication prescribed, reason for admission, and marijuana use history. Urine drug screen (UDS) results will also be assessed to collect information on recent marijuana use as well as presence of other substances on admission. Pharmacy data will be reviewed to rule out recent changes in medication or medication dosage as confounding variables that led to admission. **Outcomes:** As a primary outcome, we will report the number of psychosis-related hospitalizations for users versus nonusers of marijuana. For secondary outcomes, we will evaluate demographic characteristics, recent medications changes (if applicable), patient-reported side effects from marijuana, and presence of other substances on UDS.

Evaluation of Medication Management in the Substance Abuse Residential Rehabilitation Treatment Program at the Cincinnati VA Medical Center

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Abstract Type: Work in Progress. **Background:** Based on national Veterans Affairs guidance, Substance Abuse Residential Rehabilitation Treatment Programs (SARRTPs) emphasize safe medication management (SMM) assessments and medication education. The SMM policy requires that patients be assessed for understanding of medications and assigned an independence level ranging from fully dependent (nurses administering medications) to fully independent (patient administering medications). Part of the pharmacist role on SARRTP includes performing admission medication reconciliations, decision-making for SMM, and leading group medication education. Best practices in utilization of time to maximize pharmacist impact in this setting have not been clearly defined. In order to identify areas for additional pharmacist interventions, this quality improvement project aims to better understand the SARRTP patient population, prescribing patterns of psychotropic and relapse prevention medications, and medication adherence and follow-up after discharge. **Objectives:** To describe the characteristics of the patient population admitted to the SARRTP, focusing on medications related to psychiatric and substance use diagnoses. To quantify changes made to psychotropic and relapse prevention medications during SARRTP admissions. To assess psychotropic and relapse prevention medication utilization postdischarge from a SARRTP. **Methods:** Retrospective chart review will be performed for all patients admitted to the SARRTP between October 1, 2017, and October 1, 2018. Patient characteristics of age, DSM-IV or DSM-5 diagnoses, prescriber visits in last 12 months, and all psychotropic and relapse prevention medications prescribed on date of admission will be collected. Medication changes made during SARRTP admission will be identified by comparing the admission medication reconciliation to discharge, specifically psychotropic and relapse prevention medications. Changes to patients' SMM status during admission will be collected. Adherence to these medications will be assessed by calculating medication possession ratios based on refill history 90 days following patients' discharge from SARRTP. Postdischarge relapse within 90 days and show rates to scheduled follow-up appointments will also be collected. Data will be analyzed using descriptive statistics. **Outcomes:** We will report the characteristics of the SARRTP patient population, number of psychotropic and relapse prevention medication changes made, and postdischarge medication possession ratios and follow-up to determine areas for further pharmacist interventions during SARRTP admission and postdischarge.

Evaluation of Opioid and Non-Opioid Treatment Strategies for Fibromyalgia From Inpatient Admissions Across a Health System

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Abstract Type: Work in Progress. **Background:** Fibromyalgia is a functional somatic syndrome of widespread pain without clinical evidence of tissue inflammation. Individuals diagnosed with fibromyalgia report additional symptoms, including fatigue, sleep disturbances, cognitive impairment, and psychiatric symptoms. Possible etiologies and pathophysiologic causes are debated among health care providers. Various treatment strategies utilize antidepressants, muscle relaxants, anticonvulsants, opioids, and nonopioid analgesics. **Objectives:** (1) Evaluate prior to admission mediations used for fibromyalgia-related pain based on drug, dose, and drug class. If the medication is an opioid, it will be evaluated as oral morphine equivalents. (2) Quantify the amount of patients receiving opioids for fibromyalgia pain with or without documented reasoning for not optimizing doses of US Food and Drug Administration (FDA)–approved medications for treating fibromyalgia. **Methods:** A retrospective electronic medical record review of admissions between January 1, 2018, and December 31, 2018, from the 8 hospitals in the health system will be conducted on patients with a diagnosis of fibromyalgia. Patients will be excluded if younger than 18 years, if diagnosed with fibromyalgia during their hospital stay, or if pharmacist-performed medication reconciliation was not completed for the inpatient admission. The data to be collected include: patient age, gender, prior-to-admission medications and doses, number of medications used for fibromyalgia management on admission, and discharge medications and doses. For objective 1: prior-to-admission medications will be divided by class, and number and percent of patients receiving medications in each class will be reported. For opioids, doses will be converted to oral morphine equivalents and will be reported. For objective 2: number and percent of patients receiving opioids to manage fibromyalgia-related pain will be reported. **Outcomes:** We will report the number and percentage of patients using opioids as part of their multimodal treatment regimens for managing fibromyalgia-related pain. We will also report the percentage of patients receiving opioids who do and do not have documented reasoning for not optimizing doses of FDA-approved medications for treating fibromyalgia.

Evaluation of Patient and Provider Satisfaction With Mental Health Clinical Pharmacy Specialists in Outpatient Mental Health Clinics

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Abstract Type: Work in Progress. **Background:** Mental health services are an area of high need in many health care systems in the United States. With a limited number of psychiatric providers and decline in the amount of services provided, a call for an increase to mental health services has been heard. The inclusion of Mental Health Clinical Pharmacy Specialists (MH-CPS) as part of interdisciplinary care teams has enabled the William S. Middleton Memorial Veterans Hospital & Clinics, as well as numerous other Veterans Affairs sites, to improve access to mental health providers where pharmacists serve as an integral part of the mental health team. **Objectives:** (1) Evaluate patient satisfaction with MH-CPS prescribers. (2) Evaluate impressions of nonpharmacist mental health providers of MH-CPS. (3) Assess for areas of improvement in MH-CPS services. **Methods:** A survey was designed to evaluate patient satisfaction with MH-CPS functioning as their primary mental health prescriber at the William S. Middleton Memorial Veterans Hospital & Clinics using 5-point Likert scale criteria. These surveys were distributed to patients seen in MH-CPS clinics for a defined 6-month period, and it was asked that they be completed and returned anonymously. An additional survey was formulated to evaluate impressions of other mental health providers regarding their MH-CPS colleagues. These were distributed and completed in December 2018. **Outcomes:** Results of these surveys will be compiled, and averages will be calculated. This information will be used to evaluate the current impressions of MH-CPS and potential areas for continued improvement.

Evaluation of the Appropriateness of Second-Generation Long-Acting Injectable Antipsychotic Use on an Inpatient Psychiatric Unit

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Abstract Type: Work in Progress. **Background:** Second-generation long-acting injectable (LAI) antipsychotics play an integral role in the treatment of schizophrenia, schizoaffective disorder, and bipolar disorder. LAIs provide clinicians with a valuable treatment option for patients with known or suspected nonadherence to oral antipsychotics. When used appropriately, these agents may reduce the risk of psychiatric relapse or hospitalization. However, inappropriate use may lead to negative outcomes. The initiation sequences, dosing, oral overlap, and other intricacies of LAI use create multiple opportunities for potential errors. This retrospective review will evaluate the prescribing practices, administration, and transitions of care associated with LAIs administered on a 35-bed inpatient psychiatric unit. These data will help to identify areas for improvement and opportunities for future interventions. **Objectives:** (1) Calculate the percentage of total LAI antipsychotic injections that were appropriate based on predefined criteria. (2) Further specify the percentage of injections that were appropriate

for each individual criterion. (3) Identify areas of inappropriate prescribing to target with future interventions. **Methods:** Included participants will be those who were admitted to the Winchester Medical Center between January 1, 2017, and December 31, 2018, and received one of the formulary second-generation LAI antipsychotics (Abilify Maintena, Invega Sustenna, Risperdal Consta). The n and % of appropriate LAI orders will be reported for the first objective. Appropriate orders for LAIs will contain the following correct information, in addition to having established tolerability to the oral equivalent: dose, initiation sequence and timing, oral overlap and duration, injection site, treatment indication, description in the discharge summary, and directions for outpatient follow-up. The n and % of appropriate LAI orders based on each of the previously listed criteria will be evaluated individually for the second objective. **Outcomes:** The number and percentage of injections that were deemed appropriate, based on meeting all of the above criteria, will be reported. The number and percentage of appropriate use in each individual category will also be reported. Investigators will identify and discuss areas for improvement that should be targeted by future interventions to promote safe, appropriate use of these agents.

Evaluation of the Current Attitudes of Pharmacy and Medicine Students and Preceptors Toward the Opioid Epidemic

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Abstract Type: Work in Progress. **Background:** Ohio is among the top 5 states in opioid overdose–related deaths, with 32.9 deaths per 100 000 people, more than double the national average, and triple what it was in 2010. Numerous strategies have been aimed at both health care professionals and the general public to combat the opioid epidemic. Literature suggests that there continues to be stigma toward patients with substance use disorder; it is unclear if attitudes differ between health care professions, or between practitioners and students. The perceptions and attitudes of medicine and pharmacy students, as well as health care professional preceptors, toward opioid use may impact overall patient care. This study will provide new data regarding the current attitudes and perceptions of pharmacists, physicians, and pharmacy and medicine students toward opioid use in northeast Ohio. **Objectives:** (1) Describe the attitudes and perceptions of participants toward the opioid epidemic. (2) Evaluate any differences in attitudes of participants. **Methods:** Participants will be voluntarily recruited via email to complete an anonymous survey and will be composed of students and preceptors of the Colleges of Medicine and Pharmacy at Northeast Ohio Medical University (NEOMED). Total invited population will be about 4100 participants, with a target response rate of 20%. Demographic information will include NEOMED affiliation, college affiliation within NEOMED, age range, race, and years lived in Ohio. Also included under demographics, excluding students, are years of practice in respective field of pharmacy or medicine and type of primary practice setting. The survey will assess participants' attitudes and perceptions regarding care for patients with opioid use disorder. NEOMED Institutional Review Board approval is pending. **Outcomes:** Descriptive results on the respondents' exposure to opioid use disorder patients, their comfort level caring for individuals with opioid use disorder, overall attitude toward individuals with opioid use disorder, and any impact the professional and lay media coverage may have on their overall impression of the opioid epidemic.

Evaluation of the Effect of a Modified Pharmacist Lithium Monitoring Protocol on Inpatient Medical Floors

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Abstract Type: Work in Progress. **Previously Presented:** 2018 ASHP Midyear Clinical Meeting and Exposition (Anaheim, CA). **Background:** Several studies have confirmed the high variability of lithium monitoring in acute care settings. SSM-Health has a protocol for monitoring lithium; however, preliminary data suggest lithium may not be adequately managed on acute medical floors with the current protocol. This retrospective study will provide data regarding the consistency of lithium monitoring through evaluating the impact of a pharmacist review of inpatients on lithium based on a modified protocol. **Objectives:** To determine if a modified pharmacy-driven drug monitoring protocol can optimize lithium orders in acute hospital settings and improve current lithium monitoring practices. **Methods:** This single-center, nonblinded, nonrandomized, retrospective study will review lithium monitoring on adult patients admitted to acute nonpsychiatric units at DePaul Hospital. Data from October 2017 to April 2018 will be reviewed as the baseline cohort managed without the modified monitoring protocol. The modified lithium monitoring protocol will be implemented from October 2018 to March 2019, and patient charts during this period will be reviewed in April 2019 to evaluate the impact of the modified protocol. Both cohorts will be evaluated for supratherapeutic levels as the primary endpoint. Secondary endpoints include subtherapeutic levels, timing of levels, adverse events, and pharmacy interventions. The compar-

ison of endpoints between the baseline cohort and the study cohort will be considered interval data and analyzed with the Student *t* test. The secondary endpoint evaluating the approved pharmacy interventions is nominal data and will be analyzed with the χ^2 test and descriptive statistics. Minitab statistical software will be used for all analyses. **Outcomes:** With the incorporation of pharmacist reviews of lithium, the number of nontherapeutic levels that will be reported are expected to decrease. The trends resulting from this study will be used to further confirm the positive impact of pharmacy interventions on psychotropic management and will provide statistical rationale for the need to expand pharmacy clinical services.

Evaluation of the Impact of Pharmacogenomic Testing Results on Psychopharmacotherapy Prescribing Patterns

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Abstract Type: Work in Progress. **Background:** Mental illness encompasses a wide range of disorders, including major depressive disorder, bipolar disorder, schizophrenia, and attention-deficit/hyperactivity disorder. Although a priority is to treat these conditions as efficiently as possible, psychiatric disorders may be challenging to successfully treat. Genetic variables influence drug pharmacokinetics and pharmacodynamics, making response to pharmacotherapy difficult to predict. Understanding this variation may help predict treatment response and reduce the risk of treatment failure or occurrence of adverse effects. Pharmacogenomic testing has the potential to be a helpful guide to achieve therapeutic response for psychiatric disorders; however, there is a lack of evidence supporting its routine use in this patient population. **Objectives:** The purpose of this study is to evaluate the impact of pharmacogenomic testing on outpatient prescribing patterns in patients with a psychiatric disorder. The primary endpoint is the occurrence of alterations in psychopharmacotherapy. The number and type of medication changes as related to metabolizer status (ie, extensive, intermediate, rapid, or poor) will be compared. Secondary endpoints include characterizing the necessity of a pharmacotherapy adjustment, the type of pharmacotherapy adjustment, and the most commonly altered medication class. **Methodology:** A single-center, retrospective, medical record review will be conducted on all patients with a psychiatric disorder currently prescribed an antidepressant, antipsychotic, mood stabilizer, nonpsychostimulant, or psychostimulant medication who completed pharmacogenomic testing at a psychiatric outpatient clinic between June 1, 2015, and June 30, 2018. Pregnant patients and prisoners will be excluded. Demographic data including the following data will be collected: psychiatric disorder diagnosis; number and type of current psychiatric medications; and the genotype and phenotype distribution for the following genes: CYP1A2, CYP3A4, CYP2B6, CYP2C9, CYP2C19, CYP2D6, DRD2, DRD4, HLA-A*3101, HLA-B*1502, HTR2A, SLC6A4, UGT1A4, and UGT2B15. Medications will be categorized as antidepressants, antipsychotics, mood stabilizers, nonpsychostimulants, and psychostimulants, and the types of prescribing changes made (eg, change in dose, frequency, or medication) will be recorded. **Results and Conclusions:** Demographic data and psychopharmacology prescribing changes following pharmacogenomic testing will be reported. Recommendations regarding pharmacogenomic testing utilization in this patient population will be provided to the outpatient clinic medical staff.

Evaluation of Use of Olanzapine and Length of Stay in Patients With Acute Mania

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Abstract Type: Work in Progress. **Background:** Medications prescribed for acute treatment of mania impact maintenance plans because most patients will continue the regimen that initially stabilized them. This raises concerns when considering the long-term adverse effect profiles of these medications. There is clinical debate that olanzapine may break mania faster than other antimanic agents, but due to concerns regarding weight gain and metabolic syndrome its use is restricted to failure of at least 2 other first-line antipsychotics at our facility. Hence, we are examining onset of action and tolerability of atypical antipsychotics prescribed for acute mania. **Methods:** We are conducting a retrospective, observational study at VA San Diego. All patients who were admitted to the inpatient psychiatric unit for acute manic episode from October 1, 2013, through October 31, 2018, and were prescribed either olanzapine (second tier) or one of the following first-tier atypical antipsychotics (risperidone, ziprasidone, quetiapine) during their hospitalization are included. Those who were prescribed any of the antipsychotics within the last 6 months prior to admission or had an active substance use disorder are excluded. We are collecting age, gender, and number of prior psychiatric hospitalizations at the time of the initial hospital stay. Antimanic onset of action is being measured by the length of stay (LOS) of patients started on each antipsychotic. Tolerability and effectiveness of long-term treatment are being measured by the percentage of patients who remained on the antipsychotic 6 months following

hospital discharge. Inferential statistics will be used to detect demographic and clinical differences between patients prescribed olanzapine versus the other antipsychotic agents. **Results and Discussion:** We will report the difference in LOS between the two groups as well as the percentage of patients who remained on the initial antipsychotic 6 months post-discharge date. We will be able to address whether olanzapine offers clinically significant benefits that justify their reported long-term risk. The significance of our findings will determine whether adjustment in our formulary tiers are warranted.

Facilitating Medication Adherence in Patients With Serious Mental Illness

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Abstract Type: Work in Progress. **Background:** Adherence to medications can be challenging for many psychiatric patients living in the community. Although factors such as cost, side effects, and stigma may contribute to nonadherence, the inability to manage complex psychiatric medication regimens is an important but modifiable barrier. Several studies have demonstrated the benefit of adherence packaging in improving adherence to medications. This additional level of pharmacy service can be resource intensive. Therefore, it is important to identify those patients at highest risk of nonadherence and to measure patient and health system outcomes to justify a return on investment. **Objectives:** The purpose of this project was to (1) characterize patients enrolled in an adherence program led by outpatient pharmacists at Forbes Pharmacy of UPMC Western Psychiatric Hospital, and (2) evaluate the impact of specialized pharmacy services, including adherence packaging, on medication adherence rates and patient and health system outcomes. **Methods:** This retrospective analysis included psychiatric patients enrolled in the adherence program in 2016 and 2017 and matched controls who were not enrolled in the program. Patient data included age, gender, and race as well as psychiatric diagnosis. Pharmacy data elements included number of medications prescribed, number of prescribers, therapeutic classes of medications, proportion of days covered (PDC), and insurance type. The PDC for psychiatric medications will be compared between the two cohorts, along with psychiatric hospitalizations during the study period. **Outcomes:** A total of 118 patients (average age, 62.6 years; 48% male) were enrolled in the adherence program and were prescribed an average of 12.41 medications. These patients had an average of 3.76 prescribers, with most patients (66%) having a diagnosis of schizophrenia or schizoaffective disorder. These patients were prescribed an average of 4.15 psychiatric medications. The analysis of the matched cohort, including comparison of psychiatric medication adherence and outcomes, is pending.

Feasibility and Patient-Reported Satisfaction With Using a Novel Fingerstick for Absolute Neutrophil Count (ANC) for Clozapine Treatment at the Point of Care (POC)

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Abstract Type: Work in Progress. **Purpose:** Clozapine is an effective antipsychotic for treatment-resistant schizophrenia that requires monitoring of absolute neutrophil count (ANC) due to the potential of neutropenia. Standard monitoring requires a routine venous draw which is considered one of the most significant barriers to patients starting or continuing the medication. This project assesses the feasibility, accuracy, and patient satisfaction with both venous blood drawing for ANC monitoring and a novel method for measuring ANC with a fingerstick using capillary blood. **Methods:** Participants with schizophrenia received both a venous blood draw and a capillary fingerstick at baseline, week 2 and week 4. Venous blood was sent to a national reference laboratory (NRL), and the capillary testing was done onsite using the newly US Food and Drug Administration Class II approved device Athelas One. The Athelas One is an automated diagnostic device intended to perform tests on capillary fingerstick samples collected directly into the provided test strip. **Results:** Overall, patients do not mind venous draws and report slight pain and worry about the blood draws. Patients do rate what happens to venous blood samples when sent out as a concern. When asked if immediate ANC results help their doctors make better decisions patients feel this is modestly to moderately helpful. A total of 5 of the 8 (63%) had at least one rating of preferring capillary over venous for future ANC testing. Athelas One ANC was highly correlated to the NRL results. **Conclusions:** Athleas One is user friendly, and technology appears to be a significant advance for clinicians. We find the ANC results with Athelas One to be correlated to the NRL. Patients do not appear to worry about having blood draws or associated pain but do have a concern involving what happens to their drawn venous blood, which is likely unique to this psychotic population. Most patients do prefer the capillary to venous blood draws. The use of point of care devices may decrease or

eliminate a significant barrier and may help improve the use of this underused evidence-based medication.

Fingerstick Blood Testing: An Approach to Improve Clozapine Monitoring Adherence and Acceptance

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Abstract Type: Work in Progress. **Background:** Current clozapine prescribing requirements include mandatory monitoring of complete blood counts to ensure patient safety due to the risk of severe agranulocytosis. Fingerstick blood testing provides a less invasive method of monitoring that may decrease the burden of prescribing clozapine. The pharmacy department at the study facility has managed an accredited, moderate complexity laboratory for fingerstick clozapine monitoring since March 2013. In previous studies, patients reported better acceptance of fingerstick blood testing, indicating that it was more convenient, less worrisome, and less painful than venipuncture. However, these studies were not designed to assess laboratory adherence. **Objectives:** (1) Determine whether patients are more adherent to fingerstick or venipuncture blood testing. (2) Report patient and prescriber preference of fingerstick or venipuncture blood testing. (3) Assess for and address potential concerns relating to fingerstick clozapine monitoring. **Methods:** The project team at an inpatient state-run forensic psychiatric facility will conduct surveys assessing patient opinions and acceptance of fingerstick and venipuncture blood testing for clozapine monitoring. Data for this quality assurance and improvement project will be gathered from patients prescribed clozapine between March 2013 and March 2018. Patients who currently reside in the facility will be guided through the survey by members of the project team. Facility prescribers will be anonymously surveyed with questions pertaining to safety and accuracy of fingerstick blood testing, preference of testing method, and an open comment section for additional concerns. Patient demographic data (psychiatric/medical diagnoses, age, sex, patient care area, race, other antipsychotic medications utilized) and laboratory records will be retrospectively collected. Laboratory records will be utilized to evaluate patient adherence rates to fingerstick and venipuncture blood testing. Descriptive statistics will be used to evaluate each of these parameters. **Outcomes:** Laboratory adherence data, patient and prescriber survey results, and demographic information will be reported and discussed. Results of this project will be presented to the facility's Medical Staff Committee, Clozapine Review Committee, and administration. If necessary, pending completion of this project, the project team will spearhead any recommended or required changes to improve the facility's clozapine policies and procedures.

Generation of CGRP-Binding Single Domain Antibodies for Acute Migraine Treatment

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Abstract Type: Work in Progress. **Introduction:** Calcitonin gene-related peptide (CGRP) is a known peripheral target for migraine prophylaxis in patients experiencing chronic migraines. Monoclonal antibodies targeting CGRP (eg, fremanezumab) are once-monthly injections to reduce migraine frequency in patients suffering frequent episodes. These antibodies have favorable side effect profiles compared with other migraine prophylactic therapies on the market (eg, botulinum toxin treatment, topiramate), making them a safe and effective option for chronic migraine sufferers. However, medication options for acute migraine relief remain inadequate. Triptans (eg, sumatriptan) have limited use in patients with cardiovascular disease while NSAIDs (eg, ibuprofen) do not provide sufficient pain relief for many patients. Despite its promise, an effective CGRP-targeting single-domain antibody (sdAb) to combat acute migraine pain has yet to be developed. Single-domain antibodies are ~15-kDa protein fragments with high affinity for their respective target. Due to their small size and high affinity, sdAbs can rapidly bind CGRP at trigeminal nerve endings, potentially leading to rapid migraine relief. This project will attempt to generate anti-CGRP sdAbs with the prospect of providing safe and effective acute migraine relief. **Objectives:** The objectives of this study are to: (1) generate sdAbs which effectively bind CGRP, and (2) assess in vitro characteristics of anti-CGRP sdAb. **Anticipated Methods:** CGRP (residues 19-37: SGGVVKNNFVPTNVGSKAF) was synthesized and conjugated to keyhole limpet hemocyanin (KLH; immunogenic protein) using Solulink's linker chemistry. To produce sdAb, a llama was subcutaneously injected with 300 µg of KLH-CGRP emulsified in Freund Incomplete Adjuvant. Following 4 immunizations, llama peripheral blood mononuclear cells will be isolated from whole blood, where cDNA will be generated using reverse transcription–polymerase chain reaction on isolated RNA. A single-domain library will be generated using pComb3XSS phagemid vector transformed into electrocompetent cells for expression of monovalent phages. Phages will be panned 3 times to select for high-affinity binders to CGRP. Following isolation of colonies, sdAbs will be sequenced, expressed in the *Escherichia coli* cell line SHuffle, purified,

and evaluated by surface plasmon resonance for binding against CGRP.

Impact of a Clinical Pharmacist Run Telephone Clinic on Antidepressant Possession Ratios During Acute and Continuation Phase Treatment of Depression

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Abstract Type: Work in Progress. **Background:** Adherence to antidepressants is essential for successful medication response for depressive disorders. However, it has been estimated that less than 40% of patients treated with antidepressants use medications correctly, with incorrect use being attributed to sociodemographic factors, clinical features and comorbidities, and pharmacologic factors. To improve adherence to newly prescribed antidepressants, Central Texas Veterans Health Care System (CTVHCS) implemented a pharmacist-run telephone clinic to identify and resolve potential barriers to adherence for patients identified by Veterans Affairs Pharmacy Benefits Management reports. This quality improvement project will identify differences in patient characteristics among veterans newly treated with antidepressants to develop strategies to improve medication adherence, and determine the clinical and economic impact of the telephone clinic. **Objectives:** (1) Identify patient risk factors for low adherence to antidepressants prescribed to patients with depression. (2) Determine the clinical and economic impact of the recently implemented telephone clinic. (3) Develop strategies to improve antidepressant medication adherence based on identified risk factors for low adherence and telephone clinic metrics. **Methods:** Patients will have received care at the CTXVHCS, have a diagnosis of depression, and be identified on the Veterans Affairs PBM MDD43h/MDD47h reports between Q3 FY2018 and Q1 FY2019. Demographics, medication regimens (medication, dose, days supplied), comorbidities, care plans (appointment dates), adherence percentage, whether the patient passed or failed each measure, and telephone clinic details (phone call length, reason for nonadherence, pharmacist interventions) will be collected. Chi-square tests will be used to evaluate differences in categorical variables between groups, and Student *t* tests will be used to determine differences in continuous variables. Descriptive statistics will be used to describe clinic metrics. **Outcomes:** Risk factors for low adherence will be identified by comparing patients who passed and failed each measure. The clinical impact of the telephone clinic will be assessed using the difference between measure scores in Q3 FY2018 and Q1 FY2019. A cost analysis of the clinic will be completed using pharmacist salaries and times documented in each clinic note. Risk factor trends and clinic metrics will be used to optimize the strategies used to improve patient adherence to newly prescribed antidepressants.

Impact of a Pharmacy Consult Service on Reduction of Benzodiazepine Use in High-Risk Patient Populations

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Abstract Type: Work in Progress. **Background:** Although the risks often outweigh the benefits, benzodiazepines are common medications used by approximately 5.6% of the adult US population. Benzodiazepines are associated with worsened mental health, addiction, dependence, increased mortality, accidental overdose, cognitive impairment, and falls. As abrupt discontinuation can lead to rebound symptoms and withdrawal, gradually tapering the dose is recommended when reducing or discontinuing benzodiazepine use. Patients are most successful when they are followed closely by a health care professional. Unfortunately, prescriber shortages and high workloads make this level of patient contact difficult. Mental health clinical pharmacy specialists are in a unique position to support patients and prescribers by providing counseling, alternative therapy recommendations, and close patient follow-up. Appropriately utilizing clinical pharmacy specialists can lead to decreased rates of inappropriate benzodiazepine use and reduced patient harm. **Objectives:** The primary objective is to evaluate the effectiveness of implementing a mental health clinical pharmacy benzodiazepine taper consult service. **Methods:** Patient recruitment will take place from November 2018 until March 2019. Patients will be recruited in an unprompted manner by advertising to providers, or in a prompted manner by recommending benzodiazepine tapers based on chart reviews of high-risk patients identified through the Veterans Affairs National Psychotropic Drug Safety Initiative Dashboard. Patients will be excluded if they have a history of seizure disorder, withdrawal seizures, recent inpatient psychiatric admission, or are currently receiving hospice care. If a patient is amenable, the provider may submit a mental health pharmacy e-consult. The mental health clinical pharmacist will collect relevant demographic and medication history data to design a taper plan and recommend alternative treatments. The pharmacist will contact patients by telephone at taper initiation and then regularly thereafter to provide counseling and education and to assess patient progress throughout the taper plan. Descriptive statistics will be used to report taper success and alternative recommendation acceptance rates. **Out-**

comes: We will report the number of consults submitted with and without provider prompting, frequency of patient contact, average reduction in diazepam dose equivalents achieved, and average implementation rate of pharmacist-recommended treatment alternatives. We will also describe the most common barriers encountered during the implementation process.

Impact of a Psychiatric Disorder Simulation Game on the Empathy of Pharmacy Students

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Abstract Type: Work in Progress. **Background:** It is important for pharmacists to be competent in the pathophysiology and treatment associated with various psychiatric disorders, and also recognize the life struggles and consequences these patients face as a result of their illnesses. Simulation games have been shown to successfully guide pharmacy students to better relate to specific patient populations and disorders. First-year pharmacy students who used the Kiersma-Chen Empathy Scale when participating in a simulation game for the impact of aging resulted in significantly improved empathy in their perception of older adults. Addressing mental health disorders in a simulation game for psychiatric disorders serves to decrease stigma, and increase awareness, empathy, and confidence in communicating with psychiatric patients for pharmacy students. **Objective:** Evaluate the impact and empathy level of pharmacy students when addressing patients with psychiatric disorders. **Methods:** The evaluation of a simulation game for psychiatric disorders will be based on The Game of Life. Participants will begin by drawing a card to determine their psychiatric disorder that they will face throughout the entire game. Students will be emailed an invitation to participate that includes a survey link via Qualtrics. The Kiersma-Chen Empathy Scale and a presurvey will be completed prior to beginning the game play. During the game, cards will be drawn to guide different life scenarios, which will include actions, careers, and monetary gain and loss. Winning in the game is to complete the game without being eliminated. Participants will review the cards they have obtained throughout the game to evaluate their experiences and empathy level. After finishing the game, the Kiersma-Chen Empathy Scale will be completed again, along with postsurvey questions. The Wilcoxon signed rank test will be used to evaluate pregame and postgame results from 28 third-year pharmacy students enrolled at Belmont University College of Pharmacy in Advanced Psychiatry Elective in spring 2019. **Outcomes:** We will report the presurvey, postsurvey, and Kiersma-Chen Empathy Scale results collected prior to playing and after completing the psychiatric simulation game. Analysis of the changes will be determined after collecting and comparing our data to conclude the impact of the psychiatric simulation game as an educational tool for pharmacy students.

Impact of a Psychiatric Pharmacist-Managed Antidepressant Follow-Up Clinic

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Abstract Type: Work in Progress. **Background:** According to the findings of the study, Sequenced Treatment Alternatives to Relieve Depression (STAR*D), depressive disorders can be challenging to treat. The premature discontinuation of antidepressant therapy has been linked to poor treatment outcomes, such as increased risk of relapse and recurrence, as well as increased health care costs. Estimates of nonadherence vary widely, ranging from 13% to 52% over the course of a lifetime. Pharmacist intervention in improving patient adherence to antidepressants is coupled with better outcomes. **Objectives:** Evaluate antidepressant adherence via pharmacist telephone conversation with veterans. Assess changes in depression via administration of Patient Health Questionnaire-9 (PHQ-9). **Methods:** This study is a quality improvement project to be conducted at the Martinsburg VA Medical Center and associated community-based outpatient clinics. A postgraduate year 2 psychiatric pharmacy resident will call veterans who are prescribed antidepressants using the Strategic Analytics for Improvement and Learning (SAIL) monitoring report. This report is a US Department of Veterans Affairs initiative to improve the quality of veterans' care. The resident will follow up with the veteran by asking if they are still taking the antidepressant, discussing how they are tolerating the antidepressant, requesting a refill if needed, administering the PHQ-9, and requesting an appointment with their mental health provider if one is not already scheduled. Descriptive statistics will be used in the data analysis. **Outcomes:** We will report the number of participants, demographics, percentage of veterans who remain adherent to their antidepressant regimen, and the percentage of veterans who required or requested an antidepressant switch. We will report the change in PHQ-9 scores from initiation of antidepressant to follow-up call.

Impact of a Trainee Interdisciplinary Program on Outcomes in a Mental Health Setting

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Abstract Type: Work in Progress. **Background:** According to the National Alliance on Mental Illness, 43.8 million adults experience mental illness each year, with only 40% receiving mental health (MH) services. Several barriers exist to accessible MH treatment, including stigma, misdiagnosis, and shortage of MH prescribers. Due to increasing demand for MH services, the health care system is moving toward an interprofessional approach. The purpose of the behavioral health interdisciplinary program (BHIP) is improved coordination and continuity of care, improved veteran health status, and increased provider collaboration. The trainee BHIP (tBHIP) team consists of a postgraduate year 2 (PGY2) psychiatric pharmacy resident, PGY3 psychiatry resident, and postdoctoral psychology fellow supervised by qualified MH preceptors. **Objectives:** The primary objective of this project is to evaluate the impact of a tBHIP team on treatment outcomes as measured by standardized assessments (PHQ-9, GAD-7, PCL-5). Secondary objectives are to assess changes in emergency department (ED) visits and psychiatric hospitalizations and to analyze the cost-saving potential of the tBHIP model. **Methods:** This project is a single-center, retrospective, observational analysis of adult veterans at the Murfreesboro campus of the Veterans Affairs Tennessee Valley Healthcare System from August 2013 through April 2018. Adults 18 years and older referred to the tBHIP team will be included. Exclusion criteria include individuals who could not be reached for scheduling, enrollment in clinic for $<$90 days, failure to complete standardized assessments, or enrollment in the clinical video telehealth tBHIP clinic. Eligible patients will be identified using the annual tBHIP Excel sheet. Manual electronic medical record review will then be utilized to exclude patients based on defined criteria. Patient demographics to be collected include age, race, gender, referral source and date, intake date, psychiatric diagnoses, currently enrolled or discharge date, psychiatric hospitalizations and MH-related emergency department visits 2 years prior to and 2 years following enrollment in tBHIP, and MH assessment measures (at time of intake, most recent [if currently enrolled] or prior to discharge [if historical patient]). **Outcomes:** Average standard assessment measures, psychiatric hospitalizations, and MH-related emergency department visits will be compared pre- and post-clinic enrollment. Additionally, the cost-saving potential of the tBHIP model will be analyzed.

Impact of an Opioid Overdose Risk Tool and Medical Provider Education on Naloxone Prescribing at Discharge – A Pharmacy and Hospitalist Pilot Program

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Abstract Type: Work in Progress. **Background:** Opioid-related deaths have risen dramatically in the United States. National organizations have advocated for improving provider education about overdose prevention and expanding community access to naloxone, an opioid receptor antagonist. Overdose education and naloxone distribution programs have been successfully implemented in many communities, but there is still a significant need for the integration of these programs into traditional health care settings. **Objectives:** The study objective is to evaluate the effect of an opioid overdose risk tool and medical provider education on the number of naloxone prescriptions furnished at discharge. **Methods:** This is an Institutional Review Board–approved quality improvement pilot study consisting of a preintervention 1-month retrospective chart review and postintervention 3-month evaluation. Pilot interventions include: development of a risk tool to identify patients at high risk of overdose, provider education on the risk tool and relevant laws, patient education on the use of intranasal naloxone and how to care for overdose victims, and a preintervention/postintervention provider survey assessing knowledge and attitudes. The risk tool is developed using national recommendations and published literature. Adult patients admitted to a designated hospitalist service and identified by the risk tool will be included. Patients who currently possess naloxone are discharged to another facility will be excluded. Demographic data, admitting diagnosis, insurance status, and discharge location, will be collected. Results will be analyzed using descriptive statistics and χ^2 test. **Outcomes:** The primary endpoints will be the number of prescriptions offered to eligible patients and the number of prescriptions furnished during preintervention and postintervention periods. The secondary endpoints will assess changes in physician survey responses, number of prescriptions filled through the hospital's "Meds to bed" program, and reasons why a prescription was not furnished.

Impact of Bodybuilding Supplements on Mood Disorders

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Abstract Type: Work in Progress. **Background:** Herbal and dietary supplement use in the United States has increased dramatically in recent years. Unlike medications, dietary supplements do not need to document efficacy and are assumed to be safe unless proven

otherwise. However, numerous case reports and population surveys indicate these products can be associated with adverse effects. To date, no trials have been published specifically looking at the impact bodybuilding supplements have on mental health. Thus, additional research assessing the impact of bodybuilding supplementation on mood disorders may be beneficial. **Objectives:** The primary outcome was to determine if bodybuilding supplement use was associated with worsening mood symptoms compared with those who did not report taking these supplements. Secondary outcomes compared psychiatric rating scales and hospital care related to mental health. **Methods:** Patients were included if they were at least 18 years of age and reported taking non-Veterans Affairs bodybuilding supplements between January 1, 2008, and October 1, 2018, via electronic medical records. Patients were excluded if they were prescribed decongestants, interferon, or long-term steroid therapy. For every unique patient with reported non-Veterans Affairs bodybuilding supplementation use, an individual was randomly selected from a set of matched non–supplement-exposed patients. Patients were matched by (1) age; (2) sex; (3) race; (4) psychiatric hospitalizations; and (5) Charlson Comorbidity Index. After matching, a retrospective chart review was conducted to identify treatment strategies for mental health conditions for both groups. If patients did need treatment for mental health conditions or if the treatment strategy changed, the number of treatments was recorded and then compared. **Outcomes:** We will report the number and percent of participants initiated on psychotropic medications for mood disorders and analyze the treatment strategies tried during the study period between patients with reported bodybuilding supplement use and their matched controls.

Impact of Bone Marrow Transplantation on Psychiatric Diagnoses

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Abstract Type: Work in Progress. **Background:** Diagnosing psychiatric conditions continues to be a subjective area within medicine. Although the conditions are life-altering and objectively noted, the actual components and lab values are difficult to interpret or relate to a specific condition. Anecdotal evidence and case reports suggest that bone marrow transplants can both cause and cure psychiatric diseases in humans that have undergone this procedure for the treatment of a malignancy. We hypothesize that there is a measurable relationship between bone marrow transplants and the induction and/or reversal of psychiatric/neurologic diseases. **Objectives:** (1) Evaluate psychiatric patients and their medication changes following bone marrow transplantation. (2) Assess the adjustments of therapy based on the effects of bone marrow transplantation. (3) Better understand potential treatments for specific psychiatric conditions. **Methods:** The study is a retrospective cohort study using deidentified patient information compiled from the Truven database. The data include all patients diagnosed with a psychiatric condition that have had a bone marrow transplant. Psychiatric conditions included are bipolar/manic and major depressive disorder (both single and recurrent events), obsessive compulsive disorder, general anxiety disorder, schizophrenia, suicide attempt, psychoactive substance abuse, opioid-related disorders, post-traumatic stress disorder, personality disorders, panic disorder, alcohol-related disorder, epileptic disorders, and movement disorders. The primary focus will be the changes in medications classified to treat the above psychiatric conditions from 2 years before and/or after their bone marrow transplant. The medication information will be collected from the Medispan network in order to include all brand and generic formulations, as well as all available NDCs on the market. All data will be analyzed using SPSS. **Outcomes:** We will report the number and percentages of patients that have changes in medication therapy following their bone marrow transplant, noting the psychiatric groups with the greatest change in therapy. Additionally, we will investigate if usage of only specific medications is reduced or if a specific psychiatric condition has a decrease in all medications. Analysis will include demographic characteristics, therapeutic changes, and additional medication notes, as available.

Impact of Gamma-Aminobutyric Acid (GABA) Modulators on Attention and Processing Speed Following Blast Exposure in Iraq and Afghanistan Post-Deployment Combat Veterans With and Without Posttraumatic Stress Disorder (PTSD)

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Abstract Type: Work in Progress. **Background:** Previous studies have identified a negative impact on attention measures with use of gamma-aminobutyric acid (GABA) modulators that decrease excitatory neurotransmission. The purpose of this study is to determine whether use of GABA modulators affected attention and processing speed measures in a population of veterans with and

without posttraumatic stress disorder (PTSD) and blast exposure. This study will provide further information regarding safe prescribing and medication management in this patient population. **Objectives:** To compare differences in processing speed and attention measures of combat veterans with and without PTSD using GABA modulators. **Methods:** Medication use data for a sample of 329 combat veterans were collected from an ongoing study evaluating chronic effects of blast exposure following Iraq and Afghanistan wars. PTSD was evaluated using the Clinician Administered PTSD Scale-5 (CAPS-5). Blast event history was evaluated using the Salisbury Blast Interview. Attention was measured using the Trail Making Test A (TMTA) Parts A and B, and processing speed was represented by the Wechsler Adult Intelligence Scale IV Fourth Edition (WAIS-IV) Processing Speed Index (PSI) Coding, Symbol Search, and Digit Span subtests. Both outcome scores were demographically corrected T scores. GABA modulators identified include pregabalin, gabapentin, baclofen, benzodiazepines (BZDs), BZD receptor agonists, and mood-stabilizing agents. Mean differences and interactions will be evaluated using multivariate analysis of variance. Normative data will be used to calculate age- and education-adjusted t-scores for cognitive testing outcomes. **Outcomes:** Mean differences in processing speed and attention in veterans using versus not using GABA modulators.

Impact of Holding Home Stimulant(s) on Agitation in a Child Adolescent Inpatient Psychiatric Population

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Abstract Type: Work in Progress. **Background:** Stimulant medications are useful for the treatment of multiple diagnoses and are the gold standard pharmacotherapy treatment for attention-deficit/hyperactivity disorder (ADHD). Current practice at our institution varies regarding the continuation of home stimulants for patients being admitted to our pediatric psychiatric unit. Impulsivity, hyperactivity, and inability to focus, which are key targets of stimulant medications, may worsen upon discontinuation. Anecdotally, this has been reported to contribute to agitation requiring intervention in some cases. While verbal de-escalation is attempted first in cases of agitation, other methods may be necessary, including as-needed medications, seclusion, or restraint. There are no current guidelines or standard of care regarding whether home stimulants should be initially continued or withheld upon admission to an acute care psychiatric hospital. **Objective:** The aim of this study is to compare clinical outcomes associated with initial holding versus continuation of home stimulant(s). Clinical outcomes would include: the use of seclusion, restraint, and/or as-needed intramuscular medications (ie, diphenhydramine, benzodiazepine, or antipsychotic). **Methods:** This Institutional Review Board–approved study is a retrospective chart review of patients younger than 18 years who were admitted to the Medical University of South Carolina Institute of Psychiatry Child and Adolescent Unit between July 1, 2017, and July 1, 2018, and were prescribed and adherent to home stimulant(s). Patients with home stimulant(s) started less than 4 weeks prior to admission and those not adherent were excluded. Patients were divided into two groups: those who continued on their home stimulant(s) within 24 hours of admission and those who had their home stimulant(s) held. Baseline patient characteristics, information regarding the use of seclusion, restraint, as-needed intramuscular medications, Children's Attention Rating Scale (CAPS) scores, and length of stay will be extracted from the electronic medical records. Patient's adherence to home stimulant(s) will be assessed by using fill dates from the South Carolina Prescription Drug Monitoring database and medication reconciliation on admission. **Outcomes:** We will report the difference in the number of seclusion, restraint, and/or as-needed intramuscular medications (diphenhydramine, benzodiazepines, and antipsychotics) required by patients who were initially continued on their home stimulant(s) versus those who were not.

Impact of Pharmacist Driven Medication Reconciliation in Psychiatric Emergency Services on Patient Outcomes

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Abstract Type: Work in Progress. **Background:** Psychotropics pose a particular challenge to medication safety and effective transitions of care. Medication errors can arise due to inadequate communication between fragmented health systems. However, pharmacists have been shown to complete accurate and comprehensive medication reconciliation. A reduction in patient length of stay as a result of pharmacist-conducted medication reconciliation has yet to be demonstrated consistently. At this academic medical center, medication reconciliation for adult inpatient psychiatry is currently completed by Psychiatric Emergency Service (PES) or unit nursing staff. Previous internal quality research found a decreased length of stay associated with pharmacist-completed medication reconciliation in this population. **Objective:** The objective of this study is to evaluate the impact of pharmacist-driven medication reconciliation in PES on patient outcomes. **Methods:** This study was exempt from Institutional Review Board approval as quality improve-

ment. A retrospective observational period of usual care (nurse medication reconciliation) was compared to 2 consecutive prospective interventional periods. Each of the 3 study periods were 1 month in duration. The first prospective period consisted of selective medication reconciliation completed by a psychiatric pharmacy resident in PES prior to adult inpatient psychiatry admission. The patients in this period were chosen based on complexity of medication list. The second prospective period consisted of medication reconciliation completed within 24 hours of admission by the same resident on all patients admitted Monday through Friday to adult inpatient psychiatry. The 2 prospective periods will be used to assess potential benefits and resources needed for both an ideal scenario (prospective period no. 2) and a more conservative scenario (prospective period no. 1). The following data were collected: patient age, attending provider, date/time of presentation to PES, date/time of admission to psychiatric unit, total length of stay, number of medications preintervention, number of medications postintervention, number of discrepancies on initial medication reconciliation, number of discrepancies on after-visit summary (AVS), and classification of potential errors. **Outcomes:** The primary outcome was patient length of stay. Secondary outcomes included number of discrepancies on admission and number of discrepancies on AVS at discharge.

Impact of Sedative-Hypnotic Order Panels on Inpatient Falls and Prescribing Patterns Across a Large Multi-Hospital Health System

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Abstract Type: Work in Progress. **Background:** Sleep disturbances are common among hospitalized patients. Benzodiazepines and sedative-hypnotics are commonly used in response to patient requests for pharmacologic management of insomnia. Potential adverse events associated with the use of such medications include cognitive impairment, postural instability, falls, and hip fractures. **Purpose:** This study aims to assess the impact of enterprise-wide initiatives on inpatient fall incidence. In an effort to reduce fall risk, initiatives were designed using a multifaceted approach. Sleep panels were created to introduce a hierarchy of preferred agents which no longer includes benzodiazepines and nonbenzodiazepine sedative-hypnotics as default or first-line options. Instead, prescriber selection is guided toward melatonin for first-line therapy. Single-line item orders and order sets incorporate age- and sex-based context rules derived from manufacturer-suggested dosing. Therapeutic interchanges were standardized for select agents resumed from prior-to-admission medication lists. **Methods:** This will be a quasi-experimental, retrospective review of a nonrandomized cohort. Data will be extracted from the electronic medical record and Cleveland Clinic's Safety Event Reporting System database between May 24 and November 20, 2018, to compare 3 months before versus after the intervention. Patients will be required to meet the following criteria for inclusion: adults 18 years and older, inpatient status at a Cleveland Clinic hospital, and medication order for zolpidem, temazepam, trazodone, melatonin, and/or diphenhydramine intended for insomnia. Patients will be excluded based on the following criteria: admission to Cleveland Clinic Akron General, an intensive care unit, under observation status, or discharged from the emergency department. Data collection points: demographics (study ID no., age, sex, ethnicity), admission information (hospital, unit, admission diagnosis, comorbid diagnoses), order information (medications ordered for insomnia [zolpidem, temazepam, trazodone, melatonin, and/or diphenhydramine], dosing, origin of order), and fall information (injury acquired, fall risk scores). **Outcomes:** The primary outcome of this study will be inpatient fall rates. Secondary outcomes will include changes in prescribing patterns (adherence with manufacturer's dosing recommendations for age and sex), length of stay, prescriptions generated at discharge, and fall risk scores. Tertiary outcomes will pertain to Fairview and Lutheran campuses only and will include the number and completion of pharmacist fall consults.

Implementation and Evaluation of an Acute Agitation Order Set at an Academic Medical Center

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Abstract Type: Work in Progress. **Background:** A behavioral health emergency (BHE), often caused by acute agitation, is a life-threatening situation that can occur in any hospitalized patient. Treatment for BHE should include behavioral interventions first, followed by medication administration if necessary. Consensus statements for the treatment of acute agitation typically recommend either an antipsychotic (first- and second-generation) or benzodiazepine based on the etiology of the agitation and risks of adverse effects. In 2015, The

University of Kansas Health Systems (TUKHS), developed a behavioral response team (BRT) to assist in BHE; however, there was no acute agitation order set available for clinicians until November 2018. The order set was designed to guide medication, route, and dosage selection for nonpsychiatric clinicians based on the patient's agitation etiology. **Objectives:** The primary objective is to compare the incidence of BRT activations prior to and post the acute agitation order set implementation. Secondary objectives include the comparison of repeat BRT incidence, the incidence of psychiatry consults in time relationship to BRT activations, and the number of times the acute agitation order set was utilized after implementation. **Methods:** A retrospective chart review will be conducted at an acute care Midwest academic medical center (TUKHS) evaluating BRT activation rates prior to and post an acute agitation order set implementation. Medical records will be reviewed for 3 months in 2 patient cohorts (prior to cohort and post order set cohort). Patients were included if older than 18 years and admitted inpatient on 3 nonpsychiatric units under the primary care of specific teaching internal medicine teams. Exclusion criteria include pregnant patients, length of stay less than 24 hours, or patients experiencing withdrawal signs and symptoms secondary to alcohol or benzodiazepine abstinence. Select variables to be collected include demographic characteristics, reason for BRT activation and consequence of BRT, diagnosis, police attendance, QTc, medications administered prior to, during, and after the BRT, and medication side effects. Chi-square will be used to compare BRT incidence. **Outcomes:** We will report the proportion of BRTs prior to and post order set implementation. We hope to see a decrease in BRTs post order set implementation.

Implementation and Impact of Providing Opioid Overdose Education and Naloxone Distribution Services Utilizing a Pharmacist-Run VA Video Connect Clinic

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Abstract Type: Work in Progress. **Background:** The Department of Veterans Affairs (VA) Opioid Overdose Education and Naloxone Distribution (OEND) program is a risk mitigation initiative that aims to decrease opioid-related overdose morbidity and mortality among VA patients. The goals of the OEND program include education, recognition, rescue response, and issuance of naloxone overdose kits. VA Video Connect (VVC) is a mobile application to enable patients to virtually participate in health care encounters where a hands-on physical examination is not required. This quality improvement project will evaluate the use of VVC in increasing patient access to intranasal naloxone. **Objectives:** (1) Perform naloxone prescribing and education through VVC. (2) Determine patients identified as high risk for overdose via opioid-tracking systems or provider referral. (3) Assess feasibility of VVC through assessing the number of patients contacted, number of refusals, difficulties with VVC method, and referrals to substance abuse treatment programs (SATPs). **Methods:** Recruitment will occur through the South Texas Veterans Health Care System Stratification Tool for Opioid Risk Mitigation (STORM) database. STORM utilizes a predictive model to estimate the likelihood of drug overdose or suicide-related events in VA patients receiving opioid prescriptions. Inclusion criteria include: those identified as "very high risk," "high risk," or "naloxone naive"; veterans on an extended-release, long-acting prescription opioid, and/or $\geq$50 mg of morphine equivalents per day; and patients referred to the pharmacist-run clinic through the Computerized Patient Record System. Baseline information to be collected includes age, gender, primary care provider/clinic, mental health provider/clinic, STORM criteria (if available), referring provider (if available), morphine equivalents, previous admission to SATP, and previous prescriptions for naloxone. Once identified, patients will be prescribed naloxone and contacted via telephone for initial education screening. If able to use VVC, patient will be scheduled for naloxone education through VVC. If unable to utilize VVC, veteran will receive naloxone education through telephone. **Outcomes:** We will report the number and percent of participants who received naloxone education through VVC and types of referrals to the pharmacist-run VVC clinic. Additionally, we will assess patient-reported difficulties with VVC as well as triaging patients to SATP, if appropriate.

Implementation and Initial Outcomes of an Interdisciplinary Long-Acting Injectable Antipsychotic Service in an Underserved Community

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Abstract Type: Work in Progress. **Background:** Kaweah Delta Health Care District (KDHCD) is located in an underserved area in Tulare County of California. In the past, mental health patients in Tulare County have had poor access to long-acting injectable (LAI) antipsychotics. LAIs have been linked with improved treatment outcomes, including decreased hospitalizations in patients with mental illness. In an effort to increase LAI access to improve patient outcomes and decrease health care costs, KDHCD has developed training for pharmacists and

resident physicians to administer LAIs and has implemented LAI services at the outpatient mental health clinics and retail pharmacy. Outcomes of the study will be utilized to justify benefits of pharmacist and resident physician outpatient LAI services at KDHCD. Additionally, results of this study can be used to expand similar services in rural areas. **Objectives:** The purpose of this study is to assess hospital and emergency department admissions, medication adherence, and prescriber satisfaction after implementation of both pharmacist- and resident physician–administered long-acting antipsychotic injection services. **Methods:** The primary outcome of hospitalizations and ED visits and the secondary outcome of medication adherence will be determined by a retrospective chart review. Provider satisfaction will be measured through observational inquiry (survey). Patients with a diagnosis of psychiatric disorder and prescribed or administered an LAI product in an outpatient setting will be identified through Cerner reporting system. Medication chart review will include patients prescribed or administered an LAI from August 1, 2018, through January 31, 2019. Medication adherence will be determined based on chart review of the electronic medical record (EMR). Patients will be deemed adherent if they receive their LAI within the manufacturer-recommended dosing window. Participants for prescriber satisfaction will be recruited via email. The survey will be implemented using Survey Monkey, and the link will be distributed to the psychiatry physician group using KDHCD email. **Outcomes:** Primary outcomes include number of admissions and/or ED visits prior to LAI use compared with after LAI administration. Secondary outcomes include medication adherence to LAI products in outpatient settings and prescriber satisfaction with pharmacist-administered LAIs based on survey results.

Implementation of a Pharmacist Medication Management Service to Decrease the Occurrences of Concurrent Opioid and Benzodiazepine Prescribing Within the Miami Veterans Affairs Healthcare System

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Abstract Type: Work in Progress. **Background:** Nearly one third of fatal overdoses in the United States involve opioids, which are often prescribed concurrently with benzodiazepines. This common prescribing pattern has been associated with more deaths than opioid therapy alone and has led to the Veterans Health Administration's implementation of the Opioid Safety Initiative (OSI). One of the goals of the OSI includes addressing risks of combined use of opioids and benzodiazepines. The Stratification Tool for Opioid Risk Mitigation (STORM) is a clinical decision support tool available to Veterans Affairs staff to identify patients who are at risk for adverse events, such as overdose or suicide. It also provides risk mitigation strategies along with a collaborative approach to pain management for identified patients. Mental health and pain clinic pharmacists identify high-risk patients for opioid-related adverse events, wherein opioid or benzodiazepine discontinuation may be warranted. Pharmacists utilize the Veterans Affairs Opioid Taper Decision Tool and benzodiazepine tapering guidelines to facilitate taper schedule and patient education. **Objectives:** The purpose of this project is for pharmacists to implement a medication management service to make recommended changes for safer opioid and benzodiazepine prescribing. **Methods:** A chart review conducted from July 2018 to August 2018 of patients prescribed a combination of opioid and benzodiazepine therapy concluded that further evaluation is required. The STORM database will be used to assess patients' risk category. Data collection will include: patient demographics, drug names, doses, length of concurrent therapy of opioid and benzodiazepine, medication indications, if naloxone kit was prescribed, and patient follow-up appointments. An evaluation of therapy will be performed for patients who are identified as at high risk for opioid-related adverse events. Patients' medication regimens will be reviewed for appropriateness. Providers will be contacted to suggest an alternate therapy for their mental health or pain conditions if necessary. The plan is for taper or alternate schedules to be initiated and monitored. The pharmacist will follow up through a pharmacist-operated telephone clinic. **Outcomes:** Patients successfully converted or tapered from concomitant opioid-benzodiazepine therapy will be reported.

Implementation of a Pharmacist-Directed Mental Health Medication Optimization Service

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Abstract Type: Work in Progress. **Background:** Some veterans with psychiatric disorders have complex medication regimens and extensive medication histories; therefore, clinical pharmacists are well positioned to assist in medication management. Although data show pharmacists improve patient outcomes, reduce costs, and increase access to care in the primary care setting, there is limited evidence evaluating the impact of pharmacist involvement in medication management for patients with psychiatric disorders. The development and evaluation of this mental health medication optimization service will provide new data regarding the impact of pharmacist

involvement in medication management for patients with psychiatric disorders. The goal of the service is to optimize medications, increase medication monitoring, and improve outcomes for patients with psychiatric conditions. **Objectives:** (1) Evaluate pharmacist recommendations made and implemented. (2) Identify common medication-related issues. (3) Identify the type of recommendations implemented. (4) Assess the time spent by the pharmacist to evaluate the patient's medication regimen and history. **Methods:** Interventions will be evaluated for (1) patients assigned to a provider's patient panel who wishes to have panel reviewed, (2) patients who are referred to the pharmacist by a provider for a comprehensive medication review, and/or (3) patients who are referred to the pharmacist by a provider requesting specific recommendations versus a comprehensive medication review. Patients will be excluded if they are enrolled in telemental health. The pharmacist will contact patients by phone for comprehensive medication reviews from October 2018 to July 2019, and other specific recommendations requested by providers will be completed via chart review and documented in the electronic medical record. Descriptive statistics will be used for all outcomes. **Outcomes:** We will report the number of pharmacist recommendations, percent of recommendations implemented, commonly identified medication-related issues, types of recommendations implemented, and average time spent by the pharmacist.

Implementation of a Pharmacist-Led Benzodiazepine Taper Clinic

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Abstract Type: Work in Progress. **Background:** Benzodiazepines are prescribed chronically in approximately 30% of US adults and are inappropriately prescribed in about 40% of older adults in the outpatient setting. The number of benzodiazepine prescriptions has tripled in recent years, with an accompanying 4-fold increase in benzodiazepine-related overdose deaths. Prescribing guidelines do not recommend long-term use of benzodiazepines, since their effectiveness with chronic use is outweighed by risks, including dependence, memory and cognitive impairment, hip fractures, and motor vehicle accidents. This study proposes to illustrate benefits of a benzodiazepine taper clinic with a pharmacist leading the education, recommending the benzodiazepine taper, and providing frequent patient follow-up. **Objectives:** Primary: assess the percentage of veterans who decrease their benzodiazepine usage. Secondary: compare the change in total daily benzodiazepine dose (diazepam mg equivalents) and change in Generalized Anxiety Disorder-7 (GAD-7) and Insomnia Symptom Questionnaire (ISQ) scores, pre-clinic and post-clinic implementation. Evaluate the impact on emergency department (ED) and hospital admission rate. **Methods:** This is a single-center prospective study at the Martinsburg VA Medical Center. Prescribers may submit a benzodiazepine taper consult to a mental health pharmacist for possible clinic enrollment. Veterans meeting enrollment criteria in the clinic will be contacted by a mental health pharmacist to introduce and propose the taper clinic. Educational sessions will be conducted in person, and the veteran may choose to enroll in the clinic at this point. Veterans enrolled in the clinic will meet with a mental health pharmacist every 2 weeks for evaluation of withdrawal symptoms, administration of GAD-7 and ISQ self-assessments, and to discuss the taper progress. The referring prescriber will maintain prescriptive benzodiazepine authority. Veterans will be contacted 1 month after taper completion for follow-up. Descriptive statistics and the *t* test will be used to analyze data. **Outcomes:** We will report the number of participants, demographics, percentage of veterans who decreased their benzodiazepine use, and in the 1-month follow-up, the percentage of veterans who sustained decreased usage or complete cessation. We will report the total daily benzodiazepine dose (diazepam mg equivalents) preclinic and postclinic, GAD-7 and ISQ scores preclinic and postclinic, and the number of hospitalizations, ED visits, and unscheduled outpatient psychiatry visits during the taper.

Implementation of a Pharmacist-led Medication-Assisted Treatment (MAT) Clinic at a Veterans Affairs Medical Center

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Abstract Type: Work in Progress. **Background:** There is no formal process for veterans with a substance use disorder (SUD) diagnosis to receive medication-assisted treatment (MAT) at Carl Vinson Veterans Affairs Medical Center (CVVAMC). Currently, veterans with SUD can be referred to the Mental Health Residential Rehabilitation Treatment Program (MH-RRTP) for intensive inpatient treatment. Veterans completing MH-RRTP have access to on-site support, such as group and individual therapy, to treat active SUD. However, these veterans are not typically offered MAT during the inpatient admission. To increase access to MAT, a psychiatric pharmacist-led clinic will be created for veterans completing the MH-RRTP. The purpose of this study is to increase access to MAT for veterans with opioid (OUD), alcohol (AUD), and cocaine (CUD) use disorders utilizing a psychiatric pharmacist's clinic within the MH-RRTP. **Objectives:** (1) Identify patients who may benefit from MAT through referral

processes, chart reviews, and interdisciplinary education. (2) Increase the number of veterans with SUD completing the MH-RRTP who receive MAT by at least 20% during the 3-month study period. **Methods:** The lead investigator will submit a proposal to the CVVAMC Pharmacy and Therapeutics (P&T) Committee outlining the purpose, methods, and timeline of this project. An initial chart review will be conducted for patients residing in MH-RRTP to gather baseline data including the diagnosis of OUD, AUD, or CUD, and active MAT. After initial chart review and P&T approval, a consult template to the psychiatric pharmacist-led MAT clinic will be devised and made available to providers. After a consult is placed, the pharmacist will meet with veterans in person for assessment and treatment of SUD, if appropriate. After 3 months, the lead investigator will conduct a final chart review of MH-RRTP veterans from clinic start date. Again, patients with a diagnosis of OUD, AUD, or CUD will be documented, with further screening to determine if those patients are on active MAT. **Outcomes:** The number and percent of veterans with SUD who received MAT at baseline and after 3 months will be reported. The type of MAT selected and the frequency of use of each medication will be identified.

Implementation of a Pharmacotherapy Shared Medical Appointment for Antidepressant Management in an Outpatient VA Clinic

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Abstract Type: Work in Progress. **Background:** Depression is a common and serious psychiatric condition associated with higher rates of mortality and impaired functioning in affected individuals. Antidepressant medication therapy may not be as effective if there is nonadherence and inadequate follow-up to assess medication response and tolerability. Consequently, implementing additional modalities to provide antidepressant management services is a priority to improve patient outcomes. VA Palo Alto Healthcare System is increasing access to care via group-based medical appointments in addition to traditional individual appointments. Studies have demonstrated shared medical appointments (SMAs) improve patient satisfaction and outcomes in the management of other disease states, such as alcohol use disorder. Therefore, an SMA has been implemented to provide effective depression medication education, management, and psychosocial support services. **Objectives:** The primary objective of this study is to develop and implement an SMA for the management of depressive disorders. Secondary objectives include assessing the impact of the depression management SMA on medication adherence, documentation of adverse drug reactions (ADRs), pharmacist interventions, and PHQ-9 score trends. **Methods:** This prospective, quality-improvement project will take place in an outpatient VA clinic. Enrollment will include consulted patients with a diagnosis of a depressive disorder who are currently prescribed an antidepressant medication. Patients will be excluded if diagnosed with schizophrenia, cognitive impairment, other psychotic, bipolar, or personality disorder, or therapeutic failure of greater than 3 antidepressant medications. The SMA will occur monthly for 3 sessions, consisting of a psychiatric pharmacist providing medication management and education, as well as a social worker providing psychosocial support. Collected outcomes will include medication adherence, PHQ-9 scores, psychiatric pharmacist interventions, and ADR incidence. **Outcomes:** Results are pending. Descriptive statistics will be utilized as appropriate.

Implementation of a Pilot Medication Access Program for Underserved Psychiatric Patients in the Upper Midwest

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Abstract Type: Work in Progress. **Background:** Mental health providers are challenged with how to deliver effective, sustainable care to our patients. Treatment plans are only successful if the patient has access to necessary resources. At Avera Behavioral Health Center (BHC) in Sioux Falls, SD, the shortage of outpatient resources is a daily challenge. Historically, Avera has utilized internally donated funding to assist patients with medication costs on discharge; however, this is a short-term solution to a long-term problem. Avera BHC's partnership with Dispensary of Hope has created a sustainable solution to medication access for uninsured patients. This pilot study conducted from September 15, 2018, to February 15, 2019, will retrospectively analyze the impact on patient care, hospital spending, and hospital readmission. **Objectives:** The purpose of this project is to determine the impact the implementation of a new medication access program has on patient-specific outcomes, including overall patient utilization, medication adherence, and hospital readmission rates. The secondary outcome will evaluate potential cost savings of the program for the health system. Determining the feasibility and sustainability of expanding the program health system-wide will be an exploratory outcome. **Methods:**

This study will be a 5-month retrospective cohort study of patients discharged from Avera BHC utilizing the pilot medication access program. Patient outcomes will be compared to a cohort of patients from the same 5-month period who were nonutilizers of the program. Economic outcomes will be compared to spending in FY17 for uninsured, psychiatric patients at Avera BHC during the same time frame. **Outcomes:** As of January 1, 2019, a total of 400 patients have been referred to Avera's Medication Access Program through BHC inpatient and clinic referrals. A total of 412 thirty-day prescriptions have been provided to patients at no charge, totaling 449 patient encounters. The overall readmission rate for patients enrolled in the pilot will be compared to Avera BHC's average adult readmission rate, which was 7.06% from September 1, 2017, to February 28, 2018. From October 1, 2018, to December 31, 2018, Avera's spending on medications for BHC patients decreased $1185.16 compared with the same time frame in FY17.

Implementation of a Quality Improvement Process to Monitor Patient Responses to Ketamine Infusions for the Management of Mood Disorders in an Ambulatory Surgery Unit

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Abstract Type: Work in Progress. **Background:** Intravenous ketamine is a novel, off-label therapy for the management of severe, treatment-resistant mood disorders. Improvements in depression symptoms may be observed rapidly after an infusion of ketamine, but benefit is short-lived after a single infusion. A consensus does not exist regarding repeat administration of ketamine infusions or for the monitoring of repeat infusions. Timely administration of depression rating tools was identified as an opportunity for improvement following a medication use evaluation (MUE) examining past use of ketamine for the management of mood disorders at the Raymond G. Murphy VA Medical Center. Facility experts agreed that, at minimum, patients should receive baseline assessment prior to their first ketamine infusion as well as follow-up evaluation at least every 2 weeks using depression rating tools. This quality improvement (QI) project will generate important information for care teams to adjust the course of therapy for patients receiving ketamine infusions and more appropriately identify treatment response. **Objective:** Improve the timely administration of validated depression rating tools in patients receiving ketamine infusions for the management of mood disorders at the Raymond G. Murphy VA Medical Center. **Methods:** The QI project implemented a change from clinician-administered depression rating scales to brief, patient-administered questionnaires in November 2018. Patients completed the Patient Health Questionnaire (PHQ-9) and Sheehan Disability Scale (SDS) in the Ambulatory Surgery Unit prior to receiving ketamine infusions. Patients scheduled to receive ketamine infusions for a mood disorder were included and observed through February 2019. Administration of validated, patient-administered tools was designed to assess patients' depression symptoms in addition to functional status. Data collection consisted of patient demographics, patient weight, ketamine administration records, PHQ-9 and SDS scores, time between rating tool administration, adverse events, concomitant mood disorder therapies, and active substance use. **Outcomes:** We will report the number and percentage of patients with baseline and follow-up depression rating tools documented in addition to examining mean time between assessments. Change in PHQ-9 and SDS scores from baseline will be reported. At the time of abstract submission (halfway through the observation period), 15 patients have been assessed, involving 96 separate assessment points.

Implementation of Clinical Pharmacy Services in a Mental Health Intensive Case Management Program

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Abstract Type: Work in Progress. **Introduction:** The Mental Health Intensive Case Management (MHICM) program provides services to patients with severe mental illness (SMI), severe functional impairment, and high utilization of the inpatient mental health unit. Patients with SMI are often high-risk patients with complex medication regimens. Evidence has demonstrated the impact of mental health pharmacists for improving patient outcomes. Currently, approximately 80 patients are followed by the MHICM team, but there is no pharmacist dedicated to this service. **Objective:** The objectives of this project are to provide medication therapy management, increase patient knowledge of their medications, and provide staff education. **Methods:** Fifteen patients will receive clinical pharmacy services provided by the postgraduate year 2 psychiatric pharmacy resident supervised by a clinical pharmacy specialist. Patients in the pilot program will receive one home or clinic visit to provide medication education and a comprehensive medication review by the pharmacy resident. Recommendations will be made to patient's primary care providers and psychiatrists regarding appropriateness of pharmacotherapy, unmet medication needs, updating monitoring, adverse reaction management, and drug-drug interactions. An in-service was provided to the

MHICM team on long-acting injectable antipsychotics. Outcome data will be collected 3 months after the medication review is completed and assessed by primary investigator. A survey will be provided to case managers and patients to assess satisfaction with clinical pharmacy services. The primary outcomes will include number and types of recommended interventions and accepted interventions. Secondary outcomes will include reduction in psychotropic polypharmacy, satisfaction of case managers and patients with clinical pharmacy services, and cost savings.

Implementation of Mental Health First Aid Certification Into Pharmacy School Curriculum

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Abstract Type: Work in Progress. **Introduction:** In 2016, the National Institute of Mental Health found that 44.7 million (or nearly 1 in 5) American adults lived with mental illness. However, a 2017 article in *The Mental Health Clinician* found that 41.4% of pharmacists surveyed reported feeling less comfortable providing counseling for mental health medications compared with cardiac medications, despite 58.2% expressing that pharmacy school provided adequate preparation. Therefore, pharmacists are capable and willing to help patients with mental illnesses but may lack confidence in interacting with and responding to these patients. Implementation of mental health first aid programs offers crucial training to pharmacy students, who may then respond more effectively to mental health emergencies and provide better care. **Methodology:** Mental Health First Aid USA (MHFA), a program operated by the National Council for Behavioral Health, utilizes didactic materials, video aides, and role-play scenarios to educate about the warning signs for mental health disorders. Training in MHFA provides health care providers with an action plan that can be employed in a variety of situations, including panic attacks, episodes of overdose or withdrawal, and reactions from traumatic events. Key objectives include: identifying and overcoming barriers in integrating MHFA into the curriculum and collaborating with MHFA to incorporate an emphasis on usage by health care providers. **Results:** Various outcomes can potentially be measured from studying the results of implementation of MHFA into the curriculum. The main outcome of interest is student benefit from training, which will be evaluated by pretraining and posttraining surveys and follow-up questionnaires after experiential education rotations until graduation. **Conclusion:** Pharmacists are one of the most accessible health care professionals, and their role in the prevention of health conditions is expanding into issues of mental health and substance use disorders. This training can be especially important to pharmacy students, who will have direct patient contact as future pharmacists and may have the best opportunity to identify and assist in the event of a mental health crisis. Our implementation of this program into the curriculum at California Northstate may serve as a guide for other pharmacy schools to do the same.

Implementation of Pharmacist-Managed Telephonic Tobacco Cessation Clinic and Effect on Hospital-Based Inpatient Psychiatric Services Tobacco Treatment Measures

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Abstract Type: Work in Progress. **Background:** Hospital-Based Inpatient Psychiatric Service (HBIPS) measures are a set of performance measures for inpatient psychiatric facilities developed by the Joint Commission. Additional measures involving tobacco treatment were introduced in 2012, which are mandatory for psychiatric facilities to report through the Inpatient Psychiatric Facility Quality Reporting (IPFQR) Program. Achieving HBIPS measures requires investment in appropriate resources, and staff and practitioner training. It has been proposed that pharmacists, with their specialized training and drug expertise, are in a unique position to help reach the HBIPS tobacco cessation measures. Because these HBIPS measures are national metrics set forth by the Joint Commission, the results of this study will be beneficial to psychiatric facilities nationwide. **Objectives:** Our objective is to examine whether the implementation of a pharmacist-managed telephonic tobacco cessation clinic (PMTTCC) at Kaweah Delta Health Care District (KDHCD) will improve HBIPS tobacco treatment measures. This is a pilot study conducted to provide evidence to support the use of a PMTTCC for psychiatric patients upon discharge from the mental health hospital. Our hypothesis is that after conducting provider training and implementing a referral model for the PMTTCC, HBIPS tobacco treatment measures will improve from baseline. **Methods:** This retrospective cohort-designed study will include approximately 300 patients (~20% of mental health hospital discharges during a 6-month period) ages 18 years or older who have one or more psychiatric diagnoses. In accordance with the 2012 Joint Commission performance measure sets, the following metrics will be examined at baseline: tobacco use screening (TOB-1), tobacco use treatment provided or offered and the subset of tobacco use treatment (TOB-2/TOB-2a), and tobacco use treatment provided or offered at discharge and the subset of

tobacco use treatment at discharge (TOB-3/TOB-3a). After PMTTCC implementation, these metrics will be compared to postimplementation metrics. **Outcomes:** We will report the following tobacco metrics at baseline: TOB-1, TOB-2/TOB-2a, and TOB-3/TOB-3a. In addition, we will present results for the rate of tobacco cessation referral in relation to the number of comorbid mental illnesses and various psychiatric diagnoses.

Improving Access to Medication Assisted Therapy and Addiction Treatment Services at Discharge for Alcohol Use Disorder

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Abstract Type: Work in Progress. **Background:** Fostering patient readiness for entry into alcohol use disorder (AUD) treatment is an important phase in detoxification. The short duration of most hospitalizations for detoxification limits time to adequately assess rehabilitation readiness, creating a barrier to addiction treatment services (ATS). At the Veterans Affairs Salt Lake City Health Care System (VASLCHCS), the current workflow has several gaps for referring admissions identified with AUD to ATS, possibly decreasing access to treatment. Data collected from June 2016-2017 at the VASLCHCS revealed that 85% of medicine admissions for alcohol withdrawal were not discharged with medication-assisted therapy (MAT). Referral to ATS was offered to 73% of admissions, whereas only 24% accepted referral. The 2018 ORYX fourth-quarter data review revealed 70% of inpatient admissions were offered or provided the alcohol use brief intervention interview, and 78% were offered or provided US Food and Drug Administration–approved MAT or referral to ATS. This data discrepancy demonstrates an opportunity for a process improvement project to increase access to and education about AUD pharmacotherapy and psychosocial services. **Objective:** Increase the percentage of admissions identified with AUD offered and provided ATS or MAT prior to discharge by 15% by March 2019. **Methods:** This process improvement project involves the creation of an inpatient provider workgroup to revise the referral process for admissions identified with AUD to specialty care. The multidisciplinary group includes representation from hospitalists, psychiatry, ATS, social work, and mental health clinical pharmacists. Lean Six Sigma Model techniques and change management methodologies will be used to implement a new workflow to increase the number of admissions offered and provided ATS and MAT prior to discharge. The percentage of admissions identified with AUD, obtained from IDC-10-CM codes, offered and provided ATS or MAT will be collected postimplementation through chart review. The 2019 ORYX quarterly data will be reviewed. Descriptive statistics will be utilized to measure outcomes. **Outcomes:** The primary outcome is the percentage of admissions identified with AUD offered and provided ATS or MAT prior to discharge. Secondary outcomes will compare: each outcome group (offered ATS, offered MAT, provided ATS, and provided MAT) and data from 2018 ORYX fourth-quarter review with 2019 ORYX quarterly data.

Improving Antidepressant Adherence Post-Discharge From an Acute Psychiatric Unit With a Pharmacist-Led Discharge Counseling Program

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Abstract Type: Work in Progress. **Background:** Many patients in the inpatient acute psychiatric unit are prescribed medications for depression during their admission and are discharged on these medications. However, many patients fail to refill their antidepressant medication for a variety of reasons. One technique which has proven to be effective for other classes of medication is a medication-focused discharge counseling program led by a pharmacist to address the importance of adherence, potential side effects, and symptom improvement. **Objectives:** (1) Determine the efficacy of a pharmacist-led one-on-one discharge medication counseling service to improve antidepressant adherence postdischarge from an inpatient psychiatric unit, and (2) evaluate the efficacy of the service to improve adherence to follow-up appointments postdischarge. **Methods:** Participants will be recruited from the Tuscaloosa Veterans Affairs Medical Center's (TVAMC) acute psychiatric units. Inclusion criteria will include the following: 18 years or older, an antidepressant medication ordered during admission, the medication is being used for depression, and refill medication with a Veterans Affairs (VA) pharmacy. Exclusion criteria will include the following: the patient is discharged to another program within the VA system which assists with medication adherence, or if the patient intends to follow up with a non-VA provider. For a baseline comparator group, historical data will be collected through a medical chart review of patients discharged from the TVAMC acute psychiatric units between March 2018 and September 2018. Number of patients discharged with an antidepressant prescription will be identified, and antidepressant refill history postdischarge will be evaluated. The intervention group will consist of all patients discharging from the acute psychiatric unit with an antidepressant prescription. These patients will receive pharmacist-led medication counseling prior to discharge. For objective 1: number of eligible patients, number of participants, and percent of participants who are adherent

to the antidepressant based on refill history postdischarge. For objective 2: percent of participants who are adherent to postdischarge psychiatric appointments. **Significance:** This strategy will optimize care provided at TVAMC by identifying patients who have been prescribed an antidepressant during admission to the acute psychiatric unit and then providing pharmacist-led medication discharge counseling. The aim of this program is to improve adherence to antidepressants postdischarge.

Improving Antidepressant Adherence Through Clinical Report Monitoring and Workflow Intervention

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Abstract Type: Work in Progress. **Background:** Antidepressants are one of the three most commonly prescribed therapeutic classes of medications in the United States. In response to growing emphasis on the importance of antidepressant adherence in mental health patients, the Department of Veterans Affairs has created mental health measures in its Strategic Analytics for Improvement and Learning (SAIL) dashboard, which includes the MDD43h and MDD47h metrics; these measure compliance to the acute phase (84 of 114 days) and continuation phase (180 of 231 days) of treatment. In addition, service teams have been created within the Department of Veterans Affairs to assist with mental health needs of the veterans. Among these services, the Primary Care Mental Health Integration (PCMHI) teams have been established to help improve access to care and ensure proper treatment and follow-up for those patients who require mental health services. **Objective:** (1) Increase the utilization of the MDD43h and MDD47h reports within the primary care setting to identify and engage patients in follow-up. (2) Improve the antidepressant nonadherence rates in the Department of Veterans Affairs Texas Valley Coastal Bend Health Care System (VATVCBHCS) by reviewing the MDD43h and MDD47h metrics. (3) Increase PCMHI penetration rate. **Methods:** Beginning FY19Q2, the pharmacy resident will perform chart review of patients within the VATVCBHCS who were determined to be nonadherent on their antidepressant medications based off MDD43h and MDD47h reports. A chart check note will be placed by the pharmacy resident into the patient's chart with history and treatment planning, and a view alert to a PCMHI clinical pharmacy specialist (CPS). Psychiatry technicians will place calls to patients to offer enrollment and scheduling into the PCMHI CPS clinic. For objective 1: percentage of patients enrolled in the PCMHI CPS clinic will be reported, and descriptive statistics will be used to report reason for noncompliance. For objective 2: The preintervention MDD43h and MDD47h metrics (FY19Q1) will be compared to postintervention (FY19Q2) using the χ^2 test. For objective 3: comparison of primary care patients seen by PCMHI preintervention and postintervention will be analyzed using the χ^2 test. **Outcomes:** We will report the number and percentage of patients who engage with the PCMHI clinic, the reason for medication nonadherence, and change in nonadherence rates before and after patient-care intervention.

Improving Care for Alcohol Detoxification on a Veterans Affairs Medical Center Inpatient Psychiatry Unit

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Abstract Type: Work in Progress. **Background:** Alcohol is a central nervous system (CNS) depressant that simultaneously enhances gamma-aminobutyric acid activity (GABA) and inhibits excitatory amino acid activity. Abrupt alcohol cessation results in CNS hyperactivity. Symptoms may start as early as 6 to 8 hours after ethanol cessation and may develop while patients still have elevated blood alcohol content. Minor withdrawal symptoms usually peak between 10 and 30 hours. Withdrawal seizures may occur in the first 12 to 48 hours, and hallucinations may develop and last for 5 to 6 days. Delirium tremens (DTs) may occur 48 to 96 hours after alcohol cessation. Without an alcohol withdrawal protocol, staff and trainees are challenged with initiating veterans on appropriate alcohol withdrawal medications. This project is designed to positively impact staff and veterans admitted to the inpatient psychiatry unit for alcohol detoxification at the Salem Veteran Affairs Medical Center (VAMC). **Objectives:** (1) Improve accuracy and consistency of alcohol withdrawal protocol ordering for patients admitted to an inpatient psychiatry unit. (2) Evaluate practitioner satisfaction with protocol implementation. (3) Examine rate of protocol use. **Methods:** An alcohol withdrawal protocol based on current inpatient psychiatry attendings' practice for alcohol withdrawal management has been developed and implemented into an electronic order set. The protocol includes high- and low-dose lorazepam fixed dosing, symptom-triggered lorazepam, common vitamins used for alcohol detoxification, and nursing orders for each protocol. Emergency medicine and mental health physicians, physician assistants, nurse practitioners, pharmacists, nurses, and trainees were educated on the new order set prior to implementation. Objectives 1 and 2 will be measured by a survey for protocol feedback administered to providers after protocol use. For objective 3, descriptive statistics will be used to report rate of protocol use. **Outcomes:** We will report number of participants requiring alcohol withdrawal medication management and describe alcohol

detoxification protocol use. We will survey practitioners to examine satisfaction postimplementation of alcohol detoxification protocol.

Improving Clozapine Management in Medically Hospitalized Patients

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Abstract Type: Work in Progress. **Background:** Clozapine is an effective medication for the treatment of schizophrenia and other psychiatric disorders. When patients prescribed clozapine are medically hospitalized, nonpsychiatric providers may be unfamiliar with specific monitoring requirements and adverse effects. In addition to monitoring clozapine appropriately for severe neutropenia via the Clozapine Risk Evaluation and Mitigation Strategies (REMS) Program, careful considerations of adherence is needed to avoid potentially life-threatening hypotension. Unfortunately, cases of patients on clozapine significant experiencing adverse effects have occurred. The REMS program changes in 2016 presented an opportunity to change the hospital's policy and procedures for clozapine management in medically hospitalized patients and expand the role of the pharmacist in this setting through the implementation of a collaborative practice agreement (CPA). **Description of Service:** A CPA was developed at a 2000-bed academic medical center to allow a psychiatric pharmacist to order a patient's home clozapine for patients on inpatient medical services. Following verification of the outpatient clozapine dose and adherence, the pharmacist may resume maintenance doses and per REMS requirements order complete blood count with differential tests. If the patient missed greater than 48 hours of clozapine or adherence cannot be confirmed, psychiatry will be consulted to document recommendations for retitration. Again the pharmacist will order the clozapine for the patient. The pharmacist provides documentation in the electronic medical record. Finally, upon discharge the pharmacist ensures the correct dose or recommendation of a retitration is accurate within the discharge summary. **Impact on Patient Care:** On average 2 patients prescribed clozapine are medically admitted per month. Data are currently being gathered to assess for clozapine-related adverse effects and medication errors for 2 years prior to and after implementation of the implementation of the CPA. Additionally, adherence to the policy and utilization of the CPA are being collected. Overall, communication has improved between disciplines and in transitions of care. **Conclusion:** Patients on clozapine admitted for medical conditions have unique medication needs that psychiatric pharmacists are equipped to manage. Through the success of the CPA and improved communication between disciplines, additional CPAs are being developed which will further expand the role of the psychiatric pharmacist.

Improving Clozapine Prescribing Rates in Patients With Treatment Refractory Schizophrenia

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Abstract Type: Work in Progress. **Background:** Clozapine is an efficacious antipsychotic that has shown benefit in patients with treatment-refractory schizophrenia and has been documented to decrease suicide. VA Northeast Ohio Healthcare System (VANEOHS) has many patients who may benefit from clozapine but have not been offered it. The Psychotropic Drug Safety Initiative (PDSI) clozapine dashboard is a tool designed to help identify prospective clozapine candidates, but it is vastly underutilized. Due to its lack of use, it is unknown how effective the dashboard may be in assisting providers at identifying potential candidates for clozapine. Additionally, there is not a standardized procedure in place for use of the dashboard at VANEOHS. Evaluating, initiating, and maintaining clozapine therapy in patients with schizophrenia has the potential to decrease hospital admissions and readmissions, as well as reduce the risk of suicide. **Objectives:** The objective of this Lean Six Sigma Yellow Belt project is to validate the accuracy of the PDSI clozapine dashboard and subsequently utilize data from the dashboard to increase the number of patients with treatment-refractory schizophrenia receiving treatment with clozapine. The primary metric is the change in the number of patients with treatment-refractory schizophrenia receiving clozapine. The secondary metric is the overall percentage of unique patients receiving clozapine out of all patients receiving an antipsychotic prescription within VANEOHS. **Methodology:** Patients are included on the PDSI clozapine dashboard if they are diagnosed with schizophrenia or schizoaffective disorder, had at least 1 coded inpatient or outpatient encounter within the past year, and had trialed at least 3 antipsychotics within the past 5 years (not including clozapine). Retrospective chart review will be conducted to verify that patients listed on the PDSI dashboard meet the criteria and were appropriately placed on the dashboard (deemed to be "actionable patients"). Actionable patients will be presented to the monthly VANEOHS Clozapine Treatment Team meeting to discuss a trial of clozapine. **Outcomes:** Pending.

Improving Lithium Monitoring Through an Electronic Dashboard at a Veterans Affairs Medical Center

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Abstract Type: Work in Progress. **Background:** Although lithium is a mainstay of treatment for both bipolar disorder and an off-label augmenting agent for the treatment of depression, it also has a narrow therapeutic index that requires close monitoring of plasma concentrations to limit risk of toxicities. Toxicity may occur if concentrations deviate even slightly above the therapeutic range (0.6-1.2 mEq/L). The Department of Veterans Affairs 2016 Lithium Safety National PBM Bulletin found that 19.5% of the 17 000 veterans prescribed lithium had not had a lithium check in the past 9 months, when the recommendation is to have levels checked every 6 months. Opportunities exist for psychiatric pharmacists to provide lithium monitoring in this setting. **Objectives:** (1) Initiate a longitudinal pharmacy resident–driven lithium monitoring service. (2) Improve rate of every 6-month lithium level monitoring from 60% to 80% through use of an electronic dashboard. (3) Assess the rate of acceptance of pharmacist recommendations (ie, number of labs ordered/drawn, number of patients who re-engaged in mental health care, etc). **Methods:** Weekly review of an electronic lithium monitoring dashboard is used to identify patients who have not received recent lithium plasma concentrations within the past 6 months or longer. Chart reviews are conducted for identified individuals and monitoring recommendations documented to alert prescribers. For providers requesting pharmacy to assume the role of lithium monitoring, patients are directly contacted to facilitate lab monitoring. Monitoring follows recommendations set forth by the 2016 Lithium Safety National PBM Bulletin—lithium levels, serum creatinine, electrolytes, thyroid profile, pregnancy test, EKG if age >40 years or cardiovascular risks present, and urinalysis. **Outcomes:** Service was initiated August 2018. From August to November 2018, the pharmacy resident provided lithium monitoring review for 57 patients. The data have not been finalized as patients and providers are still working to obtain lithium labs, but to date 14 lithium labs were ordered, 10 labs were drawn, and 7 lithium prescriptions were discontinued or put on hold. This shows that ~54% of pharmacist recommendations have been implemented to some degree. We were also able to identify patients who were lost to follow-up and help reestablish care.

Improving Provider Satisfaction by Implementation of a Student Pharmacist-Run Medication Prior Authorization Service in Adult, Child, and Adolescent Mental Health Clinics

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Abstract Type: Work in Progress. **Background:** Expedient and thorough management of medication prior authorization (PA) requests is essential for fiscally responsible and safe patient care. The challenge to this goal may be effectively addressed by a centralized PA process. Prior to the implementation of this new service at Langley Porter Psychiatric Hospital and Clinics (LPPH&C), no formal process to address PAs existed, leaving providers to manage PAs themselves. This contributed to poor provider satisfaction and potential delays in treatment. To facilitate the PA process and decrease provider burden, the LPPH&C pharmacy team developed a student pharmacist–run PA service. This utilized an electronic prior authorization program (ePA) built into the University of California, San Francisco's electronic health record (EPIC) to submit PAs on behalf of outpatient LPPH&C adult, child, and adolescent providers, in addition to the traditional faxed PA request process. This study will examine our new program to ascertain whether this is an effective and feasible solution to the problem. **Objectives:** (1) Determine appropriateness of student pharmacists handling PAs, measured by provider experience and PA approval rate. (2) Compare the efficiency and success rate of the ePA system versus the traditional faxed request process. **Methods:** The LPPH&C PA service team will receive requests either through the EPIC ePA system or faxed PA requests from outpatient pharmacies. This is determined by the prescriber's method of prescribing. Outcomes measured include time to prepare the PA application and PA approval status, which will be used to calculate efficiency and success rate. To compare the efficiency of the ePA program versus the faxed PA process, a subgroup analysis will be performed to determine the success rate and average time spent per PA application. An anonymous preimplementation survey and anonymous 7-month postimplementation survey were sent to the 111 outpatient prescribers at LPPH&C to assess provider opinion and experience. Data collected from these surveys will be used to describe provider experience with the student pharmacist–run PA service. **Outcomes:** We will report the average time spent per PA, success rate, and provider experience with the program. Additionally, we will compare average time spent and success rate specifically for the ePA system versus the traditional faxed PA process.

Improving the Appropriate Use of Alcohol Use Disorder Pharmacotherapy on an Acute Psychiatric Unit and a Residential Rehabilitation Treatment Program

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Abstract Type: Work in Progress. **Background:** Alcohol use disorder (AUD) is a severe form of destructive and problematic drinking characterized by uncontrolled alcohol use and presents a significant clinical and economic impact. AUD is among the top 5 leading contributors to disease burden. However, despite strong evidence that AUD pharmacotherapy is effective at reducing alcohol consumption, it is often significantly underused. Forty percent of US veterans screen positive at some point in their lives for AUD. The purpose of this project is to improve the appropriate utilization of AUD pharmacotherapy on the acute mental health unit and residential rehabilitation treatment program (RRTP) at a Veterans Affairs Medical Center. **Objective:** The primary objective of this evaluation is to determine the efficacy of a pharmacist in maximizing the proper utilization of AUD pharmacotherapy. For this evaluation, a postgraduate year 2 psychiatric pharmacy resident will be delivering provider education, pharmacist-patient interviews, and patient education groups. **Methodology:** The academic detailing AUD dashboard and the Computerized Patient Record System (CPRS) have and will be utilized to gather an actionable number of patients to identify those for which initiation of first-line AUD medications, acamprosate or naltrexone, is appropriate. For comparison, 474 patients from April to September 2018 were identified, using ICD-10 codes, as having had AUD. Of these, 37% (216 patients) were prescribed an AUD medication while on the acute unit or RRTP. Percentage and number of patients with AUD prescribed acamprosate or naltrexone while on the acute unit or RRTP will be compared to baseline group (before intervention) to the patient population post pharmacist intervention. **Significance:** Completion of this evaluation will determine if a pharmacist's involvement may be an effective means to the appropriate utilization of AUD pharmacotherapy at a Veterans Affairs Medical Center.

Incidence and Indication for Use of Anticholinergic Medications With Acetylcholinesterase Inhibitors in an Outpatient Geriatric Population

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Abstract Type: Work in Progress. **Background:** The use of medications with strong anticholinergic properties remains prevalent in the geriatric population despite the Beers Criteria recommendations to avoid them in the elderly due to increased risk for falls and confusion. Additionally, the risk for neurocognitive disorder is greater in this patient population, potentially requiring treatment with an acetylcholinesterase inhibitor (AChEI). Concurrent use of both agents may reduce the effectiveness of either medication through opposing mechanisms of action. By identifying the incidence and indication(s) of concurrent anticholinergic medication and AChEI use at Veterans Affairs Loma Linda Healthcare System (VALLHCS) and comparing to the national prevalence, this study will provide insight regarding the prescribing patterns in the outpatient geriatric population. **Objectives:** Evaluate the incidence and indication(s) of anticholinergic medications in the setting of concurrent AChEI use in the geriatric outpatient population at VALLHCS and compare to the national prevalence. **Methods:** This study will be a retrospective chart review utilizing medical records from the Veterans Affairs Computerized Patient Record System at VALLHCS from September 1, 2016, to September 1, 2018. Study participants will be veterans aged $\geq$65 years who are on an AChEI and at least one moderate to high anticholinergic medication. Medications will be considered concurrent if an anticholinergic medication was filled $\leq$90 days from AChEI initiation with at least 3 months of overlap. Anticholinergic medications will be categorized according to the Anticholinergic Risk Scale (ARS), a 4-point scale (0-3), with 2 denoting moderate and 3 denoting high potency. Demographic variables (age, gender, race), indication(s) of study medications, length of overlapping therapy, number of anticholinergic medications, and total daily dose of AChEI with concurrent moderate versus high potency anticholinergic medication will be collected. Descriptive statistics will be used to describe demographic characteristics, analyze local prescribing incidence, and evaluate the appropriate use of the medications of interest. **Outcomes:** We will report the number and percent incidence of dual therapy with AChEI and anticholinergic medication(s). Indications for all pertinent medications and total daily dose of AChEI will also be reported to assess for appropriateness of therapy.

Increasing Baseline AIMS for Veterans Initiated on Antipsychotics

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[1] *VA Texas Valley Coastal Bend Health Care System*

Abstract Type: Work in Progress. **Background:** Tardive dyskinesia (TD) is a debilitating hyperkinetic movement disorder that can occur with sustained use of antipsychotics due to prolonged dopamine receptor antagonism.

Due to the risk of developing movement disorders such as TD, prescribers should carefully assess risk versus benefit when prescribing antipsychotics, and patients on sustained antipsychotic therapy should be regularly screened for extrapyramidal symptoms. The Abnormal Involuntary Movement Scale (AIMS) is a clinician-administered scale that is used for the evaluation for TD, and although it cannot be used alone for diagnosis, it is useful as a brief and comprehensive screening tool. The purpose of this quality improvement study is to increase awareness of TD and AIMS assessments as well as increase the rate of baseline AIMS assessment completion at antipsychotic initiation. **Objectives:** (1) Evaluate current percentage of veterans on a long-term antipsychotic with baseline AIMS assessment. (2) Improve rate of AIMS completion for veterans at antipsychotic initiation following an AIMS and TD in-service. **Methods:** Using data from chart reviews, we will determine the number and percentage of baseline AIMS assessments on antipsychotic initiation from the prior 5 months. Additionally, the specific antipsychotic regimen, and the presence of preexisting tardive dyskinesia and other dyskinesias will be documented with data on interventions made. In-services will then be provided to mental health providers about tardive dyskinesia, the potential for earlier intervention, and our recommendation to complete a baseline AIMS assessment with prescription of all antipsychotics intended for sustained treatment. After 5 months, a second chart review will be performed to compile a postintervention data set for rate of baseline AIMS performed for patients started on antipsychotics. **Outcomes:** We will report the number and percentage of patients with a baseline AIMS documented before and after delivering in-services. To compare the difference between preintervention and postintervention administration of baseline AIMS assessment, data will be analyzed using the χ^2 test.

Increasing Intranasal Naloxone Access to High-Risk Opioid Patients Through Informatics Monitoring and Pharmacy Workflow Incorporation

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Abstract Type: Work in Progress. **Background:** The undesirable impact of opioid abuse in the United States has continued to rise in terms of drug abuse, dependence, and overdose. Opioid drug overdose deaths have drastically increased from 2001 to 2014, with rates increasing 3.4- and 6-fold for prescription opioids and heroin, respectively. The opioid crisis has created the need for optimal strategies, such as Opioid Education and Naloxone Distribution (OEND) programs, and adherence to guidelines-based practices to address this burden. The Department of Veterans Affairs (VA), Department of Defense, and Centers for Disease Control and Prevention have implemented initiatives, such as the VA OEND program, to shift prescribing patterns to nonopioid therapies and require prescribing of naloxone products to reduce opioid-related health risks and overdoses. Naloxone, an opioid antagonist, can reverse opioid action in emergency opioid overdose events and prevent opioid-related fatalities. **Objectives:** The objective of this project aims to: (1) Implement a health system–wide informatics process through a network-shared database and pharmacist workflow design. (2) Compare intranasal naloxone home kits dispensing rates preintervention and postintervention for high-risk opioid patients using the VA Stratification Tool for Opioid Risk Mitigation (STORM) predicts risk of overdose or suicide-related health care events, or deaths. (3) Compare patient population to STORM data high-risk patients in relation to morphine equivalent daily dose, substance use disorder (SUD), or opioid use disorder (OUD) criteria. **Methods:** STORM data will serve as identification for actionable patient populations with details of ordering provider, date prescribed, and patient demographic information (ie, OUD, SUD, active opioid Rx, etc). An informatics database will be created using Microsoft Access with live updates to streamline naloxone dispensing decision-making, and establishing a sustainable process for future high-risk opioid patients. A pharmacist will provide an educational seminar to pharmacy staff and primary care providers covering high-risk patients, VA OEND training, and utilization of informatics database for naloxone dispensing. **Outcomes:** In progress. We will report primary outcomes by measuring preintervention and postintervention rates by monthly data collection from STORM data and analyzed using χ^2 test.

Indication and Safety of Antipsychotic Use in a Veteran Population of Dementia

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Abstract Type: Work in Progress. **Background:** Dementia encompasses a wide array of symptoms in addition to decreased cognitive function. Neuropsychiatric symptoms in dementia patients include aggression, agitation, delusions, hallucinations, paranoia, apathy, sleep disturbances, and disinhibition. These symptoms have been shown to worsen with an increase in disease severity and can range from mild to severe. The role of antipsychotics for the management of neuropsychiatric symptoms has been controversial due to the lack of strong clinical evidence for their use and their clinically significant adverse effects, including mortality. If an antipsychotic

must be used, it should be at the lowest effective dose for the shortest amount of time, with regular reassessment of effectiveness. Review of antipsychotic medication prescribing may identify areas of improvement to reduce medication side effects and improve patient outcomes. This quality improvement project examines the indications for which antipsychotics are being used in this population at our facility and assesses the appropriateness of monitoring when used for management of neuropsychiatric symptoms. **Objectives:** (1) Assess the indication for antipsychotic use in elderly patients with an ICD-9 or ICD-10 diagnosis of dementia, excluding those with schizophrenia spectrum diagnoses. (2) Evaluate appropriateness of safety monitoring for patients with neuropsychiatric symptoms managed by antipsychotics. **Methods:** Patients will be identified using the Veterans Affairs Psychotropic Drug Safety Initiative (PDSI) data warehouse. For each patient, a retrospective chart review will identify which antipsychotic was prescribed, its indication and duration of therapy, whether and when safety monitoring (blood glucose, lipids, electrocardiogram) was performed, and if there was pharmacist intervention. For patients treated for neuropsychiatric symptoms, will ensure documented response to antipsychotic and assess whether suitability of a taper was addressed after a 4-week trial. Clinical outcomes of safety and appropriateness will be collected and compared utilizing descriptive statistics to identify areas for improvement. **Outcomes:** We will report the number and percentage of patients that were inappropriately prescribed antipsychotics with a diagnosis of dementia and examine the impact of antipsychotic use on patient safety and neuropsychiatric symptom response.

Inpatient Treatment of Agitation in a Veterans Affairs Hospital

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Abstract Type: Work in Progress. **Background:** Agitation is a routinely encountered symptom in emergency and inpatient treatment settings. For patients, agitation can present a risk of harm to self and others. Goals for treatment of agitation include elimination of the aggressive behavior for patient and staff safety and calming of the patient to enable assessment and treatment of other medical needs. It is also important to note that the goal of treatment is not to restrict the patient's movement or reduce care needs. The Joint Commission has put forth specific recommendations for nonviolent crisis intervention; restraints should only be used after less restrictive means fail and only for as long as is necessary for the patient to no longer present a danger. The goal of restraint, including chemical, is for safety purposes. In addition, documentation of the behavior resulting in medication administration and medication response is considered good practice. Appropriate documentation may also identify inappropriate use of restraints and lead to process improvements to reduce such use in the future. This retrospective evaluation of medication use for agitation at the Phoenix Veterans Affairs Health Care System (PVAHCS) will help to determine if facility practices are in accordance with current standards of care. **Objectives:** This review aims to describe the prescribing, administration, and documentation of medications used to treat agitation associated with psychiatric and medical conditions in the inpatient setting at PVAHCS and to evaluate the appropriateness of current practices. **Methods:** The authors will conduct a retrospective evaluation of inpatients at the PVAHCS who receive at least 1 dose of medication for agitation, administered between December 2015 and July 2018. Data collected will include patient demographics; medication dosage, route, frequency, duration; concomitant medications; and documentation of agitation symptoms, medication administration, and medication response. Patients will be stratified by patient unit to better describe localized trends. Patients with scheduled medications for agitation, as-needed orders for sleep only, and as-needed orders without indication will be excluded from the review. **Outcomes:** The authors will report demographic information, medication order characteristics, and documentation patterns. Any interventions developed from the results of the evaluation will also be reported.

Integration of Clinical Pharmacists in a Medicare Health Plan to Decrease Antipsychotic Use in the Elderly With Dementia

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Abstract Type: Work in Progress. **Background:** CareMore Health is a subsidiary of Anthem Inc, one of the largest Medicare health plans in the United States. Anthem Care on Site (HMO SNP) is a health plan designed for Medicare patients who reside in nursing homes and assisted living facilities. In 2012, Centers for Medicare & Medicaid Services (CMS) launched a national partnership with the mission to improve quality of care for nursing home residents living with dementia, protecting residents from being prescribed antipsychotics without a valid indication. Antipsychotics are commonly used for dementia-associated behavioral disturbances despite boxed warnings of increased mortality in elderly patients with dementia-

related psychosis. CMS is taking actions to improve safety through the Part D display measure called Antipsychotic use in Persons with Dementia (APD). This reviews the percentage of beneficiaries with dementia who received antipsychotics without ICD-10 diagnostic codes for psychotic disorders. Therefore, there is a need for health plans to create strategies to reduce inappropriate use of antipsychotics. The aim of this study is to determine if integration of clinical pharmacists as part of the interdisciplinary team could lead to a gradual decrease in antipsychotic prescribing habits in the elderly with dementia. **Objectives:** (1) Analyze the percentage of antipsychotic use before and after pharmacist-led educational program. (2) Determine the impact of pharmacist intervention on deprescribing antipsychotics. **Methods:** Electronic chart reviews will be conducted for participants age $\geq$65 years diagnosed with dementia with $\geq$2 fills of dementia medications and antipsychotics. Participants who are age $<$65 years, without dementia, diagnosed with psychotic disorders, or diagnosed with dementia without antipsychotics will be excluded. The percentage of antipsychotics prescribed will be compared between the pharmacist intervention period (September 1, 2018, to January 31, 2019) to the baseline period (April 1, 2018, to August 31, 2018). Pharmacist interventions will include: exposures to antipsychotic taper algorithm, in-service education to the providers, and pharmacists reaching out to the prescribers individually for antipsychotic taper. Descriptive statistics will be used to compare the number of antipsychotics between both study periods. **Outcomes:** The difference in antipsychotic use before and after pharmacist interventions will be compared and statistical significance will be determined between the two study periods.

Integration of Mental Health First Aid Into the Pharmacy Curriculum

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Abstract Type: Work in Progress. **Background:** One in five individuals in the United States are living with a mental health condition, although many remain unrecognized and untreated. Pharmacists are uniquely situated in the frontlines of patient care to identify patients living with mental illness. However, pharmacists may lack the confidence or the resources to identify and adequately triage, depending on their educational background and experience treating patients living with mental illness. Mental Health First Aid (MHFA) is an 8-hour training which can help trainees decrease their own stigmas toward mental illness, identify symptoms of mental illness, and guide individuals toward appropriate interventions. This is the first study to our knowledge looking at how mental health first aid is integrated into pharmacy curricula. **Objectives:** (1) Evaluate how US Colleges of Pharmacies (COPs) are incorporating MHFA into their curriculum. (2) Evaluate differences between US COPs in number of hours devoted to psychiatry, neurology, and addiction medicine therapeutics in their curriculum. **Methods:** We will conduct a cross-sectional, electronic-based (Qualtrics), 17-item survey study administered to the 142 US COPs with precandidate, candidate, and full accreditation status. We will assess COP demographics (eg, type of institution, program establishment, average class size, duration of program), number of contact hours, and academic year devoted to psychiatry, neurology, and addiction medicine therapeutics. The survey reviews if and how COPs are incorporating MHFA into their curriculum, funding sources, and who teaches MHFA. Objective 1: χ^2 analysis will be used to analyze differences in type of institution versus presence of MHFA curricula. Independent-samples *t* tests (for pairwise comparisons) or analysis of variance (for group comparisons) will be used to compare differences of continuous variables, such as MHFA contact hours, by type of institution. Objective 2: descriptive statistics will be used to analyze demographic variables describing schools and their curricula. **Outcomes:** We will report frequencies of responses for survey items and analyze differences between US COP types (eg, precandidate, candidate, full accreditation). We will also analyze differences in contact hours devoted to psychiatry, neurology, and addiction medicine.

Intramuscular Antipsychotic Use for Acute Agitation and Aggression Among Pediatric Patients Admitted to a Children's Hospital

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Abstract Type: Work in Progress. **Background:** Aggression is a common cause of hospitalization among pediatric patients and is often associated with conduct disorder (CD), oppositional defiant disorder (ODD), and attention-deficit/hyperactivity disorder (ADHD). Although nonpharmacologic measures are considered first line for acute agitation and aggression, psychotropic medications may be utilized to optimize patient safety. Intramuscular (IM) antipsychotics are often used, following refusal of an oral agent, despite limited evidence to support their use and lack of clear consensus regarding optimal medication choice. First-generation antipsychotics (ie, IM haloperidol and IM chlorpromazine) are commonly used, likely given long-standing use in adult populations. As youth are at higher risk for acute dystonic reactions compared with

adults, IM atypical antipsychotics are often considered as an alternative. Noncontrolled studies indicate benefit of both IM ziprasidone and IM olanzapine in pediatric patients, with IM ziprasidone demonstrating similar efficacy and improved tolerability compared with IM haloperidol. Current treatment strategies for pediatric psychiatric emergencies vary greatly by institution, product availability, and prescriber preference. Although evidence exists to support the use of IM antipsychotics, ongoing studies are needed to evaluate the safety and efficacy of IM antipsychotics in pediatric populations. This study aims to describe the use of IM antipsychotics in youth admitted to a children's hospital. **Objectives:** (1) Evaluate the frequency of use of IM antipsychotics in hospitalized youth for the management of acute agitation and/or aggression. (2) Assess documented clinical efficacy and tolerability of IM antipsychotics. (3) Describe the use of concomitant psychotropic medications. **Methods:** This is a retrospective review of youth age $\leq$18 years, receiving at least 1 dose of an IM antipsychotic for the management of acute agitation and/or aggression during admission to Children's Hospital Colorado between December 31, 2015, and January 1, 2018. Evaluation of medical records was performed by the clinical pharmacists. **Outcomes:** We will report the number of pediatric patients treated with IM antipsychotics, mean age, weight, encounter location, antipsychotic dose, duration of treatment, concomitant psychotropic medications, and reported therapeutic and/or adverse response (eg, need for rescue medication) as listed in the electronic medical record. Efficacy and tolerability comparisons will also be discussed.

Intramuscular Chlorpromazine Versus Intramuscular Olanzapine for the Management of Acute Agitation and Aggression in Children and Adolescents

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Abstract Type: Work in Progress. **Background:** In the inpatient psychiatric setting, intramuscular antipsychotics are the mainstay for management of acute agitation and aggression in children and adolescents. At Riverside University Health System, there is a high utilization rate of intramuscular chlorpromazine for agitation in youth despite the absence of data comparing its efficacy to newer, second-generation antipsychotics, such as olanzapine. Currently, the effectiveness of intramuscular chlorpromazine compared with intramuscular olanzapine in youth has not been investigated. This study aims to examine the efficacy and tolerability of intramuscular chlorpromazine relative to intramuscular olanzapine for managing episodes of acute agitation in children and adolescents. **Objectives:** (1) Compare the efficacy and tolerability of intramuscular chlorpromazine versus intramuscular olanzapine, and (2) compare the efficacy and tolerability of combination of intramuscular chlorpromazine or olanzapine with intramuscular antihistamines or intramuscular benzodiazepines. **Methods:** In this retrospective study, data will be collected using VigiLanz and the electronic medical record system EPIC to identify children and adolescents who received intramuscular chlorpromazine or intramuscular olanzapine between October 1, 2016, and August 31, 2018. Behavioral changes will be measured before and after administration of intramuscular antipsychotics using the validated Behavioral Activity Rating Scale (BARS) assessment tool. This assessment consists of a single-item, 7-point scale that scores a patient's behavioral activity from "1 = difficult or unable to arouse" to "7 = violent, requires restraint." The BARS criteria will be applied retrospectively by analyzing nursing documentation prior to and after the administration of the intramuscular injection. Additional information that will be collected includes age, race, gender, weight, vital signs, dose of intramuscular antipsychotic received, coadministration with benzodiazepine or antihistamine, and presence of scheduled oral antipsychotics. The frequency of adverse events will be assessed by examining nursing documentation. **Outcomes:** The average intramuscular dose based on weight and the average BARS scores before and after administration will be reported for both chlorpromazine and olanzapine. The number and percentage change in BARS score will be used to assess noninferiority of intramuscular chlorpromazine with olanzapine. We will report rates of sedation and other adverse drug events and analyze how coadministration of intramuscular benzodiazepines or diphenhydramine affects these percentages in youth.

Lifetime Methamphetamine Use and Depression: An Analysis of the National Health and Nutrition Examination Survey 2005-2016

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Abstract Type: Work in Progress. **Background:** A national epidemiologic survey from 2001 to 2002 demonstrated that the lifetime prevalence of depression was 40% for respondents with methamphetamine use disorder. A 2017 national survey demonstrated that the number of methamphetamine users continues to increase annually, and current prevalence of lifetime use is about 5%.

Although several studies have shown that there is an association between methamphetamine use and increased depressive symptoms, the results are not generalizable to the US population. Therefore, this study will use data from the National Health and Nutrition Examination Survey (NHANES) to investigate the relationship between lifetime methamphetamine use and depression in a representative sample of the US population. **Objectives:** (1) To determine the prevalence of clinically relevant depression by lifetime methamphetamine use. (2) To describe the association between lifetime methamphetamine use and the odds of clinically relevant depression. **Methods:** A retrospective cross-sectional analysis, using multivariate regression, will be performed to determine the relationship between methamphetamine lifetime use and depression for US adults aged 20 to 59 years from NHANES 2005-2016 survey data. Lifetime methamphetamine exposure will be determined using the drug use questionnaire from the NHANES database, and participants will be categorized as never used (0), infrequent user (1-5), intermediate user (6-49), or heavy user ($\geq$50). Patient Health Questionnaire-9 (PHQ-9) scores $\geq$10 will be considered clinically significant depression. Statistical analyses will be conducted using STATA according to the NHANES: Analytic Guidelines. Multivariate logistic regression analysis will be used to evaluate the association between lifetime methamphetamine exposure and depression. Covariates will be selected based on their established associations with methamphetamine use and depression. The logistic regression models will account for (1) demographic characteristics, such as age, gender, and race/ethnicity; (2) socioeconomic factors, such as education, marital status, insurance status, and poverty-to-income ratio; along with (3) clinical characteristics, such as smoking status, body mass index, hypertension, cardiovascular disease, endocrine disorders, and sleep disorders. **Outcomes:** We will present baseline characteristics of participants in the NHANES sample and describe the relationship between lifetime methamphetamine use and clinically relevant depression, which will be reported as point prevalence values and odds ratios.

Management of Delirium at an Academic Medical Center: Plans for Antipsychotics at Discharge

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Abstract Type: Work in Progress. **Background:** Delirium is an acute and fluctuating neurocognitive disorder, affecting 10%-15% of general medical admissions and up to 80% of intensive care unit patients on mechanical ventilation. Delirium can lead to detrimental consequences for patients, including new nursing home placement and mortality. Despite conflicting data and questions surrounding appropriate dose and duration, antipsychotics are often prescribed to manage delirium. Evidence-based guidelines recommend that if antipsychotics must be administered, the lowest effective dose should be used for the shortest duration possible due to risks for serious, long-term adverse events. Limited literature suggests that 30% of patients started on a new antipsychotic for delirium are discharged on the antipsychotic. Of patients discharged with instructions for antipsychotic discontinuation, 80% received a psychiatric or geriatric medicine consult. This study expands on existing literature through evaluation of adherence to psychiatric consult service recommendations for antipsychotic use at discharge. Additionally, this study examines the frequency of documentation of instructions for antipsychotic discontinuation in discharge summaries provided to patients and providers. **Objectives:** To characterize inpatient and discharge antipsychotic use for management of delirium. **Methods:** All antipsychotic order administrations pertaining to delirium were extracted from July 2017 to June 2018. Only orders for antipsychotics with clinical support for efficacy in the management of delirium were included. Patients younger than 18 years, prescribed antipsychotics prior to admission, admitted to the inpatient psychiatric hospital, or hospitalized for less than 24 hours were excluded. Information was collected on inpatient and discharge antipsychotic regimens, including: antipsychotic agent prescribed upon discharge and total daily dose. Additional information retrieved included recommendations provided by the psychiatric consult liaison service, such as rationale for continuation and taper instructions. **Outcomes:** Data collection is ongoing and full results will be presented after analysis is complete. Forty-four patients who met inclusion criteria received a psychiatric liaison consult. Of those patients, 36 had clear recommendations for antipsychotic usage or discontinuation upon discharge. Scheduled antipsychotics were ordered at discharge for 16 patients, whereas 5 patients received both scheduled and as-needed antipsychotics. Only 1 patient received just an as-needed antipsychotic.

Opioid Overdose Prevention via Group-Based Education and Naloxone Distribution

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Abstract Type: Work in Progress. **Background:** Naloxone has proven to be an essential tool for decreasing mortality resulting from opioid overdose. To maximize benefit, patients must be able to access naloxone and be educated

on how to best respond to an overdose victim. Inpatient dual-diagnosis patients with an opioid use disorder (OUD) are at increased risk for overdose after an acute inpatient psychiatric stay due to changes in tolerance. This risk can be mitigated by increasing access to naloxone and providing overdose education during their inpatient stay. **Objectives:** (1) Increase the percentage of OUD patients who receive a naloxone kit in-hand at discharge. (2) Provide patient education on naloxone and overdose prevention. (3) Evaluate usage and availability of naloxone kits by patients postdischarge. **Methods:** The subject population consists of dual-diagnosis patients with OUD admitted to the University of Pittsburgh Medical Center Western Psychiatric Hospital in Pittsburgh, PA. Patient eligibility will be determined by active or historical OUD, or current use of medication-assisted treatment for OUD. Eligible patients will be flagged for recruitment to attend an educational group on opioid overdose prevention, and to be provided naloxone at discharge. In the group, patients will pretest with the Brief Opioid Overdose Knowledge (BOOK) validated questionnaire; education will be provided on overdose response guidelines, risk reduction, naloxone administration, and accessing naloxone; and patients will take a BOOK questionnaire posttest. Patients will be contacted at 30 days after discharge for follow-up data collection, including current naloxone availability, naloxone usage since discharge; and, if the kit was used: whether the prescription was effective/if reversal occurred, if the victim was the patient or another individual, if emergency medical services were contacted, and other details of the overdose event, if applicable. **Outcomes:** We will compare BOOK questionnaire scores for participants before and after receiving group education, evaluating for improvement in subscales of opioid knowledge, overdose knowledge, and overdose response knowledge. We are tracking the percentage of patients with OUD being discharged with naloxone in hand. Of those who receive a naloxone kit, we will report at 30 days postdischarge on the proportion with naloxone available, if they used the naloxone in an overdose event, and whether reversal occurred.

Optimizing Medication Management of Boarded Psychiatric Patients in a Community Hospital Emergency Department

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Abstract Type: Work in Progress. **Previously Presented:** December 2018, ASHP Midyear Clinical Meeting. **Background:** Psychiatric patients continue to represent an underserved population in US health care. As demands continue to outpace resources, patients are increasingly seeking psychiatric care in the emergency department (ED). Patients may sometimes board in the ED for days, where home medications for both psychiatric and chronic medical conditions may be overlooked. This can lead to suboptimal care and may delay transfer to other facilities. This quality improvement project will utilize pharmacists to improve both medical care and transitions of care for patients. **Objectives:** (1) Improve time to completion and completion rate of medication reconciliations for psychiatric patients in the ED. (2) Collaborate with ED providers to optimize appropriate continuation of psychiatric and nonpsychiatric medication therapy. **Methods:** Collaborating with the ED and crisis service team, this project will implement a pharmacist-driven, daily review of psychiatric patients in the ED. Pharmacy residents will review patient profiles and work with the treatment team to identify and prioritize patients, ensure timely and accurate medication reconciliations, and ensure optimal therapies are continued as appropriate. Data including, but not limited to, pharmacist interventions and patient outcomes will be tracked. A retrospective analysis will also be completed and include data regarding medication reconciliation and medication therapy within December 2017-February 2018 and will be compared to the postintervention data collected during December 2018-February 2019. **Outcomes:** Results that will be reported include the time and rate of completion of medication reconciliations of psychiatric patients in the ED before and after implementation of the interventions. Other information to be reported include the rate of medication restart as well as the pharmacy interventions recommended and accepted. The results from this study will be used to further identify specific areas of highest need to guide further initiatives to improve quality of care.

Perceived Barriers to Clozapine Prescribing: A National Survey of VA Mental Health Providers

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Abstract Type: Work in Progress. **Background:** Clozapine is a second-generation antipsychotic approved by the US Food and Drug Administration (FDA) for use in patients with schizophrenia. It is currently identified as a treatment option for treatment-resistant schizophrenia in both Veterans Affairs policies and national society guidelines. Despite evidence of efficacy and guideline recommendations, clozapine is widely underutilized. A recent study found that only 4% of patients with a schizophrenia diagnosis are prescribed clozapine within the VA Health

Care System. A variety of potential barriers to prescribing, including intensive monitoring requirements, potential for severe adverse drug reactions, and concern for patient compliance, have been identified in the literature. **Objectives:** The primary outcomes are to assess provider perceived barriers to clozapine prescribing, assess provider opinions of potential interventions to facilitate clozapine prescribing, assess provider knowledge regarding clozapine, and assess the impact of medication management clinics on clozapine prescribing. Secondary outcomes include comparison of clozapine prescribing rates among providers with different credentials, with or without an academic affiliation, with varying amounts of direct patient care time, with varying levels of comfort and familiarity with clozapine, with different levels of baseline clozapine knowledge, and among different geographic regions. **Methods:** This study will be conducted as a national survey of mental health providers with a scope of practice allowing clozapine prescribing. Any provider in a solely administrative practice role will be excluded. The survey will be conducted utilizing RedCap software and will be sent out as a link using internal Veterans Affairs listserv groups. Weekly reminders will be sent out during the study period to maximize participation. Descriptive statistics will be used when reporting results of the survey. To compare ordinal data from the Likert scale the Mann-Whitney *U* test will be used. Any nominal data will be compared using a χ^2 test. For all objectives, $\alpha < .05$ will be considered significant.

Pharmacist Integration in a Novel Mental Health Clinic, the Rapid Access Focused Treatment (RAFT) Clinic

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Abstract Type: Work in Progress. **Background:** As of July 1, 2018, average wait time for a mental health (MH) appointment at the Rocky Mountain Regional Veterans Affairs Medical Center was 11.61 days, with a national average wait time for MH appointments of 5.27 days. Previously, if nonemergent, patients had to schedule and wait for an intake appointment that could be several weeks out. Our facility has created a clinic within its MH services called the Rapid Access Focused Treatment (RAFT) Clinic. This clinic was designed to provide quick access, often same day, to MH care. Patients will be seen during the course of 4-6 appointments, with the goal of stabilization and transfer back to their primary care provider. Throughout these appointments, patients will be evaluated for enrollment in an outpatient MH clinic if their needs require higher level care. This quality improvement project was designed to determine the effect of this clinic on final patient disposition. **Objectives:** (1) Categorize patient need on presentation. (2) Evaluate final patient disposition. (3) Compare the frequency of patients treated and referred back to primary care versus enrolled in MH clinic. (4) Analyze any interventions made by the pharmacist. **Methods:** Patients presenting to the RAFT Clinic complete an initial intake form which collects demographic information, reasons for visit, and brief medical history. Information is then evaluated by an MH clinical pharmacist. If patients meet criteria for the RAFT clinic, patients are assigned to be seen by an appropriate provider; if patients do not meet RAFT clinic criteria, they will be scheduled for an appropriate follow-up or redirected to the correct resource. Patients endorsing active suicidal/homicidal ideation who require acute hospitalization will be excluded from this review. Patients seen between August 9, 2018, and November 9, 2018, will have their electronic records reviewed, and any patient interventions, types of referrals, and planned follow-up will be collected for analysis. **Outcomes:** Information will be assessed using descriptive statistics to analyze the types of patients utilizing the RAFT Clinic, the frequency that patients are referred back to primary care, and types of pharmacist interventions. Results were compiled and presented during the CPNP Annual Meeting in April 2019.

Pharmacist Intervention in Improving Adherence of Psychiatric Medications in Homeless Populations

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Abstract Type: Work in Progress. **Background:** Mental illness and psychiatric disorders are highly prevalent in underserved, homeless populations. In these individuals there is a higher chance of not taking their medications and/or not taking their medications as prescribed. Homelessness is just one of many risk factors that can cause nonadherence. Nonadherence while being homeless can lead to increased risk of hospitalizations, relapse, arrest, violence, and suicide. The incidence of nonadherence in patients with severe mental illnesses has been reported to be 30%-65%. Adherence to medication is a vital part of increasing health outcomes, quality of life, and decreasing health care costs. Although many factors contribute to nonadherence, one risk factor in the overall population is poor insight to illness and medications. This study focuses on the role pharmacists can play in helping to improve adherence in homeless patients with a diagnosis of bipolar disorder. **Objectives:** (1) Increase medication adherence in homeless/transitional patients who are receiving treatment for bipolar disorders with lithium carbonate or lamotrigine. (2) Decrease incidence of adverse effects. (3) Evaluate need for pharmacist

intervention. **Methods:** This study will take place at Neighborhood Health in Nashville, TN. Although pharmacist intervention and medication education in this type of setting is increasing, it may not always be a priority for the health care team. This study is part of an outline for a grant, to show improved adherence and patient outcomes. Patients who visit Neighborhood Health will be automatically asked about enrollment in the study, as long as they are within the criteria. Eligible patients on lithium and lamotrigine will be given education handouts, in addition to medication counseling one-on-one with the pharmacist or pharmacy student. Follow-up visits will be scheduled, occurring at least every month. Lab monitoring and Medication Adherence Rating Scale scores will be taken, with comparisons to the values before the intervention. Adverse effects will also be monitored and may require more frequent follow-ups. **Outcomes:** Before and after values of Medication Adherence Rating Scale scores, monitoring lab parameters, and percent compliance based on refill pickup dates will be reported.

Pharmacists and Project ECHO: Interprofessional Medication-Assisted Management of Opioid Use Disorder in North Dakota

McKenzie Hill, PharmD Candidate 2020[1]

[1] *North Dakota State University College of Pharmacy*

Abstract Type: Work in Progress. **Background:** Extension for Community Healthcare Outcomes (ECHO) is a project developed by the University of New Mexico School of Medicine to improve care for underserved populations and rural areas that lack specialists or have limited access to health care resources. This project was adopted by the University of North Dakota in order to increase the capacity to provide care for patients with opioid use disorder (OUD) in rural North Dakota. In order to accomplish this, participants (primary care providers, behavioral health providers, pharmacists, and other members of the health care team) attend video clinics every 2 weeks to view continuing education live-stream conferences presented by topic experts, in which patient cases are presented and discussed. The research described below is focused on the pharmacists' role and involvement on the expert panel in these video clinic discussions. **Objectives:** (1) To measure the extent of pharmacist involvement in Project ECHO. (2) To demonstrate how Project ECHO has unique benefits to North Dakota's extensive rural population. **Methods:** Participants in the initial video clinic completed a preclinic survey which measured variables, such as their knowledge of medication-assisted treatment (MAT), laws regarding prescribing MAT, and categories of pharmacist interaction during their daily practice. A postclinic survey will be administered at the project's end to gain insight into whether the knowledge gained from the video clinics incited changes in providers' practices. Other data gathered from the preclinic and postclinic surveys will include the number of providers licensed to prescribe MAT and providers utilizing evidence-based and best-practice care according to knowledge gained by attending the video clinics. **Outcomes:** The ultimate goal of this analysis is to gather data on pharmacist impact in the MAT process and to determine whether a physician-pharmacist collaborative practice for MAT would be beneficial to patients with OUD in rural North Dakota. Such models have proven successful in several health systems across the country and would likely be beneficial in North Dakota considering that patients have greater access to local pharmacists than to OUD specialists.

Pilot Service of Pharmacist Medication Review for Veterans Flagged High-Risk for Suicide

Jennifer O'Laughlin, PharmD[1]; Jaclyn Kawsky, PharmD, BCPP[1]; Peter Warren, PhD[1]

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Abstract Type: Work in Progress. **Background:** Suicide is one of the leading causes of death in the United States. The most common method of attempting/completing suicide is through the use of firearms, followed by suffocation and poisoning, which includes medication overdose. To reduce the rates of veteran suicide as a result of medication overdose, the Columbia Veterans Affairs Healthcare System implemented a policy by which medications are restricted to a certain day supply for those veterans who are identified as high risk for suicide or who have a Suicide Risk Patient Record Flag (PRF). Since its implementation in 2015, it has been observed that at times the recommendations within this policy are overlooked. One potential reason for this is that prescribers are unaware of which medications are indicated as "high risk" for overdose potential and should be limited in quantity. **Objectives:** (1) Evaluate the effect of implementing a new pharmacy service to identify adherence with the medication restriction policy. (2) Assess the safety of the whole patient and make other recommendations when indicated. **Methods:** The postgraduate year 2 psychiatric pharmacy resident will assess patients who are deemed high risk for suicide via the Suicide Risk PRF and make recommendations regarding medication restrictions. A chart review note will be entered into the patient's chart to identify medications that are not currently restricted, and make recommendations to prescribers when medications should be restricted for safety. Medication restrictions will be made at the discretion of the prescriber in response to recommendations made by the pharmacist. **Outcomes:** (1) The rate of acceptance of pharmacist recommendations for restriction by prescribers. (2) The rate of acceptance of other

pharmacist recommendations. (3) Other interventions made by pharmacists in an effort to decrease the risk of suicide.

Prescribing Patterns of Long-Acting Injectable Antipsychotics and Duration of Oral Antipsychotic Overlap at a Veterans Affairs Teaching Hospital

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[1] *South Texas Veterans Health Care System*

Abstract Type: Work in Progress. **Background:** An obstacle to management of patients with serious mental illness (SMI) is nonadherence. Long-acting injectable antipsychotics (LAIAs) have been used as an effort to mitigate nonadherence in the SMI population. At South Texas Veterans Health Care System (STVHCS), the commercially available second-generation LAIAs used most frequently are risperidone Consta, paliperidone Sustenna, and aripiprazole Maintena. The aim of this study is to inspect the prescribing patterns of these 3 LAIAs and duration of oral (PO) antipsychotic overlap, compared with the guidance provided by each LAIA's package insert. Patients who are prescribed a LAIA as a first-time initiation on the inpatient psychiatric unit will be reviewed. **Objectives:** (1) Evaluate PO antipsychotic overlap prescribing practice for first-time initiation of LAIA. (2) Evaluate adherence to PO antipsychotic overlap. (3) Evaluate use of PRN medications after LAIA initiation. (4) Evaluate adherence to postdischarge mental health office appointment. (5) Evaluate readmission rates to inpatient psychiatric unit. **Methods:** A retrospective analysis of veterans initiated on risperidone Consta, paliperidone Sustenna, and aripiprazole Maintena for the first time on the inpatient psychiatric unit between September 2015 and September 2018 will be conducted. Veterans with at least one SMI diagnosis, and prescribed PO antipsychotic after initiation of LAIA will be included. Veterans who died during data collection time frame, transferred care outside STVHCS during the study time frame, have a diagnosis of major depressive disorder with psychotic features, and those receiving LAIAs at San Antonio Domiciliary or another nonpsychiatric inpatient ward will be excluded. Individual patient charts will be reviewed using the Computerized Patient Record System. Demographic variables (age, gender), SMI diagnosis (schizophrenia, bipolar disorder, schizoaffective disorder, psychosis, psychosis not otherwise specified), prescribed LAIA and dose, and prescribed PO antipsychotic and dose will be collected. Descriptive statistics will be utilized to describe objectives. **Outcomes:** We will report the mean number of days of PO antipsychotic overlap continued after the recommended PO overlap loading time period, percentage of PO overlap ordered according to guidelines, percent adherence to PO antipsychotic overlap, percent adherence to postdischarge mental health office appointment, and number of hospital readmissions.

Prescribing Practices of Stimulants Within a VA Health Care System

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Abstract Type: Work in Progress. **Background:** More than 20% of veterans currently prescribed stimulants through the Veterans Health Administration have a documented substance use disorder (SUD), less than 50% have an annual urine drug screen, and greater than 10% are coprescribed opioids and benzodiazepines. There are currently no protocols, prescribing restrictions, or required monitoring parameters in place for prescription stimulant use within the Lexington Veteran Affairs (VA) Health Care System. **Objectives:** (1) Examine trends in the use and prescribing practices of stimulant medications. (2) Identify areas of opportunity in the prescribing practices and monitoring of stimulant medications. **Methods:** This is a single-center quality improvement project evaluating the prescribing practices of stimulants within a VA Health Care System. Veterans will be included if they were prescribed a stimulant through the VA between January 1, 2018, and June 30, 2018; however, their entire stimulant use history will be assessed. Data to be collected include: age, gender, current stimulant regimen, indication and duration of use, prescriber name and specialty, prescribing origin of initial stimulant medication, and if stimulant use predated military service. Monitoring of stimulant use will be assessed via urine drug screens, controlled substance monitoring database, and time between follow-up appointments. Deployment history, mental health diagnoses, posttraumatic stress disorder assessment prior to initiation, attention-deficit/hyperactivity disorder assessment if applicable, documented SUD or stimulant misuse, and concomitant central nervous system (CNS) depressant use will also be collected. CNS depressants evaluated are those that have abuse potential or significant psychotropic effects and include benzodiazepines, antipsychotics, opioids, gabapentin, z-hypnotics, and muscle relaxants. This information will be compiled and evaluated with the intent of identifying opportunities for improvement in the prescribing practices and monitoring of stimulant medications.

Prospective Interventional Medication Use Evaluation of Opioid Overdose Education and Naloxone Distribution for Patients With Opioid Use Disorder

Samantha Patton, PharmD, BCPS[1,2]; Andrea

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Abstract Type: Work in Progress. **Background:** Naloxone is a safe and effective opioid antagonist used to reverse opioid-mediated effects, including respiratory and central nervous system depression, and hypotension. Persons with opioid use disorder (OUD) are among the highest risk for opioid overdose events, particularly due to decreased tolerance associated with periods of abstinence. Background data collection found only 15% of patients on buprenorphine medication-assisted treatment (MAT) for OUD at the Boise Veterans Affairs Medical Center (BVAMC) had a naloxone device dispensed within the past year. Pharmacists are well suited to educate patients and caregivers on how to prevent, recognize, and respond to an opioid overdose. The BVAMC does not currently have comprehensive outpatient substance abuse clinical services. Provision of naloxone through clinical pharmacy specialists may help normalize such risk mitigation safety interventions, facilitate larger opioid stewardship efforts, and expand access to naloxone. **Objective:** To develop and implement pharmacist-initiated OEND program for patients with OUD receiving outpatient substance abuse treatment on buprenorphine at the BVAMC. **Methods:** This retrospective medication use evaluation will identify patients who are prescribed buprenorphine for MAT eligible for OEND as a risk mitigation strategy. Pharmacists embedded in primary care and mental health clinics will determine patient eligibility, prescribe nasal naloxone rescue kits, provide opioid overdose education, and document encounters using standardized templates. All patients with an active buprenorphine prescription at the BVAMC will be included. Patients receiving hospice care and nursing home residents will be excluded. Data collected will include patient demographics, buprenorphine and naloxone prescriber, concurrent benzodiazepine use, benzodiazepine prescriber, comorbid mental health and medical conditions, and health care utilization data, including emergency room visits, psychiatric and medical hospitalizations, and previous overdose or suicide-related events. Descriptive statistics will be used to present the data. The primary outcome will be the percent increase in naloxone prescriptions dispensed to patients with OUD on buprenorphine MAT during the 8-week evaluation time frame. **Outcomes:** We will report the number and percent of patients with naloxone prescriptions dispensed to patients with OUD on buprenorphine MAT. Characteristics of the patient population will also be reported.

Psychedelic Guided Psychotherapy for Treatment of Depression and Bipolar Depression in Adults

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Abstract Type: Work in Progress. **Background:** US Food and Drug Administration–approved pharmaceuticals show limited efficacy in treating depression and bipolar depression, rendering millions of people significantly disabled and oftentimes at risk for suicide. Warranted innovation in this field is displayed through clinical studies where participants partake in psychedelic-guided psychotherapy. Three psychedelics used alongside psychotherapy include (1) psilocybin, the therapeutically active moiety in more than 180 species of mushroom; (2) synthetically made lysergic diethylamide acid (LSD); and (3) ayahuasca, a brew prepared from the plant *Banisteriopsis caapi*, with therapeutically active components *N,N*-dimethyltryptamine (DMT), harmine and harmaline, which act as monoamine oxidase inhibitors. The antidepressant effects of these substances, largely mediated through their agonistic effect at 5HT-2A receptors, have been demonstrated immediately after the first dosing session, whereas currently approved antidepressants take 4 to 6 weeks to achieve significant antidepressant effect. This proposed efficacy prompted us to conduct a systematic review of research dating from 1950 through 2018 on psilocybin, LSD, and ayahuasca-guided psychotherapy to treat depression and bipolar depression. **Objectives:** (1) Report results of studies that meet established criteria. (2) Determine the number and percentage of participants who experience insignificant or no improvement, a 50% reduction in symptoms, or complete remission. (3) Determine psychedelic-guided psychotherapy efficacy rate against that of a participant's previous therapies. **Methods:** A meticulous research string was formulated in Embase, which we then translated across PubMed, PsychINFO, and ProQuest databases in addition to Cochrane Controlled Register of Trials. A total of 8165 studies were transferred to EndNote Clarivate Analytics, where 5048 studies remained for screening after deduplication. Four reviewers screen studies by applying inclusion and exclusion criteria. For example, studies with clinically diagnosed adult participants and results measured through validated scales will be included. Animal studies and case studies will be excluded. Studies that meet all criteria will be analyzed, organized, and transcribed into the systematic review. This process is guided by Preferred Reporting Items of Systematic Reviews and Meta-Analyses protocol. **Outcomes:** An accurate review of pertinent clinical studies during the last 70 years on psilocybin, LSD, and ayahuasca-guided psychotherapy to treat depression and bipolar depression in adults. The review will be organized by drug, and further by the degree of depressive symptomatic improvement participants experienced posttreatment.

QA/QI Project to Assess the Efficacy of a Recently Established Pharmacist-Managed Taper Service in Reducing Inappropriate Benzodiazepine Prescriptions in the Elderly Through Direct Patient Education

Megan K. Skelly, PharmD, BCPS[1]; Felicia Strom, PharmD, BCPP[1]; Judith Hyatt, PharmD, BCPP[1]

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Abstract Type: Work in Progress. **Background:** The 2015 American Geriatrics Society Beers Criteria recommends avoiding use of benzodiazepines (BZDs) in older adults due to the risks associated with these medications in this population. The Veterans Affairs (VA) Western New York Healthcare System established a pharmacist-managed medication taper service with the intent to reduce the number of inappropriate BZD prescriptions, particularly in elderly patients. This project assesses the efficacy of this clinic, as well as the effect of providing direct patient education about the potential harms associated with chronic BZD use in older adults. **Objectives:** The primary objective is to evaluate the effectiveness of providing direct patient education about drug harms and a pharmacist-managed taper on the number of outpatient adults aged ≥65 years prescribed a chronic BZD. The secondary objectives are to evaluate: (1) the efficacy of a newly established BZD taper service by the number of patients aged ≥65 years that were consulted to the clinic secondary to receipt of mailed educational materials, (2) the number of patients that met with a taper clinic pharmacist, (3) the number of patients that began the pharmacist recommended BZD taper, (4) the number of patients that successfully completed the taper, and (5) the change in the percentage of patients ≥65 years prescribed a BZD chronically. **Methods:** Patients aged ≥65 years who were prescribed a BZD for ≥90 days in the outpatient setting were identified to participate in this service. A total of 47 patients met criteria and were mailed educational materials regarding the potential harms of long-term BZD use, including instructions for patients to contact their prescriber to discuss whether discontinuation is appropriate. If consulted, clinic pharmacists assess each patient's BZD usage to optimize safety. Taper schedules are individualized with assistance from the VA Academic Detailing Service's BZD Taper Calculator. Patients are educated during their visit about BZD withdrawal and what to do if symptoms should occur. The primary and secondary objectives will be analyzed retrospectively using descriptive statistics. **Outcomes:** The objectives will be analyzed retrospectively to determine whether direct patient education and subsequent pharmacist-managed tapering results in a reduction in doses of or prescriptions for chronic BZDs in elderly patients.

Quality Assurance Initiative to Assess Risk Factors and Management Strategies Prior to Suicide Attempts/Completions and Following Suicide Attempts in a Veteran Population

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[1] *Western New York Veterans Affairs Healthcare System*

Abstract Type: Work in Progress. **Background:** Suicidality is often a consequence of unchecked mental illness. Veterans especially are at an increased risk for committing suicide, up to 2.3 times more likely compared with the general population. On average, 20.6 veterans (including active-duty service members) commit suicide every day. Being able to identify risk factors for suicide is an important step to addressing the alarming rate of suicide. **Objectives:** The objective of this project is to identify risks and interventions in the period leading up to a patient's suicide attempt/completion so that practice changes can be implemented that may reduce the rate of suicide attempts/completions in this population. **Methods:** This is a single-center, retrospective cohort chart analysis being conducted in collaboration with psychiatric pharmacists and the Department of Suicide Prevention. Participants are adult patients who have been identified during a 24-month period from a running database that records patients who have been identified as acute high risk of suicide or completed suicide. Patients are flagged as high acute risk if they exhibit physical preparatory behavior (stockpiling pills for overdose, held gun to head, etc) or attempt suicide. This project assesses precautions taken and individual risks upon identifying a high acute risk of suicide and completed suicide 3 months preceding, and interventions implemented 3 months following the flagged behavior. Data collection prior to flagged behavior includes diagnosis, counseling and/or medications used (based on preexisting diagnosis), history of suicide attempts or related hospitalizations, and protective and risk factors. Interventions noted after the flagged behavior include emergency department evaluation, hospitalization, new diagnoses, mental health consult, and initiation of psychotherapy and/or medication therapy. The primary outcome measure will be the presence/absence of risk factors and interventions by mental health services prior to flagged behavior. The secondary outcome measure will record interventions made following the flagged behavior. Summary statistics will be completed to identify patterns in risks and interventions that may provide information that can inform changes in processes. This project has

been reviewed by our Institutional Review Board and given exemption status.

Quality Improvement of the Utilization of Long Acting Injection Naltrexone at South Texas Veterans Health Care System

Alisha D. Donat, PharmD[1,2]; Ilona Shishko, PharmD, BCPP[1]; Troy A. Moore, PharmD, MS Pharm, BCPP[3]

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Abstract Type: Work in Progress. **Background:** Naltrexone is a mu-opioid antagonist used to treat alcohol and opioid use disorder. The Veterans Health Administration/Department of Defense has published clinical guidelines for the treatment of substance use disorders, and naltrexone is a recommended treatment option. Long-acting injection (LAI) naltrexone can be used when medication adherence is a significant concern. There is a large price difference between the oral and LAI formulations of naltrexone. A medication use evaluation completed in 2016 at the South Texas Veterans Health Care System (STVHCS) showed the average amount of injections received by all patients was 3.66 during a 2-year period, with about 30% of patients not receiving subsequent LAI doses after initiation. **Objectives:** (1) To identify if adherence and follow-up continue to be a concern. (2) To implement a prior authorization drug request template for LAI naltrexone and provide education to prescribers. (3) To create a system of monitoring and following up with patients receiving LAI naltrexone. **Methods:** Patients with first-time LAI naltrexone prescriptions at the STVHCS from October 1, 2016, to October 1, 2018, will be reviewed using the Computerized Patient Record System and then matched with oral naltrexone for the following information: age, gender, indication, prescriber specialty, and clinic initiated. The following information will be collected from notes related to encounters from prescribers: follow-up/administration after first dose, abstinence after naltrexone initiation, and quantity of alcohol/opioids consumed before and after treatment initiation. Descriptive statistics and unpaired *t* test will be used to compare demographic information between each group. Chi-square test or Fisher exact test will be used to compare outcomes between each group. **Outcomes:** The primary outcome will be the number of patients maintaining regular follow-up/administration after first dose. However, the secondary outcomes are identified as the adherence rate through 1 year after initiation, reduction in quantity of substances consumed through 1 year after initiation, abstinence from alcohol/opioids after naltrexone initiation, and reason for discontinuation of naltrexone LAI.

Rates of Psychiatric Hospitalization in Patients With Schizophrenia on Dual Antipsychotics Compared to Clozapine at the Richmond VAMC

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Abstract Type: Work in Progress. **Background:** Limited evidence exists for the use of antipsychotic polypharmacy in the management of patients with treatment-resistant schizophrenia. The use of dual antipsychotics is controversial due to lack of evidence for efficacy and the increased risk of side effects compared with antipsychotic monotherapy. Augmentation strategies with dual antipsychotic regimens that do not include clozapine have limited or no evidence supporting their use. Clozapine is the first-line recommendation for patients with treatment-resistant schizophrenia due to its superior efficacy; however, clozapine is underutilized in practice. Providers will often augment with a second antipsychotic despite evidence supporting the use of clozapine in this patient population. No trials have been identified comparing dual antipsychotic therapy with clozapine monotherapy. **Objectives:** (1) Evaluate the rates of psychiatric hospitalizations in patients with schizophrenia on clozapine compared with patients on dual antipsychotics. (2) Assess the rates of adverse effects in patients on clozapine compared with patients on dual antipsychotics. **Methods:** A retrospective chart review will be conducted for patients at our facility with active prescriptions for dual antipsychotics or clozapine for treatment of schizophrenia as of November 29, 2018. Patients will be included if they have received dual antipsychotics or clozapine for at least 1 year, have a diagnosis of schizophrenia or schizoaffective disorder, and receive mental health care at our facility. Patients will be excluded if there is a documented cross-taper plan, if the second antipsychotic is being used "as needed," or if patients are on clozapine in combination with another antipsychotic. Baseline characteristics will include age, gender, diagnosis, previous antipsychotic trials, current antipsychotics, and duration of therapy. **Outcomes:** Efficacy and tolerability will be reported and analyzed using descriptive statistics. Efficacy will be measured by the number of psychiatric hospitalizations at our facility in the past 5 years. Tolerability measures will include appropriate monitoring in the past year, change in weight and hemoglobin A1c, QTc greater than 500 ms, and documentation of extrapyramidal symptoms. Subgroup analyses will review past trials of clozapine in the dual antipsychotic group and history of clozapine monotherapy in patients on clozapine in combination with another antipsychotic.

Reducing Antidepressant Polypharmacy in Patients With Treatment-Resistant Depression

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Abstract Type: Work in Progress. **Background:** Major depressive disorder is a disabling illness that is associated with frequent relapses, incomplete recovery between episodes, and persistent psychosocial and functional impairment. Although many psychopharmacologic agents are currently available for the treatment of major depression disorder, an estimated 10%-20% of clinically depressed patients meet criteria for treatment-resistant depression. The most common definition of treatment-resistant depression is an inadequate response to 2 or more antidepressants. After an initial antidepressant treatment course, only about 50% of patients will respond, and only 33% of those patients will become symptom free. Patients who do not achieve remission are 2-3 times more likely to have a relapse of their depressive symptoms. Inadequate treatment of depression can lead to increased mortality, comorbidity, and suicide attempts. In December 2013, the Department of Veterans Affairs launched the Psychotropic Drug Safety Initiative (PDSI) with the goals of reducing psychotropic polypharmacy, minimizing the risk of adverse events, and meeting PDSI monitoring requirements. Veterans with a diagnosis of depression who have 3 or more concurrent antidepressant medications are a focus of this initiative. **Objectives:** The purpose of this study is to reduce antidepressant polypharmacy in veterans who meet criteria for treatment-resistant depression and to identify a need for academic detailing outreach to address local prescribing practices. **Methods:** For this retrospective analysis, a random sample of 100 veterans from the VAPHS will be selected from the PDSI detailing to include those concomitantly prescribed 3 or more antidepressants. Local databases and the Computerized Patient Record System will be used to extract the following data elements: demographics including age, gender, and race; comorbid psychiatric conditions; and psychotropic medication history. Antidepressant agents prescribed, including indication, dose, duration, history of allergy or intolerance as well as pharmacologic and nonpharmacologic augmentation strategies, scheduled versus PRN, consults for electroconvulsive therapy, history of nonadherence, and provider who prescribed the antidepressant agents. **Results:** Pending. **Conclusions:** Pending.

Reducing Code Gray (combative behavior) Events Through Medication Review and Management

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Abstract Type: Work in Progress. **Previously Presented:** December 2018, ASHP Midyear Clinical Meeting. **Background:** Code Gray is the emergency color code that is called in the event that a person becomes aggressive or combative and patient or caregiver safety become compromised. The assessment of hospital Code Gray events provides an opportunity to determine if there is an association between suboptimal medication therapy and Code Gray calls. Such information can then be used to guide pharmacist education and review of patients at risk for violence and/or combative behavior. **Objectives:** (1) Determine if there is an opportunity for pharmacists to reduce the number of Code Gray events through medication intervention and optimization. (2) Assess and identify high-risk patients and causes of Code Gray events. **Methods:** Retrospective analysis will be conducted on Code Gray events occurring prior to the implementation of this quality improvement project. The analysis of hospital security reports will exclude Code Gray events that were called on visitors and any other persons who were not admitted to the 2 community hospitals in the southwest Washington region. Patients who had a Code Gray event will be reviewed for dementia, behavioral health disorders, delirium, and any other signs and symptoms of agitation that were present up until the Code Gray event. Trends of medication management prior to the Code Gray event will also be reviewed and analyzed. An interprofessional approach will be taken in which daily rounding with the project team members, primary RN, and CNA will be conducted on patients requiring 1-to-1 constant observation to help identify patients who are at an increased risk for violence and/or combative behavior. Pharmacists will then conduct a targeted medication review with the goal of optimizing current pharmacologic therapy and/or recommending the discontinuation of offending agents in order to prevent additional Code Gray events. **Outcomes:** Results that will be reported will involve interventions prior to and post pharmacy interventions. Data collected will include: reported Code Gray events, level of violence events tracked by hospital security, the type and number of accepted recommendations made by pharmacy, and an analysis of collected data regarding factors that put a patient at increased risk for a Code Gray event.

Relapse Rates Among Veterans on Maintenance Doses of Combination Buprenorphine and Naloxone for Opioid Use Disorder

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Abstract Type: Work in Progress. **Background:** Opioid use disorder (OUD) can cause significant morbidity and mortality in patients. According to the Centers for Disease Control and Prevention (CDC) more than 115 people die from an opioid overdose every day in the United States. Treatment with buprenorphine/naloxone (BUP/NAL) can be effective; however, there is conflicting evidence on the utility of higher doses in preventing relapses. Few studies analyze characteristics of veteran patients, and no studies have examined the effect of dosing on the rate of relapse. This study was designed to assess BUP/NAL maintenance doses and the rate of relapse in the veteran population with OUD. **Objectives:** (1) Determine the rate of relapse based on BUP/NAL dose in veterans with OUD being treated in the Substance Use Disorders Rehabilitation Program (SUDRP). (2) Determine if the difference in rate of relapse is affected by type of BUP/NAL dosing, dosage formulation, or use of other illicit substances during treatment. (3) Determine if the time to relapse is correlated with the BUP/NAL dose. **Methods:** Medication fill records from January 1, 2014, through December 31, 2017, were used to generate a list of patients treated with BUP/NAL in the SUDRP in order to complete a retrospective chart review. Patients will be categorized into two treatment groups: those taking less than or equal to 16 mg of BUP/NAL daily and those taking more than 16 mg of BUP/NAL daily. Treatment will be followed from initiation of BUP/NAL and for 12 months after maintenance dose is established or until relapse, whichever comes first. Relapse will be determined through self-report or urine toxicology screens that were positive for any opioid use during the study period. Data including demographics, BUP/NAL dosing, formulation, and illicit substance use during treatment will be collected. Basic descriptive statistics (categorical data) and single-sample *t* test (continuous data) will be utilized to analyze data according to the study's objectives. **Outcomes:** The rate and time to relapse for patients in each group will be reported along with differences in type of BUP/NAL dosing, dosage formulation, and use of other illicit substances during treatment.

Risk of Dementia Associated With Lithium or Valproic Acid

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Abstract Type: Work in Progress. **Background:** Neurocognitive disorder (NCD) is a chronic syndrome of deterioration in cognitive functions beyond what is expected from normal aging. Since there is no cure for dementia, it is critical to identify risk and protective factors. One of the risk factors is bipolar disorder. Commonly used medications for treatment of bipolar disorder include lithium and valproic acid (VPA). Some studies have suggested that lithium may be neuroprotective against dementia; however, data supporting this claim have been controversial. There are also studies suggesting VPA to have a negative effect on cognition, but again, the strength of evidence is weak. The few studies that have directly compared the effects of lithium versus VPA have focused on cognitive impairment, but whether cognitive impairment can be directly translated into increased risk for dementia remains unclear. **Objectives:** The primary outcome is to assess the prevalence of bipolar patients who develop NCD and compare the rates of NCD for those who took lithium, VPA, or both medications throughout their lifetime. Secondary outcomes include comparing (1) the average days-of-use of lithium or valproate in patients with or without dementia and (2) the prevalence of short-term ($<$5 years) versus long-term ($>$5 years) treatment with the medications in patients with or without dementia. **Methods:** The study is a retrospective chart review of patients 50 years and older diagnosed with bipolar disorder who received either lithium, VPA, or both medications in the past. Data from January 1, 1999, through August 1, 2018, are collected from institutional electronic records. Patients are included in the lithium group or VPA group if they have a documented history of either lithium or VPA, respectively, for at least 12 consecutive months based on the prescription records. Patients who qualified for both lithium and valproate groups are included in the combination group. Exclusion criteria include a diagnosis of (1) schizophrenia, (2) schizoaffective disorder, (3) traumatic brain injury, or (4) NCD prior to the bipolar disorder diagnosis. Across the groups, patients will be matched according to age and presence of risk factors for dementia. **Outcomes:** Pending but will be available for presentation by April 2019.

Stress Perception in Health Professional Students

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Abstract Type: Work in Progress. **Background:** Stress is a universal experience, be it academic, personal, or professional. However, the ability of individuals to cope with the daily stress of life varies, and it can contribute to conditions such as anxiety, depression, and burnout. Identifying and managing stress is useful for health professional students to mediate these conditions. This study hopes to identify the scope of student stress and current stress management techniques in a medium-sized Midwestern city. The information gained from this study could improve coping mechanism programs for students during their academic and professional careers. **Objectives:** (1) Evaluate the scope of stress among health professional students. (2) Evaluate the types of coping strategies that students utilize. (3) Determine if student stress level is affected by demographic factors. **Methods:** Participants will be recruited from a student interprofessional education (IPE) event. Approximately 500 health professional students will be asked to take an anonymous survey including 5 questions based on the Perceived Stress Scale (5-PSS), demographics (age, gender, degree program, year in program), and a free response question about their coping mechanisms when stressed. For objective 1: exact number of participants will be reported; scores will be analyzed for central tendency (mean, median, mode) and range. For objective 2: types of coping mechanisms will be analyzed to determine correlation between type of coping mechanism and stress scores. For objective 3: an analysis will determine if demographic data affect scores from the 5-PSS or the types of coping mechanisms recorded. **Originality of Project:** The IPE event includes various health professional students (pharmacy, DO, nursing, etc). This is a unique opportunity to examine stress in a variety of students at different points in their coursework. There is currently a lack of studies that focus on stress in multiple types of health students from a medium-sized city in the Midwestern United States. **Significance of Project:** Gauging the pervasiveness of stress among students and how they currently manage stress would help guide future efforts of implementing effective stress reduction programs at universities.

Student-Centered Learning and Application of Pharmacogenetics With Incorporation of Genetic Testing as Supplement to USC School of Pharmacy Doctor of Pharmacy Curriculum

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Abstract Type: Work in Progress. **Background:** There is increasing mention and utilization of pharmacogenetic testing in this day of personalized medicine in both the inpatient and outpatient clinical settings. The current generation of pharmacy students are completing pharmacogenetics courses as a part of their PharmD curriculum in preparation of becoming leaders of precision medicine. These courses are often extensive and rigorous, as comprehensive understanding is essential for proper application of pharmacogenetics. However, real-world application of such clinical knowledge may not be feasible without proper experiential training. The purpose of this study is to provide an interactive approach to educating future pharmacists in the application of pharmacogenetics in adjunct to the University of Southern California (USC) PharmD curriculum coursework. Our study will focus on how personal participation in genetic testing as supplement to the PharmD program affects pharmacy students' knowledge and understanding of pharmacogenetics, and how it impacts their perception of real-world applications. **Objectives:** (1) Evaluate the impact of personal genetic testing on pharmacy students' knowledge and understanding of pharmacogenetics. (2) Assess its impact on their perception of real-world applications. **Methods:** We have offered all PharmD candidates enrolled in the USC School of Pharmacy an opportunity to take part in this research study through a school-wide recruitment process. The offered pharmacogenetics panel only involves genetic markers related to drug metabolism, disposition, and response; genes related to new or future disease were excluded. Participants provided an informed consent to complete a survey before and after genetic testing to evaluate the educational value of this unique experience. This study includes a built-in control group, as we will be comparing the same group of participants before and after genetic testing through "pretest" and "posttest" surveys. Paired *t* test and χ^2 test will be used to analyze changes from no intervention to intervention in this single group of study participants. **Outcomes:** We are currently in the process of completing the final steps of data collection for reporting. After data analysis, we will report on the impact of personal genetic testing on the knowledge, understanding, and perception of pharmacogenetics and its application among participating USC School of Pharmacy PharmD candidates.

Surging Stimulant Prescribing Trends and Associated Sequalae

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Abstract Type: Work in Progress. **Background:** Stimulants are considered first line for the treatment of attention-deficit/hyperactivity disorder (ADHD). The National Comorbidity Survey Replication estimates that 4.4% of American adults have ADHD. A diagnosis of ADHD is characterized by functional impairments in one or more

aspects of life, including education, occupation, and socialization. Stimulants are schedule II medications due to their high risk for abuse. Misuse of prescription stimulants can increase the risk for psychiatric, cardiac, and neural complications. A previous medication use evaluation of this population showed that a "quick order set" helped increase safety monitoring of stimulants at Phoenix Veterans Affairs Healthcare System (PVAHCS). However, questions remain regarding prescribing patterns and the appropriateness. National trends highlight that the total number of stimulant prescriptions has increased significantly over the years. The number of PVAHCS stimulant prescriptions increased by 30% when comparing FY17 and FY18. **Objective:** To evaluate the veteran population's use of stimulants at PVAHCS, focusing on safety and monitoring trends. Information from the evaluation will be used to develop and assess different methods encouraging safe and appropriate prescribing of stimulants. **Methods:** Chart reviews were conducted on a sample of veterans receiving outpatient stimulant prescriptions between August 1, 2017, and August 30, 2018. Patient demographic data included patients' gender and age. Documentation of safety monitoring parameters was evaluated by reviewing the patients' history of substance use disorder per problem list or positive urine drug screen, pertinent medical conditions, documented adverse effects from stimulant medications, electrocardiogram, blood pressure, and the Arizona Prescription Monitoring Database. Instances of emergency room visits/hospitalizations were also recorded for safety purposes. In addition, review of stimulant-related data included the indication for therapy, initial prescribing service, and maximum prescribed daily dose. **Results:** Data collection is ongoing; results are anticipated in spring 2019.

The Effect of High Dose Opioids on Nightmares in Patients With Posttraumatic Stress Disorder (PTSD) and Obstructive Sleep Apnea (OSA)

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Abstract Type: Work in Progress. **Background:** Approximately 70% of individuals with posttraumatic stress disorder (PTSD) experience sleep disturbances that can include vivid, recurrent nightmares related to trauma. Although the pathogenesis remains poorly understood, a dysfunctional rapid eye movement (REM) and non–rapid eye movement (NREM) sleep mechanism has been proposed as a possible cause of PTSD-associated nightmares. Prolonged opioid use has been shown to cause similar changes to the sleep architecture. This prompts concern given the high percentage of PTSD-afflicted veterans with chronic pain and their increased predisposition to use opioids for pain control versus those without PTSD. Continuous positive air pressure (CPAP) therapy has been associated with improvement in PTSD symptoms, including trauma-related nightmares in veterans with PTSD and concomitant obstructive sleep apnea (OSA). To date and to the authors' best knowledge, no study has explored the effect of opioids on nightmares in individuals with PTSD, OSA, and chronic pain. **Objective:** (1) Evaluate the incidence of PTSD-associated nightmares between patients taking $\geq$90 and $<$90 morphine milligram equivalents (MMEs) per day. (2) Evaluate the difference in MMEs per day, relevant medication doses, and pain and mental health assessment scores between the CPAP-adherent group and nonadherent group. (3) Assess the difference in population characteristics between the high- and low-dose opioid groups. **Methods:** This retrospective cohort study will be conducted using the electronic health records of the Veterans Affairs Loma Linda Healthcare System to identify veterans with a diagnosis of chronic pain, PTSD, and OSA who initiated CPAP therapy between January 1, 2012, and May 1, 2018. The date of CPAP therapy initiation will be considered the index date. Baseline data will be compared to monitoring data at month 6 from index date $\pm$1 month. Statistical analysis will be performed to identify treatment differences and assess clinical outcomes with a level of significance, α, set at .05. **Outcomes:** We will report changes to the frequency of PTSD-associated nightmares caused by high-dose opioids, and assess MMEs per day, relevant medication doses, and pain and mental health assessment scores as a function of CPAP adherence and nonadherence.

The Effects of Concurrent Oral Antipsychotic Use With Paliperidone Long-Acting Injection

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Abstract Type: Work in Progress. **Background:** Paliperidone long-acting injectable (LAI) is recommended to be administered without oral antipsychotic overlap; however, oral antipsychotics are often coadministered. There is limited evidence assessing the impact this prescribing practice has on patient outcomes. **Objectives:** The primary objective is to compare time to paliperidone LAI discontinuation in patients receiving concurrent oral

antipsychotic overlap with paliperidone or risperidone versus those who did not receive oral antipsychotic overlap. Secondary objectives include the assessment of duration of oral antipsychotic overlap as a potential predictor of time to LAI discontinuation as well as a comparison of length of stay, number of hospitalizations and emergency department (ED) visits within 6 months of discharge, and use of medications for the treatment of extrapyramidal symptoms (EPS) between groups. **Methods:** Up to 200 adult patients with Missouri Medicaid who were initiated on paliperidone LAI while admitted to an acute care psychiatry unit between January 1, 2017, and June 30, 2018, will be reviewed. Patients will be excluded if they were discharged to a facility where medication administration is monitored or they did not complete the initiation regimen. Data will be collected from the electronic medical record and the Missouri HealthNet CyberAccess database. Cox regression analysis and Kaplan-Meier survival curves will be used to compare the time to antipsychotic discontinuation and assess whether duration of oral overlap predicts time to LAI discontinuation. Length of stay will be assessed with an independent *t* test. Rates of hospitalizations, ED visits, and EPS medication initiation will be compared with χ^2 or Fisher exact tests where appropriate. **Outcomes:** The number of days from paliperidone LAI initiation to discontinuation will be reported as the primary outcome. The number of days from LAI initiation to discontinuation will also be reported for a subgroup of patients who received a prescription for oral overlap at discharge as a secondary outcome. Length of stay of the index hospitalization, the number of hospitalizations and ED visits related to psychiatric causes and EPS, and the proportion of patients who received prescriptions for medications used to treat EPS will all be reported as secondary outcomes.

The Impact of Clinical Pharmacist Intervention on Lithium Monitoring at a Veterans Affairs Hospital

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Abstract Type: Work in Progress. **Background:** Lithium has been the standard of care for bipolar disorder for nearly 50 years. Due to its narrow therapeutic index, lithium requires frequent monitoring. A 2016 national Veterans Affairs (VA) database review found that 19.5% of patients prescribed lithium did not have a lithium serum concentration level measured in the previous 9 months. The Department of VA then provided recommendations for lithium monitoring which included lithium serum concentrations every 6 months and an annual serum creatinine (SCr), eCrCl, thyroid profile, and complete blood count (CBC) with differential. Several local interventions were made; however, there was still a considerable number of patients without the recommended monitoring. **Objectives:** (1) Determine the impact of a clinical pharmacist's interventions on the number and % of patients who receive recommended lithium monitoring. (2) Provide a descriptive analysis of measured serum lithium concentrations and the resulting action performed by the provider. (3) Identify barriers to the successful implementation of lithium monitoring. **Methods:** This is a quality improvement medication use evaluation of patients receiving care from a VA Medical Center and outlying clinics with an active lithium prescription. The pharmacist reviewed a national VA Lithium Lab Monitoring Dashboard weekly between October 1, 2018, and January 31, 2019. For patients without a lithium serum concentration in the previous 6 months and without a scheduled lab appointment, the pharmacist ordered the recommended labs (serum lithium concentration, SCr, thyroid function tests, and CBC with differential) and contacted the patient to schedule a laboratory appointment. The pharmacist notified the lithium prescriber of the intervention via a note in the electronic medical record. The data collected will describe patients' laboratory monitoring following the intervention period to determine the values of the defined objectives. A χ^2 test with a *P* value $<.05$ is to be considered significant for the primary objective. Descriptive analyses will be used for the secondary objectives. **Outcomes:** We will report the impact of the pharmacist's interventions through categorical data. The descriptive analysis will describe lithium serum concentrations, whether the measurements led to an adjustment in lithium dose, and barriers to successfully implementing the recommended monitoring.

The Physical Manipulation of Antipsychotics: Visual and Tactile Active Learning Exercise

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Abstract Type: Work in Progress. **Background:** The concept of learning styles was introduced in the early 1980s, describing students who learn through visual, auditory, and tactile/kinesthetic learning styles. Although visual and auditory learning devices are well-documented strategies frequently employed in pharmacy education (such as color-coded charts, diagrams, mnemonics, etc), little information has been published on incorporating tactile or kinesthetic learning devices in pharmacy education. Physical manipulatives in the form of learning blocks are utilized in K-12 education to allow for tactile internalization of complex concepts. Bridging the pharmacologic properties and therapeutic utilization of

medications is the cornerstone of an integrated medication therapy management sequence. Comprehension of the binding affinities of antipsychotic agents is crucial to predict side effect profiles of the individual agents. Enhancing student understanding of antipsychotic binding properties has the potential to reinforce knowledge related to an agent's specific mechanism of action and side effects. **Objective:** To describe differences in academic performance in psychopharmacology concepts taught in a psychiatry integrated course following implementation of kinesthetic blocks as a learning tool. **Methods:** Students enrolled in the spring 2018 and spring 2019 psychiatry modules were provided the opportunity to utilize a set of kinesthetic building blocks for in-class activities. A key was included with each set of blocks, color-coding each block to represent a different receptor targeted by antipsychotic medications. Course data will be utilized to compare preimplementation aggregate performance from spring 2017 with postimplementation data from spring 2018 and 2019 for students who utilized the blocks. Overall performance and performance on psychopharmacology-related questions will be evaluated, both initially and cumulatively, using unpaired *t* tests. **Outcomes:** Course data for spring 2018 revealed 61.3% of students enrolled in the study utilized the blocks and 32.3% identified as tactile/kinesthetic learners. Course grade averages demonstrated improvement in 2018 (87%) compared with 2017 (83%). Grades will be evaluated upon conclusion of the spring 2019 term. The study investigators postulate physical manipulatives may be useful as supplementary materials in the psychiatry curriculum to reinforce concepts covered in class, enhance student study habits and mastery of materials, as well as facilitate long-term retention of materials.

Therapeutic Drug Monitoring of Haloperidol at South Florida State Hospital

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Abstract Type: Work in Progress. **Background:** Therapeutic drug monitoring (TDM) of haloperidol is a practice that is supported by the literature to improve outcomes and reduce health care costs, but it is underutilized in practice, particularly in the United States. Evidence supports the use of TDM for haloperidol to target a therapeutic serum concentration range to maximize therapeutic effect while minimizing adverse effects for most patients. However, the patients used in many of these efficacy studies are acutely psychotic and may not represent the chronically ill, and possibly neuroleptic-resistant, patients seen in long-term state facilities, such as the South Florida State Hospital (SFSH). The use of TDM of haloperidol can potentially allow patients to achieve an appropriate dose more rapidly, and possibly highlight patients who have been labeled as poor responders who may be either subtherapeutic or require higher serum concentrations than the general population. **Objective:** To determine if TDM of haloperidol will decrease time to psychiatric stability. **Methods:** A retrospective review of a current TDM quality improvement (QI) project will be conducted to evaluate outcomes during a 6-month period. As part of the QI project, patients on haloperidol monotherapy will receive a baseline haloperidol serum concentration. Psychiatrists will be contacted with TDM recommendations and can choose to be followed by pharmacy services or continue with standard of care (SOC). Patients will be followed until placed on a hospital discharge list (awaiting placement to a step-down facility), which is utilized as a marker for psychiatric stability. Once stable, the psychiatrist will complete a Clinical Global Impression (CGI) score, and SOC patients will receive a final serum concentration. Kaplan-Meier curves with log rank test will be used for time to psychiatric stability outcomes. Mann-Whitney *U* and χ^2 testing will be used for continuous and categorical data for other outcomes evaluated. **Outcomes:** Time to placement on the discharge list, CGI improvement scores, reduction in the initial 3 highest subcategories of Brief Psychiatric Rating Scale (BPRS) scores, reduction in the incidence of adverse drug events, reduction in the number of psychiatric as needed or one-time medications.

Transitioning Patients With Attention-Deficit/Hyperactivity Disorder in the Absence of Comorbid Mental Illness From Psychiatry Service to Primary Care

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[1] *Minneapolis Veterans Affairs Health Care System*

Abstract Type: Work in Progress. **Background:** Managing patients with attention-deficit/hyperactivity disorder (ADHD) is a growing concern given the influx of young veterans through the Veterans Affairs Health Care System (VAHCS) and national shortage of psychiatry providers. This has led to delays in care, lapses in pharmacotherapy, and increases in wait times between mental health referral and initial appointment. As demand for ADHD medication management increases, our team will facilitate transitioning patients without comorbid mental illness from psychiatry to primary care. **Objectives:** (1) Identify and assess patient appropriateness to transfer ADHD management to primary care. (2) Evaluate patients' and prescribers' preferred ADHD treatment setting. (3) Improve compliance with recommended monitoring guidelines for controlled substance prescriptions. **Methods:** This is a quality improvement project to be conducted at the Minneapolis VAHCS and affiliated

community-based outpatient clinics. Patients with ADHD in the absence of comorbid mental illness prescribed stimulant medications by a psychiatry provider will be identified by diagnosis codes and visit encounters using structured query language. Subsequent chart review will verify inclusion criteria and determine next upcoming psychiatry appointment, last urine drug screen and prescription drug monitoring program review, and documentation of a formal diagnostic assessment for ADHD. Our team will collaborate with psychiatry and primary care prescribers to discuss transitioning ADHD medication management to primary care. The psychiatrist will discuss transferring care with the patient at their next appointment. Weekly notifications will be sent to psychiatry prescribers informing them of patients appropriate for transfer of ADHD management to primary care as well as recommended monitoring parameters, if indicated. In conjunction with this project, the team developed an ADHD medication order menu to simplify medication prescribing and provide resources for diagnostic assessment. **Outcomes:** For objective 1 we will report the number and percent of identified patients who transferred ADHD medication management to primary care. For objective 2 we will report patient and provider preferences for medication treatment setting to identify perceived barriers and guide areas for future intervention. For objective 3 we will report the number of recommended monitoring interventions implemented.

Transitions of Care: Pharmacy-Assisted Discharge Medication Reconciliation to Reduce Medication Errors on Psychiatric Units

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Abstract Type: Work in Progress. **Background:** Medication reconciliation is a comprehensive evaluation of a medication regimen that involves a comparison of medications at various transitions of care. Psychiatric patient care units are rarely equipped with the resources for full medication assessment by pharmacy services at transitions of care, despite treating patients with complex, ever-evolving therapy plans. In 2005, the Joint Commission introduced medication reconciliation as a National Patient Safety Goal to reduce adverse drug events and subsequent patient harm. The associated published data approximates that 25% of patients experience an adverse drug event after hospital discharge. Of these events, 58% were deemed to be from preventable errors. Patients with psychiatric illnesses are well known for having difficulty with medication compliance and subsequent relapse of illness—making them an ideal population for targeting reconciliation efforts. **Objective:** The objective of this project is to perform pharmacy-assisted discharge medication reconciliation on psychiatric units to reduce the number of errors on discharge medication lists. Ultimately, we aim to show the benefit of pharmacist intervention during transitions of care for this high-risk population. **Methods:** All patients admitted to psychiatric units at Yale New Haven Hospital from August 2018 are eligible to receive pharmacist-assisted medication reconciliation and be included for data collection. On a daily basis, the pharmacy resident identifies targeted patients being discharged. Inpatient medication list and discharge after visit summary are compared for accuracy. Prescribers are notified of discrepancies, and errors are corrected prior to the patient leaving the hospital. Data, including demographics, hospitalization history, number of variances, error type, medication affected, and provider type, are logged for patients who received pharmacy-assisted discharge medication reconciliation from August 2018 through January 2019. An error report is filed for safety event tracking. Data will be compiled to identify trends and estimate the amount of time spent by a pharmacist in preventing errors. **Outcomes:** The amount of time spent by the psychiatric pharmacist in completing pharmacy-assisted discharge medication reconciliation, as well as the number of medication errors prevented by implementing this process, will be reported. Data will be assessed in an effort to justify the need to expand pharmacy resources to facilitate this process more regularly.

Trends of Stimulant Use in a Large Healthcare System

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Abstract Type: Work in Progress. **Background:** Attention-deficit/hyperactivity disorder (ADHD) affects approximately 11% of children every year, and this rate continues to rise annually. From 1995 to 2008, adult and adolescent stimulant use increased 6.4- and 2.5-fold, respectively. Adult use of stimulant medication now exceeds prescriptions for youth. Although stimulant therapies are the primary treatment modality, they are not without risk. Common adverse effects from stimulants include cardiovascular and psychiatric effects, diversion, and misuse. Trends in inpatient stimulant prescribing is largely unknown. This retrospective exploratory study seeks to provide insight into the use of stimulants by evaluating inpatient use across the HCA Healthcare system. **Objectives:** (1) To evaluate inpatient stimulant prescribing patterns and use over time. (2) Exploratory trend analysis

of orders made for each sex, age group, and indication (eg, US Food and Drug Administration–approved and off-label) will be conducted. (3) Length of stay, comorbidities, and adverse events related to stimulant administration will also be identified and assessed. **Methods:** Data will be collected from all HCA Healthcare inpatient facilities during a 3-year time frame (October 1, 2015-October 1, 2018). Participants will be included if they are 18 years or older, admitted to any inpatient unit, and have a stimulant medication administered on the medication administration record (MAR). Participants will be excluded if there is no stimulant medication administered during the admission. The primary outcome will be to evaluate inpatient stimulant prescribing patterns and use over time. Secondary outcomes will include analyzing the trends in stimulant medication orders made for each sex, age group, and indication. Patient demographics, diagnoses, medication administration data, length of stay, and hospital admission information will be collected. Adverse events related to stimulant administration will also be identified and assessed. **Outcomes:** We will report the number and percent of patients to whom a stimulant medication was administered. We will analyze factors and describe trends associated with identified inpatient stimulant orders across a large health care system.

Use of My HealtheVet Secure Messaging as a Form of Internet-Based Motivational Interviewing for Tobacco Users

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[1] *William S. Middleton Memorial Veterans Hospital*

Abstract Type: Work in Progress. **Background:** Secure messaging is an Internet-based communication tool used to enhance veterans' access to health care teams, support stronger partnerships, and improve health outcomes. Secure messaging improves veteran satisfaction and is commonly used for requesting medication refills, managing appointments, accessing lab results, and asking health-related questions. The tobacco treatment clinic at the William S. Middleton Memorial Veterans Hospital uses secure messaging as a form of targeted outreach to engage tobacco users with treatment services. Services are provided by clinical pharmacists and include pharmacotherapy and group or individual behavioral counseling. This quality improvement project will explore the use of secure messaging as a form of Internet-based motivational interviewing that is tailored toward veterans who are unable to follow up with clinical pharmacists in group or by telephone. **Objectives:** The objectives of this quality improvement project are to: (1) create and implement a secure messaging protocol to be used by clinical pharmacists in the tobacco treatment clinic, (2) increase the number of veterans who use secure messaging as a form of follow-up, and (3) compare 1-month quit rates for veterans followed by secure messaging versus telephone. **Methods:** A survey will be used to assess clinical pharmacists' preferences for using secure messaging as a form of follow-up. Based on survey feedback, a protocol will be created and implemented. Veterans referred to the tobacco treatment clinic will be offered secure messaging during an initial tobacco treatment telephone consult. Retrospective chart reviews will be performed for veterans using secure messaging and for a random sample of veterans using telephone follow-up. When comparing outcomes between veterans followed by secure messaging and telephone, 2-sample t testing will be used for continuous variables, and χ^2 or Fisher exact testing will be used for categorical variables. All other data will be analyzed using descriptive statistics. **Outcomes:** The primary outcome includes 1-month quit rates for veterans followed by secure messaging compared with telephone. Secondary outcomes include the number of veterans using secure messaging, rationale for secure messaging, average number of secure messaging and telephone contacts, average time frame between secure messaging and telephone contacts, and discharge rates.

Utilization of Metformin With Atypical Antipsychotics Post Ordering Template Initiation

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[1] *William S. Middleton Memorial Veterans Hospital*

Abstract Type: Work in Progress. **Background:** Commonly utilized second-generation antipsychotics (SGAs) for the treatment of schizophrenia are associated with metabolic adverse effects, including weight gain, dyslipidemia, and hyperglycemia. Metformin has been studied with antipsychotics to help prevent weight gain. A recent meta-analysis of 12 randomized controlled trails by De Silva et al indicated that metformin was associated with a mean weight loss of -3.27 kg ($P < .001$), and mean difference in percentage of body weight loss was -5.07 ($P < .001$) compared with placebo for antipsychotic-induced weight gain. Due to the potential risk of mitigation with metformin, a metformin ordering template was added to the psychiatry order screen April 12, 2018, for inpatient and outpatient ordering of atypical antipsychotics. Education regarding the use of metformin with antipsychotics and the ordering tool location was provided at mental health team meetings in April 2018. **Objective:** The objective of this evaluation is to determine if the implementation of the metformin ordering tool increased coprescribing of metformin with atypical antipsychotics by mental health (MH) prescribers. **Methods:** Prescribing data were requested from the Internal Data Request team with the following data objects included: veterans

prescribed metformin who are also on an atypical antipsychotic by MH prescribers 5 months pre metformin tool implementation and 5 months post metformin tool implementation. Metformin prescriptions that were ordered by the ordering template will be identified by a phrase that is included of the comments section of those prescriptions. All veterans prescribed any (new start and refill) atypical antipsychotic and metformin by MH prescribers will be included in the data. Veterans prescribed metformin by a non-MH prescriber will be excluded. Patient charts will be manually reviewed for patient demographic information (age, sex, weight, body mass index, antipsychotic indication, antipsychotic prescribed). **Outcomes:** We will determine metformin prescribing rates by MH prescribers pre- and post-ordering tool implementation. Additionally, we will evaluate the number of metformin prescriptions for patients on atypical antipsychotics via utilization of the metformin ordering tool by mental health prescribers. **Results/Conclusions:** Pending.

Utilization of Vesicular Monoamine Transporter-2 Inhibitors in a Veterans Affairs Healthcare System

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[1] *Veterans Affairs Connecticut Healthcare System*

Abstract Type: Work in Progress. **Background:** Vesicular monoamine transporters (VMATs) are membrane proteins located inside of presynaptic neurons. VMATs facilitate the release of monoamine neurotransmitters, such as dopamine, serotonin, norepinephrine, epinephrine, and histamine, into the synaptic cleft. Vesicular Monoamine Transporter-2 (VMAT2) inhibitors are a class of medications that inhibit VMAT2, decreasing synaptic monoamine neurotransmitter release. There are currently 3 VMAT2 inhibitors approved in the United States: tetrabenazine, deutetrabenazine, and valbenazine. Tetrabenazine and deutetrabenazine are US Food and Drug Administration (FDA) approved for the treatment of chorea associated with Huntington disease. Valbenazine and deutetrabenazine are FDA approved for the treatment of adults with tardive dyskinesia. Common off-label uses of VMAT2 inhibitors include spontaneous dyskinesias, tardive dyskinesia (tetrabenazine), chorea not associated with Huntington disease, Tourette syndrome, dystonias, myoclonus, and tic disorders. In the Veterans Affairs Healthcare System, VMAT2 inhibitors are only available for use through a nonformulary approval process, due to high medication cost and limited evidence for efficacy in the treatment of movement disorders. **Objectives:** (1) Evaluate the use of tetrabenazine, deutetrabenazine, and valbenazine in the Veterans Affairs Connecticut Healthcare System (VACHS) since FDA approval, and (2) determine to what extent practitioners are monitoring for safety and efficacy of VMAT2 after initial nonformulary approval. **Methods:** A single-center, retrospective chart review will be conducted at VACHS. All patients with a nonformulary drug request submitted for tetrabenazine, deutetrabenazine, or valbenazine between August 15, 2008, and August 31, 2018, will be included. Data will be retrieved from the Veterans Affairs Computerized Patient Record System. Data collected will include requested drug, requested indication, and nonformulary outcome. Baseline demographics and treatment outcomes will also be collected for all patients dispensed a VMAT2 inhibitor during the study period. Results will be analyzed using descriptive statistics. **Outcomes:** The number of nonformulary requests for VMAT2 inhibitors during the study period and the percentage of requests that were approved will be reported. Medication monitoring and patient outcomes will be reported for all cases in which a VMAT2 inhibitor was dispensed.

Value of Board of Pharmacy Specialties (BPS) Credential Among Pharmacy Employers

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Abstract Type: Work in Progress. **Background:** The work force of Board of Pharmacy Specialties (BPS)–certified pharmacists is growing, increasing from 7500 pharmacists in 2007 to more than 35 000 pharmacists in 2017. Board certification in pharmacy denotes specialized knowledge and expertise in providing person-centered care and is seen as an important quality metric. A number of health systems, practice settings, and national pharmacy organizations (APhA, ASHP, ACCP, CPNP, HOPA) recognize BPS certification as a qualifying credential for advanced practice. These groups strongly believe that pharmacists engaged in direct patient care and those who train students and residents should hold such credentials. BPS pharmacists themselves attest that certification enhances feelings of self-worth, improved competence, and greater marketability. The value of board certification has been extensively described and promoted by the pharmacy profession, yet the impact of BPS certification on employment opportunities for pharmacist specialists is largely unknown. **Objectives:** (1) Assess if BPS certification is required/preferred by pharmacist employers. (2) Evaluate reasons behind the requirement/preference. (3) Compare practice specialties and settings with regard to a requirement/preference for BPS certification. **Methods:** Pharmacy job postings from major pharmacy associations, career websites, and conferences will be screened to

assess existing demand for BPS certification. For each listing, preference/requirement or lack of necessity for BPS certification, type of BPS specialty practice area, practice setting, salary, and full-time or part-time data points will be recorded. A questionnaire will be provided to each hiring organization that requires/prefers BPS credentials to qualitatively measure reasons for seeking BPS qualifications. The survey will address whether employers believe BPS certification verifies competence in specialty practice, ensures acquisition of knowledge within the specialty, is consistent with certification of other health care professionals, allows pharmacists to better engage patients and precept residents or students, and allows pharmacists to gain status as reimbursable providers. **Outcomes:** The number of pharmacy job postings that prefer or require BPS certification and those that do not list such preferences will be reported. The two groups will be compared in relation to specialty, practice setting, salary, and full-time or part-time positions. Survey results describing reasons behind preferring/requiring BPS certification will be described.

A Buprenorphine Restricted Dispensing Program

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Abstract Type: Innovative Practices. **Background:** Patients recovering from opioid substance abuse commonly enroll in medication-assisted treatment (MAT) groups. These groups combine the use of behavioral counseling with medications to improve treatment outcomes. Although effective, compliance to attending MAT groups can be difficult to achieve in substance abuse populations. In addition to poor compliance to the MAT groups, patients may not be trustful with buprenorphine-containing products and have a high tendency to relapse. To remedy this, providers involved in MAT will typically write prescriptions for a short day supply to limit the amount of buprenorphine a patient can receive at a given time. **Description of Innovative Service:** University Neuropsychiatric Institute (UNI) is a 140-bed, freestanding psychiatric hospital serving both pediatric and adult populations. In addition to inpatient services, UNI offers outpatient children daytime programs and adult recovery clinics. The adult recovery clinic partners with UNI pharmacy to provide MAT to those in recovery to opioid substance abuse through an innovative restricted dispensing program. Started in 2013 with 2 patients, the restricted dispensing program has grown to include 141 patients in 2018. On average, there are 65 patients enrolled at a given time. Physicians write a prescription for 28 days of medication and specify restrictions for pickup. These may include MAT attendance, UA requirement, who may pick up besides the patient, the number of doses allowed to be picked up, or any other restriction. This is a free service provided to the patient from the pharmacy. Prescriptions are run as a 28-day supply with only 1 copay. A logbook is kept with patient information and partial dispenses are filled and kept in the pharmacy. **Impact on Patient Care:** It has been shown that attendance in MAT groups is more effective than medication alone. With the restricted dispensing program, compliance with attending MAT groups has improved. Additionally, patients gained improved access to their medications due to only having 1 copay as opposed to a copay at each fill. **Conclusion:** Partnering with UNI providers and creating the Restricted Dispensing Program, the pharmacy department improves treatment outcomes and patient care.

Collaborative Treatment of Mental Illness by a PGY2 Psychiatric Pharmacy Resident Within an Internal Medicine Clinic

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Abstract Type: Innovative Practices. **Background:** The Internal Medicine Clinic at Riverside University Health System (RUHS) is a hospital-based outpatient clinic composed of 13 specialties, including nephrology, pulmonology, rheumatology, infectious disease, endocrinology, and general medicine. Patients are typically screened for depression at each visit and are referred to the behavioral health therapists if they score between moderate and severe on the Patient Health Questionnaire (PHQ-9). The Psychiatric Pharmacy Clinic (PPC) was established in May 2018, and a psychiatric pharmacy resident was incorporated into the clinic in July 2018. **Description of Innovative Service:** This pilot program took place in the Internal Medicine Ambulatory department at RUHS. Every Friday from July 2018 to July 2019 was allotted for the PPC. The postgraduate year 2 resident scheduled and ran patient visits and prescribed medications under a Collaborative Practice Agreement (CPA). The CPA grants provider privileges to psychiatric pharmacists to provide care for mental health conditions of patients seen in the RUHS Rheumatology, Infectious Disease, and Internal Medicine General Medicine Clinics. Referrals for mental health assessments and/or medication management were made by attending physicians, medical residents, and behavioral health therapists. The PPC was also available for consultations for patients and providers from other internal medicine specialty clinics for no additional copay. **Impact on Patient Care:** After 23 weeks of the service, 52 unique patients were referred to the PPC. A total of 37 of

the 52 patients (71%) referred were seen, evaluated, and followed up by the psychiatric pharmacy resident. In a 6-month period, 177 pharmacy interventions were made. Of the 177 interventions, 97 (55%) were composed of patient counseling, initial intakes, dose adjustments and follow-up visits; 38 (22%) comprised coordinating care to the PPC; 22 (12%) included nonpsychiatric interventions; and 19 (11%) were composed of transitions of care to other providers. **Conclusion:** Integration of a PPC run by a psychiatric pharmacy resident in an internal medicine clinic can provide patients with access to more frequent mental health follow-up, transitions of care, and medication monitoring.

Description and Impact of an Integrated Psychiatric Pharmacy Service at a Primary Care Clinic

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Abstract Type: Innovative Practices. **Background/Rationale:** In 2017 the Health Resources and Services Administration reported that 26.5 million visits to community health centers included a mental health diagnosis. Despite this need, psychiatric care, particularly medication management, can be limited in primary care clinics. According to The National Institute of Mental Health, in 2016 only 50% of adults with a diagnosis of depression received medication, perhaps due to lack of access to services or lack of comfort prescribing psychotropics on the part of primary care physicians (PCPs). In order to meet this need, pharmacy services at a primary care clinic were expanded to include psychiatric pharmacy services alongside existing mental health therapy services. **Description of Practice:** Collaborative Practice Agreements were developed allowing pharmacists to initiate, change, discontinue, and monitor medications for depression, anxiety, and bipolar depression. Pharmacists were also available for psychiatric medication consults with PCPs and behavioral health providers. This service was run by 2 bilingual clinical pharmacists (both board-certified in ambulatory care, one board-certified in psychiatric pharmacy), postgraduate year 2 ambulatory care pharmacy residents, and pharmacy students. **Impact of Practice on Patient Care/Institution:** A period of 1 year from the psychiatric pharmacy service was analyzed from April 1, 2017, to March 31, 2018. Reports were generated that included information about psychiatric pharmacy consults, one-on-one psychiatric pharmacy visits, and psychotropic medication prescribing/dispensing trends. Each consult was further reviewed for additional details, including patient characteristics, medications prescribed, psychiatric diagnoses involved, and actions taken. In the time period analyzed, 294 consults were completed, and 47 patients had at least 1 face-to-face visit. This accounted for 20% and 11% of the pharmacists' total workload, respectively. Further detail on consults and face-to-face visits will be presented. The service helped decrease inappropriate benzodiazepine prescribing, and helped to increase the percentage of patients with a diagnosis of depression receiving psychotropic medication, which is a Healthy People 2020 goal. Provider satisfaction surveys showed a positive impact on comfort prescribing psychotropics. **Conclusion:** The service exemplifies the potential for pharmacists in the ambulatory care setting to expand beyond the traditional chronic disease state management. It also speaks to a potential role for psychiatric pharmacists in the primary care setting.

Implementation of a Pharmacy-Based Mental Health Bridging Clinic in an On-Campus Pharmacy

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Abstract Type: Innovative Practices. **Background:** University mental health services are important resources for students as they transition through college. At Oregon State University (OSU) there are various ways to receive mental health services ranging from one-on-one counseling to appointments with psychiatry. Due to an increase in demand for these resources, many of these sessions are not able to accommodate more students. Pharmacists are well trained in patient care and medication therapy management, and dispensing services. Therefore, they are optimally positioned within the clinic to bridge patients between initial intake with a primary care provider (PCP) or psychiatrist. **Description of Innovative Service:** This new pharmacy-based service aims to increase student access to mental health services and providers. Through a collaborative practice agreement with the Student Health Services (SHS) medical director, pharmacists at the OSU SHS Pharmacy will manage patients diagnosed with depression, anxiety, attention-deficit/hyperactivity disorder, and/or bipolar disorder. The patients enrolled in the pharmacy-based clinic will either (1) be referred by a PCP for management, until there is an opening with psychiatry, or (2) be referred for follow-up of previously stabilized regimens by their PCP or psychiatrist. **Anticipated Impact on Patient Care/Institution:** Currently, students are either being placed on a waiting list or being referred to a provider in the surrounding community. As pharmacists at the OSU SHS Pharmacy begin managing patients, providers will have the capacity to accommodate more new intakes, which in turn will improve patient outcomes and access to mental health services. **Conclusion:** Pharmacists within university stu-

dent health services clinics can engage students directly about mental health care needs. They also have the potential to provide continuity of care, provide mental health medication management, and ensure students receive the support they need during this challenging time in their lives.

Implementation of a Substance Use Disorder (SUD) Transitions of Care Telephone Clinic

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Abstract Type: Innovative Practices. **Background:** According to The Epidemiologic Catchment Area Program of the National Institute of Mental Health, although surveys suggest that veterans have a lower incidence of substance use disorder (SUD) than the general population, veterans are twice as likely as nonveterans to die from an accidental overdose. The Veterans Health Administration developed the Psychotropic Drug Safety Initiative with the purpose of improving safe psychiatric medication practices. The nationwide quality improvement program was launched in December 2013 and continues to evolve and expand its reach in attempt to better serve our veterans. Current efforts focus on increasing access to evidence-based pharmacotherapies for veterans with SUD nationwide, including those with alcohol use disorder (AUD) and opioid use disorder (OUD). **Description of Innovative Service:** The Substance Use Disorder Transitions of Care (SUD TOC) Telephone Clinic is a resident-facilitated service that was conceptualized after findings from a postgraduate year 1 research project revealed a large percentage of veterans initiated on medication-assisted therapy (MAT) was lost to follow-up after discharge. The clinic provides follow-up services for veterans initiated on qualifying MAT therapies for OUD and AUD in inpatient and outpatient settings. The mission of the clinic is to increase MAT retention and prevent relapse in veterans with SUD and identify barriers to continuation of treatment. **Impact on Patient Care:** During the course of 6 months, the SUD TOC Telephone Clinic provided clinical consultation and coordination of care services for 20 veterans. Referrals were received from psychiatric clinical pharmacy specialists in both inpatient and outpatient settings. All referrals received telephone follow-up following initiation of MAT for OUD or AUD. Common services employed to assist veterans in safe and appropriate MAT continuation included assistance with scheduling follow-up, providing refills between appointments, routine lab maintenance, and provision of naloxone kits and education. **Conclusion:** Providing TOC services to veterans with SUD can help prevent discontinuation of MAT by aiding with common barriers to treatment. The implementation of the SUD TOC Telephone Clinic has been a valuable service offered for both the veteran population and clinical staff.

Implementation of Student-Led Occupational Activities at a Behavioral Health Crisis Stabilization Unit to Improve Patient Morale and Treatment Satisfaction

Lauryn Shiplett, PharmD Candidate 2020[1]; Paige Dunton, PharmD Candidate 2020[1]; Austin Paskins, PharmD Candidate 2020[1]

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Abstract Type: Innovative Practices. **Background:** Patient satisfaction is becoming increasingly recognized as an important part of medical care. As psychiatric knowledge and available therapies have progressed in recent years, satisfaction in psychiatric facilities has improved. However, satisfaction is still lacking in the realm of activity and personal experience. To aid in this, developing more welcoming environments and implementing more occupational activities during hospital stays for psychiatric conditions should be considered. **Description of Innovative Service:** A committee of 10 Ohio Northern University (ONU) pharmacy students involved in CPNP was formed. Twice a week, 2 to 3 committee members visit the Coleman Professional Services Crisis Stabilization Unit (CSU) to lead activities with the patients. Past activities include: painting, assembling fleece scarves, creating stress balls, and mixing essential oil lotions. After the activity is completed, students remain at the CSU to talk and interact with patients. Visits typically last 1 to 2 hours. **Impact on Patient Care:** Every experience at the CSU thus far has been a positive one. During one activity a patient said, "It's nice to do something with my hands to keep my mind busy." Nearly every time we visit, patients ask when we will be back and what we will be doing next. After one visit, we got an email from a nurse, stating, "Thank you so much for having students here to paint [with] the clients. They absolutely loved it. Everyone laughed and smiled and were very proud of their paintings." The coordinator of the CSU has told us that on days we visit, "the patients always seem better spirited and are easier to work with." These experiences have also made us, as students, more compassionate and empathetic. **Conclusion:** Patient satisfaction during inpatient psychiatric health care is currently lacking in the areas of activity and personal experience. To aid in this, ONU pharmacy students created a committee to visit our local crisis stabilization unit and lead occupational activities for the patients. The goal of this committee was to improve patient morale and overall treatment satisfaction. Thus far, we have received nothing but positive feedback from the patients, crisis center employees, and committee members.

Improvement of Long Acting Injectable Antipsychotic Utilization Rates via a Pharmacist Driven Screening Process: A One Year Update

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Abstract Type: Innovative Practices. **Background/Rationale:** Despite guideline recommendations to utilize long-acting injectable antipsychotics (LAIAs) in patients with known nonadherence, utilization rates remain low. Studies have demonstrated that on average, only approximately 12% of patients with schizophrenia in the United States are managed with an LAIA, despite documented benefits of their use. Riverside University Health System (RUHS) serves as the safety net medical center for Riverside County in Southern California. The medical center contains a separate mental health campus that includes 2 psychiatric emergency departments and 77 inpatient psychiatric beds. RUHS psychiatric pharmacists began screening patients and recommending LAIAs on August 1, 2017. An initial assessment showed that 2 months following initiation of these services, utilization rate increased from 13% to 20%. This study set to examine the sustainability of psychiatric pharmacists' efforts in increasing LAIA utilization during a 1-year period at an academic medical center. **Description of Innovative Service:** The pharmacist-driven LAIA screening process was developed and implemented to use at the RUHS Arlington facility on August 1, 2017. All patients admitted to inpatient units are screened daily by clinical pharmacists. Patients who meet the inclusion criteria of the tool have a pharmacist place a progress note in the patient's chart recommending LAIA initiation, as well as flagging the patient's profile for the treatment team to see. The screening includes criteria such as the patient's diagnosis, tolerability of oral agents, allergies, and pregnancy, among other factors. **Impact of Patient Care:** A total of 2458 patients were screened during 1 year. Of those patients, 1761 patients were either currently on, or historically on, an antipsychotic. Pharmacist recommendations were placed in 794 medical records, with a total of 286 recommendations accepted. LAIA utilization increased from 13% prior to initiation of screening to 21.57% of patients on an antipsychotic receiving an LAIA. This demonstrates that pharmacist intervention has managed to maintain high LAIA utilization at this institution. **Conclusion:** This standardized pharmacist-driven LAIA screening process has increased the prescribing pattern of LAIAs at RUHS Arlington facility, surpassing average utilization rates and allowing for more patients to gain access to this treatment.

Improving Benzodiazepine Utilization With Supportive Tapering Strategies for Veterans in the Outpatient Setting

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Abstract Type: Innovative Practices. **Background:** Risks associated with benzodiazepine use may outweigh potential benefits, particularly in the elderly, diagnosis of PTSD or dementia, and with coprescribed opioids. Increased scrutiny has been placed on benzodiazepine prescribing within the Veterans Affairs system because the patient population tends to be older, with a higher prevalence of PTSD compared with the general population. Prescribers tasked to mitigate these risks may not have experience with benzodiazepine tapering, creating opportunities for collaboration with psychiatric pharmacists. **Description of the Innovative Service:** This collaboration took place as an outpatient service at the Salem VA Medical Center (VAMC). Patients were referred for benzodiazepine tapering by their primary care or mental health provider by entering a medication therapy management or drug information consult between May and December 2018. Consults were completed by a postgraduate year 2 pharmacy resident or supervising psychiatric pharmacist. Consult services included: patient interview, medical record review, patient education, and individualized taper schedules with frequent follow-up, provided in person or via telephone. Nonpharmacologic services or medication trials were offered, if clinically appropriate. **Impact on Patient Care:** From May to December 2018, the psychiatric pharmacist and resident provided benzodiazepine tapering consultation services for Salem VAMC providers. To date, 6 patients received clinical consultations for benzodiazepine tapering. Patients were male veterans receiving outpatient services at Salem VAMC, aged 44 to 96 years. Benzodiazepines prescribed were primarily for sleep (57%). All patient consults received medical record reviews and individualized taper schedules were provided to referring provider. Three patients (50%) were interviewed and received regular follow-up with the consultants. Patients who received additional follow-up consultations had a higher average dose reduction (79%) than those who followed exclusively by the referring provider (17%). Most consults (67%) were entered by primary care providers. **Conclusion:** Primary care providers in the Salem VAMC are tasked with mitigating risks associated with benzodiazepine use and face limitations with time and availability needed to provide individualized taper schedules with frequent follow-up. The greater reduction in total weekly benzodiazepine dose achieved in those with regular pharmacy follow-up represents reduced risk of harm and

may support increased involvement of psychiatric pharmacists in the outpatient setting.

Incorporating Mental Health First Aid Into Pharmacies and Pharmacy Schools: A Description of Methodology and Screening Results

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Abstract Type: Innovative Practices. **Background:** Mental health is misunderstood by many health care professionals and the general public alike. A total of 54.1 million adults in the United States will suffer from depression at some point in their lives; it is associated with low rates of counseling and pharmacotherapy. By 2025, demand for psychiatrists may exceed supply by 6090 to 15 600. Pharmacists are among the most highly respected health care professionals and have the highest rate of contact with the public. Mental Health First Aid (MHFA)–trained community pharmacists provide an outstanding opportunity to address the poor rates of identification and treatment. **Objectives:** (1) Demonstrate that a community pharmacy–based depression screening program is accepted by the public. (2) The screening is effective in identifying people with clinically significant depression. (3) MHFA-trained pharmacists are effective in providing referrals for mental health treatment. **Methods:** Pharmacy students and pharmacist staff trained in MHFA comentored by the PIC and a BCPP faculty member reviewed the university on-campus pharmacy existing workflow. An efficient procedure to obtain private screenings was designed and implemented into the prescription pickup workflow. Discussions and meetings were held with existing university health service counseling services to ensure a coordinated and unified message, avoid unnecessary duplication of services, and provide referral to off-campus services when appropriate. The depression screen includes a hierarchical PHQ-2/PHQ-9, given on an iPad mini with custom software when people arrive to pick up medications from the pharmacy. All positive screens will be followed by a private interview by a pharmacist with the patient to determine the need for a referral to a mental health provider, or urgent referral with escort. Results of screenings and referrals will be documented in the pharmacy computer system and flagged for follow-up to determine if referral was successful in establishing a recovery plan. **Outcomes:** (1) Description of the process followed to develop the depression screening program and coordinate with existing services. (2) Number of patients seen in the pharmacy and how many took the screen. (3) Rate of pharmacist interview outcomes for no services, on campus, off campus, and emergency services. (4) Results of follow-up to determine outcome of referral.

Increasing Access to Mental Health for Rural Veterans by Leveraging Clinical Pharmacy Specialist Providers

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Abstract Type: Innovative Practices. **Background/Rationale:** Increasing access to care for rural veterans through integration of mental health clinical pharmacy specialist (CPS) providers has the opportunity to increase quality of care to rural veterans who would not otherwise receive care. The CPS is an advanced practice provider with prescriptive authority to provide comprehensive medication management across the spectrum of chronic diseases encountered in mental health. **Description of the Innovative Service:** Forty mental health CPSs were hired between October 2016 and October 2017 through a $120 million 5-year grant to improve access to rural veterans. CPSs were evaluated on encounters monthly, number of veterans served, and the type of interventions provided. Encounters and veterans served were collected via a national database. CPS interventions were tracked utilizing a standardized template within the Veterans Affairs' electronic health record, called the Pharmacists Achieve Results with Medications Documentation (PhARMD) tool. This allowed the CPS to efficiently document select interventions made during patient care encounters. **Impact on Patient Care/Institution:** Through December 31, 2018, the mental health CPS served a total of 34 674 veterans, 54.5% of whom were rural. These accounted for 85 513 encounters where 164 095 interventions were documented using the PhARMD tool. The total top 4 mental health disease states managed by these CPSs were depression, posttraumatic stress disorder, anxiety, and insomnia. Most of the encounters were completed virtually, including via face to face (33.1%) and telephone (30.2%), and with clinical video telehealth comprising 11.2% of the total. **Conclusion:** With the shortage of mental health providers and the need for mental health access within rural settings, the CPS provider in mental health demonstrated increased access in underserved rural veterans by providing comprehensive

medication management for mental health conditions through multiple modalities.

Innovative Integration of Clinical Pharmacy Services in a Certified Community Behavioral Health Clinic

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Abstract Type: Innovative Practices. **Background:** The Excellence in Mental Health Act established funding for Certified Community Behavioral Health Clinics (CCBHCs) as an innovative service delivery model. This demonstration project aims to improve accessibility of wraparound mental health services, with an emphasis on the expansion of crisis care, applying evidence-based practices, and integrating physical health care. To our knowledge, no other CCBHC has incorporated a psychiatric clinical pharmacist into its care team, despite literature supporting pharmacist value in these collaborative roles. **Practice Description:** Northern Pines Mental Health Center established a CCBHC in rural Minnesota in 2017 with 1 full-time psychiatric clinical pharmacist and 1 postgraduate year 1 resident pharmacist. They coordinate with external providers and all programs within the CCBHC to provide clinical pharmacy services, such as targeted medication therapy management, consult services, pharmacogenomic testing, and patient education. Additionally, pharmacists contribute to high-quality care practices by presenting grand rounds, developing evidence-based protocols and treatment algorithms, and conducting quality improvement projects. **Impact on Patient Care:** In the first year of clinical pharmacist integration, 48 outpatient and 30 assertive community treatment (ACT) patients were seen, resulting in 148 and 110 drug therapy problems (DTPs) identified, respectively. Additionally, 70 (63.6%) of the ACT patients' DTPs related to medical conditions, demonstrating the vital role pharmacists play in integrating physical health care. Pharmacists have enhanced evidence-based practices through 5 grand rounds presentations and protocols for pharmacogenomic testing, metabolic syndrome, tardive dyskinesia, and medication storage. Feedback from providers, patients, and support staff has been overwhelmingly positive, allowing the current resident to initiate clinical pharmacy services in new programs. Thus far, the resident has conducted patient care services for 5 patients in the crisis stabilization unit and 17 patients in the substance use and co-occurring disorders program. Interim evaluation of these services has been promising, and ongoing data collection will report the outcomes of the resident's interventions. **Conclusion:** These novel collaborations showcase pharmacist expertise in optimizing medication therapy, improving patient care, and facilitating behavioral and physical health care integration. The pharmacist role described supports this CCBHC in achieving the enhanced care goals of the demonstration project and should be considered integral to this care model.

Innovative Practice: Pharmacist Management of Mental Health Treatment Through Collaborative Practice in a Center of Excellence for HIV/AIDS

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Abstract Type: Innovative Practices. **Background:** The East Tennessee State University Center of Excellence for HIV/AIDS (COE) is located in southern Appalachia, a region with a disproportionately high rate of mental health disorders and disparity in access to mental health care. High rates of substance use disorders and mental illness have been found in studies of HIV-infected adults and, as result, poor adherence to pharmacotherapy. The psychiatric pharmacist plays an important role in developing a comprehensive treatment plan, and this program is an innovative model for demonstrating improved outcomes through the collaborative work of providers and the psychiatric pharmacist. **Description of Innovative Services:** The COE developed a collaborative team practice including the psychiatric pharmacist with a physician, 2 nurse practitioners, and social workers providing case management and psychotherapy. From January 2017 to December 2018 the psychiatric pharmacist provided care 1-2 days per week. The salary of the pharmacist is paid by grant funding. Patients are referred to the psychiatric pharmacist for comprehensive medication management. The pharmacist provides detailed assessment, medical record review, ordering and review of laboratory testing via electronic medical record, and provision of in-service education. Patient visits are billed incident-to at evaluation and management code of 99211. The most common diagnoses seen include major depression, insomnia, bipolar disorder, anxiety disorders, and chronic pain syndrome. **Impact on Patient Care:** During the 2-year time period, the pharmacist managed the psychiatric care of approximately 95 patients, with 78% of these patients returning for an average of 4 to 5 visits during this period. Most patients received HIV, psychiatric, and primary care in the center. The collaborative practice allows patients to access services of the psychiatric pharmacist within 1 week of referral. Pharmacist intervention also increases patient adherence to the medication regimen, improving patient outcomes. This reduces the overall cost to the health care system. **Conclusion:** Comprehensive medication management by a psychiatric pharmacist in the COE for HIV/AIDS increases accessibility

to mental health care. This interprofessional team-based approach maximizes the use of available resources to improve patient outcomes. This innovative practice illustrates the opportunities for psychiatric pharmacists to effectively practice and be reimbursed for their services in specialty care settings.

Interagency and Interprofessional Collaboration to Expand Naloxone Usage in Central California

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Abstract Type: Innovative Practices. **Background:** Fresno, Kings, Madera, and Tulare, 4 major California counties in Central Valley (CV), all reported an increase in opioid deaths rate between 2015 and 2016. The Central Valley Opioid Safety Coalition (CVOSC) was formed to address the growing opioid epidemic. Members of the CVOSC interagencies and interprofessional collaboration, which included public health officials, medical providers, academicians, and advocates, developed and shared strategies to reduce prescription opioid misuse, abuse, and overdose deaths. We report the successful harm reduction efforts to increase naloxone (NLX) carrying by and training of NLX administration to law enforcement officers (LEAs) and first responders (FRs). **Description of the Innovative Service:** The CVOSC, in collaboration with the pharmacy faculty from California Health Sciences University College of Pharmacy (CHSU COP) presented on the opioid crisis and NLX harm reduction (HR) strategies to the Associate Chiefs of LEAs at their monthly meeting in August 2017. Naloxone administration training was provided by the CV Emergency Medical Service Agency. Standing orders were approved and implemented in these 4 counties. Outcomes data included the number of LEAs and FRs that participated in the NLX HR strategy, in-the-field NLX by FRs and LEAs, and opioid death rates since the formation of the CVOSC. **Impact on Public Health and Community:** A total of 21 LEAs and FRs participated in NLX HR strategies, and with a 13.6% increase of in-the-field NLX administration from 575 in 2016 to 653 in 2017. The following decreases in opioid-related deaths were observed by the end of 2017: 46% in Fresno, 36.9% in Madera, and 33.6% in Tulare counties. **Conclusion:** Naloxone HR strategies were highly supported and embraced by the LEAs, and at least in part may have contributed to the overall decrease in opioid deaths rates in 3 of the 4 counties for 2017. The CVOSC will continue to monitor these outcomes as data become available.

Interprofessional Clozapine Group as a Training Mechanism for Resident Psychiatrists

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Abstract Type: Innovative Practices. **Background/Rationale:** Clozapine is the only US Food and Drug Administration–approved medication for treatment-resistant schizophrenia (TRS). Approximately 30% of patients with schizophrenia are treatment resistant. Clozapine has also been shown to reduce the risk of recurrent suicidal behavior and hospitalizations in people with schizophrenia. However, clozapine is often underutilized or substantially delayed in clinical practice, partially due to the intense monitoring needed and provider discomfort with prescribing. **Description of Innovative Service:** This pilot program took place in an outpatient behavioral health clinic within the Henry Ford Health System in Detroit, MI. The clinic is also a training site for third-year resident psychiatrists. A pharmacist-run clozapine service was started within the clinic in 2017 after a medication use evaluation demonstrated low utilization of clozapine within the health system. The pharmacist-run service includes a monthly clozapine group that started in July 2018. Often a first-year pharmacy resident or a fourth-year pharmacy student provides patient medication education for the first 30 minutes of the monthly group, and the psychiatric pharmacist does the clinical interview and medication management for the remaining 30 minutes. In 2019 the pharmacist and psychiatry resident program director collaborated to create a training rotation for the third-year resident psychiatrists. The residents attended the existing clozapine group and participated in the medication management. They wrote progress notes in the patient's chart and billed E & M codes for the visits. An attending psychiatrist was also involved to ensure proper reimbursement. **Impact on Patient Care/Institution:** The collaborative group sessions increased the psychiatry residents' comfort with prescribing clozapine to multiple patients as they transition to full-time psychiatrists. Pharmacy residents and students increased their patient interaction skills and knowledge of clozapine and psychiatric disease states. Patients anecdotally reported enjoying the group. The patients also benefited from multiple disciplines being involved in their care. The institution will receive increased revenue from the clinic, as the pharmacist was not previously billing for visits.

Conclusion: A pharmacist-run clozapine group can be used to train psychiatry residents. This unique collaboration could lead to increased clozapine prescribing, patient satisfaction, and increased billing opportunities for the health system.

Lean Methodology Improves Opioid Use for Chronic Pain Among the Elderly

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Abstract Type: Innovative Practices. **Purpose:** The Centers for Disease Control and Prevention advises the use of nonopioid treatment modalities to curb the opioid epidemic. Medical communities are developing innovative practice models to provide safe and effective treatment for patients suffering with pain. Prevalence of chronic pain, opioid use, and suicide remains high in the geropsychiatric population. At Sheppard Pratt Health System, the geropsychiatry team achieved their goal of zero new opioid orders for osteoarthritis and chronic back pain while increasing the prescribing rate for evidence-based medications per our SAFE PAIN algorithm. **Summary:** Sheppard Pratt Health System is the largest private provider of psychiatric care in Maryland, with a total bed capacity of 300. All patients on the geropsychiatry unit were 65 years or older, and had a primary mental health diagnosis concomitant with osteoarthritis or chronic back pain. A multidisciplinary team utilized lean methodology to identify the root causes for noncompliance to evidence-based practices. Rate of prescribing new opioids and the rate of prescribing evidence-based alternative medications via the SAFE PAIN algorithm from March 1 to September 30, 2017, were compared to baseline. A team of pharmacists, nurses, psychiatrists, physical therapist, occupational therapist, music therapist, and a rehab therapist developed streamlined evidence-based multimodal interventions for pain therapy. **Results:** The lean methodology interventions led to zero new opioid orders between March 1 and September 30, 2017, a significant decrease compared with previous years ($P < .01$), whereas prescribing of evidence-based alternative medications increased significantly from the baseline period 2012-2016 to postimplementation 2017 ($P < .01$). Lean methodology interventions decreased waste in several processes. The new evidence-based streamlined practice model continues to sustain our goal of zero new opioid orders. **Future:** Our Information Systems team is currently cascading our treatment algorithm to a pain order set for all providers to utilize throughout our system.

Optimizing Pharmacy Services for Low-Threshold Buprenorphine Treatment

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Abstract Type: Innovative Practices. **Background:** In 2016, an estimated 5.8% of people 12 years and older (46 018 people) misused opioids in San Francisco, and 1.1% of people (8284 people) had an opioid use disorder (OUD). Opioid use continues to be prominent in San Francisco, with methadone and buprenorphine continuing to be evidence-based treatments. The San Francisco Department of Public Health (SFDPH) provides low-barrier buprenorphine treatment to high-risk clients in conjunction with Community Behavioral Health Services (CBHS) pharmacy. Recently, CBHS pharmacy began to take on more high-risk and complex clients referred from the SFDPH Street Medicine Team. From June 2017 to June 2018, the number of clients for CBHS pharmacy serves increased by 67% (118 to 197), and the number of prescriptions grew from 311 to 575 per month (an 85% increase). There are currently no described best practices for low-threshold buprenorphine pharmacy services. **Description of Innovative Service:** CBHS pharmacy serves a variety of clients, including those referred from primary care, the SFDPH Outpatient Buprenorphine Induction Clinic, and more high-risk clients referred from SMT. Unlike retail-based pharmacy settings, CBHS pharmacy is able to provide specialty services, such as urine drug screening, daily observed dosing, clinical pharmacists with extensive substance use experience, and the ability to accept clients without insurance. Currently, CBHS pharmacy is the only pharmacy in the city of San Francisco that provides these specialty services, increasing demand for providers to send their clients here. **Impact on Patient Care:** With the surge in volume and complexity of clients and expected future growth, CBHS Pharmacy has seen a need to undertake improvement efforts to improve efficiency, standardization, and clinical quality of services. We have thus far not evaluated the efficacy of the services we provide. This project aims to evaluate the quantity and value of these services in improving care for clients with OUD. Through retrospective chart review, we will collect client referral source, frequency of pickup, urine toxicology results, and dropout rates. **Conclusion:** We will report outcomes such as treatment adherence and results of quality-improvement interventions to better our pharmacy services for clients.

Pharmacist Led Antimicrobial Stewardship Program in a Psychiatric Hospital

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Abstract Type: Innovative Practices. **Background:** Antimicrobial stewardship is a well-validated approach to stem antimicrobial resistance and improve patient care. Although this is already a widespread practice in acute medical care, it is far less common within behavioral health facilities. The limited available literature on the topic validates this; however, it also demonstrates that implementing a stewardship program in an inpatient psychiatric hospital can significantly decrease resistance rates. The Joint Commission required implementation of antimicrobial stewardship programs as of January 1, 2017, urging action in all health care facilities to battle this public health threat. **Description of Innovative Practice:** Northern Light Acadia Hospital, a regional inpatient psychiatric facility in Bangor, ME, began the development and implementation of its antimicrobial stewardship program during the fall of 2016. The program was created by a clinical pharmacist who led a committee composed of a nurse practitioner, infection prevention nurse, and, later, a nurse educator. The program contains all of the components outlined in the Centers for Disease Control and Prevention's Core Elements of Hospital Antibiotic Stewardship Programs. Clinical pharmacist roles include daily review of antibiotic orders with assessment for accurate dose, duration, indication, diagnostic methods, and possibility for de-escalation. All antibiotic orders and interventions are logged and then reported on a quarterly basis. Providers consult with the clinical pharmacist regarding antimicrobial treatment choice as appropriate. **Impact on Patient Care:** During 2017, the first full year of the program, there were 251 antimicrobial orders, with interventions made on 102 (41%) of them. The interventions with the greatest impact on patient care included duration of therapy, with 30 interventions (29.4%), and de-escalation of therapy, with 22 interventions (21.5%). Interventions were well received by the medical providers, and a clinical guidance document for common infections was developed to help further antimicrobial stewardship. **Conclusion:** As antibiotic resistance continues to be a major challenge in health care, psychiatric facilities along with other health care institutions need to focus on being stewards of appropriate and responsible antibiotic therapy. Developing this program has demonstrated the opportunity pharmacists have for fostering antimicrobial stewardship within all health care settings.

Pharmacist Managed Lithium in an Inpatient Academic Medical Center

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Abstract Type: Innovative Practices. **Background:** Lithium is a commonly utilized narrow therapeutic index medication for the treatment of various mood disorders. A medication utilization evaluation performed regarding the use of lithium at an academic medical center found that 89.9% of patients received a lithium level within 24 hours of admission, with 6.1% of patients being hospitalized for 4 or more days prior to receiving a level. This was a concern due to multiple factors which may result in lithium toxicity. Additionally, signs of lithium toxicity may mimic other medical conditions for which patients seek treatment. **Description of Innovative Service:** A lithium protocol was developed and instituted to expand pharmacy consultative services within the Vanderbilt University Hospital inpatient systems. The protocol includes hospitalized patients of at least 16 years of age who are being maintained or initiated on lithium therapy. Pharmacists completing consultations were required to undergo a training assessment via the organization's learning management system. Pharmacist responsibilities include: patient interview and assessment, medical record review, medication dose adjustments as needed, laboratory monitoring as needed, and patient education. Requests for consultations are generated utilizing an order panel within the electronic medical record. **Impact on Patient Care:** Patients who receive pharmacist consultations should receive medication dose adjustments and laboratory monitoring which allows for the safe use of lithium within the Vanderbilt University Hospital inpatient facilities. Additionally, they should receive prompt measurement of lithium trough levels to help ensure appropriate continuation or discontinuation of therapy based on admission levels. This protocol will be implemented in January 2019, and outcomes regarding number of pharmacist consultations, estimated time savings to providers, and obtainment of lithium levels within 24 hours of admission were presented at the 2019 CPNP Annual Meeting. **Conclusion:** Patients who are admitted to inpatient medical and psychiatric facilities may not always receive appropriate laboratory testing at time of admission. It is hypothesized that provision of a pharmacist-managed lithium protocol and patient education services will improve safe and appropriate utilization of lithium therapy during an acute medical or psychiatric hospital stay.

Pharmacogenomics Pilot Program in a State Mental Health Hospital

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Abstract Type: Innovative Practices. **Background/Review of Literature:** The importance of pharmacogenomics has

gained much attention during the past few years, especially in psychiatry. The US Food and Drug Administration has recognized more than 100 pharmacogenomic biomarkers in which gene interactions can have an effect in therapy. Pharmacogenomic data can aid decisions about the most appropriate therapy for a patient, and pharmacists play an important role in navigating this new, innovative field. **Description of Practice or Patient History:** This pilot program took place at the Middle Tennessee Mental Health Institute (MTMHI) in Nashville, TN, from June to October 2018. Prescribers were asked to identify patients who are receiving extended treatment that could benefit from pharmacogenomic testing. Selected patients had pharmacogenomic testing completed, and the results were reviewed by a pharmacist, who made appropriate recommendations to the responsible prescriber. Data were then collected regarding accepted recommendations and prescribers were surveyed regarding their opinion on the efficacy of the recommendations, and attitudes toward pharmacogenomics. **Impact on Patient Care:** Prescribers at MTMHI identified a total of 30 patients for pharmacogenomics testing, and 26 patients received results. Of these 26 patients, 20 had actionable drug-gene interactions resulting in recommendations being made to prescribers. Recommendations were broken down into 4 categories, including change in psychiatric treatment, change in nonpsychiatric medical treatment, monitor for reduced efficacy, or monitor for increased adverse effects. Most of the recommendations (20 medications for 17 patients) were to monitor for either reduced efficacy or for increased adverse effects. Six patients (23%) possessed phenotypes which prompted the potential for change in their psychiatric treatment. Of those, medications were changed 57% of the time. Only 1 patient warranted a significant change to their nonpsychiatric medical treatment. On a scale of 1-10, prescribers rated the effectiveness of the genomics results to be approximately 4.4. **Conclusion:** MTMHI had mixed results with pharmacogenomics testing. The appropriate selection of patients is critical for receiving actionable outcomes. In order to make the tests economically feasible, patients must be identified for testing early in their psychiatric treatment. More research is needed in this field in order to evaluate long-term efficacy and cost.

Provision of a Drug Deactivation System for Unused Opioid Supply at Surgical Dismissal: Opportunity to Reduce Community Opioid Supply

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[1] *Mayo Clinic*

Abstract Type: Innovative Practices. **Background:** Opioid abuse is a growing concern in communities in the United States and around the world. In 2016, an estimated 11.5 million Americans had misused prescription pain relievers in the past year; 53% of those people sourced medications from a friend or relative. The vast majority of surgical patients receive opioid prescriptions at hospital dismissal, and disposal information is inconsistently provided. Patient education about the importance of opioid disposal has been shown to be effective; however, traditional disposal methods do not remove diversion, poisoning, and environmental pollution risks. **Description of Innovative Service:** This pilot study was conducted among opioid-naive postoperative patients discharged from the Mayo Clinic Hospital, Rochester, MN, campus. Patients picking up an opioid prescription from the hospital outpatient pharmacy discharged from 2 identified patient care units were given a drug deactivation system and instruction sheet. Approximately 3 weeks after dismissal, patients were surveyed by phone to assess quantity remaining, disposition of the leftover medication, and satisfaction with the quantity of medication prescribed. Patients who used the drug deactivation system rated satisfaction with the process on a Likert scale; patients who did not use the system provided a reason for not using the bag. **Impact on Patient Care:** The survey center contacted 135 of 200 patients (68%) for study analysis. Of these patients, 97 (72%) reported leftover opioids; 22 of those patients (23%) used the disposal system to destroy the remaining supply. Additionally, 34 patients (35%) reported they planned to use the disposal bag on a future date once they were confident they no longer needed pain medication. Of those using the deactivation system, 21 (95.5%) reported that they were very satisfied with the disposal process. **Conclusion:** Provision of a drug deactivation system to surgical patients provides a safe, convenient medication disposal process. This study suggests that patients are willing to use the system and are satisfied with the process. A drug deactivation system, in combination with conservative prescribing practices and patient education about importance of disposal, may help reduce the quantity of prescription opioids available for diversion in the community.

Purdue University CPNP Chapter and the Opioid Crisis: The BoilerwoRx Project: Mobile Public Health Advocacy

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Abstract Type: Innovative Practices. **Background:** The opioid crisis has gripped the nation and is prevalent in many communities, including college campuses. College students are particularly prone to experiment with and use

illicit drugs and prescription medications, which can lead to addiction and unintentional overdoses. The Purdue University CPNP student chapter worked with the Purdue College of Pharmacy to launch the BoilerWoRx Project, a mobile public health initiative that provides education to combat the opioid epidemic in the community. **Description of Innovative Service:** The BoilerwoRx Project prepares students and the community to respond to public health emergencies. Our main goal is to provide educational materials and training to teach community members about the role of naloxone to reverse opioid overdoses, treatment of substance use disorders, drug take-back initiatives, and resources provided by syringe services programs. We have hosted numerous local events on our campus and in Tippecanoe County, and we recently added new university student and community partners so that we can expand our reach throughout the state of Indiana. **Impact on Patient Care:** Our program distributes materials to students, local stakeholders, community members, health care professionals, and community health workers in order to pursue solutions to the opioid crisis. We educate community members on the procedure for administration of naloxone, as well as provide a list of resources and contact information for counselors and treatment centers for those who are seeking treatment. Community members will be offered support and direction to utilize life-saving resources, such as counseling and local syringe services programs, to promote harm reduction in our community. We also provide drug destruction bags and distribute naloxone free of charge to community members, to encourage the removal of potentially abused medications from their households and provide life-saving treatment. **Conclusion:** The BoilerWoRx project continues to grow, adding community partners, to offer our university and the surrounding community relevant information, training, materials, and education to mitigate opioid abuse and reduce accidental overdoses. This program will train students in professional advocacy and life-long community engagement. We anticipate that our program will increase education and access to treatment for those affected by opioid use disorders.

Transforming Lives: The Innovative Role of an Opioid Overdose Prevention Pharmacist

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Abstract Type: Innovative Practices. **Background:** North Americans continue to experience significant opioid-related morbidity and mortality. In response to Canada's opioid crisis, the federal government removed naloxone from the Prescription Drug List, making it available without a prescription from pharmacies in March 2016. Subsequently, Ontario's provincial government further improved access to take-home naloxone kits by making them free of charge to the public through community pharmacies. Ontario pharmacists are well positioned to reduce harms associated with opioid use. **Description of Innovative Service:** Changes in legislation and a sharp increase in opioid-related deaths locally prompted the Centre for Addiction and Mental Health (CAMH) to implement an Opioid Overdose Prevention Initiative, which included the creation of an Opioid Overdose Prevention Pharmacist position. The pharmacist distributes naloxone kits and educates patients, caregivers, and staff on topics such as the impact of the opioid epidemic, and opioid overdose prevention and management, including naloxone administration. Access to this content has expanded across the organization via the development of a sustainable, interactive, online e-module for staff. Additionally, the pharmacist led the creation of tools to standardize practice, including a documentation form within the electronic health record, and resources to facilitate education, including a video demonstrating how to prevent and respond to an opioid overdose. **Impact on Patient Care/Institution:** Between August 2017 and December 2018, the pharmacist provided opioid overdose education to more than 800 patients and/or caregivers and 420 staff. They single-handedly distributed 770 take-home naloxone kits during this time, which represents 41.4% of all kits dispensed from CAMH. To assess the impact of the online e-module and in-person training sessions for staff, pretraining and posttraining surveys were implemented. Preliminary results indicate training significantly increased staff willingness to "engage patients in conversations about harm reduction," "assess risk of overdose," and "recommend naloxone kits" ($n = 274$; $P < .001$). **Conclusion:** Government support for pharmacists' role in harm reduction, reimbursement for take-home naloxone kits, and training, along with interprofessional collaboration, were key in creating and facilitating the success of this role. Furthermore, creating an evaluation framework upon initiation of the role generated necessary data to support the value of extending organizational funding for the pharmacist position.

Using Algorithmic Order Questions to Streamline the CIWA Order Set

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Abstract Type: Innovative Practices. **Background:** At Parkland Health and Hospital System, a review of CIWA orders revealed an overutilization of the CIWA order set (only ~10% of patients with recent alcohol use), poor adherence to recheck intervals (28.5% adherence), and

poor medication administration adherence (12.2% of patients with ≥75% of orders administered correctly). Factors leading to these errors were identified as poor understanding of the role of CIWA-Ar monitoring in treating alcohol withdrawal, lack of consistent education on how to utilize the CIWA-Ar tool, and a confusing and bulky order set with no decision support. An interdisciplinary team convened to address these issues, which included provider (intensive care unit specialist), nursing operation specialist, rapid assessment team nurse, psychiatric clinical pharmacy specialist, EPIC order specialist, and pharmacy IT specialist. **Methods:** There were 2 iterations of the order set with the goal of simplifying the medication ordering process, improving patient selection and reducing the amount of inappropriate orders. Four order questions were developed, along with a decision algorithm tree to determine the appropriate order: CIWA scoring only or CIWA order set (nursing and PRN lorazepam orders). The first iteration, released October 31, 2017, was found to be difficult to navigate. A new version, released March 30, 2018, contained an update to EPIC that allowed nested panels for the order questions. Education was provided to providers, nurses, and pharmacists and will include ongoing annual nursing education. **Impact on Patient Care/Institution:** Prior to the CIWA order set update, there were ~157 orders per month (n = 1102), and after, there were ~149 per month. Interestingly, there were a similar amount of CIWA scoring only orders of ~162 per month (n = 1294), which suggests providers are still utilizing the CIWA-Ar in a similar fashion. Medication adherence appears to have improved, with 74% of patients with a score ≥8 receiving medication. **Conclusion:** Utilizing decision support to streamline disease-specific medication use can be beneficial and result in more appropriate medication utilization, improved safety, and improved patient care. In this case, there was an improvement in accessibility of PRN lorazepam, with clear administration and monitoring parameters, which led to more patients receiving a medication known to be effective in the prevention of alcohol withdrawal complications.

Aripiprazole-Induced Syndrome of Inappropriate Antidiuretic Syndrome: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Several psychotropics have been documented to cause syndrome of inappropriate antidiuretic syndrome (SIADH); however, it remains unclear if antipsychotics, specifically aripiprazole, are associated with SIADH. A small number of antipsychotics have been associated with hyponatremia (a serum sodium level less than 135 mEq/L), theorized due to serotonin-mediated inappropriate release of ADH. This disruption of ADH release may lead to SIADH. Aripiprazole's unique mechanism of action may increase the risk of SIADH. **Patient History:** A 48-year-old male with a past medical history of HIV, adrenal insufficiency, bipolar disorder, and hypothyroidism, presented to the emergency department complaining of gastrointestinal upset, mild confusion, burning sensation in the head, and cervical stiffness for several days. The patient's social history was noncontributory and reports no changes in physical activity or fluid intake. Laboratory findings were significant for hyponatremia (115 mmol/L) and decreased serum osmolality (237 mOsm/kg) while remaining clinically euvolemic. Urinalysis revealed hyponatremia (81 mmol/L) and an elevated osmolality (519 mOsm/kg). The patient's aripiprazole 10 mg (initiated within 4 weeks prior to hospitalization) was held, fluid restriction started (<750 mL/d), and sodium supplementation initiated (NaCl 1 g tablet every 8 hours). The patient's serum sodium was monitored every 8 hours with a correction goal of 4-6 mEq/L/24 h. On day 3 of treatment, substantial speech latency, blurred vision, and slowed psychomotor response were noted. Initial treatments, monitoring parameters, and correction goals were continued. Gradual improvement of symptoms, mental status, and serum sodium concentration were seen over the next few days. On day 8, the patient had returned to baseline and a sodium level of 135mEq/L was achieved. **Review of Literature:** Using relevant terms and keywords (Aripiprazole, SIADH, Hyponatremia), a PubMed search was conducted. Registered clinical trials, case reports, and reviews between January 2006 and January 2019 were considered. The search yielded a total of 15 articles for initial review. Subsequently, 5 articles were identified as meeting the strict inclusion criteria and formed the basis of this report. **Conclusion:** Per the Naranjo scale, a score of 4 indicated a possible cause between the initiation of aripiprazole and the development of SIADH. Clinicians should be cognizant that use of aripiprazole may contribute to drug-induced SIADH.

Cannabinoid Hyperemesis Syndrome in Pregnancy: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Cannabinoid hyperemesis syndrome (CHS) is becoming more prevalent secondary to escalating rates of cannabis use. CHS is characterized by cyclical vomiting, frequent hot water bathing, and chronic cannabis use. Missed

diagnosis, especially in pregnancy, may delay treatment and prolong extensive medical assessments. **Patient History:** A 19-year-old African-American female at approximately 20 weeks' gestation presented to the emergency department complaining of nausea, vomiting, and abdominal pain for 2-3 days. She reported inability to keep food or water down and had lost 10 pounds. The patient endorsed a long history of these episodes. The patient received intravenous fluids and promethazine but did not experience any relief. She reported that ondansetron aggravated her symptoms, but diphenhydramine and hot showers provided symptom relief. On evaluation, physical exam and vitals were normal except for heart rate of 106 beats per minute and blood pressure of 163/75 mm Hg. Her comprehensive metabolic panel revealed normal liver function, lipase, TSH, serum creatinine, and electrolytes, except for a mildly low sodium level of 132 mmol/L. Extensive lab work and imagining ruled out ectopic pregnancy and appendicitis. The patient disclosed discontinuation of daily cannabis use 1 week ago. After evaluation by gastroenterology and psychiatry, the patient was diagnosed with CHS. She was initiated on dronabinol to "taper" off cannabis and was educated on cannabis cessation for ultimate treatment. The patient did not meet criteria for cannabis withdrawal. After improvement in symptoms, the patient was discharged home on a 2-week supply of dronabinol and promethazine. **Review of Literature:** The only known treatment for complete resolution of symptoms is cannabis cessation. Other treatments that have been used for CHS may negatively affect the fetus, including antipsychotics, propranolol, dronabinol, antiemetics, and benzodiazepines. Hot water bathing is a learned compulsive behavior and has displayed consistent symptom relief. Capsaicin also has been shown to be an effective treatment. **Conclusion:** This case report highlights the importance of recognizing common characteristics of CHS, especially in pregnant women with a history of cannabis use. Treatment of choice is cannabis cessation regardless of pregnancy status.

Clozapine's Application in Treatment Resistant Depression: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** There is no clear consensus on the criteria needed to diagnose a patient with treatment-resistant depression (TRD). Common cases usually are patients who have failed 2 or more antidepressant trials. This poses difficulties for providers when patients have tried most if not all first-line agents. A trial is considered a failure when the provider has confirmed accurate dosing, proper medication adherence, and reasonable treatment duration. **Patient History:** The patient is a 37-year-old male with a past medical history significant for obesity, obstructive sleep apnea, and major depressive disorder (MDD) who presents to clinic inquiring about ketamine treatment. Originally diagnosed with MDD in 2009, the patient has failed multiple antidepressants, electroconvulsive therapy, and transcranial magnetic stimulation. The patient reports requiring inpatient psychiatric care 10 times since 2009, has attempted suicide twice, and reports episodes of catatonia during severe depressive episodes. Per chart review, the patient does not have a history of mania, psychosis, or paranoia. However, upon interview, the patient reports occasionally having derogatory discussions with self but denies hearing other voices. The patient reports passive suicidality and is found to have a Patient Health Questionnaire-9 of 23. Due to a concern of psychosis, clozapine was initiated as an adjunct to selegiline 9 mg/24 h patch once daily and quetiapine 400 mg once daily. During 2 months, the patient was titrated to a dose of clozapine 100 mg once daily. After stabilization on this dose, the patient subjectively reported improvement in mood, denied discussions with self, and denied current suicidal ideation. Further dose titrations were limited by dizziness and orthostatic hypotension. **Review of Literature:** A MEDLINE search only revealed 1 case of using clozapine as an adjunctive agent in TRD. Similar to our patient, the addition of clozapine was overall beneficial toward the patient's treatment goals. A study by Rogoz also supported the adjunctive use of antipsychotics, including clozapine, for the management of TRD, which showed positive results. **Conclusion:** This case report adds to the growing evidence of clozapine's efficacy as an adjunctive medication in the management of TRD. However, providers should consider the adverse events of clozapine when prescribing.

Concurrent Clonidine Abuse in a Patient With Opioid Use Disorder: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Clonidine is a centrally acting alpha-2 selective adrenergic receptor agonist used to treat hypertension and to control or prevent withdrawal in patients with opioid and alcohol use disorders. Case reports describe abuse of clonidine alone or in combination with methadone, codeine, or heroin. Clonidine reportedly boosts and extends the opioid-related high and reduces the amount of psychoac-

tive drug needed. Clonidine may be easier to acquire than other drugs of abuse due to limited awareness of its abuse potential and low cost. **Patient History:** The patient is a 66-year-old white male who presented to the emergency department (ED) with 10/10 lower back pain after experiencing a fall at his home possibly due to hypotension. The patient has a medical history of opioid use disorder, cannabis use disorder, stimulant use disorder (cocaine), bipolar I disorder, generalized anxiety disorder, hypertension, hepatitis C, benign prostatic hyperplasia, coronary arteriosclerosis, and stage IV chronic kidney disease. The patient denies family history of substance abuse, has been married for 40 years, and is currently on parole for cocaine possession. His pertinent medications include clonidine 0.2 mg, 19 tablets by mouth at bedtime, clonidine patch 0.3 mg, 1 patch every 7 days, methadone 170 mg daily, sertraline 50 mg daily, and divalproex ER 1000 mg at bedtime. His blood pressure and serum creatinine were elevated in the emergency department (ED), and his urine drug screen was positive for opioids (methadone). His valproic acid level was undetectable, and all other labs were within normal limits. Psychiatry and cardiology services were consulted in the ED with recommendations to restart clonidine and methadone while also adding losartan 25 mg to assist with rebound hypertension associated with the clonidine withdrawal. The patient was discharged with the plan to follow up with mental health for continued clonidine tapering. **Review of Literature:** A PubMed/Medline Ovid search revealed 4 previous reports which detailed clonidine abuse and acute management/tapering of clonidine devoid of adverse effects. **Conclusion:** Usage of clonidine in the treatment of opioid detoxification remains controversial. Clonidine abuse is highly underestimated and requires more attention among healthcare providers who concurrently prescribe clonidine and opioids.

Drug Interactions and Pharmacokinetic Changes With a Carbamazepine Taper: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Carbamazepine is a potent CYP3A4 inducer, and there is considerable evidence regarding the induction of other metabolic pathways. The standard of care for the treatment of hepatitis C (HCV) is the use of direct-acting antiviral agents (eg, Mavyret), which are not recommended with concurrent carbamazepine due to metabolic induction of the HCV antiviral agents, and therefore decreased medication exposure and loss of efficacy. **Patient History and Intervention:** The patient is a 65-year-old African American male with a past medical history significant for schizophrenia (first hospitalized 1989), HCV (first tested positive 2002), alcohol use disorder in remission, and history of complex partial seizure. Social history was noncontributory. The patient was seeking HCV treatment and transferred to a mental health clinical pharmacist to assist medication management. The patient's psychotropic medication regimen at that time included carbamazepine, olanzapine, and risperidone. There was a joint decision to taper off carbamazepine and then initiate Mavyret given the precluding drug-drug interaction. Carbamazepine was initially started in 1987 for complex partial seizure, then later increased to address symptoms of schizophrenia. It was decided to replace carbamazepine with lamotrigine via cross-titration to maintain mood stability and seizure control. There were multiple dose adjustments made during cross-titration, including discontinuing risperidone. Plasma drug concentrations were also periodically monitored to include objective data and help guide treatment. After carbamazepine was stopped and enzyme activity stabilized, Mavyret was started and patient achieved an undetectable HCV viral load 4 weeks posttreatment, indicating presumable cure (12-week posttreatment viral load pending). **Review of Literature:** A PubMed and MEDLINE review identified no literature assessing the clinical impact or pharmacokinetic considerations of lamotrigine, olanzapine, and risperidone amidst a carbamazepine taper in a single patient. There are numerous studies supporting the enzyme-inducing effects of carbamazepine via pharmacokinetic monitoring. **Conclusion:** The patient successfully cross-titrated from carbamazepine to lamotrigine, reduced medication regimen to antipsychotic monotherapy, and completed a treatment course of Mavyret with presumable HCV cure. The plasma drug concentrations predominantly correlated with the enzyme-inducing effect of carbamazepine, with some unexpected results. The case elucidates the clinical impact of carbamazepine's enzyme induction, including the utility of plasma drug concentration monitoring as a reliable marker.

High Dose of Valproic Acid to Achieve Therapeutic Concentrations in the Setting of Phenobarbital Induction: Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Valproic acid (VPA) is a highly utilized antiepileptic drug (AED) with a variety of approved indications, including epilepsy and psychiatric disorders. Dose requirements of VPA are highly variable, with a recommended maximum dose of 60 mg/kg/d. Phenobarbital is another broad-spectrum AED used to control seizures. There is well-

documented evidence of the effects of metabolism of both drugs when used concomitantly. Drugs that affect the level of expression of hepatic enzymes, particularly those that elevate glucuronosyltransferases, may increase the clearance of VPA, and VPA may increase serum concentration of barbiturates. **Patient History:** MB is a 21-year-old African American male with a past medical history significant for juvenile absence epilepsy, psychogenic nonepileptic seizure, multiple head injuries, migraine headache, and bipolar disorder. His social history was noncontributory, and home medications included clonazepam 1 mg TID, levetiracetim 100 mg TID, phenobarbital 100 mg BID, and divalproex sodium 1000 mg TID, all taken orally. He was admitted for witnessed breakthrough seizures with the following drug levels (µg/mL): VPA of 55.2, phenobarbital of 31.9, and levetiracetam of 7.8. All other labs and vitals were not significant and were within normal limits. The patient received loading doses of both phenobarbital and VPA, followed by maintenance regimens. After phenobarbital load, VPA serum levels decreased from 13.7 to 10.9 µg/mL, and the patient had 14, 29, and 17 seizures on days 1, 2, and 3 of therapy, respectively. Phenobarbital was discontinued on day 6, and VPA was increased to 10 500 mg (162.8 mg/kg). This dose is 2.7 times that recommended and was continued for 5 days until the patient stopped seizing and VPA serum levels became therapeutic at 78.1 µg/mL. **Review of Literature:** A MEDLINE search revealed one report by Jackson et al (2015) of high-dose VPA needed to obtain therapeutic levels. VPA and phenobarbital have a well-documented interaction in which VPA increases phenobarbital levels; however, there have been no case reports of phenobarbital decreasing VPA levels. **Conclusion:** In this case report, the use of phenobarbital resulted in subtherapeutic VPA levels, requiring higher than recommended doses of VPA to achieve therapeutic levels.

Hyperprolactinemia in a Postmenopausal Woman on Risperidone - A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Hyperprolactinemia is an elevation in prolactin and may be caused by prolactinomas, caused by certain pharmacologic agents, or be idiopathic. Individuals with hyperprolactinemia may develop galactorrhea, gynecomastia, hypogonadism, infertility, and/or bone loss. Antipsychotic medications that block D2 receptors are known to be one pharmacologic cause of hyperprolactinemia. **Patient History:** The patient is a 58-year-old African American postmenopausal female with a past medical history significant for schizophrenia and hyperprolactinemia. The patient travels abroad for several months at a time due to her husband's job as a missionary. Earliest medical records indicated a prolactinoma that was managed with bromocriptine until its discontinuation in 2011. Her prolactin is checked on a near yearly basis. The patient has trialed a number of antipsychotic medications but remains most stable on her current regimen of risperidone 3 mg twice daily (dose decrease had resulted in acute exacerbation of schizophrenia). During an annual visit with her psychiatrist, labs were collected, including her prolactin. At that time, her level was elevated at 110 ng/mL (reference: 4.8-23.3 ng/mL). The patient was then referred to the psychiatric pharmacist for further management. The patient denied any signs or symptoms of hyperprolactinemia and was to be traveling abroad in less than a month from that visit. No imaging was available at that time to determine exact etiology of the hyperprolactinemia. Orders were sent for magnetic resonance imaging (MRI) of her pituitary as well as a DEXA scan. Several months later, the patient returned to complete testing. The MRI result was normal and DEXA scan revealed osteoporosis. The patient refused aripiprazole augmentation, but agreed with reinitiation of bromocriptine as well as alendronate. **Review of Literature:** A PubMed search for treatment of antipsychotic-induced hyperprolactinemia resulted in a number of articles discussing the prevalence of the adverse effect and several treatment options, including the use of adjunctive aripiprazole, discontinuation of antipsychotic medications, and utilization of bromocriptine. **Conclusion:** Although one etiology of hyperprolactinemia may be use of antipsychotic medications, exact etiology was unclear in this particular case given this patient's history. Patient-centered care and collaboration with multiple care teams was necessary to best treat the patient, not the lab.

Impact of Ramadan Fasting on Risk of Acute Adverse Events Following Initiation of Psychotropic Medications for Psychiatric Stabilization

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Abstract Type: Therapeutic Case Report. **Background:** Ramadan is a religious month dedicated to prayer, fasting, and feasting. Recently, there has been an increased interest among health care providers regarding possible health-related complications as a consequence of Ramadan fasting. **Complete Patient History:** In May 2018, a 34-year-old female patient was admitted for inpatient

hospitalization to a New York State Psychiatric Institute. She has a diagnosis of schizoaffective disorder, depressive type. The earliest date of diagnosis is unclear; however, the patient reports an increase in symptoms during her early twenties, when she began abusing cocaine. Upon admission, the patient was initiated on haloperidol, lithium, and clozapine. Medication administration and mealtimes were altered to accommodate her celebration of Ramadan. The patient complained of dizziness and nausea following initiation of clozapine, and as the dose was increased. Due to psychiatric exacerbation, inpatient hospitalization, and continuous monitoring, clozapine titration occurred quickly. Vital signs were consistently monitored throughout her fast. Upon admission, the patient's blood pressure was 137/85 mm Hg. The patient's blood pressure continued to decrease as her clozapine dose was increased. On the 18th day of Ramadan, the patient's blood pressure was 87/58 mm Hg, leaving the patient bedridden due to dizziness and weakness. On the 21st day of Ramadan, the patient broke her fast, stating that "taking my medicine on an empty stomach was making me violently ill. God understands why I can't continue the fast." Five days after breaking the fast, the patient's blood pressure increased to 134/95 mm Hg. **Review of Literature:** Individuals participating in Ramadan tend to have disrupted sleep cycles, including nocturnal sleep reduction and broken sleep patterns, which can impact overall health. Additional health-related complications that have been reported include dehydration, and changes in blood glucose, blood pressure, lipid panel, body weight, and psychiatric symptoms. **Conclusion:** Clozapine was initiated after the patient began fasting. She expressed signs and symptoms of hypotension, which were objectively confirmed. The declining blood pressure while fasting, and rapid increase once the fast was broken, confirms that Ramadan fasting in addition to psychotropic pharmacotherapy can increase a patient's risk of adverse events.

Minocycline Use in a Patient With Schizophrenia: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Schizophrenia affects approximately 3.5 million people in the United States. Hypothesized pathophysiology includes an imbalance of dopamine in the brain's mesolimbic and mesocorticol pathways. Antipsychotics are the drug of choice for regulating dopamine transmission; however, many patients cannot tolerate adverse effects or observe minimal improvements in negative symptoms. Recent studies have shown elevated inflammatory cytokines in patients with schizophrenia. Minocycline is a semisynthetic tetracycline derivative with excellent brain tissue penetration and has displayed neuroprotective and anti-inflammatory properties. **Review of Literature:** In 2006, case reports of a 23- and a 61-year-old male were published in Japan. Patients had a history of schizophrenia and received minocycline 150 mg daily for infection. The patients experienced improvement in negative symptoms of schizophrenia that returned once minocycline was discontinued. Both patients were symptom-free upon discharge with minocycline and haloperidol. In 2018, a trial was conducted in China to determine if minocycline added to risperidone impacted negative symptoms of schizophrenia. Minocycline 200 mg daily had a significant reduction in negative symptoms versus 100 mg and placebo. **Patient History:** This report details a 25-year-old female with schizophrenia and anxiety. She was brought to the emergency department for hallucinations and delusions secondary to mediation nonadherence. While inpatient, she was isolated to her room, restless, internally stimulated, and unkempt. She was started on lorazepam 0.5 mg 3 times daily and quetiapine 200-450 mg daily with no improvements. The provider discussed potential use of minocycline with the pharmacy team. Following initiation of treatment with minocycline, a notable change in social behavior was observed, and she was seen in the common area and at group sessions. The provider concluded that the patient was ready for discharge, with no reported side effects, notable improvements in her negative symptoms, moderate improvements in her psychosis, and a return to her baseline delusions. She was discharged on risperidone 4 mg at bedtime and minocycline 150 mg once daily. **Conclusions:** In our case report, an improvement in the negative symptoms of schizophrenia was observed when minocycline was added to a second-generation antipsychotic. Overall, our case report found the benefits of minocycline to outweigh the risk when treating the negative symptoms of schizophrenia.

Olanzapine-Induced Edema Decreasing Serum Lithium Concentrations: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Edema is an uncommon side effect of olanzapine, with unclear mechanism(s). In short-term, placebo-controlled trials of olanzapine with adjunctive lithium or valproate for bipolar I disorder, peripheral edema leading to discontinuation occurred in 1% of participants, with an incidence of 6% (versus 4% with placebo). Peripheral edema has been reported with other second-generation

antipsychotics, including quetiapine and risperidone. A PubMed search yielded 12 cases and a retrospective cohort. Although not the first report of a patient developing edema on lithium and olanzapine, this is the first to report an effect on lithium levels. **Patient History:** A 27-year-old female with a past medical history significant for polysubstance abuse, bipolar I disorder, and chronic hepatitis C presented to psychiatric emergency services with acute mania. Olanzapine was started upon admission and titrated to 30 mg daily during 8 days. Lithium 300 mg twice daily was started on hospital day (HD) 4 and titrated to 900 mg in the morning, 1050 mg in the evening on HD 18. Morning lithium levels were 0.54 to 0.9 mEq/L until reaching 1.20 mEq/L HD 22. Weight increased from 83.9 kg on admission to 92.9 kg HD 15 (11% increase). Mild transaminitis upon admission (AST 55 IU/L, ALT 100 IU/L) worsened by HD 22 (AST 292 IU/L, ALT 512 IU/L), with normal total bilirubin (0.9 mg/dL) and alkaline phosphatase (75 IU/L). Due to worsening edema and transaminitis, olanzapine was decreased to 5 mg/20 mg HD 15. Bilateral erythema and edema in distal extremities with mild pruritus continued to HD 20. A risperidone cross-taper started HD 24, and olanzapine was discontinued HD 25. Edema improved within 24 hours of discontinuing olanzapine and weight dropped to 91.9 kg by discharge, upon which lithium was decreased to 450 mg/900 mg due to an increased level of 1.29 mEq/L. **Conclusion:** In our case report, olanzapine initiation was associated with treatment-emergent edema and unexpectedly low lithium levels thought secondary to edema-related third-spacing. Both edema and low lithium levels resolved upon olanzapine discontinuation. Clinicians should be aware of this rare side effect and its potential effect on other medication levels, and should consider discontinuation if treatment-emergent edema occurs.

Ropinirole Induced Olfactory Hallucinations

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Abstract Type: Therapeutic Case Report. **Background:** Multiple medications can induce psychosis at therapeutic doses. Specifically, drugs with strong dopaminergic effects may play a role in producing hallucinations and delusions. When assessing hallucinations, olfactory hallucinations are not usually addressed, which may lead to this type of hallucination being underreported. **Patient History:** The patient is a 77-year-old white male with a past medical history of coronary artery disease, type 2 diabetes mellitus, hypertension, hyperlipidemia, atrial fibrillation, ulcerative colitis, restless leg syndrome, chronic kidney disease, posttraumatic stress disorder, major depressive disorder, generalized anxiety disorder, alcohol use disorder, adjustment disorder, and tardive dyskinesia. The patient was admitted to the community living center for wound vac care from a postop surgical wound bleed and hematoma. Vitals and serum labs were within normal limits. Relevant medications at this time included amoxicillin/clavulanate, melatonin, oxycodone, quetiapine, venlafaxine, and ropinirole 0.5 mg every morning, at noon, and 1 mg every evening. Psychiatry was consulted for medication management and assessment of the patient's report of "a mechanical smell that is unlike anything else." The patient reported the smell has subsided since it first started 3 years ago but that the smell can intensify to the point of diminishing his appetite. Neurology was also consulted, and his EEG was found to be normal. It was noted during the medication review, the patient's current ropinirole dose was increased while he was inpatient. His current home dose was 0.5 mg BID. The psychiatry team decided to decrease the ropinirole to 0.5 mg at bedtime as needed. The patient subsequently reported that since lowering the dose of ropinirole there have been no hallucinations for at least 1 week. **Review of Literature:** PubMed search revealed no published case reports of ropinirole-induced olfactory hallucinations and only one published case report of pramipexole-induced olfactory hallucinations. **Conclusion:** A relationship was observed between the patient's increased ropinirole dose and olfactory hallucinations. When the dose was decreased, hallucinations subsided. Clinicians should be aware of the potential medications, such as dopamine agonists, that can predispose patients to an increased risk of hallucinations.

Roux-en-Y Gastric Bypass and Antipsychotic Therapeutic Drug Monitoring: Two Cases

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Abstract Type: Therapeutic Case Report. **Background:** Many patients with psychiatric conditions undergo bariatric surgery in the form of Roux-en-Y gastric bypass (RYGB). The RYGB procedure alters medication disintegration, dissolution, metabolism, and excretion. These pharmacokinetic alterations may have significant impact on drug response. **Patient Histories:** The first patient is a 42-year-old female who presented for inpatient psychiatric hospitalization following an overdose of risperidone. Her past medical history includes borderline personality disorder, psychotic disorder, factitious disorder, bipolar disorder, polysubstance use disorder, seizure disorder, posttraumatic stress disorder, and hypertension. Surgical history is significant for an RYGB. Medications on

admission included, but were not limited to, phenytoin, oxcarbazepine, risperidone, and venlafaxine. The patient was believed to be a good candidate for a long-acting antipsychotic, and paliperidone was chosen. After concentration steady-state on 6 mg of oral paliperidone, a 23.5-hour trough concentration was drawn. The patient was noted to be improved on the oral paliperidone, the paliperidone long-acting injection was given, and the patient was discharged. After discharge, the paliperidone concentration returned very low at 1.1 ng/mL. The second patient is a 53-year-old female with a stable psychiatric condition undergoing a laparoscopic RYGB. Her past medical history is not relevant to the implications of the case. Medications prior to and following the procedure include but are not limited to bupropion, fluvoxamine, lurasidone, methylphenidate, oxcarbazepine, and verapamil. A concentration steady-state lurasidone concentration obtained prior to the procedure returned at 20 ng/mL and postprocedure lurasidone concentration was pending at the time of this abstract submission. **Review of Literature:** A MEDLINE search revealed only 1 case of antipsychotic therapeutic drug monitoring in patients undergoing RYGB, which was published in 1986. Additionally, 1 report is available which addressed psychiatric drug dissolution in an in vitro RYGB model. **Conclusion:** Our report is the first to describe atypical antipsychotic therapeutic drug monitoring in patients who have undergone RYGB. Patient number 1 demonstrated a negligible paliperidone concentration, which was contaminated by drug-drug interactions but is suggestive that extended-release formulations are particularly poor choices and that nonoral antipsychotic dosage forms may be preferred in some situations. Data from patient number 2 will be particularly helpful information to understand lurasidone pharmacokinetics after RYGB.

Severe Orthostatic Hypotension After a Melatonin Overdose: A Pediatric Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Melatonin is a neurohormone produced by the pineal gland in a circadian rhythm. It is available over the counter and frequently recommended by pediatricians/psychiatrists for pediatric insomnia, specifically in neurodevelopmental disorders or psychiatric comorbidities. However, there is a lack of information on the toxicology of melatonin. **Patient History:** The patient is a 16-year-old female with past medical history significant for depression, anxiety, attention-deficit/hyperactivity disorder, and asthma. The patient's social history includes witnessed domestic violence. The patient transferred to our university hospital from an outside hospital after a reported suicide attempt via overdose. The patient reports ingesting twenty 9-mg (180 mg) melatonin tablets, four 1-mg (4 mg) guanfacine immediate-release tablets, 50 mg of hydroxyzine, 40 mg of fluoxetine, and 72 mg of methylphenidate extended-release 17 hours prior to arrival. Urine drug screen (UDS) at the outside hospital showed tricyclic antidepressants and laboratory results showed leukocytosis. On admission to university hospital, patient was lethargic, vital signs were stable, and Glasgow Coma Scale was 15. Labs were unremarkable, electrocardiogram normal, and UDS showed fluoxetine, diphenhydramine, dextromethorphan/dextrorphan, hydroxyzine/cetirizine, and trimethoprim. Hospital day 2 patient was drowsy, minimally responsive, and complained of inability to focus her eyes. Blood pressure (BP) was 68/50 mm Hg and increased to 80/60 mm Hg after oral fluid intake. Orthostatic vital signs revealed 45/24 mm Hg drop in BP from supine to sitting. The patient remained hypotensive on hospital day 3, despite adequate oral intake, and therefore received 3 L of intravenous fluids, but BP on standing was 50/21 mm Hg and the patient reported severe dizziness. The patient was transferred to the pediatric hospital for medical management. **Review of Literature:** A PubMed search revealed 2 published case reports of melatonin overdose, neither presenting with hypotension. Cardiovascular effects of melatonin have been reported, including reduction of arterial blood pressure and plasma noradrenaline. The mechanism remains unclear, but it may be related to nitric oxide formation, attenuated muscle sympathetic nerve activity, or calcium metabolism. Melatonin's interaction with reported coingested medications is also not well understood. **Conclusion:** In our case report, a temporal and possibly causal relationship was observed between the ingestion of 180 mg of melatonin and significant orthostatic hypotension. Clinicians should be aware of hypotensive effects of melatonin, particularly in overdose.

Successful Use of Memantine and Donepezil to Treat Paranoia, Aggression, and Homicidal Ideation in a Patient With Schizoaffective Disorder and Major Neurocognitive Disorder Alzheimer Type

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Abstract Type: Therapeutic Case Report. **Background:** The emergence of neuropsychiatric symptoms associated with major neurocognitive disorder in individuals with major psychiatric disorders may present a diagnostic challenge, as initial symptoms may be attributed to a relapse of psychiatric illness. Reported is the rapid

resolution of significant neuropsychiatric symptoms with the addition of memantine and donepezil. **Patient History:** A 70-year-old white male was admitted to an acute psychiatric facility due to specific threats to kill others and physical aggression toward others. He had a history of multiple psychiatric admissions and a diagnosis of schizoaffective disorder. Upon admission, he was extremely delusional, grandiose, and was assaultive and threatening to other patients. Trials of clozapine, divalproex, perphenazine, cariprazine, haloperidol, olanzapine, chlorpromazine, and risperidone were unsuccessful in controlling aggression and homicidal ideation. Neuropsychologic evaluation performed while hospitalized showed Major Neurocognitive Disorder Alzheimer Type with behavioral disturbance. Even after a month of hospitalization, he remained extremely delusional, paranoid, grandiose, and disorganized in his thinking. On day 53, memantine 5 mg twice daily and donepezil 5 mg every evening were added to his medication regimen. He was noted to be relaxed, jovial, and appropriate with staff and peers on day 56. He continued to improve behaviorally with no episodes of agitation, aggression, or threatening behavior. He was successfully discharged to a long-term care facility on day 59. **Review of the Literature:** Previous reports of the use of cholinesterase inhibitors and memantine for the treatment of behavioral disturbances associated with major neurocognitive disorder exist, but a MEDLINE search did not reveal any reports of the use of these agents specifically for aggression and assaultive behaviors unresponsive to other medications. **Conclusion:** In this patient, the addition of memantine and donepezil resulted in a rapid resolution of aggression and homicidal thinking. The possibility of major neurocognitive disorder should be considered in a patient with major psychiatric illness and treatment-resistant symptoms. Treatment with a cholinesterase inhibitor and memantine may significantly ameliorate psychiatric symptoms which have been unresponsive to other interventions.

The Efficacy and Safety of Amphetamine Extended-Release Oral Suspension (AMPH EROS) in Children With Attention-Deficit/ Hyperactivity Disorder

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Abstract Type: Therapeutic Case Report. 2018 Neuroscience Education Institute Congress, Orlando FL. **Objectives:** To determine the efficacy and safety of amphetamine extended-release oral suspension (AMPH EROS) in the treatment of attention-deficit/hyperactivity disorder (ADHD) compared with placebo in a dose-optimized, randomized, double-blind study. **Methods:** The efficacy of AMPH EROS was evaluated in a laboratory classroom study conducted in 108 pediatric patients (aged 6-12 years) with ADHD. The study began with an open-label dose optimization (5 weeks) with an initial AMPH EROS dose of 2.5 or 5 mg once daily in the morning. The dose could be titrated every 4-7 days in increments of 2.5-10 mg until an optimal dose or the maximum dose of 20 mg/d was reached. Participants were required to tolerate a minimal dose of 10 mg/d. Participants then entered a 1-week randomized, double-blind treatment phase with the individually optimized dose or placebo. At the end of the week, raters evaluated the attention and behavior of the participants in a laboratory classroom using the Swanson, Kotkin, Agler, M-Flynn, and Pelham (SKAMP-C) rating scale. SKAMP-C is a 13-item teacher-rated scale that assesses manifestations of ADHD in a classroom setting. The primary efficacy endpoint was change from predose in the SKAMP-C score at 4 hours postdose. The key secondary endpoint efficacy parameters were onset and duration of clinical effect. The change scores from predose SKAMP-C scores at postdose time points (1, 2, 6, 8, 10, 12, and 13 hours) were used to evaluate the key secondary efficacy endpoints. **Results:** More boys (68.7%) than girls participated. The study population was 55.6% white, and most patients had inattentive or combined type ADHD presentations. The primary efficacy endpoint, the change from predose SKAMP-C score at 4 hours postdose, was statistically significantly improved ($P < .0001$) compared with placebo. Each of the secondary efficacy endpoints were also significantly improved ($P < .0001$ at each time point) compared with placebo. Adverse events reported (frequency >5%) reported during the dose optimization phase were decreased appetite, insomnia, affect lability, upper abdominal pain, mood swings, and headache. **Conclusion:** AMPH EROS was effective in reducing symptoms or ADHD from 1 to 13 hours after dosing. Adverse events reported were consistent with those of other amphetamine products.

Vertigoheel Induced Psychosis: A Case Report

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Abstract Type: Therapeutic Case Report. **Background:** Vertigoheel is a homeopathic preparation containing ambra grisea, cocculus indicus, conium maculatum, and petroleum. It is most often used for treatment of vertigo and motion sickness. **Complete Patient History:** A 28-year-old male with no previous medical or psychiatric history presented with 5 days of worsening depression

and psychosis. He denied current use of prescription medications, alcohol, or illicit substances other than marijuana on a single occasion 1 month prior to admission. He did endorse smoking tobacco cigarettes, one-half pack per day for many years. Approximately 2 weeks prior, while visiting family in Germany, he developed dizziness and a provider in Germany prescribed Vertigoheel, one tablet to be taken every hour until symptom improvement. This did not improve his dizziness but did cause him to feel as if he were "in a dream." He stopped taking the medication after 2 days but continued to feel amotivated and developed decreased appetite as well as insomnia. Several days later he developed constant auditory hallucinations telling him he was weak, that he was crazy and was not going to get better, and that he should kill himself. At that point, he came back to the United States, was admitted to an inpatient psychiatric unit for 5 days, and given olanzapine 5 mg at bedtime, lorazepam 1 mg every evening, and melatonin 6 mg every evening. He experienced gradual improvement in symptoms and was discharged with olanzapine 5 mg daily and outpatient follow-up. **Review of Literature:** Several randomized controlled trials have evaluated the use of Vertigoheel for treatment of vertigo, none of which reported psychosis as an adverse effect. A PubMed search revealed no published case studies of Vertigoheel-induced psychosis. **Conclusion:** A likely causal relationship was observed between the homeopathic supplement Vertigoheel and an acute episode of psychosis in a young male patient with no comorbidities.