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CPNP 2020 Annual Meeting Poster Abstracts

Research Trainee Award Finalists

Effectiveness of Paliperidone Palmitate One-Month Long-Acting Injection in Obese Versus Non-Obese Patients

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Type: Work in Progress. **Background:** Schizophrenia spectrum disorders are a set of chronic and severe mental disorders that affect how a person thinks, feels, and behaves. These disorders affect approximately 4% of patients treated at the Veterans Affairs (VA) Healthcare System. Optimal treatment includes use of an antipsychotic medication. Paliperidone palmitate once-monthly injection (PP1M) is an antipsychotic FDA-approved to treat schizophrenia and schizoaffective disorder. Several studies have raised concerns regarding variable PP1M distribution in obese patients and the potential impact body mass index (BMI) may have on medication effectiveness. This is especially important as patients with schizophrenia are twice as likely to be obese. The purpose of this study is to assess the effectiveness of PP1M in obese compared to non-obese patients. **Objectives:** (1) Determine the difference in effectiveness, defined as treatment failure, among obese (BMI $\geq$ 30 kg/m^2) compared to non-obese (BMI 18.5-29.9 kg/m^2) patients treated at the VA Northeast Ohio Healthcare System (VANEOHS) with PP1M for schizophrenia spectrum disorders. (2) Evaluate treatment failure based on area of injection. **Methods:** This is a retrospective chart review of patients with a diagnosis of schizophrenia or schizoaffective disorder from January 1, 2014 through January 1, 2019 who received at least one maintenance dose of PP1M at the VANEOHS. The patient list was obtained using the electronic medical record and data will be obtained by chart review. Patients with BMI $<$ 18.5 kg/m^2 and those who previously trialed PP1M will be excluded. In short, treatment failure is defined as: (1) all cause discontinuation (2) hospital admission for schizophrenia spectrum disorders (3) completed or attempted suicide (4) increased scheduled antipsychotic therapy. Bivariate group comparisons will be completed using Chi-Square test for categorical dependent-outcome variables and t-test for continuous dependent-outcome variables. Logistic regression will be used with obese vs non-obese as the main predictor of interest controlling for covariates of age, race, renal function, and gender predicting treatment failure vs success. The project is approved by local IRB and data analysis will be concluded by February 29, 2020. **Outcomes:** We will report the number and percent of patients with treatment failure based on BMI categorization and area of injection overall and based on co-variates of interest.

Veteran Adherence to Oral Versus Injectable Alcohol Use Disorder Medication Treatment

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Type: Work in Progress. **Background:** Alcohol is the most widely misused substance in the United States and affects both civilian and veteran patients alike. For patients diagnosed with alcohol use disorder (AUD), medication treatment has been shown to decrease alcohol cravings, number of drinking days, and heavy drinking and to reduce relapses. However, significant differences in these endpoints were primarily confined to per-protocol analysis rather than intent-to-treat, suggesting that adherence has a significant impact on efficacy. At present, there is conflicting evidence present in the literature comparing adherence to oral versus injectable AUD pharmacotherapy and a paucity of information specifically in the veteran population on risk factors for low adherence. **Objectives:** (1) Determine whether adherence rates differ between oral (naltrexone tablets, disulfiram, acamprosate) and injectable (naltrexone injectable) AUD treatments in veterans during the first year of therapy (at 3, 6, 9, and 12 months) using the portion of days covered (PDC) model. (2) Determine differing characteristics between patients with high adherence (PDC $\geq$ 80%) and low adherence (PDC $\leq$ 60%). (3) Identify differences in AUD relapse rates between oral and injectable AUD medications. **Methods:** A retrospective chart review will be

conducted to include adult patients identified using information obtained from the VA Informatics and Computing Infrastructure database who were initially prescribed an AUD medication between June 30, 2015 and June 30, 2018. Inclusion criteria: newly started on the prescribed AUD medication, diagnosis of AUD at index date, outpatient from the index date through 1 year except for patients admitted for AUD as a primary diagnosis. Exclusion criteria: "as needed" administration directions, patients with cognitive impairment, and patients diagnosed with non-major depressive disorder serious mental illnesses. Patient characteristics analyzed will include demographic information (age, gender, ethnicity), housing status, psychiatric comorbidities, AUD treatment history, and frequency of healthcare contact. Data will be analyzed using descriptive and inferential statistics. **Outcomes:** We will report differences in adherence between injectable and oral AUD medications, potential risk factors for low adherence to AUD medication treatment, and differences in relapse rates during the first year of treatment.

Innovative Practices Award Finalists

Implementation of Psychiatric Clinical Pharmacy Services in an On-Campus University Counseling and Psychiatry Clinic

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Type: Innovative Practices. **Background/Rationale:** Increased acknowledgement of the mental health crisis has led to a heightened awareness of the high rates at which mental health diagnoses impact the college student population. Results from the World Health Organization World Mental Health Surveys published in 2016 indicate that the prevalence of diagnosable mental health disorders is 20% in college students, with only 16% of these students receiving treatment. On-campus college mental health services provide a unique opportunity for the involvement of pharmacists in the provision of optimal patient care. **Description of Practice:** Student Health Services (SHS) Counseling and Psychiatry Department provides comprehensive mental health services to the campus's student population. During the 2018-2019 academic year, the psychiatric department scheduled over 5,000 appointments for over 1,500 unique patients with an attendance rate of 86-87%. To meet the needs of both SHS and the College of Pharmacy, a psychiatric pharmacist was integrated into the SHS psychiatry department on September 1, 2018. A collaborative practice agreement finalized and made effective on January 15, 2019 was focused on three key areas: responsible practitioners including pharmacist qualifications, clinical procedures, and quality assurance and outcomes. **Impact on Patient Care:** The psychiatric pharmacist was available an average of 20 hours per week, during which time 243 appointments were scheduled with 155 unique patients. The majority of appointments were characterized as "Psychiatric Medication Management" appointments and accounted for 90.9% of pharmacist visits, and ultimately accounted for 14.2% of all psychiatric medication management appointments for the semester. Primary diagnoses managed were consistent with most common diagnoses managed by the department. **Conclusion:** Integration of a psychiatric pharmacist into on-campus psychiatric services can expand access to care to students as well as provide learning opportunities future members of the healthcare profession.

Naloxone Stand-Down Day: A Risk-Prioritized Telephone Outreach Event

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Type: Innovative Practices. **Background:** Opioid overdose is a major public health concern in the United States. A previous study conducted at the facility showed that a longitudinal, multi-attempt telephone intervention by a single resident was an effective method of distributing naloxone to a high-risk patient population. The purpose of this project was to expand the results and evaluate whether a new team-based, single-intervention telephone outreach event is an effective method to increase naloxone acceptance in at-risk patients. **Description:** The Risk Index for Overdose or Serious Opioid-Induced Respiratory Depression (RIOSORD) tool was used to identify patients with a primary care provider at the study site with risk class 4 or greater, corresponding to a 37% or higher probability of opioid overdose. On "Naloxone Stand-Down Day", a team of 11 pharmacy trainees contacted a total of 164 patients and offered intranasal or intramuscular auto-injector naloxone kits. Patients accepting naloxone were mailed the appropriate kit, an informational letter, and brochures on opioid safety. Patients declining naloxone received no mailing. Patients not reached within one attempt received a general voicemail and were mailed an introductory letter offering naloxone and brochures on opioid safety. The main outreach date was August 16, 2019. Patients not receiving a call on the main outreach date were contacted by August 30, 2019. **Results:** The proportion of patients with RIOSORD class 4 or greater who had a naloxone kit before and after the telephone outreach event was 0.28 and 0.63, respectively (difference = 0.35, $P < .000001$). Per-protocol analysis showed that of 164 patients contacted, 67% were

reached (n = 109) and 80 patients accepted a naloxone kit, corresponding to a 73% acceptance rate for those reached. Overall as a result of the event, 111 patients were reached and 83 accepted a naloxone kit; this includes two patients who called back after August 30, 2019, and one patient who was prescribed naloxone while inpatient. **Conclusion:** A concentrated, team-based telephone outreach event is an effective method for increasing naloxone acceptance and distribution in at-risk patients in the outpatient setting. The project is planned for continuation as an annual event.

Therapeutic Case Report Award Finalists

Taking a Chill Pill: A Case Report of Acute Hypothermia During Initial Inpatient Titration of Clozapine

Bradley Burk, PharmD, BCPP[1]; Alex Ward, PharmD, BCCCP[1]; Brooke Clark, PharmD[2]

[1] *University of Alabama at Birmingham Medical Center, Birmingham, AL;* [2] *Methodist Le Bonheur Healthcare, Memphis, TN*

Type: Therapeutic Case Report. **Background:** A 70-year-old African American female with history of schizoaffective disorder (bipolar type), vascular dementia, hypertension, coronary artery disease, congestive heart failure, dissecting ascending aortic aneurysm (status-post repair), and chronic kidney disease developed moderate hypothermia after 7 days of clozapine use during initial titration of this medication. **Complete Patient History:** Admitted to inpatient psychiatry, the patient was trialed on risperidone, olanzapine, and ziprasidone prior to starting clozapine for refractory symptoms of delusions, psychosis, and mania. Subsequently, she incurred a temperature of 89 degrees Fahrenheit, and features consistent with hypothermia, including hypoxemia, tachypnea, bradycardia, decreased ejection fraction, and QTc prolongation on a dose of 50 mg clozapine twice daily. She appeared somnolent and confused at this time, and remarked that she was cold, however no shivering was noted on exam. Laboratory work, including thyroid stimulating hormone and blood cultures, were normal, save mild elevation in procalcitonin. The patient was transferred to the intensive care unit, where she became normothermic within approximately 10 hours with the use of warming blankets, and the discontinuation of her clozapine, ziprasidone, and carvedilol. **Review of Literature:** To date, only 5 case reports have been published depicting clozapine-induced hypothermia, with varying onset and doses. While possibly occurring less commonly than clozapine-induced hyperthermia, the number of published case reports versus reports to the FDA indicate this adverse effect may be more common than clinicians believe. We extracted data on clozapine and hypothermia from the FDA Adverse Event Reporting System. Data demonstrated 109 separate cases of individuals experiencing hypothermia while taking clozapine. The majority of cases were considered serious, and 21 patients died after exposure. Most cases occurred within 1-6 months of being on clozapine. Sixty percent of patients were male, with higher frequency in middle to advanced age. Haloperidol, antidepressants (any), valproic acid, olanzapine, and benzodiazepines, were among the top co-prescribed medications for those with clozapine-induced hypothermia. 5-HT2, D1, D2, D3, alpha-1, and neurotensin have all been implicated in the induction of hypothermia from clozapine. **Conclusion:** Clinicians should be cognizant of hypothermia from clozapine, as it may be life threatening. Further studies are required to determine the exact incidence and predisposing factors of clozapine-induced hypothermia.

Successful Continuation of Clozapine in Conjunction With Autologous Chimeric Antigen Receptor T-cell (CAR T) Immunotherapy

Jonathan G. Leung, PharmD; Jade Kutzke, PharmD; Heather P. May, PharmD

Department of Pharmacy, Mayo Clinic, Rochester, MN

Type: Therapeutic Case Report. **Background:** The autologous chimeric antigen receptor T-cell (CAR-T) immunotherapies axicabtagene is approved for advanced lymphocytic malignancies. Boxed warnings for CAR-T includes cytokine release syndrome (CRS) and neurotoxicity. Severe neutropenia is also expected. For patients with schizophrenia prescribed clozapine, CAR-T presents an unknown risk of prolonged neutropenia. While successful cases of clozapine with chemotherapy have been described in the literature; data of clozapine with CAR-T is lacking. Additionally, when clozapine is used with CAR-T, the risk of compounded neurotoxicity poses another unique consideration. **Patient History:** A 42-year-old man with a history of schizophrenia with diffuse large B-cell lymphoma was scheduled to receive CAR-T. Prior to CAR-T, the patient had been taking clozapine 500 mg for 20 years without complication. Per CAR-T monitoring requirements, the patient was hospitalized to manage CRS and neurotoxicity. The patient did experience grade 4 neurotoxicity, as do approximately 50% of CAR-T patients. Neurology was consulted and levetiracetam that had been started prophylactically was increased to 1,000 mg twice daily. The neurotoxicity resolved as usually anticipated with no seizures documented. Through the hospitalization the ANC reached levels below detectable (hospital days 5-8). The patient was discharged on hospital day 11. While neutropenia persisted through day 92 (ANC $<500/\mu L$), clozapine continued while watching carefully for infection and no need for colony-stimulating factors.

Review of Literature: Clozapine with chemotherapy has been described in the literature. One review of literature suggested that clozapine and chemotherapy can be safely used concomitantly, noting 14 patients that continued clozapine throughout chemotherapy and 13 patients who discontinued clozapine. Of the 13 patients discontinuing clozapine, 12 experienced psychiatric relapse of which 11 restarted clozapine. Only one infectious complication occurred. However, available cases are not sufficient to extrapolate data to patients receiving CAR-T therapy given the added neurotoxicity risk. CAR-T neurotoxicities includes encephalopathy, tremor, seizure, and myoclonus, many of which overlap with clozapine or clozapine toxicity. **Conclusion:** As this is the first report of clozapine with CAR-T therapy, clinicians should continue to disseminate the experiences in the medical literature. Monitoring for prolonged neutropenia and CAR-T emergent neurotoxicity must occur.

Original Research Award Finalists

Transforming Pharmacy Intern Attitudes, Stigma, and Clinical Skills on an Adolescent Inpatient Psychiatry Unit

Colin Maehler, PharmD Candidate 2021[1,2]; Bethany Kummer, PharmD Candidate 2020[1,2]; Jennifer Hamner, PharmD, BCPPS[1,2]; Merlin Ariefdjohan, PhD, MPH[1,2]; Danielle L Stutzman, PharmD, BCPP[1,2]

[1] University of Colorado, Aurora, CO; [2] Children's Hospital Colorado, Aurora, CO

Type: Original Research. **Background:** Nearly 10% of youth are prescribed psychotropic medications, with many lacking sufficient medication knowledge, leading to poor adherence and adverse effects. Patient medication education groups (PMEG) improve medication-related outcomes, patient satisfaction, and cost-savings. Additionally, early exposure of pharmacy students to PMEG on inpatient psychiatry units improves student attitudes/stigma and psychotropic medication knowledge. There is a lack of literature describing PMEG and pharmacy student experiences in child and adolescent psychiatry (CAP). A Psychiatry Pharmacy Intern Shift (PPIS) was created summer 2019 at a children's hospital with goals of optimizing medication outcomes and providing early CAP exposure for pharmacy interns. **Purpose:** Evaluate the impact of the PPIS on intern (1) attitudes regarding mental health conditions, (2) self-efficacy facilitating PMEGs, and (3) documented medication interventions. **Methods:** During PPIS, two pharmacy interns lead a one-hour PMEG on the inpatient adolescent unit, discuss psychotropic medication interventions with the psychiatric pharmacist, and document progress notes. Prior to involvement in PPIS (baseline) and post-training (time-point 1), pharmacy interns completed an online survey comprised of three domains: (1) mental health attitudes/stigma, (2) psychotropic medication knowledge, and (3) PMEG self-efficacy. Data was collected using Microsoft Excel and review of the electronic health record. **Results:** Surveys were completed at baseline (n = 17) and time-point 1 (n = 6). At baseline, 29% reported having previous experience interacting with individuals with a mental health condition. The majority (83%) of interns identified participation in PMEG as strongly influencing their perception of mental health at time-point 1, compared to 6% at baseline. Interns described enhanced ability to facilitate a PMEG (59% vs 100%), respond to questions (59% vs 67%) and assess patient understanding (71% vs 100%) of psychotropic medications (baseline vs time-point 1). Attitudes shifted with no interns identifying negative impressions toward mental illness at time-point 1, compared to 12% at baseline. Most common psychotropic-related interventions documented during PPIS included dose increase, medication initiation, and identification of drug-drug interaction(s). Over 50% of documented PMEG identified a patient reported adverse effect. **Conclusions:** PPIS has directly enhanced pharmacy intern PMEG self-efficacy, attitudes regarding mental health conditions, and documentation of psychotropic-medication interventions.

Expanding Naloxone Education in the PharmD Curriculum

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Type: Original Research. **Background:** The opioid epidemic poses one of the greatest challenges in recent history to the strength of communities in this country. Previously, naloxone education was covered in the third year of the current curriculum, but not to the extent we believed to be sufficient for students to maximize their impact as future healthcare providers. The purpose of this study was to develop, implement, and evaluate an enhanced teaching approach to naloxone education. **Methods:** Students were given a pre-survey to assess initial perceptions regarding opioid use disorder and naloxone. The educational intervention incorporated new active learning, technology, and inter-professional education components into the skills laboratory course. A high fidelity manikin was used to provide hands-on practice recognizing and responding to a simulated opioid overdose. Students also received training from an emergency services professional on how to use naloxone to reverse an opioid overdose. A post-survey was administered to all students that participated in the redesigned curriculum to evaluate changes in knowledge, perceptions, and confidence. **Results:** Statistical analysis

of the surveys was performed using independent and paired t-tests to compare pre- and post-survey responses. After the intervention, students felt a greater responsibility to help those at a high risk of opioid overdose ($P = .010$). Students were more confident in their ability to recognize high risk patients ($P < .001$) and signs/symptoms of an overdose ($P < .001$) following the intervention. Students' confidence in their ability to administer both intranasal ($P < .001$) and intramuscular ($P < .001$) naloxone as well as counsel patients on how to use both intranasal ($P < .001$) and intramuscular ($P < .001$) naloxone also increased. Finally, students felt more confident about counseling patients on how to recognize an opioid overdose ($P < .001$). Subgroup analysis demonstrated that older male students were significantly more confident in their ability to administer intramuscular naloxone at baseline and experienced less improvement in confidence than younger female students did following the intervention. **Conclusion:** Based on the results of this study, the expanded naloxone curriculum improved pharmacy students' confidence in their ability to use naloxone and increased their sense of responsibility to help those at risk for opioid overdose.

CPNP Foundation Strategic Goals Award Finalists

Assessing Perception and Knowledge of USC School of Pharmacy Students Regarding Mental Health and LGBTQ+ Care

Grace Marielle Singson, PharmD Candidate; Claire Pamintuan, PharmD Candidate; Janelle Francisco, PharmD Candidate; Tam Phan, PharmD, AAHIVP

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Type: Original Research. **Purpose:** Lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals continue to demonstrate health disparities despite an increase in visibility in recent years. This study assessed the perception and knowledge of pharmacy students on providing care for LGBTQ+ patients and mental health. **Methods:** First and second year pharmacy students at the University of Southern California (USC) participated in a 2-hour competency training and were invited to complete a pre-training and post-training surveys. Survey instruments assessed perception, willingness, and knowledge. Perception and willingness questions were graded on a Likert Scale of 1 to 5, where 1 is no knowledge and 5 is extensive knowledge. Knowledge-based questions consisted of terminology, general health and neuropsychiatric concerns of LGBTQ+ individuals. Results were analyzed using descriptive statistics and non-parametric test. **Results:** Competency training and the pre-training survey were completed by 184 students, while 168 of those students also completed the post-survey. First year and second year pharmacy students completed 69% and 31% of the surveys, respectively. After the cultural competency, students reported statistically significant improvement in their perception of mental health and serving LGBTQ+ patients ($P < .05$) and their motivation to adopt culturally competent practices ($P < .05$). Of the knowledge-based questions, students showed a 12% improvement in correct answer after the competency training. One knowledge-based question demonstrated a significant increase in recognizing and addressing microaggressions in patient care ($P = .03$). **Conclusion:** Pharmacy students demonstrate an enhancement in their perception of serving LGBTQ+ and mental health patients post competency training. Subsequent analysis showed increased motivation to integrate best practices and knowledge of proper terminology, health disparities, physical, mental, and emotional needs of marginalized patients.

Impact of a Required Neuropsychiatric Course on Mental Health Stigma Among Students Enrolled in an Accelerated Pharmacy Program

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Type: Original Research. **Purpose:** Mental illness affects approximately one in five adults in the US. Stigma towards psychiatric illness among healthcare providers can diminish provider-patient relationships, deter patient engagement and result in inferior treatment outcomes. Structured programs providing mental-health education can reduce stigma amongst healthcare providers; however, the impact of a neuropsychiatric course on pharmacy student attitudes towards mental illness is not fully understood. This study investigated whether a required neuropsychiatric course reduces stigma amongst pharmacy students. **Methods:** A survey of 2nd year pharmacy students ($n = 204$) was conducted on the first and last day of a neuropsychiatric course. The survey included validated scales such as the Opening Minds Stigma Scale for HealthCare Providers (OMS-HC) and the Empowerment, Recovery, Difference, Disdain, Blame and Attribution Questionnaire (AQ-9). The students also provided written views on the role of pharmacists in reducing stigma. The Wilcoxon Signed-Rank test with Bonferroni corrections were used to compare scores between the first and last day of the course. A multiple regression analysis evaluated whether students' own experience with mental illness or clinical psychiatric experience affected their baseline scores on the survey. **Results:** Scores on the OMS-HC and Disdain scales significantly decreased from Mean-

SEM of 38.7±0.4 and 15.2±0.2 respectively, at the start of the course to 32.0±0.4 and 14.4±0.2 ($P < .001$), at the end of the course. The scores on Empowerment and Recovery were significantly increased from 23.2±0.2 and 18.9±0.2 to 24±0.2 and 20.2±0.2 ($P < .0001$) respectively, at the end of the course. The scores on Difference, Blame and AQ-9 were not significantly changed. After controlling for age and gender, regression analysis showed no relationship between students' baseline scores and their self-reported experience with mental illness or their prior clinical psychiatric experience. The major themes for students' qualitative responses on the role of pharmacists in reducing stigma included incorporating empathy with psychiatric patients, and providing education to the public on mental health, wellbeing and medications. **Conclusions and Future Directions:** These findings indicate that a neuropsychiatric course can improve several aspects of pharmacy students' attitude towards mental health. Future studies will evaluate whether a neuropsychiatric course reduces stigma amongst other healthcare students.

Original Research Abstracts

Assessing Adherence in Patients Using Long-Acting Injectable Antipsychotics

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Type: Original Research. **Purpose:** Adherence to medication therapy regimens presents as one of the most challenging components of treating patients with chronic serious mental illnesses. Frequently, medication non-adherence contributes to disease relapse and hospital admissions. Long-acting injectable antipsychotics (LAI-AP) have been developed to address the issue of non-adherence. However, medication adherence remains low. The purpose of this study was to assess for any factors potentially contributing to medication non-adherence for patients prescribed LAI-APs at a large academic teaching hospital in Houston, Texas. **Methods:** A multi-centered retrospective chart review was performed on patients prescribed a LAI-AP within a large academic health system between June 1, 2016 and May 31, 2018. Patients were assessed for the primary outcome of follow-up adherence for the injection subsequent to the index (initial) injection. Secondary outcomes assessed for the number of patients provided a daily oral antipsychotic following the index injection, the number of emergency department visits within a one-year period from the missed dose, and where documented, reasons why the subsequent injection was not administered. **Results:** A convenience sample of 100 adult patients was included in the study, and 79 patients met the inclusion criteria. Incarcerated, deceased, and pregnant patients were excluded from analysis. Fifty-seven (72%) patients did not receive the scheduled follow-up injection. Common documented reasons for missed administration of follow-up injections included: loss to follow-up, or possible follow-up with an outside provider. Among patients receiving LAI-APs that require oral bridging, such as risperidone LAI, 18% of patients did not receive an appropriate oral bridge following the index injection. **Conclusions:** Medication adherence remains low in patients receiving LAI-APs, which continues to be a significant barrier to disease management. The findings of this study highlight potential opportunities to integrate psychiatric pharmacy services to help augment transitions of care, optimize therapeutic regimens, and improve patient outcomes. At the time of this research, the health system did not have psychiatric clinical pharmacy services, and this project provides an opportunity for pharmacy to make a significant impact for this patient population.

Assessing the Clinical Utility of Pharmacogenetic Testing in Hospitalized Adult Patients in an Acute Inpatient Psychiatric Facility

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Type: Original Research. **Purpose:** Pharmacogenetic tests may be clinically useful in psychiatric care. This study analyzed the effectiveness of pharmacogenetic testing in psychotic disorders in patients who were considered treatment naïve and treatment refractory. **Methods:** Forty adult patients meeting the DSM-5 criteria for schizophrenia (n = 16), schizoaffective disorder (n = 22), or bipolar disorder with psychotic features (n = 2) were recruited for pharmacogenetic testing between January 1, 2019 and October 31, 2019. Exclusion criteria included severe hepatic impairment, severe renal impairment (eGFR < 30 mL/min), HIV positive, and age < 18 years. Subjects were enrolled in treatment arm 1 if this was a first psychiatric hospital admission (n = 17) and treatment arm 2 if considered to have an extended length of stay at the psychiatric facility and failed an adequate trial of more than 3 antipsychotics (n = 23). Data recorded included type and number of medication adjustments from pharmacogenetic recommendations and adverse effects. **Results:** DNA swabs were collected for 40 patients, and 37

had pharmacogenetic results documented in the electronic health record. One patient was a 2D6 ultra-rapid metabolizer and 3 patients were considered possible 2D6 ultra-rapid or normal metabolizers. Based on catechol-o-methyltransferase (COMT) status, 13 patients identified as potentially having a better response to clozapine. When assessing metabolic abnormalities, 28 patients had results that were too conflicting to be helpful, and 9 patients were predicted to be at increased risk of weight gain. When assessing risk for tardive dyskinesia (TD), 23 patients had results that were too conflicting to be helpful, 9 patients were predicted to have lower risk of TD, and 5 patients were predicted to have higher risk of TD. No medication changes were made based on pharmacogenetic testing. **Conclusions and Future Directions:** Pharmacogenetic testing provided little guidance for selection of antipsychotic based on efficacy. Pharmacogenetic predictions regarding adverse effects were potentially more helpful but not concrete enough to forego standard treatment or justify cost of testing.

Assessment of Benzodiazepine Utilization Pre- and Post-Implementation of an Alcohol Withdrawal Protocol

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Type: Original Research. **Purpose:** Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWA-Ar) is the most widely used assessment tool for acute alcohol withdrawal. It is designed so that medication dosing corresponds to the patient's most recent withdrawal symptom score. The purpose of this study is to evaluate benzodiazepine utilization before and after implementation of an alcohol withdrawal protocol utilizing the CIWA-Ar. **Methods:** This is a randomized, retrospective chart review analyzing data from 200 patients admitted to a 1,112-bed tertiary center or a 96-bed community hospital with 100 in each of the pre- and post-implementation groups. Data was analyzed from January 1, 2017, to April 1, 2017, and January 1, 2019, to April 1, 2019. Patients were 18 years of age or older with an alcohol withdrawal protocol ordered during admission. Patients with alcohol withdrawal protocol orders active less than 24 hours were excluded. The primary outcome of this study was to assess the impact of a CIWA-Ar score-based alcohol withdrawal protocol implementation on benzodiazepine utilization within the health system calculated by lorazepam equivalents. **Results:** Baseline demographics were similar between pre- and post-implementation groups with an average age of 50.7 years and 51.8 years, male gender of 64% and 79%, and alcohol-specific chief complaint of 38% and 40%, respectively. After implementation of a CIWA-Ar score-based protocol, the average number of benzodiazepine doses administered per hospital day increased from 1.7 (range 0-9) to 2.1 (range 0-16). The average milligrams of lorazepam equivalents administered per hospital day also increased from 2.9 (range 0-16.6) to 4 (range 0-47). However, the average number of active protocol days decreased from 4.1 (range 1-52) to 3.5 (range 1-32) and length of stay decreased from 6.9 days (range 1-70) to 5 days (range 1-42). Mortality rates were similar between groups. **Conclusions and Future Directions:** An increase in benzodiazepine administrations and lorazepam milligram equivalents was observed after implementation of a CIWA-Ar score-based alcohol withdrawal protocol. However, this implementation was also associated with a decreased number of active protocol days and length of stay. Mortality rates were similar between groups.

Assessment of Mental Health Needs and Barriers to Care in Students Enrolled in Doctor of Pharmacy Programs

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Type: Original Research. **Purpose:** To identify Doctor of Pharmacy (PharmD) students' perceived barriers to mental health care and interest in mental health interventions and to assess their attitudes and perceptions of mental illness. **Methods:** A mixed-methods survey was used to assess pharmacy students' perceived barriers to care, interest in mental health resources and interventions within their curricula, attitudes towards seeking treatment, and perceived stigma at eight pharmacy schools across the United States. The last section included free-text responses in which students expressed additional comments unacknowledged by previous sections. Consent was requested before beginning the survey, with mental health referral resources provided. Quantitative data was analyzed using descriptive statistics and free-text responses were analyzed using thematic coding. **Results:** Responses were collected from July 12, 2019 through November 18, 2019 with a total of 192 students participating. The majority were female (79.2%) with an average age of 25-years-old (range 19-47). During pharmacy school, 36.6% of students reported seeking help for an emotional or mental health problem. The top three reported reasons that would prevent students from seeking help were lack of time (80.1%), lack of financial support or resources (52.4%), and preferring to solve it alone (51.8%). Students from private schools selected fear of negative perception from faculty at a higher rate versus public school students (36.1% vs 20.5%, respectively). When asked if mental health resources were sufficient at

their school, a higher rate of public versus private school students answered "strongly agree" or "agree" (70.5% vs 55.8%). The most popular mental health services students expressed interest in receiving at their school were an on-site counselor (63.4%), pet therapy (57.6%), and wellness activities (53.4%). Common themes among free-response questions included school culture, specifically within mental health perception, as well as personal barriers that students faced with access to resources. **Conclusions:** Students within PharmD programs experience both stigma and non-stigma barriers to care for mental health. Schools of pharmacy should assess their unique population for these barriers and determine feasibility to implement potential changes directed at improving overall mental health and well-being.

Clinical and Economic Value of Esketamine Nasal Spray: A Literature Review

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Type: Original Research. **Purpose:** Major depression is one of the most common mental disorders in the United States, as an estimated 17.3 million adults in the U.S have at least one major depressive episode annually. In March 2019, esketamine nasal spray (Spravato®), used with an oral antidepressant, was approved for use in adults with treatment-resistant depression (TRD). Esketamine is a non-selective antidepressant that acts as an antagonist of N-methyl-D-aspartate (NMDA) receptors. This review analyzes the clinical and economic data evaluating the formulary consideration and clinical practice use of esketamine nasal spray (ESK). **Methods:** A review of the ESK dossier prepared by Janssen Scientific Affairs as well as the ESK prescribing information was completed to evaluate pre-marketing data. Subsequently, a PubMed search (March 1, 2019 through January 10, 2020) was conducted using search terms spravato and esketamine nasal spray to compile articles exploring real-world clinical and economic outcomes of ESK as well as potential expansion of its indication. **Results:** The evaluation of the dossier and prescribing information demonstrated the clinical and economic benefit of ESK. Three short-term and two long-term phase III trials evaluating safety and efficacy illustrated the clinical significance of ESK. Clinical trials mentioned in the dossier demonstrated many limitations while the economic analysis reported ESK as a cost-effective medication for patients with TRD. The PubMed search yielded approximately 60 results which were condensed to include relevant articles discussing real-world clinical and economic outcomes. Results from these articles suggested that although ESK can be beneficial for TRD, its use may be restricted due to limitations in clinical trials as well as insufficient data on long-term cost effectiveness. **Conclusion and Future Directions:** Currently, there are many patients suffering from TRD who may benefit from the combination of ESK and an oral antidepressant. There is also ongoing evaluation in broadening ESK's use in MDD patients with suicidal ideation. However, further research focusing on real-world evidence, detailed sub-group analysis and long-term safety and cost-effectiveness needs to be conducted to determine its place in therapy.

Community Pharmacists' Perceptions of Quality Among Buprenorphine Prescribers

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Type: Original Research. **Background:** Community pharmacists play an important role in the treatment of opioid use disorder (OUD) by dispensing medications for opioid use disorder (MOUD), including buprenorphine and buprenorphine/naloxone. Research indicates patients with OUD experience barriers to accessing MOUD, including barriers encountered in pharmacy settings. Qualitative evidence suggests some community pharmacists question the quality of care provided by buprenorphine prescribers. This study quantitatively evaluated pharmacists' perceptions of care being provided by buprenorphine prescribers. **Objectives:** (1) Describe pharmacists' perceptions of the quality of care provided by buprenorphine prescribers. (2) Explore differences in pharmacists' quality of care perceptions across pharmacist demographic and practice setting characteristics. **Methods:** Surveys were sent to 2,290 community pharmacists across Tennessee using a 4-wave Tailored Design Method. Survey questions included demographic variables (gender, years in community practice), practice setting type, and geographic location in Tennessee (West, Middle, and East). The dependent variable was operationalized as "What percentage of buprenorphine prescribers in your area do you perceive to engage in evidence-based medication-assisted treatment (MAT)?". Analysis of variance techniques and Pearson correlations were used to explore relationships between variables. **Results:** A response rate of 19% was obtained from community pharmacists. Overall, pharmacists perceived 30.2% (SD 29.0) of buprenorphine prescribers in their area to engage in evidence-based MAT. Male pharmacists perceived a larger percentage of buprenorphine prescribers to engage in evidence-based MAT (34.73% vs 26.40%, $P = .006$) than female respondents. No differences in pharmacists' perceptions of care were

noted across years in practice (r = .087), geographical region in Tennessee (West = 36.5%, Middle = 30.6%, East = 28.3%), or community pharmacy setting type (Chain = 32.1%, Independent = 30.3%, Mass Merchandise = 20%, Supermarket = 24.8%). **Conclusion:** Perceptions of engagement in evidence-based MAT are poor among community pharmacists, and worse among female pharmacists. Research is warranted to better understand the foundational beliefs and perceptions that inform quality of care perceptions. Quality of care perceptions could negatively influence patient access to MOUD.

Comparison of Health-Care Utilization for Patients Receiving Long-Acting Injectable Antipsychotics in a Psychiatric Hospital Versus Following Discharge

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Type: Original Research. **Introduction:** Long-acting injectable antipsychotics (LAIAs) are often preferred to oral agents due to improved adherence and reduction in hospitalizations. Select first-generation (eg haloperidol decanoate) and second-generation antipsychotics (eg monthly paliperidone palmitate) are available as long-acting injectable formulations; however, second-generation antipsychotics have significantly higher acquisition costs. Within our inpatient psychiatric hospital, it is our practice to administer first-generation LAIAs during an admission while the administration of second-generation LAIAs are deferred to the clinic setting to reduce hospital financial burden and improve transition to outpatient care. Although this practice reduces inpatient medication costs, it is unclear if it affects readmission rates, length-of-stay, or health-care utilization. **Objective:** Compare readmission rates, hospital length-of-stay, and health-care utilization for patients receiving haloperidol decanoate during a psychiatric hospital admission versus monthly paliperidone palmitate following discharge. **Methods:** Haloperidol decanoate and monthly paliperidone palmitate were chosen as representative first- and second-generation LAIAs since they were the most commonly prescribed agents in each class in our patient population. Patients were included if they were 18 years old or older at the time of admission with admission dates from July 1, 2014 through June 30, 2019 and either received haloperidol decanoate during their admission or had monthly paliperidone palmitate deferred to the outpatient setting. Injection deferral was defined as deferring an initial injection to an outpatient setting, delaying an injection beyond the due date if the injection was due during the inpatient admission, or a planned injection immediately following discharge. **Results:** Two hundred fifty-seven inpatient encounters met inclusion criteria for administration of haloperidol decanoate and 152 inpatient encounters met inclusion criteria for deferral of monthly paliperidone palmitate. Thirty-day readmission rates did not significantly differ between haloperidol decanoate and paliperidone palmitate (14.0% vs 19.1%, $P = 0.18$). Similarly, median hospital length-of-stay did not significantly differ between haloperidol decanoate and paliperidone palmitate (12.0 vs 11.5 days, $P = 0.48$). **Conclusions:** Thirty-day readmission rates and hospital length-of-stay did not significantly differ between inpatient administration of haloperidol decanoate versus deferral of paliperidone palmitate to the outpatient setting.

Do Second Generation Long-Acting Injectable Antipsychotics Improve Adherence?

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Type: Original Research. **Purpose:** One of the proposed advantages of a Second-Generation Long-Acting Injectable Antipsychotic (SGAs-LAIs) is improved adherence and enhanced outcomes, but controlled randomized studies (often originating in hospital settings) do not always translate into real-world clinical practice. The Harris Center has monitored the introduction of SGAs-LAIs for both insured and unresourced patients. Pharmacy and medical staff implemented a treatment adherence plan and clinical criteria with a goal to track adherence rate and efficacy in our outpatient setting. Efficacy outcomes measured were hospitalizations, jail bookings and clinical scales while on the injection. **Methods:** Data was gathered over more than four years from (1) agency client services database, (2) clinical records and (3) a supplementary dataset which detailed reasons for non-compliance and discontinuation. Trials of SGA-LAIs were summarized statistically to examine duration of trials and compliance with injection appointments. Pre-Post "mirror" analyses were conducted to determine if use of SGA-LAIs impacted: (1) use of intensive services (public psychiatric hospital, public psychiatric emergency services, and county jail bookings), (2) symptom status measures, and (3) a functional status indicator. **Results:** A total of 536 prescriptions were written for a SGA-LAI including Abilify Maintena, Aristada, Invega Sustenna, Invega Trinza, Risperdal Consta and Zyprexa Relprevv during the study period (January 1, 2015 to April 30, 2019), but only 451 patients started a trial by receiving at least one dose. Mirror analyses examined hospitalizations, jail bookings and clinical scales including Quick Inventory of Depressive Symptoms Scores, Positive Symptom Rating Scale, and Daily Living Activities-20. Functional skills

ratings were unchanged. Large positive effects were noted in public psychiatric hospitalizations (partial eta squared = .411 for hospital admissions and .354 for hospital bed days), in psychiatric crisis services (partial eta squared = .466), and in depressive symptoms (partial eta squared = .264). Smaller but significant ($P < .001$) effects were noted for county jail indicators of bookings and jail days. Small positive effects were noted for reductions in positive symptoms (partial eta squared = .43). **Conclusions:** SGA-LAIs decreased hospital admissions, hospital bed days, psychiatric crisis visits, and jail bookings. SGA-LAIs clinically improved depressive and positive symptoms and had no effect on daily activities.

Drug Use Evaluation (DUE) of Lithium Use at a State Psychiatry Facility Supports Need for Improved Monitoring

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Type: Original Research. **Purpose:** Medication audit criteria requires baseline and ongoing monitoring of lithium-treated patients. Correctly understanding the pharmacokinetics of lithium can better inform prescribing practices, improve efficacy, and decrease adverse effects and toxicity. Despite our facility routinely having both medication orders reviewed when changed and point-in-time monitoring on a sample of patients periodically, we performed a drug use evaluation (DUE) of lithium to see a comprehensive picture of a sample of patients. **Methods:** In this retrospective cohort study performed for pharmacy department monitoring and quality assurance requirements, all medication order data were collected from 150 randomly selected patients from a large state psychiatric facility who received lithium between January 1, 2009 and January 31, 2018. For patients where lithium concentrations were available at steady state, additional data were collected including gender, date of birth, height, weight, and serum creatinine. These data were extracted from the pharmacy medication system, and non-medication data were collected from the facility's electronic health record (EHR). Preliminary data calculations were performed using Excel (v 16.29.1; Microsoft) and statistical analyses were performed using JMP (v 14.2; SAS Institute). Estimated creatinine clearance was calculated using Cockcroft-Gault equation and apparent lithium clearance (LiCl) was calculated using steady state oral dose (mEq/day) divided by lithium concentration (LiCp; mEq/L) at that dose. **Results:** The complete dataset captured 2451 lithium orders on 771 unique individuals. The subset of 150 randomly selected patients from the complete dataset comprised 342 lithium orders. Of these, 73 (49%) patients had ≥ 1 calculated steady state LiCp available in the EHR. These patients had a total of 270 lithium concentrations, however, 24 (9%) were measured < 0.25 mEq/L, suggesting non-adherence or lab error and were excluded from further analyses. The population (mean$\pm$SD) lithium dose = 25.6$\pm$9.6 mEq/day, LiCp = 0.77$\pm$0.28 mEq/L, and LiCl = 34$\pm$12.3 L/day. Unexpectedly, the variability of LiCl in some individual patients while on a consistent dose was very high, suggesting that non-adherence with lithium doses or errors in LiCp procedures were a common problem. **Conclusion:** Taken as a whole, this DUE suggests that there are significant problems in routine lithium monitoring at this state psychiatric facility and administration will be implementing changes to correct these issues.

Effects of Antidepressants and Depression on Driving Outcomes in the Elderly

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Type: Original Research. **Background:** Antidepressant use in elderly has increased in the US; despite their therapeutic effects, they have undesirable side effects. Existing data show that independently, both depression and antidepressants contribute to impaired driving and increased motor vehicle crashes. **Objectives:** (1) Determine the association between motor vehicle crashes and (a) subjects with no depression and not taking any antidepressants [Group 1], (b) subjects with depression who were not taking any antidepressants [Group 2] and (c) subjects with depression who were taking at least one antidepressant [Group 3]. (2) Compare the number of high deceleration events per 1000 miles driven, the percentage of trips exceeding 60 miles per hour, and the percentage of trips less than 15 miles. **Methods:** This cross-sectional study utilizes data from the Longitudinal Research on Aging Drivers (LongROAD) prospective study of 2,990 drivers ages 65- to 79-years-old. This study collected quantitative driving habits, medical and driving records and depression. We selected subjects who used at least one antidepressant (selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, tricyclic antidepressants, trazodone, bupropion, or mirtazapine). Descriptive statistics and chi-square tests were used for demographics and primary outcome. Kruskall-Wallis and Mann-Whitney tests were used for secondary outcomes. **Results:** There were more women (n = 2491, 178 and 55 for Groups 1, 2, and 3, respectively) and Caucasians (>83%) in each cohort. Those with depression taking at least one antidepressant were more likely to experience a motor vehicle crash ($P = .022$). There was a significant difference in deceleration events among

all 3 cohorts ($P = .012$, $< .001$, and $= .035$, respectively). Those in Groups 2 and 3 were less likely to exceed 60 mph or drive more than 15 miles compared to those in Group 1 but there was no significant difference in these driving habits among Groups 1 and 2 ($P = .378$, .268). **Conclusion:** Antidepressants may be associated with increased risk of motor vehicle crashes. Both antidepressant use and depression seem to increase the frequency of hard braking events, whereas depression may be associated with willingness to drive faster and farther distances.

Enhancing Education of Family Medicine Residents: Survey Results of Interprofessional Psychiatry and Medical Care Conferences Across Two Outpatient Health Systems

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Disclosures: Funding through the Minnesota Department of Health Rural Family Medicine Residency Grant

Type: Original Research. **Background:** Patients with severe mental illness often lack care coordination between primary care and mental health providers. Siloed patient care across separate healthcare systems can negatively impact quality and safety of patient care. Due to a shortage in mental health providers, family medicine physicians are often responsible for providing mental health care in the absence of patient access to psychiatry. Team-based care is integral in the effective management of patients with multiple comorbidities, with the family medicine physician central in coordinating holistic care. Family medicine residencies must cultivate effective interprofessional collaboration and adequate mental health treatment skills to prepare residents for practice. In an effort to bridge care and cultivate these skills, a family medicine clinic and community mental health center implemented nurse care coordination and began monthly interprofessional and cross-organization care conferences. **Objective:** The purpose of this study was to evaluate family medicine residents' learning from the care conference experience. **Methods:** Residents who participated in the care conference ($n = 11$) completed a retrospective pre/post survey to gather perceptions of what was learned from the care conference experience. The survey assessed understanding of providing holistic care, confidence in medication safety monitoring of second-generation antipsychotics, confidence in developing comprehensive patient-centered care plans, understanding of interprofessional roles, and future plans for interprofessional collaboration. **Results:** After participating in interprofessional cross-organizational care conferences, all residents agreed they understood all of the elements (biological, psychological, and social) that must be considered to provide holistic patient care, were confident conducting medication safety monitoring for their patients taking second-generation antipsychotics (eg lipids, hemoglobin A1c, electrocardiogram), and agreed the care conference helped them develop a more comprehensive patient-centered care plan.

Esketamine, in Conjunction With Antidepressant Monotherapy or Augmentation Therapy, Reduces Depressive Symptoms in Patients With Major Depressive Disorder and Active Suicidal Ideation With Intent

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Type: Original Research. **Objective:** In the phase 3 ASPIRE I/II studies (NCT03039192/NCT03097133), esketamine nasal spray (ESK), plus comprehensive standard of care (SoC), rapidly reduced depressive symptoms versus placebo nasal spray (PBO)+SoC in adult patients with major depressive disorder and active suicidal ideation with intent (MDSI). This post hoc pooled analysis evaluated the efficacy and safety of ESK given in conjunction with either oral antidepressant monotherapy or antidepressant augmentation therapy. **Methods:** Adults (aged 18-64 years) with MDSI were randomized to ESK (84 mg) or PBO twice weekly for 4 weeks in conjunction with SoC. SoC included initial hospitalization and newly initiated or optimized standard oral antidepressant therapy (monotherapy or augmentation therapy). The primary endpoint was change in Montgomery–Åsberg Depression Rating Scale (MADRS) total score from baseline to 24 hours postdose (treatment differences examined using analysis of covariance models). **Results:** In the full analysis set ($n = 451$), ESK or PBO was given in conjunction with antidepressant monotherapy in 212 patients (47%; mean age, 37 years; female, 55.7%) or antidepressant augmentation therapy in 239 patients (53%; mean age, 42.8 years; female, 65.3%). Mean baseline MADRS total scores were 40.7 (range, 29-

58) and 40.1 (range, 29-54) in patients receiving antidepressant monotherapy and augmentation therapy, respectively. In patients receiving antidepressant monotherapy, mean (±SD) changes in MADRS total score from baseline to 24 hours were –16.2 (±11.9) with ESK+SoC versus –12.4 (±10.3) with PBO+SoC (least squares means [LSM] difference [95% confidence interval], –4.0 [–6.8, –1.3]; $P = .005$). Changes from baseline to 24 hours postdose in patients receiving antidepressant augmentation therapy were –15.9 (±11.6) with ESK+SoC versus –12.7 (±10.8) with PBO+SoC (LSM difference, –3.9 [–6.6, –1.2]; $P = .005$). The safety profile of ESK was similar in patients receiving antidepressant monotherapy and those receiving antidepressant augmentation therapy. The most common adverse events were dizziness, somnolence, headache, dissociation, nausea, and dysgeusia. Additional results will be reported on prior and concomitant antidepressant therapies. **Conclusion:** Compared with PBO+SoC, ESK+SoC rapidly reduces depressive symptoms in adults with MDSI regardless of choice of concomitant oral antidepressant monotherapy or augmentation therapy. ESK had a similar safety profile when used with either oral antidepressant regimen.

Evaluating Differences in Learning Outcomes Between Pharmacy Students Enrolled in a Conventional Versus Vertically-Integrated Neuropsychiatric Curriculum

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Type: Original Research. **Background:** The UCSF School of Pharmacy recently transitioned from a conventional, siloed curriculum to a vertically integrated, systems-based curriculum. In the conventional curriculum, subjects were taught in separate courses across several quarters. In the integrated curriculum, material is organized by disease state and students learn everything (pharmacology, therapeutics, physiology) about one disease state at the same time. There is also a new skills course which focuses on communication and patient care skills. An integrated curriculum may enhance students' clinical understanding of the disease state, their confidence with applying this knowledge, and long-term retention of the material. The objective of this study was to evaluate the effects of an integrated curriculum on learning outcomes in pharmacy students. **Methods:** Students in the integrated curriculum (2021T) were enrolled in the Neuropsychiatric Theme while students in the conventional curriculum (2021P) were enrolled in Therapeutics of Neuropsychiatric Conditions in Fall 2019. Performance on written exams, Objective Structured Clinical Exams (OSCE), and student self-rating of confidence and comfort with neuropsychiatric topics were compared between the cohorts. Self-rating of confidence/comfort was collected via a Qualtrics survey prior to and after their courses. Students were excluded if they did not complete both surveys. Linear regression was conducted to analyze differences between cohorts in the pre- and post-surveys. We are currently in the process of analyzing data from written and OSCE examinations. **Results:** Of the 95 students in the 2021T (integrated) cohort, 92 (97%) of the students completed both surveys. Of the 126 students in the 2021P (conventional) cohort, 97 (77%) of the students completed both surveys. 2021P had higher self-ratings in some items at baseline compared to 2021T. Both cohorts improved significantly in their ratings for knowledge and comfort with neuropsychiatric content ($P < .05$), with 2021P having higher final ratings than 2021T. There was no significant difference in the amount of improvement between cohorts. **Conclusion:** Pharmacy students in an integrated curriculum had lower confidence and comfort with neuropsychiatric topics at baseline compared to students in a conventional curriculum. Both curricula effectively increased student confidence and comfort in neuropsychiatric knowledge.

Evaluating HIV Pre-Exposure Prophylaxis Prescribing Within a Veterans Affairs Health Care System

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Type: Original Research. **Purpose:** Pre-exposure prophylaxis (PrEP) is most often prescribed to people with sexual risk factors for HIV acquisition; however, people who inject drugs (PWID) and share injection equipment are also at high risk for HIV infection. This medication use evaluation characterized emtricitabine and tenofovir disoproxil fumarate (FTC/TDF) prescribing for HIV PrEP at a Veterans Affairs Health Care System (VAHCS). **Methods:** This was a retrospective chart review of veterans in a VAHCS with a prescription for FTC/TDF filled between February 1, 2019 and August 31, 2019. Veterans were excluded if they were prescribed FTC/TDF for an indication other than HIV PrEP (eg, HIV treatment). The most recent PrEP monitoring appointment was reviewed to determine the indication for PrEP. The encounter was then evaluated for appropriate lab monitoring and prescribing. Additional patient demographic and prescriber information was collected. Descriptive statistics were used to evaluate FTC/TDF prescribing and monitoring trends. **Results:** Fifty-eight veterans filled a prescription for FTC/TDF within the study

period. Twelve veterans were excluded: medication prescribed for post-exposure prophylaxis (n = 6), treatment of hepatitis B (n = 3), or treatment of HIV infection (n = 3). Veteran mean age was 46-years-old (range 24-71) and 94% were male. Eighty-two percent (n = 38) were men who have sex with men. All veterans prescribed PrEP had sexual risk factors for acquiring HIV (multiple partners, inconsistent condom use, etc.); only one veteran was also a PWID with a substance use disorder. Seventeen percent (n = 8) reported having sex with a partner who is HIV-positive and 4% (n = 2) reported having sex with PWID. Twenty-five percent of appointments did not follow guideline recommendations: missing labs, prescribed > 90-day supply of medication, or ordered an incorrect lab. **Conclusions and Future Directions:** All veterans receiving PrEP had sexual risk factors for acquiring HIV. Only one veteran reported IV drug use and sharing needles; based on CDC estimates, likely there are more veterans in this high-risk category that could benefit from PrEP. This project informs efforts to increase PrEP in PWID and improve monitoring practices of current PrEP therapy.

Evaluation of Prescribing Patterns of Antipsychotic Treatment in Adults With Schizophrenia Receiving Antipsychotic Polypharmacy Versus Antipsychotic Monotherapy

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Type: Original Research. **Background:** According to the therapy guidelines for treatment of schizophrenia, the current mainstay of treatment is monotherapy with an atypical or typical antipsychotic. Antipsychotic polypharmacy is controversial and although it is not contraindicated, according to the guidelines this practice is recommended as last-line therapy. **Objective:** To evaluate prescribing patterns and re-hospitalization rates of patients treated with single versus dual antipsychotic therapy amongst District of Columbia Medicaid and Alliance patients diagnosed with schizophrenia or schizophrenia spectrum disorders. **Methods:** A retrospective chart review was conducted using pharmacy and medical data derived from August 1, 2013 through July 30, 2019. Participants included adult enrollees aged 18- to 90-years-old with a diagnosis of schizophrenia or schizophrenia spectrum disorder dispensed at least one atypical or typical antipsychotic during the outlined study period. Participants excluded included patients newly diagnosed for less than six months and patients receiving multiple antipsychotics with a documented diagnosis code for insomnia. Hospitalizations were identified based on the primary and secondary admitting diagnosis codes. Descriptive analysis was conducted to determine the sample's baseline demographics and clinical characteristics. **Results:** There were a total of 181 participants included in data analysis after inclusion/exclusion criteria. Hospitalization rates were analyzed to show 91 (50.3%) participants were hospitalized while receiving treatment of one or more antipsychotic for schizophrenia or schizophrenia spectrum disorder. The remaining 90 (49.7%) participants were not hospitalized. Of the 91 participants who were hospitalized, 26 (28.6%) were re-hospitalized for the diagnosis of schizophrenia or schizophrenia spectrum disorder during the specified time period. Of the 181 participants, 142 (78.5%) of participants received antipsychotic monotherapy while 39 participants received dual antipsychotic medication. Of those who received monotherapy, 67 (73.6%) were hospitalized and 22 (84.6%) were re-hospitalized. Those receiving dual therapy were re-admitted to the hospital at a lower rate (16.7%) than those who received monotherapy (32.8%). **Conclusions:** Thirty-nine participants (21.5%) were identified with antipsychotic polypharmacy; this is on par with the national average. The outcomes of this research study resulted in a higher re-admittance rate for the patients receiving monotherapy versus the dual therapy group with a difference of 16.1%.

Evaluation of the Prescribing Practices of Prazosin at a Federally Qualified Health Center

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Type: Original Research. **Purpose:** Prazosin was recognized in 2018 by an American Academy of Sleep Medicine position paper as a therapy that may be used for post-traumatic stress disorder (PTSD) related nightmares. Effective doses reported in the literature range from 3 - 16 mg daily. This medication use evaluation (MUE) describes the population in which prazosin was prescribed for anxiety or sleep-related disorder at a federally qualified health center (FQHC) and the doses prescribed. **Methods:** This MUE was exempt by the Pacific University Institutional Review Board. Patients were identified by a report of prazosin prescriptions ordered in the electronic medical record (EMR) between May 31, 2018, and June 1, 2019. Prescriptions linked to a diagnosis of any anxiety or sleep-related disorder were included. Prescriptions from an outside specialist or for unrelated diagnoses were excluded. The associated diagnosis was obtained from the prazosin prescription, if not available it was obtained from the encounter. Prescriptions with dosing ranges, the highest possible dose were used for dose calculations.

Patients with multiple prescriptions, the most recent were used for dose calculations. The primary outcome was the average prazosin dose. Additional outcomes evaluated included, dosing ranges, average dose based on sex. The population descriptors include age, ethnicity, language, and insurance status. **Results:** During the study period 275 patients were prescribed prazosin, with 71 excluded (prescribed by outside provider), 75 excluded (prescribed for unrelated diagnosis). Prazosin doses ranged between 1 mg and 15 mg, average daily dose was 2.4 mg. Men had higher average daily doses of 3.4 mg compared to women, 2 mg. Of the 129 patients in the study, 87 (67%) were female (average age 38) and 42 (33%) were male (average age 41). The majority of patients were non-Hispanic (96), primary language English (106) and insured (87). **Conclusions and Future Directions:** The results indicate that males received a higher average daily dose of prazosin than females. The main limitation of this study lies in the quality of data as there could be errors in the EMR which may interfere with determining an associated diagnosis or an average dose. Education regarding effective prazosin dosing ranges should be considered.

Impact of Academic Detailing on Opioid-Benzodiazepine Co-Prescribing at Veterans Health Administration

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Type: Original Research. **Objective:** To evaluate the impact of Academic Detailing on opioid and benzodiazepine (opioid-BZD) co-prescribing at the Veterans Health Administration (VHA). **Background:** Academic Detailing is a multifaceted service that provides individualized outreach to encourage evidence-based practice. It is based on relationship building and provides specific practice-change recommendations to providers. Academic detailers assess baseline knowledge, identify barriers, attitudes, and likelihood for behavior change. **Methods:** A retrospective cohort design evaluating the impact of academic detailing on opioid-BZD co-prescribing was performed between October 1, 2014 to March 31, 2019 (54 months). The main exposure was the facility-level proportion of VHA providers who received academic detailing educational outreach on either opioid safety or benzodiazepine prescribing. The primary outcome was the monthly prevalence (number per 1,000 population) in opioid-BZD co-prescribing. A closed cohort of providers who had written a prescription for an opioid, benzodiazepine, or both were included for analysis as part of the facility-level analysis. Descriptive analysis compared facilities that were exposed to academic detailing to facilities that were not exposed to academic detailing. Facility-level analysis was performed using fixed effect model to evaluate the change in the prevalence of veterans who were co-prescribed opioid-BZD controlling for potential confounders. **Results:** A total of 130 facilities consisting of 17,706 providers were included for analysis. Facilities that had providers receive academic detailing had a lower monthly prevalence of veterans on opioid-BZD combination compared to facilities that did not have academic detailing (11.6 versus 22. 4 per 1,000 population, $P < .001$). In the fixed effects model, facilities that had a proportion of their providers exposed to academic detailing had a larger decrease in the monthly prevalence of veterans co-prescribed opioid-BZD combination (4.9 veterans per 1,000 population) compared to facilities that were not exposed (0.41 veterans per 1,000 population) to academic detailing ($P < .001$). **Conclusions:** Facilities with providers who were exposed to opioid safety- or benzodiazepine-related educational outreach had significant decrease in the month prevalence of veterans co-prescribed opioid-BZD combinations. As the opioid epidemic continues to claim more lives, academic detailing provides evidence of reducing the risk by decreasing the prevalence of veterans on opioid-BZD combinations.

Implementation and Evaluation of a Pharmacist-Driven Discharge Medication Reconciliation Process on an Inpatient Psychiatric Unit

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Type: Original Research. **Background:** Appropriate discharge medication reconciliation is essential for patient safety and continuity of care. Current practice for discharge medication reconciliation at our institution includes physician completion of discharge medication reconciliation followed by retrospective review by a pharmacist. Pharmacy-led discharge medication reconciliation has been previously shown to reduce rate and severity of medication-related errors at discharge from medical or surgical admission but has not been evaluated in psychiatric admissions. This prospective, pilot study evaluates the impact of a pharmacist-driven discharge medication reconciliation process on rate and severity of discharge medication errors on an inpatient psychiatric unit. **Methods:** Patients within a general adult inpatient psychiatric unit were divided into intervention and control

groups on the basis of service team assignment. A pharmacist performed all discharge medication reconciliation duties within the electronic health record for the intervention group, while the control team continued with usual practice of physician-completed discharge medication reconciliation. Patients greater than 18-years-of-age discharged between October 1, 2019 and November 27, 2019 were included. Patients were excluded if they were not prescribed medications at discharge or left against medical advice. The primary outcome was rate of discharge medication-related errors. Secondary outcomes included: severity of errors identified, percentage of discharges before 1 pm, length-of-stay, and funds spent on indigent medications. **Results:** Two hundred and sixteen discharges met inclusion and exclusion criteria and were included in this analysis (n = 119 in intervention group, n = 97 in control group). Error rates in the pharmacist-driven medication reconciliation group were significantly lower than in the control group (0.5% vs 10.7%; rate difference: -0.102 [95% CI -0.128 to -0.076]). Rates of serious or significant errors were also significantly lower (0.2% vs 6.3%; rate difference: -0.061 [95% CI -0.081 to -0.041]). Additionally, more discharges in the intervention group occurred before 1 pm; although this difference was not statistically significant (46.2% vs 39.2%; $P = .30$). **Conclusions and Future Directions:** A pharmacist-driven medication reconciliation process on an inpatient psychiatric unit significantly reduced rates of discharge medication-related errors. More testing will be performed to determine if this intervention is sustainable.

Implementation of Depression Assessment in Ambulatory Care Clinics in Antigua, Guatemala

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Type: Original Research. **Background:** Depression is the leading cause of disability worldwide and impacts 3.7% of the population in Guatemala. In developing countries, approximately 75% of psychiatric disorders remain untreated. People with depression are twice as likely to have chronic diseases, causing complications for both diseases. Depression screening and treatment can impact morbidity and mortality from these conditions, and is a standard of primary care in the United States. Guatemala currently does not have the same standard. The nine-item Patient Health Questionnaire (PHQ-9) is validated, has been translated into Spanish, and can be incorporated into assessments for use throughout Guatemala. **Objective:** To describe the impact of incorporating depression assessments using the PHQ-9 for adults in public ambulatory care clinics in Antigua, Guatemala. **Methods:** Descriptive data was collected by two faculty and five pharmacy students over 3 weeks in continually-run clinics in Antigua, Guatemala during an advanced pharmacy practice experience (APPE). Data included gender, age, comorbid conditions, PHQ-9 scores in each range (ie, 0-4, 5-9, 10-14, 15-19, 20-27), number of psychologist referrals, blood pressure and glucose readings, and smoking status. Clinic staff were surveyed initially about impressions of depression. Depression presentations were delivered in waiting areas of the clinics before patients were assessed. Verbal and written education was provided for Guatemalan physicians and nursing staff. Each patient was paired with a pharmacy student to facilitate PHQ-9 completion. A Guatemalan psychologist was on site for referral. **Results:** Over 905 patients were seen by pharmacy faculty or students. Fifty-nine PHQ-9s and two PHQ-2s were completed. The total PHQ-9 score distributions were as follows, 0: 4.92%, 1-4: 21.31%, 5-9: 32.79%, 10-14: 22.95%, 15-19: 11.48%, 20-27: 6.56%. **Conclusion:** Patients did not complete PHQ-9 assessments due to declining, time constraints, or were excluded for being minors. Most screened patients had minimal to moderate depression and were very interested in the non-pharmacologic interventions provided and psychologist services available. Providers perceived depression to be "of little importance" and no antidepressants were on clinic formulary. There is need for more depression education for patients and providers in Guatemala, which will be a focus for future students and faculty working in these clinics.

Implementing the Standardized CYP2D6 Genotype to Phenotype Translation System: A Meta-Analysis of CYP2D6 Polymorphisms and Risperidone Pharmacokinetics

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Type: Original Research. **Background:** Risperidone is an atypical antipsychotic metabolized to its active metabolite 9-hydroxyrisperidone primarily by CYP2D6 and to a lesser extent by CYP3A4. Genetically-determined CYP2D6 activity may influence drug metabolism, but the extent of its impact is unclear. A number of kinetic studies of smaller sample sizes investigating the association between CYP2D6 polymorphisms and risperidone exposure have been conducted, but there have not been any assessments of the consistency of their findings. **Objective:** To conduct a meta-analysis evaluating the impact of genetically-defined CYP2D6 activity on risperidone phar-

macokinetics using the standardized CYP2D6 genotype to phenotype translation system. **Methods:** A PRISMA compliant meta-analysis was conducted (PROSPERO registration number: CRD42019140366). A literature search of multiple electronic databases was performed for all studies investigating the impact of CYP2D6 genotype on risperidone pharmacokinetics among human subjects. The exposure of risperidone or the active moiety (risperidone + 9-hydroxyrispeirdone) was measured by dose-adjusted steady-state plasma concentration or the area under the plasma concentration-time curve. Subjects were reclassified into poor metabolizers (PMs), intermediate metabolizers (IMs), normal metabolizers (NMs) or ultrarapid metabolizers (UMs) prior to analysis. Between-group comparisons were conducted with NMs as a reference by using the ratio of means method stratified by single or multiple dosing regimens. Heterogeneity was assessed using Cochran's Q test and quantified by I-square statistic. **Results:** A total of 15 studies including 1,949 adult subjects were included in the meta-analysis. Following multiple-dose administration, as compared to NMs, risperidone serum level was 2.24-fold higher in IMs (95% CI [1.63-3.08], $P < .001$) and 5.23-fold higher in PMs (95% CI [4.18-6.54], $P < .001$); the active moiety level was 1.19-fold higher in IM (95% CI [1.12-1.26], $P < .001$) and 1.44-fold higher in PM (95% CI [1.18-1.76], $P < .001$). Higher exposure of risperidone and the active moiety in PMs or IMs was also identified in single-dose studies. No significant difference of either risperidone or active moiety exposure was found between NMs and UMs. **Conclusions:** Genetically-defined impaired CYP2D6 function is associated with increased exposure of both risperidone and the active moiety. CYP2D6 metabolizer status may impact dose-related outcomes and alternative dosing strategies should be investigated for IM or PM patients being considered for treatment with risperidone.

Increasing Screening and Brief Interventions for Alcohol Use Disorder in a Department of Veteran Affairs Primary Care Clinic

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Type: Original Research. **Background:** More than 40% of US Veterans meet criteria for alcohol use disorder (AUD) at least once in their lifetime. Patients with AUD or hazardous drinking patterns experience an increase risk in alcohol-related health consequences, including infectious, cardiovascular, and gastrointestinal diseases, and alcohol related injuries. Patients being seen for complaints related to heavy alcohol consumption are more likely to be seen initially in primary care clinics within the VA system, where primary care pharmacists are widely embedded and work independently under a scope of practice. Primary care pharmacists are therefore optimally positioned to increase the number of screenings, brief interventions, and referrals to treatment for patients with AUD. **Purpose:** To increase the number of screenings and provision of brief interventions for hazardous alcohol use amongst veterans in the primary care pharmacist clinics through education, training, and direct intervention in the clinic. **Methods:** A resident-led educational intervention was created for primary care pharmacists using the National Institute on Alcohol Abuse and Alcoholism (NIAAA) Guide for Screening and Brief Interventions as a model. The resident presented this educational program to a primary care pharmacist and then integrated into that pharmacist's clinic for one month, where both the resident and pharmacist preceptor conducted screenings for hazardous drinking. The resident then identified the number of patients screened, if brief interventions were conducted, and if patients were referred to mental health clinics for treatment from patient charts. Data was collected before, during, and after the educational intervention was made. **Results:** During the month of the intervention, 91% ($n = 58$) of patients in selected clinic were screened for AUD compared to 0% of patients before the educational intervention. The effect of the educational intervention was sustained in the month after the intervention where pharmacists in the same clinic screened 86% of patients ($n = 46$). Of the patients with a positive screening, 33% were not receiving care from mental health teams, creating opportunity for referral to treatment. **Conclusions:** Pharmacists in primary care who receive training in screening and brief interventions for AUD identify more patients with AUD and refer more patients to treatment following positive identification of hazardous drinking.

Interprofessional Controlled Substance-Related Communication Behaviors Among Physicians and Community Pharmacists

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Type: Original Research. **Background:** Physicians and pharmacists are intimately involved in the prescribing and dispensing of controlled substances, including prescription opioid analgesics and medication for opioid use disorder. Given the morbidity and mortality associated with opioid misuse and opioid use disorder, exploring interprofessional communication between pharmacists and physicians is warranted. **Objectives:** To describe controlled substance-related interprofessional communication behaviors among community pharmacists and physicians in Tennessee. **Methods:** Surveys were sent to 2,290 community

pharmacists and 1,890 physicians across Tennessee using the Tailored Design Method. Survey items explored the extent to which theory of planned behavior constructs (attitude, subjective norms, perceived behavioral control), self-perceived communication confidence, and communication apprehension (independent variables) predicted interprofessional communication between pharmacists and physicians (dependent variable). The dependent variable was operationalized as "Given 10 new prescribers from whom you receive controlled substance prescriptions, how many of these prescribers would you attempt to talk to directly to establish a professional relationship?" for pharmacists, and "Given 10 new community pharmacists to whom you send controlled substance prescriptions, how many pharmacists would you attempt to talk to directly to establish a professional relationship?" for physicians. SPSS version 25 was used to conduct regression analyses on the variables of interest. The impact of the extent to which perceptions of provider availability when attempting to communicate were also assessed. **Results:** We obtained 16% and 19% response rates from physicians and pharmacists, respectively. Attitude ($P < .001$), subjective norms ($P < .001$), and perceived behavioral control ($P = .007$) were statistically significant predictors of interprofessional communication behavior in the combined analysis of pharmacists and physicians. Pharmacists reported they would be able to speak directly with the physician an average of 1.7 times out of 10 attempts. Physicians reported being able to speak directly to the pharmacist 7.9 times out of 10 attempts. The average number of times pharmacists and physicians would attempt to communicate with each other to establish professional relationships was 4.5 and 4.0 out of 10 opportunities, respectively. **Conclusions:** Interprofessional communication is more difficult for pharmacists than physicians. However, pharmacists and physicians reported similar interprofessional communication behaviors. Research is warranted to more fully explain variance in interprofessional, controlled substance-related communication behavior.

Lifetime Cocaine Use and Depression: An Analysis of the National Health and Nutrition Examination Survey 2005-2018

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Type: Original Research. **Purpose:** This study characterized the relationship between lifetime cocaine use and depression in a representative sample of the US population using data from the National Health and Nutrition Examination Survey (NHANES). The goal was to determine the prevalence of clinically relevant depression by lifetime cocaine use frequency; and to describe the association between lifetime cocaine use and clinically relevant depression. **Methods:** A retrospective cross-sectional analysis, using multivariate regression, was performed to determine the relationship between lifetime cocaine use and depression for US adults aged 20-years to 59-years-old from NHANES 2005-2016 survey data. Lifetime cocaine exposure was assessed using the drug use questionnaire of the NHANES database and categorized as never used (0), infrequent (1-5), intermediate (6-49), and heavy lifetime users ($\geq$50). Patient Health Questionnaire-9 (PHQ-9) scores $\geq$10 were considered clinically relevant depression (CRD). Statistical analyses were conducted using STATA according to the NHANES: Analytic Guidelines. Multivariate logistic regression analysis was used to evaluate the association between lifetime cocaine exposure and depression. Covariates were selected based on their established associations with depression. The logistic regression models accounted 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, and lastly (3) clinical characteristics, such as smoking status, body mass index, hypertension, cardiovascular disease, endocrine disorders, and sleep disorders. **Results:** The population of NHANES 2005-2016 adults aged 20- to 59-years-old who completed a PHQ-9 and the lifetime cocaine use portion of survey was n = 1,154 [CRD n = 111 (9.62%), non-CRD n = 1,043 (90.38%)]. Prevalence of clinically relevant depression by lifetime cocaine use: non-users (12.1%), infrequent (10.7%), intermediate (10.3%), and heavy (7%). After adjusting for demographic, socioeconomic, and clinical characteristics, lifetime cocaine use was not associated with an increased odds of depression: infrequent [OR 0.89 (0.20-3.89)], intermediate [OR 0.79 (0.18-3.56)], heavy [OR 0.49 (0.11-2.25)]. **Conclusion:** These results suggest that there is no association between lifetime cocaine exposure and depression in a representative sample of the US population, although it is important to note that analysis accounts for only 1.9% of the total NHANES sample and may therefore be susceptible to nonresponse bias.

Lofexidine for Acute Opioid Withdrawal: A Clinical Case Series

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Type: Original Research. **Background:** Lofexidine is an alpha-2 agonist which has proven efficacy in reducing the severity of opioid withdrawal symptoms. Lofexidine is the first alpha-2 agonist to be approved for this indication by the US Food and Drug Administration, and its selectivity

for alpha-2A and alpha-2C receptors confers a theoretical benefit compared to other drugs in this class by potentially reducing the risk of cardiovascular adverse effects. Limited pragmatic clinical evidence exists to evaluate the effects of lofexidine for opioid withdrawal outside of randomized controlled trials. **Objectives:** To report the clinical successes and challenges associated with lofexidine use for opioid withdrawal symptoms in an inpatient addiction treatment facility. **Methods:** Seventeen patients who received at least one dose of lofexidine during inpatient treatment for opioid use disorder were included in this study. A retrospective chart review was conducted for clinical, subjective, and objective data. Adverse events, daily dose, clinical opioid withdrawal scale (COWS) scores, vital signs, and reasons for early discontinuation of therapy are reported. **Results:** Age, gender, and primary opioid used upon admission were similar to those reported in phase three clinical trials. Patients treated with lofexidine maintained mild withdrawal symptoms throughout treatment. Two patients (12%) left treatment against medical advice, while five patients (29%) discontinued treatment prior to seven days due to resolution of withdrawal symptoms. Six patients (35%) had at least one dose withheld due to hypotension. Seven patients (41%) never received the prescribed total daily dose of 2.16 mg. Four patients (24%) were still dosing on day seven. Most patients (65%) experienced a decrease in their average daily COWS scores from intake to discharge. Average daily diastolic and systolic blood pressure readings remained stable over the seven days of treatment, and daily average heart rate decreased over time. **Conclusions:** Lofexidine is a safe and effective treatment option for inpatient opioid withdrawal treatment. Further studies are needed to assess patient-reported outcomes while treated with lofexidine in both inpatient and outpatient treatment settings. Prospective, randomized studies comparing the frequency and severity of cardiovascular adverse effects with other alpha-2 agonists are warranted given the substantially higher cost of lofexidine.

Measuring the Effectiveness of Converting From Paliperidone Palmitate One-Month Injection to Paliperidone Palmitate Three-Month Injection in an Outpatient Setting

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Type: Original Research. **Purpose:** Long-acting injectable antipsychotics (LAIAs) are commonly utilized to improve patient adherence, with paliperidone palmitate one-month injection (PP1M) being a commonly prescribed LAIA. In 2015, paliperidone palmitate three-month injection (PP3M) came to market to extend the interval in which patients receive their injections. In an urban outpatient clinic, it has been observed that some patients have decompensated upon switching from PP1M to PP3M. This report details the cases of failure upon switching from PP1M to PP3M. **Methods:** Subjects were deemed eligible for inclusion if they received one dose of PP3M. Subsequent exclusion criteria included anyone that was improperly converted from PP1M to PP3M, lost to follow-up, or deceased before outcomes of the injection were determined. Eligible subjects were included in the analysis and in-depth chart reviews were utilized to determine failure as defined by the following: discontinuation of PP3M due to lack of effectiveness, addition of scheduled oral supplementation, and/or increase in frequency of administration. **Results:** Thirty-one subjects were analyzed for real-world effectiveness of PP3M. Of those, 12 subjects (39%, $P < .001$) failed treatment of PP3M. Two of the 12 subjects remained on PP3M despite lack of effectiveness; however, they required oral supplementation to treat and prevent further decompensation. Of the 12 subjects, six subjects (50%) required oral supplementation. No subjects were managed by increasing the frequency of PP3M administration. Consequently, half of the subjects also required inpatient hospitalization due to decompensation upon switching to PP3M. Eight of the 12 subjects were receiving the 819 mg dose, two subjects were receiving the 410 mg and 546 mg doses, and zero subjects received the 273 mg dose. **Conclusions and Future Directions:** The findings suggest that PP3M may not have a robust enough effect to maintain psychiatric stabilization upon switching from an effective PP1M regimen. In a small cohort of subjects, more than one-third decompensated, with half of those requiring hospitalization for restabilization. Given the significance of this observed outcome, it is imperative to examine a larger cohort of patients to determine if PP3M is not as effective in a real-world setting and identify risk factors for treatment failure.

Mental Health Resources in Pharmacy Schools

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Type: Original Research. **Purpose:** To examine the availability of mental health resources, including targeted, educational, preventative, and crisis interventions available to pharmacy students at their respective schools. Identifying if pharmacy schools have specific resources

and details about these services is important given the increasing prevalence of mental health disorders among pharmacy students. **Methods:** This study has two arms: (1) IRB-approved survey sent to representatives of Student Affairs of eleven pharmacy schools in January 2019, and (2) website scan performed of all pharmacy schools in the United States in March 2019. The survey collected information on mental health resources available including availability, location, and future plans. For the website scan, all pharmacy schools on the PharmD School Directory on the Pharmacy College Application Service website were included. The website scan collected information on resources at each school, and the difficulty of locating this information on schools' websites. Descriptive statistics performed through Excel. **Results:** For the survey arm (n = 9), 83% of respondents were Directors of Student Affairs. Top services located within the university campus but not within the pharmacy school were an on-site counselor (89%) and wellness activities (67%). Mental health awareness by student organizations (78%) and mental health training included in the curriculum (67%) were top resources within pharmacy schools. Top barriers perceived by respondents preventing students from seeking resources were discomfort speaking to a mental health professional and lack of time. For the website scan arm (n = 150), most schools had availability of an on-site counselor; however, 83% of counselors were located within the university campus, not within the pharmacy school. For 77% of pharmacy schools, no information on mental health resources was found on their websites. The information was considered "somewhat" or "extremely difficult" to find for 45% of schools. **Conclusion:** Both arms found that the most commonly available services, including an on-site counselor, were not located at the pharmacy school but instead part of university campus services. The findings in this study can help inform pharmacy schools across the nation of what services other schools may be offering as well as areas for improvement in development and promotion of services.

Midazolam Pharmacokinetics in Adult Patients on Veno-Venous Extracorporeal Membrane Oxygenation

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Type: Original Research. **Purpose:** Veno-venous extracorporeal membrane oxygenation (VV-ECMO) is used in patients with acute respiratory distress syndrome (ARDS) to resupply blood with oxygen, while reducing stress on the lung tissue. The polyvinyl chloride (PVC) tubing and other components of an ECMO device may lead to adsorption of medications and alteration of pharmacokinetics (PK). With the intention of moving toward optimal therapeutic dosing and reducing the potential for toxicity, a population pharmacokinetic model was developed that describes the impact of VV-ECMO on midazolam disposition. **Methods:** Nineteen adult patients, who were admitted to the intensive care unit for severe respiratory failure and meeting the requirement for VV-ECMO therapy, and received sedation via midazolam infusion were included in the study. Patients with substance abuse or trauma were excluded. Plasma concentrations of midazolam were collected just prior to VV-ECMO cannulation, at 2, 6, 12, 24, 48, 72, and 96 hours following cannulation, and at 2, 6, and 12 hours following decannulation. The pharmacokinetic model for midazolam was developed using nonlinear mixed effects modeling software (NONMEM version 7.3, ICON Development Solutions, Hanover, MD). **Results:** Midazolam PK data were well described by a two-compartment disposition model with first-order elimination. VV-ECMO cannulation was associated with a significant reduction in midazolam clearance ($P < .001$). The population clearance estimate when not receiving VV-ECMO was 33.9 L/h (95% confidence interval [CI] 19.2-46.3), whereas the estimate when receiving VV-ECMO was 11.4 L/h (95% CI 8.3-17.1). Results of model fitting were provided using a nonlinear mixed effects modeling software. **Conclusions and Future Direction:** The reduction in midazolam clearance attributed to VV-ECMO may increase the patient drug exposure and may warrant dose adjustment. The development of an R Shiny web-based interactive application can serve as an educational tool and can provide both clinicians and students with a visualization aid regarding the behavior of midazolam PK before during and after VV-ECMO cannulation.

Modified Overt Aggression Scale (mOAS) Development and Use in Monitoring Aggression on an Inpatient Psychiatric Unit

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Type: Original Research. **Background:** Monitoring aggressive behavior for acute psychiatric inpatients is essential to provide appropriate treatment in an environment that is safe for the patient, staff, and other patients. Yudofsky's Overt Aggression Scale (OAS) is a tool that measures the level of aggression per event in an individual patient. Although useful, this research tool requires extensive training of staff and multiple steps to record each episode of aggression. The mOAS permits quantitative monitoring

of the maximum severity of aggression by easily trained staff during a 4-hour tracking period as part of routine care and provides data essential to monitor treatment. **Objectives:** The objective of this project was to quantitatively monitor aggressive behavior of patients. **Methods:** The mOAS assigns a ranked value on a scale from zero to five. A rating of 0 represents a patient that had no aggression observed during the 4-hour block, 1 is threats toward objects, 2 is violence toward objects, 3 is threats toward people, 4 is violence toward people, and 5 is violence toward staff. The nursing service requested a training program for the psychiatric nursing assistants that would be performing the assessments and a training program was designed. The data are summarized in various ways (moving average over 7 days, moving average over 2 days, maximum rating in past 7 days, etc.). **Results:** Description of the training program and samples of the results of the mOAS will be shown. **Conclusions:** The mOAS is a reliable and effective method to monitor aggression in psychiatric inpatients. These data allow professional staff to focus limited resources on the most seriously ill patients that represent an ongoing danger to themselves and others.

Opioid Prescribing Among Non-Surgical Adult Inpatients on Discharge to Skilled Nursing Facilities

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Type: Original Research. **Purpose:** Residents of skilled nursing facilities (SNFs) are at increased risk for opioid-associated adverse events. Despite the high prevalence of opioid use, little is known about what proportion of SNF opioids is initiated prior to admission. The objective of this study is to examine the frequency and characteristics of receiving an opioid prescription among non-surgical, adult inpatients on discharge to a SNF. **Methods:** This was a retrospective cohort study among adult (age >18 years) inpatients discharged from a 576-bed academic, quaternary care facility in Portland, OR to a SNF between January 1, 2017 and December 31, 2018. Eligible patients were identified using discharge disposition data collected from electronic health record data. We excluded patients with a surgical Medicare-severity diagnosis-related group (MS-DRG). Our primary outcome was receipt of an opioid prescription on discharge to a SNF. **Results:** Among 4,375 patients discharged to a SNF, 1,829 patients did not have evidence of a surgical procedure during the index admission and were included in this study. Of these, 50.7% (928/1,829) were prescribed an opioid on discharge. Patients mean (standard deviation) age was 69.9 (14.4) years, median length of stay was 7 (IQR 5-10) days, and median Charlson Comorbidity Index was 2 (IQR 0-4). The most frequently prescribed opioid was oxycodone (61%). Median (interquartile range IQR) morphine milligram equivalents (MMEs) per day prescribed on discharge were 45 (IQR 30-96) and 34.5% received >90 total MMEs per day. Nearly half (44%) of patients discharged to SNFs with an opioid were not receiving an opioid upon the first day of the initial hospital admission. Approximately 44% of patients prescribed an opioid had a diagnosis chronic pain and 17% were co-prescribed a benzodiazepine. **Conclusions and Future Directions:** A large proportion of non-surgical patients discharged to a SNF following inpatient hospitalization receive an opioid prescription. Given the risk of opioids, these results have important implications for SNF residents. Our future studies aim to better understand the risk of chronic opioid use and where opportunities lie for de-escalation following SNF admission.

Outcomes Comparison Between Risperidone and Paliperidone Long-Acting Injectable Antipsychotics in Veterans

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Type: Original Research. **Background:** Long-acting injectable antipsychotics (LAI-APs) have been integral in the management of schizophrenia and other psychiatric illnesses, such as bipolar disorder, in veterans. However, there are limited studies within LAI-APs, including Risperdal Consta (risperidone, RC) and Invega Sustenna (paliperidone, IS). RC requires a 3-week oral overlap and is administered every 2 weeks, while IS does not require an oral overlap and is administered every 4 weeks. This study sought to assess differences in psychiatric hospitalizations, medication nonadherence, and medication discontinuation between RC and IS. **Methods:** This IRB-approved retrospective chart review included veterans who have received at least 2 injections of either RC or IS between January 1, 2016 and December 31, 2018 at VA Loma Linda Healthcare System. Demographics and diagnoses were analyzed descriptively. Nonadherence was defined as missing an injection for a specified duration (>3 days for RC and >7 days for IS). Pre-LAI-AP and post-LAI-AP hospitalizations were assessed using a pre-post design with equivalent time periods. Chi-Square and Mann-Whitney U tests were used for statistical analysis and *P*-value was set at <.05 for statistical significance. **Results:** Ninety-seven subjects were included (44 on RC and 53 on IS). Subjects had a mean age of 46±13.8 years, 92% were male, and 94% were diagnosed with schizophrenia or

schizoaffective disorder. Subjects on RC were less likely to be rehospitalized (22.7% vs 47.2%, $P = .013$) and had less post-LAI-AP hospitalizations (0.4 ± 1.0 vs 0.9 ± 1.5, $P = .015$) compared to IS. However, subjects on RC had a shorter treatment duration (41.6 ± 40.2 vs 58.2 ± 45.7 weeks, $P = .043$) compared to IS. No differences were detected in nonadherence rates (25% vs 28.3%, $P = .715$) and discontinuation rates (68.2% vs 62.3%, $P = .543$) between RC and IS. **Conclusion:** Veterans on RC were less likely to be re-hospitalized and had less post-treatment psychiatric hospitalizations. Medication nonadherence and discontinuation rates were comparable between RC and IS. Future studies that include all VA institutions are warranted.

Outcomes of a Student-Led Smoking Cessation Program at a Women's Shelter for Victims of Domestic Violence

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Type: Original Research. **Purpose:** The rate of smoking in the homeless population is more than four times that of the general population. Despite popular belief, homeless female victims of domestic violence actively seek preventive health services including smoking cessation. However, limited data exists on tobacco use dependence behaviors and outcomes in this population. Student pharmacists have the skills to provide smoking cessation services. The student-led smoking cessation program was implemented in 2018 at a women's shelter for victims of domestic violence. The objectives of this research were: (1) Describe the tobacco use behaviors of participants of a student-led smoking cessation program at a women's shelter. (2) Analyze the outcomes of the program. **Methods:** This was an Institutional Review Board approved retrospective chart review. Included were all participants 18-years or older who attended either a weekly student-led individual appointment or group session at the shelter from February 1, 2019 through August 31, 2019. Data collected included number of cigarettes smoked daily at baseline and at each follow-up, high-risk situations, reasons for quitting, prior quit attempts, and outcomes of the program. **Results:** Twenty-five unique participants were seen: 23 active smokers and 2 former smokers. All were victims of domestic violence. The majority smoked 7 days per week (87%) with approximately half smoking 11 or more cigarettes daily (48%). The most common high-risk situations for smoking were stress (87%), social situations/other smokers (30%), meals (22%), and cravings (22%). The most popular reasons for pursuing cessation included health (43%), cost/money (30%), having kids (22%), the smell (22%), and pregnancy (9%). Average motivation was 72/100 and average confidence was 82/100 (range 0–100). Four patients (16%) followed-up; 1 participant quit smoking and 3 participants reduced daily cigarette use by at least half. **Conclusion:** All participants who followed-up with the program reduced the number of cigarettes smoked or quit. There are unique smoking characteristics and beliefs in this underserved population. The time in shelter is a critical time to build skills and support for patients who seek preventive care. More research is needed to best tailor interventions and improve follow-up due to the transient nature of the population.

Persistence on Droxidopa for the Management of Orthostatic Hypotension at an Integrated Care Center

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Type: Original Research. **Purpose:** Droxidopa has demonstrated an improvement in blood pressure and reduction in falls for patients with orthostatic hypotension (OH). However, high rates of discontinuation at six months are reported, most commonly due to adverse events (AEs). Specialty pharmacists closely monitor therapeutic response and AEs to reduce inappropriate discontinuation. This study measured persistence and outcomes in adults with OH using an integrated specialty pharmacy for medication fulfillment. **Methods:** We performed a single-center, retrospective analysis of adult patients prescribed droxidopa through the center's neurology and cardiology departments with at least 3 medication fills by the center's specialty pharmacy from May 1, 2017 through September 30, 2019. Demographics, indication, insurance type, reported AEs and falls, as well as emergency room visits and hospitalizations were collected from the electronic medical record. Medication fill dates were collected from the center's pharmacy database and used to calculate persistence and adherence. Persistence was measured as time to first non-persistent event, defined as a coverage lapse exceeding 60 days. Time to non-persistence was calculated for all patients. Restricted mean survival time was defined as the average time a patient remains persistent, accounting for patient censoring. Adherence was calculated using proportion of days covered (PDC). **Results:** A total of 89 patients were included. Median age was 73 years, majority male (64%), Caucasian (85%), and receiving Medicare (75%). Indications included: primary autonomic failure (89%), dopa-

mine beta-hydroxylase deficiency (1%), non-diabetic autonomic neuropathy (5%) and other (5%; amyloidosis, diabetic autonomic neuropathy, OH exacerbated by dialysis, and postural orthostatic tachycardia syndrome). Twenty-three patients discontinued treatment. Restricted mean survival time for persistence was 1.5 years out of the 2-year study duration. Median PDC was 0.97; 12 patients had PDC below the industry threshold of 0.8. Twenty-eight patients reported an AE, most commonly hypertension (31%). Half of patients reported a fall, 11 patients had at least one emergency room visit and 9 patients had at least one hospitalization. **Conclusions:** Our findings demonstrate that high levels of droxidopa persistence and adherence are achieved within an integrated care model. Though falls are common in this population, improving persistence on droxidopa may help reduce falls and subsequent healthcare resource utilization.

Pharmacist Wellness and Mental Health Analysis

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Type: Original Research. **Purpose:** Current literature does not take a holistic look at pharmacist wellness. The primary objective of this project was to survey North Carolina pharmacists in various working environments and stages of life to assess and determine areas of interrelatedness between three areas of health and wellness: mental, physical, and personal health. **Methods:** The North Carolina Board of Pharmacy disseminated a survey to all actively licensed pharmacists in the state from December 20, 2019 through February 15, 2019. The survey collected pertinent demographics and assessed mental (stress, anxiety, depression, substance use), physical (diet, exercise, sleep habits), and personal (work-life balance, hobbies, burnout, career and relationship satisfaction) health, incorporating previously validated tools adapted to create a comprehensive survey. **Results:** Response rate was 9.7% based on North Carolina demographics. Overall, wellness attributes in pharmacists showed concerning levels of likely anxiety, likely depression, alcohol use, negative impacts of sleep, burnout, and high risk of distress. Being in a specific area of pharmacy practice was significantly associated with facets of personal and physical health, but not with those of mental health. Of the significant associations, corporate community pharmacy had the highest frequency of burnout, scoring high risk on the Well Being Index, and not having time for relationships or hobbies. Working $\geq$ 60 hours per week, not having children, being 30- to 39-years-old, single, or divorced/widowed were baseline characteristics which had the highest associations with negative indicators of wellness, such as likely depression, and burnout. When evaluating interrelatedness between the three areas of wellness, two attributes of mental health (likely depression and likely anxiety) stood out as having significant associations with all measured facets of physical and personal health. **Conclusions:** The overall trends of mental, personal, and physical health of pharmacists are concerning. The findings indicate characteristics which consistently stand out as being negatively associated with each area of wellness. These results mirror previous literature in pharmacists which demonstrated a protective effect of having children, and the detriment of working $>$ 60 hours per week. Understanding characteristics that put one at higher risk can inform employers of meaningful points of intervention for improving well-being.

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

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Type: Original Research. **Introduction:** Recently, "bath salts" became popularized as legal alternatives to the pyschostimulants cocaine and the amphetamines. These products contained synthetic cathinones including 3,4-methylenedioxypyrovalerone (MDPV), 4-methylmethcathinone (mephedrone), and 3,4-methylenedioxymethcathinone (methylone). Studies indicate that the cathinones have similar pharmacology to controlled psychostimulants, increasing levels of dopamine (DA) in the synaptic cleft. Most preclinical investigations have only assessed the effect of these synthetic cathinones independently; however, case reports and DEA studies indicate that "bath salts" often contain mixtures of these substances. Therefore, in a recent study, our laboratory examined effects of individual versus combined exposure to MDPV, mephedrone, and methylone. Interestingly, an enhanced effect on the levels of DA was observed, as well as significant alterations in locomotor activity following co-exposure to the cathinones. In this study, we examine whether the enhanced effects of the drug combination are due to pharmacokinetic (PK) interactions. It is known that many of the same cytochrome P450 (CYP) isoenzymes metabolize each of these three drugs. Therefore, we hypothesize that combined exposure to MDPV, mephedrone, and methylone will result in increased drug concentrations and enhanced total drug concentrations when compared to individual administration. **Method:**

The pharmacokinetics of MDPV, mephedrone, and methylone in the brain and plasma were examined following intraperitoneal injection in mice. Briefly, adolescent male Swiss-Webster mice were injected intraperitoneally with either 10 mg/kg MDPV, 10 mg/kg mephedrone, 10 mg/kg methylone, or 10 mg/kg combined MDPV, mephedrone, and methylone. Following injection, brains and plasma were collected at the following time points: 1, 10, 15, 30, 60, and 120 minutes. Drugs were extracted via solid-phase extraction and concentrations were determined using a previously validated and published high pressure-liquid chromatography tandem mass spectrometry (LC-MS/MS) method. **Results and Discussion:** Following intraperitoneal administration, all drugs quickly crossed the blood-brain barrier and entered the brain. Peak drug concentrations, time to peak concentration, drug half-lives, and total drug exposure (as measured by area under the curve) are compared when drugs were given individually versus in combination. These data provide insight into the consequences of co-exposure to popular "bath salt" products.

Potentially Inappropriate Bupropion Prescribing: Evaluation of an Inpatient Mental Health Unit

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Type: Original Research. **Purpose:** Bupropion is a psychostimulant cathinone indicated for major depression. It is a non-controlled substance, although has reports of misuse. Moreover, comorbidity such as epilepsy or restrictive eating disorders contraindicate use. Our study aimed to describe prescribing patterns of bupropion in an inpatient Mental Health Unit (MHU). **Methods:** Retrospective medication use evaluation of bupropion was conducted between November 19, 2017 through November 18, 2018. Variables collected included age, gender, primary psychiatric diagnosis, history of seizure, antiepileptic use, history of eating disorder, body mass index (BMI), urine toxicology, alcohol use, concurrent use of benzodiazepine with indication of alcohol withdrawal, formulation and highest dose of bupropion taken as well as use of concurrent antipsychotic. Analysis was descriptive, although post hoc chi-square tests were used to further explore the data. **Results:** Fifty-nine participants were included. The mean age was 36.8 $\pm$ 12.4 years and the sample was 71.2% male. Primary diagnoses were major depression (62.7%), bipolar disorder (15.3%), or a psychotic disorder (22%). Urine toxicology was completed in 93.2% of participants. Results demonstrated that amphetamine was the most commonly identified substance (52.7%), followed by cannabis (30.5%). All other substances were identified in $<$ 11% of participants. Thirty-two participants were concurrently using antipsychotics, with quetiapine being utilized most (53.1%). Post hoc analysis found antipsychotic use was higher among participants diagnosed with bipolar or psychotic disorders compared to major depression ($P = .024$). Five participants had a history of seizure and five were using antiepileptic medication concurrently. Of those taking antiepileptics, two were taking them for a seizure disorder. Two participants had a history of a restrictive eating disorder, although had a normal BMI at the time of study. Four participants had a BMI $<$ 18.5 kg/m^2, although had no diagnosis of an eating disorder. There were 12 participants who had a positive blood alcohol test of which four received benzodiazepines for use of alcohol withdrawal. **Conclusion:** There were several instances of contraindicated or potentially inappropriate prescribing. The data suggests that the sample had a high prevalence of amphetamine use and is frequently prescribed a combination of bupropion and quetiapine. Results warrant a more judicious evaluation process before bupropion is prescribed.

Relationship of Adverse Childhood Experiences (ACE) With Retention of Patients Receiving Medication Assisted Treatment (MAT) for Opioid Use Disorder

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Type: Original Research. **Background:** Adverse childhood experience (ACE) is a term utilized for describing any number of traumatic experiences for children from birth up to the age of 18. Examples of said trauma include any emotional, physical, or sexual abuse or neglect incurred by the child. However, this can also include less obvious experiences such as a family member in the household with severe mental illness, someone in the household with a substance abuse problem, or divorce or separation of parents. Increased ACE score has been linked to numerous health concerns including, chronic health conditions and substance use, among many others. With the persistence and severity of the opioid epidemic in the United States, ACE score and its relationship to substance use is of particular interest to many psychiatric health professionals. **Objective:** To evaluate relationship of childhood trauma and retention in substance abuse treatment. **Methods:** A retrospective chart review of ~100 patients age 18 and older, enrolled in the medication assisted treatment (MAT) program at Memorial Regional Hospital and the Memorial Outpatient Behavioral Health (OPBH) Clinic between August 1, 2018 and August 31, 2019 for at least four weeks. Descriptive statistics (frequency, means,

and standard deviations) will be calculated for all demographic and baseline levels of all clinical outcome variables or endpoints. Logistic regression analysis will be used to identify variables that best predict clinical outcomes. **Results/Discussion:** Data collection and analysis are still in process at this time. ACE score is not currently used in any algorithm for enrollment in MAT but, upon completion of this study, the findings may be useful for identifying and engaging high risk patients who require greater support or resources. Further research will need to be completed to further our understanding of ACE impact. Final results will be available for presentation at the CPNP Annual Meeting. **Conclusion:** Data collection and analysis are still in process at this time. Results will be available for presentation at the CPNP Annual Meeting.

Risk Factors for ICU Transfer in Patients With Alcohol Withdrawal Syndrome

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Type: Original Research. **Background:** Alcohol is the most commonly abused substance in the United States, with 18.3 million people dependent on or abusing alcohol in 2015, and 2.9 million people requiring medical management for an alcohol-related illness. Approximately 40% of patients admitted to the intensive care unit (ICU) have alcohol use disorder (AUD), leading to increased risk of mechanical ventilation, hospital, and ICU length of stay. Benzodiazepines are the standard of care in the management of AUD, but adjunct medications may be used. Currently, there are no trials that assign a predictive value to risk factors for ICU admission in patients with alcohol withdrawal syndrome (AWS). The goal of this trial is to identify risk factors that predict ICU admission, allowing for proactive identification of needing more aggressive management and protocol development. **Methods:** Three hundred adult patients admitted from August 18, 2018 through August 5, 2019 with a diagnosis of alcohol dependence with withdrawal who received benzodiazepines within 24 hours of admission based on the alcohol withdrawal protocol were evaluated for this study. Patients were excluded if they were directly admitted to the ICU for reasons other than AWS. **Results:** One hundred seventy-nine patients were included and divided into two cohorts: high-dose (HD) lorazepam ($\geq$ 10 mg in 24 hours) and low-dose (LD) lorazepam ($<$ 10 mg). Baseline characteristics did not differ significantly with the exception of presentation with hallucinations, delirium tremens, and the need for emergent antipsychotics. The HD lorazepam group had a significantly higher ICU transfer rate compared to the LD lorazepam group (41.7% vs 7.1%, $P < .001$). The rate of direct ICU admission was also higher in the HD group (29.2% vs 4.5%, $P = <0.05$). **Conclusion:** The trial supports the use of initial 24-hour lorazepam dose as a predictive marker for ICU transfer in patients with AWS. Providers may expect a more severe AWS in patients requiring $\geq$ 10 mg lorazepam or equivalent dose within the first 24 hours of protocol ordered and may consider scheduled benzodiazepines or an escalation of care for these patients.

Starting Patients on the Long-Acting Antipsychotic Aripiprazole Lauroxil: Comparing 1-Day and 21-Day Initiation Regimens

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Type: Original Research. **Background:** Pharmacokinetic properties of long-acting injectable (LAI) antipsychotic formulations allow adequate antipsychotic coverage over intervals of weeks or months. Each LAI has specific initiation regimens. Aripiprazole lauroxil (AL) is an LAI approved for schizophrenia in adults with two initiation options: 21-day oral aripiprazole supplementation (21-day) or 1-day initiation consisting of an injection of AL NanoCrystal® Dispersion with a 30 mg oral aripiprazole dose (1-day). This post hoc analysis evaluates and compares the course of the first four weeks of treatment between these two initiation regimens. **Methods:** The 21-day data are from a 12-week placebo-controlled pivotal study of two AL regimens (441 mg [n = 208] or 882 mg [n = 207] every 4 weeks) where patients received oral aripiprazole 15 mg/day for the first 21 days. These two AL groups were combined for this analysis (n = 415). The 1-day data are from a 25-week active-controlled study where patients received the 1-day initiation regimen to start a 2-month AL 1064 mg regimen (n = 99). Settings and inclusion/exclusion criteria for the two studies were comparable. Four-week outcomes for both cohorts included PANSS total scores, CGI-S scores, adverse events (AEs) leading to discontinuation, serious AEs, and AEs of interest (eg, akathisia). **Results:** Baseline characteristics of the 21-day and 1-day groups were comparable, with (respectively) mean age of 39.8 and 43.5 years; 68.4% and 73.7% males; mean PANSS total scores of 94 and 92; and mean CGI-S scores of 4.8 and 4.9. Most patients completed four weeks of their study (21-day, 75.2%; 1-day, 79.8%), with improvements from baseline in PANSS (21-day, −19.5; 1-day, −17.4) and CGI-S (21-day, −1.15; 1-day, −1.10). Rates of serious AEs were 1.4% and 2.0%, and AEs leading to discontinuation occurred in 3.1% and 4.0%

of the 21-day and 1-day groups, respectively. Akathisia occurred in 11% (21-day) and 9.1% (1-day) and resulted in discontinuation of 2 (0.5%) and 0 patients, respectively. **Conclusions:** No major differences in efficacy assessments were observed and safety and tolerability profiles were similar through four weeks with the two AL initiation approaches. Despite inherent limitations of cross-study comparisons, these findings support the utility of both initiation regimens.

Suicide Prevention in Pharmacy: Raising Awareness and Reducing Stigma

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Type: Original Research. **Purpose:** Suicide is an increasing cause of death in our society that affects everyone. It is important for pharmacists to receive proper training on suicide prevention because they are often on the front lines of patient care. The goal of this study is to raise awareness about suicide and identify stigmas present in pharmacy students. **Methods:** Thirty-one pharmacy students (P1-P4) were recruited. A questionnaire was administered that aimed to identify the stigmas commonly associated with suicide with questions reviewed and approved by a licensed psychologist. A pre-survey was administered at the beginning of the study and subjects were randomly assigned to one of two groups. Group A was shown the video, The Moment I Opened Up About Suicide, which features a Star Wars actor telling his story of how he overcame his suicidal ideations. Group B was shown a video about Star Wars. After viewing the videos, subjects completed a post-survey to compare their answers about suicide. Comments on increasing awareness about suicide at the school of pharmacy were reviewed by study investigators. **Results:** The pre-survey revealed that 57% of participants felt that school administrators, professors, or other students would treat them negatively if it were discovered they had depression or suicidal thoughts. There was no difference in the post-survey results. Although the sample size was small, the overall results identified a fair amount of stigma about suicide among pharmacy students. This study highlighted a need for more mental health resources, education, and training in the pharmacy curriculum. **Conclusions and Future Directions:** In conjunction with the school of pharmacy's CPNP student chapter, the investigators coordinated a Fresh Check Day at the beginning of the spring semester which provided education, tools, and resources for suicide prevention education. This event included interactive expo booths, peer-to-peer messaging, free food, entertainment, and prizes and giveaways and encouraged students to engage in dialogue about mental health. Upcoming plans include creating educational materials about suicide prevention to distribute to pharmacy students in order to create an environment at the School of Pharmacy where students, faculty, and staff can speak openly about suicide.

Summary of Results of the Professional Affairs Committee Survey of Psychiatric Pharmacy Practice

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Type: Original Research. **Purpose:** The Professional Affairs Committee conducted a survey of all clinical psychiatric pharmacists in fall 2019 to gather information regarding the current state of psychiatric pharmacy practice. The goal of this survey was to be able to characterize current practice for practice settings, prescriptive authority, evaluation methods, etc. These data will be used to help advance our specialty. **Methods:** The committee developed the survey which was approved by the CPNP Board of Directors. The survey consisted of 36 questions across five domains: Clinician Details/Demographics, Primary Clinical Practice Facility Information, Primary Clinical Practice Demographics, Prescriptive Authority, and Professional Activities. All pharmacist members of CPNP and BCPP-certified non-member pharmacists within the US were emailed invitations to take the survey on September 11, 2019. The survey was available for seven weeks, with reminder emails sent to non-participants. **Results:** The survey was sent to 1,015 psychiatric pharmacists, with 334 responding (32.9%) from across all US states. Responders averaged 13.9 years of experience, with 10.5 in mental health. The majority (88.3%) were BCPP, and 20.1% were BCPS. Of respondents, 29.3% practiced within federal agencies, and 47.6% practiced in inpatient settings. Veterans Affairs practice settings were the most commonly reported (25.1%), followed by academic medical centers (20.1%) and community hospitals (15.6%). The most common psychiatric diagnoses treated were depression (48.5%), anxiety (44.0%), and bipolar disorder and schizophrenia (38.6% each). Nearly half (41.3%) of respondents reported providing direct care for non-psychiatric conditions. Prescribing practices were reported by 46.4% of respondents, but only 7.8% could prescribe controlled substances. Among non-prescribing pharmacists, 45.6% reported their treatment recommendations were accepted by other healthcare providers at least half of the time. Referrals for psychiatric pharmacist treatment were most likely to come from psychiatrists (58.4%) and non-physician providers (40.1%), with psychiatrists pro-

viding the initial psychiatric diagnosis most often (68.3%). Respondents also provided clinical education, in particular didactic lectures and clinical precepting for pharmacy students (63.8% and 75.4%, respectively) and non-specialist pharmacy residents/fellows (35.3% and 54.5%, respectively). **Conclusions and Future Directions:** Results demonstrate that psychiatric pharmacy encompasses a variety of practice settings and types. Potential expansion of these practices, including prescriptive practices, is significant and merits further exploration.

Tardive Dyskinesia Negatively Impacts Patients' Lives

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Type: Original Research. **Objective:** Tardive dyskinesia (TD) is a persistent and debilitating dopamine receptor blocking agent-induced movement disorder associated with a negative impact on patients' quality of life (QOL). The objective of this review was to identify elements of QOL that may be relevant to patients with TD to better understand the burden of this condition. **Methods:** As part of a Medical Affairs summer internship program final project, a targeted literature search was conducted using PubMed, EMBASE, and Google Scholar. "Tardive dyskinesia AND quality of life" and "tardive dyskinesia" in combination with other terms such as "stigma", "employment", "social", and "disabling" were searched. Titles and abstracts were evaluated for relevance to TD and QOL, and references of articles were manually searched. **Results:** This review examined 33 published articles consisting of primary literature, review articles, and case reports. After analyzing QOL outcomes, four major categories of TD QOL were identified: physical health, emotional well-being, social participation, and functional abilities. These categories were created by classifying the most commonly reported outcomes described in the published literature. In general, this review found that TD negatively impacts patients' lives. Some specific examples of the negative impact of TD included: physical changes directly affecting health, satisfaction and self-worth, relationships and inclusion, and occupation and activities of daily living. **Conclusions:** This review identified, organized, and described the negative impact of TD on patients' QOL based on four major categories: physical, emotional, social, and functional well-being; underling the importance of asking patients about the impact and burden of TD throughout their treatment. Further research is needed to describe the negative impact of TD on QOL.

Encore Presentation Abstracts

Antipsychotic Polypharmacy and Chlorpromazine Dose Equivalents in Psychiatric Inpatients

Quynh Huynh, PharmD; Jane Kim, PharmD; Benjamin Malcolm, PharmD, MPH, BCPP

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Type: Encore Presentation. **Previously Presented:** California Society of Health Systems Pharmacists (CSHP) Seminar, October 2019

Clinicians' Perspectives on Extended-Release Naltrexone to Treat Opioid Use Disorder in Outpatient Settings: Results From an Online Survey

Kristen McCausland, PhD[1]; Batool Haider, MD, MS, ScD[2]; Michelle K. White, PhD[1]; Amy K. O'Sullivan, PhD[2]; Kaitlin Rychlec, BS[1]; Sarah Akerman, MD[2]; James Fratantonio, PharmD[2]; Andrew Saxon, MD[3]

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Type: Encore Presentation. **Previously Presented:** Presented at the 43rd Annual AMERSA Conference in Boston, MA; 7-9 November 2019

Combinatorial Pharmacogenomic Testing Improves Outcomes for Patients Taking Medications With Gene-Drug Interactions in a Randomized, Controlled Trial

Michael E. Thase, MD[1]; Sagar V. Parikh, MD[2]; Priya Maheshwari, PhD[3]; Anthony J. Rothschild, MD[4]; Boadie W. Dunlop, MD[5]; Charles DeBattista, DMH, MD[6]; Charles R. Conway, MD[7]; Brent P. Forester, MD, MSc[8]; Richard C. Shelton, MD[9]; Matthew Macaluso, DO[10]; Krystal Brown, PhD[11]; James Li, PhD[3]; Michael R. Jablonski, PhD[3]; John F. Greden, MD[2]

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Type: Encore Presentation. **Previously Presented:** WCPG, October 26-31, 2019 Los Angeles, CA

Drug-Drug Interaction Studies (DDIs) With Coadministration of Cannabidiol (CBD) and Clobazam (CLB), Valproate (VPA), Stiripentol (STP) or Midazolam (MDZ) in Healthy Volunteers (HVTs) and Adults With Epilepsy

Barry Gidal, PharmD[1]; Philip Patsalos, FRCPath, PhD[2]; Jerzy Szaflarski, MD, PhD[3]; Kevan VanLandingham, MD[4]; David Critchley, PhD[5]; Gilmour Morrison, PhD[5]

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Type: Encore Presentation. **Previously Presented:** BPNA (2019) British Paediatric Neurology Association - 45th Annual Conference; AAN (2019) American Academy of Neurology 2019 - 71st Annual Meeting; SFNP (2019) Societe Francaise de Neurologie Pediatrique - 29th Congres; DOGESE-L (2019) Deutschen & Osterreichischen Gesellschaften fur Epileptologie & Schweizerischen Epilepsie-Liga – 11; LICSEAS (2019) London-Innsbruck Colloquium on Status Epilepticus and Acute Seizures - 7th; ILAE (2019) International League Against Epilepsy - 33rd International Epilepsy Congress; ILAE (2019) International League Against Epilepsy UK Chapter - 2019 Annual Scientific Meeting; CNS (2019) Child Neurology Society - 48th Annual Meeting; GNP (2019) Gesellschaft fur Neuropadiatrie - 45th Jahrestagung; LFCE (2019) Ligue Francaise Contre l'Epilepsie - Journees Francaise de l'Epilepsie 2019; SEEP (2019) Sociedad Espanola de Epilepsia - VI Congreso Nacional British

Early Improvement of PANSS Items in Patients With Schizophrenia Treated With Brexpiprazole: A Post Hoc Analysis of Three Randomized Studies

Catherine Weiss, PhD[1]; Stine Rasmussen Meehan, PhD[2]; John Ouyang, PhD[1]; Mary Hobart, PhD[1]

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Type: Encore Presentation. **Previously Presented:** ICOSR/SIRS 2019

Efficacy and Safety of Lumateperone (ITI-007) 42 mg in the Treatment of Schizophrenia: A Pooled Analysis of Randomized Clinical Trials

William Rowe, MSN[1]; Kimberly E. Vanover, PhD[1]; John M. Kane, MD[2,3,4]; Andrew Satlin, MD[1]; Suresh Durgam, MD[1]; Robert E. Davis, PhD[1]; Sharon Mates, PhD[1]; Christoph U. Correll, MD[3,5]; Carol Tamminga, MD[6]

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Type: Encore Presentation. **Previously Presented:** 2019 European College of Neuropsychopharmacology (ECNP) Congress (September 7-10, 2019; Copenhagen, Denmark); 2019 Annual Meeting of the American College of Neuropsychopharmacology (ACNP) (December 8-11, 2019; Orlando, FL)

Impact of a Pharmacy Consult Service on Reduction of Benzodiazepine Use in High-Risk Patient Populations: One Year Follow-Up

Hannah Rabon, PharmD, BCPS; Jordan Smith, PharmD, BCPS; Karrie Squires, PharmD, BCPP, BCPS; Madeline VanDaele, PharmD

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Type: Encore Presentation. **Previously Presented:** 2019 CPNP annual meeting as work in progress poster

Interprofessional Collaboration Between Student Pharmacists and Student Psychologists

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Type: Encore Presentation. **Previously Presented:** American Association of Schools of Pharmacy (AACP) Annual meeting, Chicago IL, July 2019; Innovative Teaching Conference, University of Georgia, Athens, GA October 2019, Finalist for Innovative Teaching Award

Mechanism of Action of DELEXIS®, a Novel, Oral, Colonic-Targeted Drug Delivery Platform

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Type: Encore Presentation. **Previously Presented:** The American Professional Society of ADHD and Related Disorders (APSARD) Annual Meeting 2020

Medicaid Prescriber Dashboard Reports to Reduce Inappropriate Benzodiazepine Prescribing

Joseph L. Smith, PhD, MPH[1,2,3]; Molly Candon, PhD[1,2,3]; Oluwatoyin Fadeyibi, PharmD, MPH[4,5]; K. Ryan Connolly, MD, MS[3,6]; Suet Lim,PhD[5]; Geoffrey Neimark, MD[7]; David Mandell, ScD[1,2,3]

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Type: Encore Presentation. **Previously Presented:** American Public Health Association, November 2019

Olanzapine/Samidorphan for Schizophrenia: Weight Gain and Metabolic Outcomes in Phase 3 ENLIGHTEN-2 and Subsequent Long-Term, Open-Label Safety Study

Christoph U. Correll, MD[1,2,3]; John W. Newcomer, MD[4,5]; Bernard Silverman, MD[6]; Lauren DiPetrillo, PhD[6]; Christine Graham, PhD[6]; Ying Jiang, PhD[6]; Yangchun Du, PhD[6]; Adam Simmons, MPH[6]; Craig Hopkinson, MD[6]; David McDonnell, MD[7]; Rene Kahn, MD, PhD[8]

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Type: Encore Presentation. **Previously Presented:** SIRS April 10-14, 2019; APA May 18-22, 2019; ASCP May 28-31, 2019; ECNP September 7-10, 2019; Psych October 3-6, 2019; NEI November 7-10, 2019; ACNP December 8-11, 2019

Palatability Assessment of a New Amphetamine Extended-Release Tablet Formulation

Thomas R. King, MS, MPH; Judith C. Kando, PharmD, BCPP; Antonio Pardo, MD

Tris Pharma, Inc., Monmouth Junction, NJ

Type: Encore Presentation. **Previously Presented:** 2019 Neuroscience Education Institute Meeting, Colorado Springs, CO

Single-Dose Pharmacokinetics of Amphetamine Extended-Release Tablet (AMPH ER TAB) Compared With Amphetamine Extended-Release Oral Suspension (AMPH EROS)

Judith C. Kando, PharmD, BCPP; Thomas King, MS, MPH; Antonio Pardo, MD

Tris Pharma, Inc., Monmouth Junction, NJ

Type: Encore Presentation. **Previously Presented:** 2018 AACAP Annual Meeting, Seattle, WA

Somnolence and Sedation With Lumateperone (ITI-007) Treatment: A Comparison of Morning and Evening Administration

William Rowe, MSN[1]; John B. Edwards, MD[1]; Suresh Durgam, MD[1]; Kimberly E. Vanover, PhD[1]; Robert E. Davis, PhD[1]; Andrew Satlin, MD[1]; Richard Chen, PhD[1]; Jason Huo, PhD[1]; Sharon Mates, PhD[1]; Andrew J. Cutler, MD[2]

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Type: Encore Presentation. **Previously Presented:** 2020 Annual Meeting of the American Psychiatric Association (APA) 2020 (Philadelphia, PA, April 25-29, 2020)

The Association Between COMT Genotype and Bupropion Treatment Response in Outpatients With Major Depressive Disorder

Jay Fawver, MD[1]; Mindy Flanagan, PhD[2]; Thomas Smith, PharmD, BCPP[3]; Michelle Drouin, PhD[2,4]; Michael Mirro, MD[2]

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Type: Encore Presentation. **Previously Presented:** Psych Congress 2019; Society of Biological Psychiatry 2019

The Broad Efficacy of Cariprazine Across Symptoms in Patients With Bipolar I Disorder: Post Hoc Analysis of Randomized, Placebo-Controlled Trials

Lakshmi N. Yatham, MBBS, DPM, FRCPC, MBA[1]; Eduard Vieta, MD, PhD[2]; Roger S. McIntyre, MD, FRCPC[3]; Rakesh Jain, MD[4]; Willie R. Earley, MD[5]; Mehul Patel, PharmD[5]

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Type: Encore Presentation. **Previously Presented:** 2019 American Society of Clinical Psychopharmacology annual meeting, Scottsdale, AZ, May 28-31, 2019

The Clinical Utility of Combinatorial Pharmacogenomic Testing for Patients With Depression: A Meta-Analysis

Lisa Brown, PhD[1]; Rahul Sehgal, PhD[1]; James Li,

PhD[1]; Ken Yu, PhD[1]; Talal Al Habbab, PhD[1]; Holly Johnson, PhD[1]; Krystal Brown, PhD[2]; Michael R. Jablonski, PhD[1]; Bryan Dechairo, PhD[2]

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Type: Encore Presentation. **Previously Presented:** ADAA, March 19, 2020, San Antonio, TX

Treatment Responses With Long-Term Valbenazine in Patients With Tardive Dyskinesia

Jack J. Chen[1]; Carlos Singer[2]; Stephen R. Marder[3]; Cynthia L. Comella[4]; Chirag Shah[5]; Khodayar Farahmand[5]; Roland Jimenez[5]

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Type: Encore Presentation. **Previously Presented:** 3rd Pan American Parkinson's Disease and Movement Disorders Congress, February 14-16, 2020, Miami, FL

Work in Progress Abstracts

A Pharmacist Driven Intervention for Optimizing Dyslipidemia Management in Patients on Antipsychotic Therapy

Heather Goodwin, PharmD, MS[1]; Gina Morrow, PharmD, BCPP[1]; Ashley Tewksbury, PharmD, BCPP[1]; Kristin Waters, PharmD, BCPS, BCPP[1,2]

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Type: Work in Progress. **Background:** The Centers for Medicare and Medicaid Services (CMS) requires that inpatient psychiatric facilities report the percentage of patients on scheduled antipsychotic therapy who receive structured metabolic screening within 12 months. A 2016 baseline assessment within a psychiatric hospital in Connecticut showed a 33% compliance rate, with most cases of non-compliance due to absent or outdated lipid panels. In response, changes were implemented in the electronic medical record (EMR) to prompt providers to order a lipid panel upon admission to the psychiatric emergency department or when initiating scheduled oral antipsychotics. Data from 2019 showed that compliance increased to 72.5%, presumably as a result of these changes. However, ordering of lipid panels does not necessarily ensure appropriate clinical interventions are made to address abnormalities. This research project will assess whether pharmacist-driven review of admission lipid panels impacts clinical practice by increasing the number of patients on appropriate dyslipidemia therapy. **Objective:** Assess the impact of a pharmacist-driven intervention to optimize dyslipidemia treatment of inpatient psychiatry patients on scheduled antipsychotic therapy. **Methods:** A dynamic report will be created within the EMR to facilitate easy identification of patients with dyslipidemia who are admitted to inpatient psychiatric units within a large academic medical center in Connecticut. A total of 140 inpatients who are taking scheduled antipsychotic therapy and meet criteria for dyslipidemia treatment based on the American Heart Association/American College of Cardiology (AHA/ACA) Multisociety Guideline on the Management of Blood Cholesterol will be included. Psychiatric pharmacists will review the report daily from January 1, 2020 through March 31, 2020 to identify patients with untreated or inadequately treated dyslipidemia. Pharmacologic recommendations will be in accordance with current AHA/ACA guidelines. Recommendations will be discussed with providers and a note will be entered in the EMR outlining the recommendation. A retrospective chart review of an identical patient population from March 1, 2017 through March 1, 2019 will be completed to allow for meaningful comparisons pre and post intervention. **Outcomes:** We will report the number and percent of inpatient psychiatry patients initiated on ACC/AHA guideline directed therapy pre- and post-intervention. Other data recorded will include the type medication initiated for dyslipidemia management.

A Retrospective Chart Review of Key Factors of Medication Assisted Treatment (MAT) Outpatient Program Success: A Focus on the Pharmacy-Related Characteristics

Robyn Eggert, PharmD[1,2]; Kimberly Tallian, PharmD[1,2]; Joe A. Sepulveda, MD[2]; Sarah Rojas, MD[2]; Harminder Sikand, PharmD[1]

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Type: Work in Progress. **Background:** Medication Assisted Treatment (MAT) combines behavioral therapy with medications to treat substance use disorders. MAT programs provide safe and controlled ways to overcome opioid addiction by suppressing as well as reducing cravings for opioids and helping sustain recovery. MAT programs have shown efficacy in reducing the risk of relapse, preventing infectious diseases, and preventing overdose. Amid this opioid crisis, the passing of the Comprehensive Addiction and Recovery Act (CARA) in 2016 and the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) Act in 2018 has placed an increased focus on expanding MAT access. **Objectives:** (1) Identify and describe demograph-

ics and pharmacy characteristics of a MAT cohort. (2) Identify and describe demographics and pharmacy characteristics associated with sustained remission from opioids, as defined by percentage of negative urine drug tests for opioids and derivatives over the initial six months of treatment. (3) Identify patterns of medication prescriptions in clients enrolled in the outpatient MAT program at Family Health Centers of San Diego (FHCSD). **Methods:** This retrospective, single-institution, descriptive study will review medical records from the FHCSD MAT program. All patients at least 18-years-old enrolled in the MAT program will be eligible with a target enrollment of at least 100 patients. Demographic variables (eg, age, gender, race, ethnicity, education level, employment status, insurance coverage), MAT agent used, concomitant psychotropic, concomitant general medication, medication compliance measured by prescription fill history, Controlled Substance Utilization Review and Evaluation System (CURES) report data, concomitant psychiatric and medical disorders, MAT program attendance, and number of positive urine drug or alcohol screens over the initial six months of treatment will be collected. Other substance use (eg, benzodiazepines, methamphetamine, cocaine, and cannabis) will be reviewed. Participants' urine toxicologies will be assessed for treatment adherence versus relapse (ie, two consecutive negative urine toxicologies for opioids followed by a positive) versus non-treatment adherent/lost to follow up. **Outcomes:** Descriptive statistics and linear regression between groups will be conducted. Results and conclusions will be presented.

A Systematic Review of the Understandability, Actionability, and Quality of Online Resources for the Self-Management of Bipolar Disorder

Nathan Sutera, PharmD[1]; Courtney A. Iuppa, PharmD, BCPP[1]; Leigh Anne Nelson, PharmD, BCPP[2]; Carrie R. Kriz, MS[2]; Nicole A. Burns, PharmD[3]; Shelby E. Lang, PharmD, BCPP[1]; Ellie S.R. Elliott, PharmD, BCPP[1,3]; Roger W. Sommi, PharmD, FCCP, BCPP[2]

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Type: Work in Progress. **Background:** Bipolar disorder is a common and lifelong condition with symptoms which may significantly impair functioning. Although currently incurable, it can be effectively treated. Concurrent with the use of medications, self-management (SM) interventions attempt to minimize treatment barriers and lessen the relapses common with the recurrent nature of bipolar disorder. Implementing SM tasks allows individuals to effectively manage their chronic illness, improving health outcomes. While self-management materials are commonly supplied by healthcare providers, the internet represents a secondary source of readily accessible materials. Online information is typically found utilizing search engines. However, research has found that the appropriateness, quality, and consistency of online health-related search results is questionable. **Objectives:** The primary objective is to determine the overall appropriateness of online bipolar disorder SM materials based on a composite percentage of understandability, actionability, and quality scores. Secondary objectives will evaluate these materials for specific SM tasks and individual aspects which determine understandability, actionability, and quality. **Methods:** This is a systematic review where Google®, Bing®, and Yahoo!® search engines will be used to identify at least 25 but no more than 78 online resources. To be included, the materials must be published in English, specifically target adults with bipolar disorder, discuss at least one method directed at improving a SM task, and be in the first 25 non-advertisement search results for each search. Thirteen search terms will be used for this review and will be separately searched on the three search engines for a total of 39 searches. The first two, non-advertisement, non-repeated, resources for each search will be included. The search and inclusion of online materials will be conducted by the primary investigator. All included resources will be independently evaluated for understandability and actionability using the Patient Education Materials Assessment Tool (PEMAT) and quality using the DISCERN instrument. **Outcomes:** The primary outcome is the composite score of the DISCERN instrument and the two PEMAT domains. Secondary outcomes are overall mean DISCERN quality rating, overall mean PEMAT: Understandability score, overall mean PEMAT: Actionability score, number of SM tasks discussed, and identity of SM tasks discussed.

An Analysis of Student Pharmacists' Perceived Stress on Empathy Levels

Uyen Luong; Teresa Elsobky, PharmD, BCPP

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Type: Work in Progress. **Background:** Perceived stress accounts for a considerable factor in students pursuing higher education, particularly in healthcare. Coping with stress positively has been associated with increased empathy towards patients and a healthier mental status, along with a decreased risk of depression, anxiety, and burnout. Empathy has also been shown to significantly influence patients' adherence to healthcare recommendations and reduce medical errors. Pharmacy education should promote psychological adjustment to a graduate program to support an increase in empathy and to decrease perceived stress. This research is necessary to understand how empathy shifts while progressing through pharmacy school and how perceived stress impacts

empathy. **Objectives:** (1) Survey student pharmacists on their current level of stress and stress origins over a period of time. (2) Assess how student pharmacists are coping with mentioned stressors. (3) Evaluate data to find a correlation, if any, between stress and empathy levels. **Methods:** Two surveys are used in this study, the Jefferson Scale of Empathy and the Perceived Stress Scale (PSS), which measure empathy and stress respectively. The surveys were administered to first-, second-, and third-year student pharmacists in an academic institution between August 14, 2019 and August 30, 2019, inquiring about their empathy behaviors as well as stress triggers and associated coping mechanisms. A total of 204 students participated, with demographic characteristics varying in age, gender, and campus location. Another set of surveys is scheduled to be administered between January 27, 2020 and January 31, 2020. **Outcomes:** The administered surveys provided a baseline to initiate this project. The data was analyzed among different academic classes, campus locations, gender, and age ranges. Preliminary results show a significant difference in perceived stress between genders, but no other groups yielded significant comparisons. Further data will be analyzed using the same groupings, and empathy comparisons and stress trends will be reported. **Conclusion:** The long-term objective of this study is to use collected data and create a wellbeing program that empowers students with coping activities and strategies for stress relief in hopes of creating well-rounded pharmacists who value empathy and quality of patient care.

An Investigation of the Utilization of Benzodiazepines in Veterans at a Federal Health Care Center

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Type: Work in Progress. **Background:** Alprazolam is a benzodiazepine commonly used for both anxiety and panic disorders. All benzodiazepines carry potential risk for abuse, however certain pharmacokinetic properties such as a shorter half-life and greater lipophilicity increase this risk. Alprazolam has moderate lipophilicity, quick onset and short half-life, therefore the chances of misuse and dependence are increased. These pharmacokinetic properties additionally increase the difficulty of successfully tapering off of alprazolam. Per the Centers for Disease Control, alprazolam was the benzodiazepine most associated with abuse-related emergency department visits in 2010. For these reasons, alprazolam became a non-formulary drug at the federal health care center in North Chicago, IL on January 1, 2019. **Objectives:** Measure and compare: prescribing rates of alprazolam use prior to and after implementation of non-formulary status for the drug; prescribing rates of other benzodiazepines including clonazepam, lorazepam, and diazepam before and after non-formulary implementation of alprazolam; and overall benzodiazepine prescribing rates. **Experimental Design:** This study is a retrospective analysis comparing two groups of veterans at a federal health care center: those taking benzodiazepines for six months prior to implementing alprazolam as non-formulary status on June 1, 2018 through January 1, 2019, and those taking benzodiazepines from January 2, 2019 through June 1, 2019 after implementation of non-formulary status of alprazolam. The primary objective of the study, prescribing rates of alprazolam before and after implementing non-formulary status, will be identified by the number of active alprazolam prescriptions filled within the specified pre- and post-implementation time period. Secondary objective data, including ethnicity, gender, age, comorbid psychiatric and medical conditions, baseline antidepressant or anxiolytic therapy, and prescribing rates of other benzodiazepines, will be obtained via chart review of those patients with active orders for alprazolam during the study period. The primary and secondary objectives will be analyzed using descriptive statistics. **Outcomes:** A comparison of prescribing rates for primary and secondary objectives will be reported pines will be reported for the pre- and post-intervention implementation time periods following completion of data collection and analysis.

Anticholinergic Burden in Patients Admitted to a State Psychiatric Hospital and Development of a Pharmacist-Led Anticholinergic Burden Support Service

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Type: Work in Progress. **Background:** Anticholinergic medications may increase risk of falls, urinary retention, over-sedation, and cognitive decline. Recently published literature also revealed that cumulative anticholinergic use over the life-span may increase risk for dementia. Patients with psychiatric illnesses can be at greater risk of these adverse effects due to treatment with strongly anticholinergic antipsychotic medications concomitant with other anticholinergic medications frequently utilized to prevent or treat sequelae of antipsychotic medications. Pharmacists can play a key role in minimizing anticholinergic burden and its associated adverse effects, particularly in patients with psychiatric illness. **Objectives:** (1) Evaluate

retrospective anticholinergic use in a state psychiatric hospital setting over a two-year period. (2) Develop a pharmacist-led anticholinergic burden support service with phone application tool to help determine individual patient burden **Methods:** Anticholinergic burden was evaluated by a retrospective data pull from September 1, 2017 through September 1, 2019. The data encompass use of 27 commonly prescribed anticholinergic medications. Total standardized daily dose (TSDD) was calculated for each patient using anticholinergic medications selected based on methods from Coupland et al and Gray et al. The calculation is the product of dose per unit and number of units administered, subsequently divided by the World Health Organization's defined daily dose. TSDD values $>$ 365 were stratified to reflect burden attributed to scheduled versus as-needed medications as well as to determine the medications that contributed most to burden, excluding antipsychotics. Further data stratification will be performed to examine the incidence of falls and seclusion and restraint in relation to TSDD exposure $>$ 365. **Interim Analysis:** Data collected includes two-year cumulative TSDD scores from 1,970 de-identified patients. Results showed that 599 (31%) patients had TSDD exposure $>$ 365, with diphenhydramine, benztropine, and hydroxyzine leading in burden contribution, excluding antipsychotics. Diphenhydramine, benztropine, and hydroxyzine contributed to 10.5%, 5.2%, and 2.73% of total burden, with 18.9%, 75.9%, and 26.0% used on a scheduled basis, respectively. Three of 27 medications did not contribute to anticholinergic burden during the two-year period observed. Further stratification results and development of anticholinergic burden support service are expected to be completed by March 15, 2020.

Antidepressant Medication Adherence in the Outpatient Setting of the Veteran Population

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Type: Work in Progress. **Background:** Continuation of antidepressant therapy beyond the first months helps to improve treatment response and to reduce the risk of early relapse. Major Depressive Disorder (MDD) is a major economic burden to healthcare system. Antidepressants are first line in MDD and approximately 30% of patients discontinue their medication within one month, and up to 60% discontinue them within three months. Therefore, preventing and treating MDD is a big issue as premature discontinuation can lead to increased risk of suicide, increased medical bills, more likely to relapse and diminished cognitive function. **Objectives:** (1) Analyze if veterans newly initiated on an antidepressant are being treated for an adequate duration of 6 months. (2) Compare overall discontinuation rates at 3 months, 6 months and 1 year between 5 medication classes. (3) Assess differing characteristics between patients with high medication possession ratio (MPR) $>$ 80% or a low MPR $<$ 80%. **Methods:** A retrospective chart review will be conducted among veterans aged 18- to 65-years-old who were initially prescribed only one kind of antidepressant during October 1, 2017 through October 1, 2018. Exclusion criteria includes use of antidepressant for non-mental health indications or on an "as needed" basis, was hospitalized during the study period or on trazodone monotherapy. We will investigate the discontinuation rate and the mean time to discontinuation among five antidepressant groups. We defined discontinuation as no refills beyond 90 days since last refill or switching to another antidepressant. The reasons for discontinuation were classified into six subgroups – no efficacy, side effects, lost to follow up, transferred care, improvement in mood and other. Demographic variables (age, gender, race, education, employment and marital status), number of healthcare visits, type of provider, medication possession ratio, average day supply and reason for discontinuation will also be collected. **Outcomes:** We will report number and percent of veterans who were adequately treated on antidepressant therapy, the mean and median overall discontinuation rates between medication classes and comparisons of demographic and clinical characteristics.

Antipsychotic Continuation at Discharge for Medical Inpatients Treated for Delirium

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Type: Work in Progress. **Background:** Antipsychotics are commonly used to manage agitation associated with delirium. While these medications can help manage behavioral disturbances in the short term, they are not indicated for long-term use in this patient population. Antipsychotics have many known potential side effects and lack consistent efficacy in reducing duration and severity of delirium in clinical trials. Several studies have shown that antipsychotics are continued unnecessarily at discharge, particularly when patients are treated for delirium in the intensive care unit (ICU) setting. **Objectives:** (1) Evaluate the incidence of antipsychotics newly initiated for behavioral disturbances of delirium being inappropriately continued at discharge from inpatient medical services at an academic medical center. (2) Determine if the rate of inappropriate antipsychotic continuation at discharge is lower from our combined internal medicine-psychiatry service compared with other inpatient medical services. (3) Determine if having a

psychiatry consult during the inpatient stay reduces the incidence of inappropriate antipsychotic continuation at discharge. **Methods:** A retrospective review of medical records will be conducted to evaluate the incidence of inappropriate antipsychotic continuation at discharge from our institution's inpatient medical services when the antipsychotic was newly initiated for behavioral disturbances of delirium during the admission. Antipsychotic continuation will be considered inappropriate if there is no documented plan for eventual discontinuation in the discharge summary. Subjects will include adult patients who were diagnosed with delirium, altered mental status, disorientation, or other encephalopathy during an inpatient stay between July 1, 2014 and June 30, 2019, received at least one dose of newly initiated scheduled antipsychotic, and were discharged from an internal medicine, family medicine, or combined internal medicine-psychiatry service. **Outcomes:** We will evaluate differences in inappropriate antipsychotic continuation at discharge between different medical services while controlling for age, sex, comorbid psychiatric diagnosis, length of inpatient stay, start of antipsychotic in ICU, duration of inpatient antipsychotic treatment, and discharge disposition. A subset analysis will be performed for patients discharged from a medical service other than the combined internal medicine-psychiatry service to determine if having a psychiatry consult significantly affects inappropriate antipsychotic continuation rates for those patients not seen by a psychiatrist daily.

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

Amber Lemons, PharmD[1]; Courtney A. Iuppa, PharmD, BCPP[2]; Carrie R. Kriz, MS[3]; Lauren A. Diefenderfer, PharmD, BCPP[2]; Leigh Anne Nelson, PharmD, BCPP[3]; Shelby E. Lang, PharmD, BCPP[2]; Ellie S.R. Elliott, PharmD, BCPP[2,4]; Roger W. Sommi, PharmD, FCCP, BCPP[3]; Joseph Moon, MD[2]

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Type: Work in Progress. **Background:** To be deemed competent to stand trial, a defendant must have the ability to consult with their 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 (IST), they 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. Subjects 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 2020. 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. ANOVA, t-test or Mann-Whitney U, and chi-squared or Fischer's 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 between groups of antipsychotics (eg, first and second generation, long-acting injectable and oral), 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, between individual antipsychotics, and between long-acting compared to oral antipsychotics. The overall adherence to each antipsychotic was also analyzed.

Assessing Psychiatric Hospitalizations and Adherence to Outpatient Mental Health Appointments Following Initiation of Buprenorphine Extended-Release Injection

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Type: Work in Progress. **Background:** The opioid epidemic has been declared a "national public health emergency" under the Public Health Services Act. The mu-opioid receptor partial agonist, buprenorphine, is available in multiple formulations to treat opioid use disorder (OUD). The extended-release (ER) injection formulation is available as 100 mg and 300 mg injections and provides once-monthly dosing for individuals who tolerate but fail therapy to the buprenorphine-naloxone sublingual tablet formulation. Benefits of the ER injection include a continual release of the medication at a controlled rate and a sustained serum concentration of buprenorphine maintained throughout a one-month period. Patients who receive buprenorphine ER injection may experience

improved adherence to pharmacologic therapy for OUD, decreased psychiatric hospitalizations for substance use disorder (SUD) or OUD, and improved adherence to outpatient mental health appointments compared to therapy on the buprenorphine-naloxone sublingual tablet formulation. **Objectives:** To assess psychiatric hospitalizations including a diagnosis of SUD or OUD and adherence to outpatient mental health treatment following initiation of buprenorphine ER injection for the treatment of OUD. **Methods:** All patients who received approval to receive buprenorphine ER injection were included in this evaluation. Variables collected by chart review included name, age, sex, buprenorphine ER injection approval date, inpatient or outpatient induction, dates and doses given, psychiatric hospitalizations that included a diagnosis of SUD or OUD the year prior to and the year following induction, outpatient mental health appointment adherence rates the year prior to and the year following induction, urine drug screen (UDS) prior to each buprenorphine ER injection, and buprenorphine-naloxone fill history the year prior to induction. Patients were excluded if they were formally approved but never received buprenorphine ER injection. **Outcomes:** We will report the number of patients approved for buprenorphine ER injection, the number of patients who received the injection, psychiatric hospitalizations 1-year pre- and post-buprenorphine ER injection induction, adherence rate to outpatient mental health appointments 1-year pre- and post- buprenorphine ER injection induction, UDS results prior to each injection, and adherence rates to buprenorphine ER injection compared to buprenorphine-naloxone.

Assessing the Presence of Mental Health Stigma in an Academic Medical Center

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Type: Work in Progress. **Background:** Stigma has most recently been described as a complex social process of labeling, devaluation, and discrimination involving an interconnection of cognitive, emotional, and behavioral components. Mental health stigma, including that which exists among healthcare providers, has been identified as a major barrier to both treatment and recovery in addition to contributing to low quality care for persons with mental illnesses. Recent studies assessing the presence of stigma among health care providers reported that up to one third possess mental health stigma towards those that seek help for mental illness and mental illness itself. These behaviors and beliefs can be related to factors such as formal education, personal experiences, or number of years in practice. There is limited existing literature assessing the presence of mental health stigma within an academic medical center within the United States. The goal of this study is to assess the presence of mental health stigma and to evaluate possible causes of differences among employees providing direct patient care at a public 804 bed, tertiary care, level one trauma and burn center. **Objectives:** (1) Assess the presence of mental health stigma among direct patient care staff in an academic medical center. (2) Evaluate possible causes of differences in mental health stigma within the study population based on provided demographic information. **Methods:** This is a single center observational study targeting employees who participate in direct patient care at a large academic medical center. A voluntary survey to assess mental health stigma will be disseminated to all employees via email. The survey is comprised of a demographics section and one validated mental health stigma assessment scale: the Open Mind Stigma Scale for Healthcare Providers (OMS-HC). **Outcomes:** We will report the number and percent of participants reporting the presence of personal mental health stigma and analyze possible causative factors for differences in the level of mental health stigma present as a function of demographic characteristics including profession, level of education, and years in practice.

Assessing the Safety of Atypical Antipsychotic Medications in Pediatric Patients Diagnosed With ADHD

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Type: Work in Progress. **Background:** The comparative safety of atypical antipsychotic medications for ADHD (attention-deficit/hyperactivity disorder)-associated irritability is unclear; however, the potential for adverse effects including involuntary movements, cardiovascular changes, and metabolic disturbances is well-established. The incidence of metabolic disturbances is especially concerning in the pediatric population as the development of metabolic syndrome has been associated with an increased risk of future cardiovascular events. Characterizing the incidence of adverse effects of atypical antipsychotics in the pediatric ADHD population can inform current prescribing practices and improve patient safety. **Study Objectives:** The objectives of this study are to compare the incidence of metabolic and non-metabolic adverse events in pediatric patients with ADHD before and after initiating atypical antipsychotic therapy (for associated irritability) as well as identify factors that may predispose an individual to an adverse event. **Methods:** This study has been approved by our health system's Institutional Review Board. This study will be a retrospective chart review at a multi-site health system. Individuals

will be included if they are less than 18-years-of-age with a diagnosis of ADHD and are prescribed an atypical antipsychotic medication for at least three consecutive months by a provider in our health system between February 1, 2018 and February 1, 2019. Exclusion criteria included being 18-years-of-age or older and/or being prescribed an atypical antipsychotic medication for fewer than three consecutive months. Data collected will include demographics, pre-existing conditions, psychiatric diagnoses, atypical antipsychotic treatment, concurrent medications, and metabolic and adverse event monitoring parameters at baseline, three months after initiating antipsychotic treatment, and at antipsychotic discontinuation. Descriptive statistics will be utilized to identify correlations and report trends in adverse events across patient groups. **Outcomes:** Patients with treatment emergent adverse events from atypical antipsychotics will be identified and compared to patients without adverse events. Patients with and without adverse events will be characterized based on possible contributing and predisposing factors.

Assessment of Adverse Effects of Zolpidem, Zaleplon, and Eszopiclone in a Veteran Population

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Type: Work in Progress. **Background:** The "Z-drugs" (zolpidem, zaleplon, and eszopiclone) represent a group of sedative-hypnotic agents commonly prescribed to aid in sleep induction and maintenance. Several studies have associated "Z-drug" use with an increased risk of impaired alertness. Currently, the VA recommends behavioral interventions (eg cognitive behavioral therapy) be utilized first-line before trialing short-term pharmacotherapy. However, drug therapy remains a viable option when psychotherapy is ineffective. Study findings have prompted the FDA to release several safety warnings addressing use and requirements for manufacturers to add boxed warnings to all medications within the class. Additionally, the American Geriatrics Society has recommendations in the Beers Criteria to avoid use in persons $\geq$ 65 years with certain medical conditions. These safety releases have prompted apt discussions for safer prescribing practices, particularly in older populations at increased risk for falls. **Objectives:** The primary purpose of this project is to assess the rates of falls in veterans taking zolpidem, zaleplon, and eszopiclone. The study will also evaluate higher versus lower doses prescribed, mortality, referral to non-pharmacological interventions for insomnia management, and differences in adverse event rates based on age. **Methods:** The study will be a retrospective, observational analysis of the adverse events associated with "Z-drug" use among veterans age 18 or older within the Memphis Veterans Affairs Health Care System. An initial data query will be performed to identify patients with active prescriptions for zolpidem, zaleplon, or eszopiclone. After initial screening, each patient record will be assessed for falls and other adverse events associated with the specified study drugs. Confirmation of adverse events will be primarily completed via chart review of clinician notes. Differences in categorical variables will be analyzed using Chi-squared or Fisher's exact test. Interval and ratio data will be analyzed using mean, standard deviation, and the Pearson correlation coefficient. **Outcomes:** We will report the number and percent of participants that experienced falls or other drug related adverse events while taking zolpidem, zaleplon, or eszopiclone. The implications of this study may serve as a helpful tool in safer prescribing practices for the veteran population.

Assessment of Long-Acting Injectable Antipsychotics in a Free Replacement Program and the Possible Prevention of Hospital Readmissions

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Type: Work in Progress. **Background:** Long-acting injectable antipsychotics (LAIAs) are pharmacological options used to treat schizophrenia and bipolar disorder. These formulations can be convenient for patients but come with potential barriers, including cost and accessibility. Studies have evaluated the efficacy of LAIAs in the prevention of inpatient psychiatry readmissions; however, none of these studies were performed analyzing the use of inpatient free trial programs as a risk-benefit, cost-analysis. This pilot study will assess two LAIA inpatient hospital free trial programs utilized at M Health Fairview – St. Joseph's Hospital in St. Paul, Minnesota and their impact on hospital readmissions. The results will play a key role in the process of combining M Health Fairview hospital formularies to determine whether to continue or expand the LAIA programs. **Objectives:** (1) Determine readmission rates for Abilify Maintena® and Invega Sustenna® compared to patients' previous admission history; (2) Determine outpatient follow-up rates for patients utilizing Abilify Maintena® and Invega Sustenna® inpatient hospital free trial programs; and (3) Analyze costs to St. Joseph's Hospital for maintaining LAIA inpatient hospital free trial programs. **Methods:** Patients $\geq$18-years-old admitted to St. Joseph's Hospital inpatient psychiatric units between March 1, 2017 and May 31, 2019

who received Abilify Maintena® or Invega Sustenna® injections through inpatient hospital free trial programs will be eligible for the study. Any patients <18-years-old and/or opted out of research will be excluded. Patient records will be assessed for LAIA administrations; psychiatric diagnosis; hospital admissions at 30 days, 90 days, 180 days, and 12 months prior to injection; hospital admissions at 30 days, 90 days, and 180 days following injection; subsequent injections received at 180 days post-hospitalization; side effects reported by patient at time of initial injection; cost of hospital stay; cost of injection for the patient; and cost of injection for St. Joseph's Hospital. **Outcomes:** We will report the number of readmissions per patient in the designated timeframe as a ratio compared to pre-injection admissions and assess the cost-effectiveness of the inpatient free trial programs in relation to cost of the hospital stay, cost of subsequent injections for the patient, and prevention of readmissions.

Assessment of Mental Health Stigma in Pharmacy Students After Implementation of a Mental Health Focused Health Fair

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Type: Work in Progress. **Background:** Mental Health (MH) stigma by pharmacists can be especially damaging to patients and may inadvertently affect care. As part of the pharmacy curriculum, students are required to complete didactic psychiatry modules that teach students how to properly treat patients with MH disorders, but the curriculum does not address strategies for changing MH attitudes and perceptions surrounding MH stigma. MH related health fairs are not required in the pharmacy curriculum but are available to students and may help address these misconceptions about mental illnesses by providing resources and education on MH stigma. This study will provide new data on the impact of MH fairs compared to didactic coursework on reducing pharmacy student stigma. **Objectives:** (1) Assess the level of pharmacy student's MH stigma using the Opening Minds Scale for Health Care Providers (OMS-HC), before and after completion of a didactic psychiatry module. (2) Assess the level of pharmacy student's MH stigma using the OMS-HC, before and after completion of a MH fair. (3) Identify additional areas in the pharmacy curriculum that can help educate students on how to reduce MH stigma. **Methods:** All third year pharmacy students will complete the OMS-HC, a self-completed, 15-item scale validated to measure MH related stigma in health care providers. This 5-minute certified MH assessment will be given to the third year pharmacy students before and after completion of the didactic psychiatry module. Additionally, third year pharmacy students who voluntarily attended the MH focused health fair on January 22, 2020 also received this scale both before and after visiting the health fair. Descriptive statistics will be used to assess and measure the student's stigma at baseline and after each intervention is completed by March 1, 2020. De-identified results will be analyzed and data will provide insight into how important MH fairs are to the complete methodology of learning and may lead to changes in the pharmacy school curriculum to require participation in MH fairs. **Outcomes:** We will report the results from the survey and identify the impact of MH stigma after completion of a psychiatric module compared to a MH focused health fair.

Assessment of Psychiatric Inpatients Admitted on an ACEI or an ARB and the Incidence of Suicidal Ideations or Suicide Attempts

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Type: Work in Progress. **Background:** A published report in 2019 examined the potential relationship between suicide and the use of angiotensin-converting enzyme inhibitors (ACEIs) or angiotensin receptor blockers (ARBs). The patients studied were 66-years-old or older. The authors hypothesized and concluded that the use of an ARB was associated with a higher risk of suicide when compared to the use of an ACEI in this population. These two types of medications are used for several indications including hypertension, heart failure and for other reasons. However, their mechanism of actions differs in that ACEIs inhibit the conversion of angiotensin I to angiotensin II, and ARBs block the binding of angiotensin II to the type 1 receptor which results in an upregulation of angiotensin II and an unblocked stimulation of the type 2 receptor. Angiotensin II is active in the central nervous system modulating neurotransmitters and inflammatory pathways. These modulations and stimulating activities are suspected to have psychiatric implications. Peripheral angiotensin II does not cross the blood-brain barrier, but ACEIs and ARBs can with ARBs being thought to be more likely to worsen outcomes in mood disordered patients. The purpose of this evaluation is to assess the incidence of suicidal ideations and/or attempts in patients admitted with the current use of an ARB or ACEI. **Methods:** The chief complaint or reason for admission of 1300 adult psychiatric inpatients between the ages of 18 and 65 will be evaluated for suicidal ideations or for suicide attempts. These inpatients will include patients admitted to either one of two nonprofit psychiatric facilities in a metropolitan area. One of which is a free-standing psychiatric

hospital, and the other is a community hospital with psychiatric units. This subset will then be partitioned into three groups. Those with a concurrent use of an ACEI, those with a concurrent use of an ARB, and those without concurrent use of either of these types of medications. **Outcomes:** A comparative analysis will be performed on these three groups evaluating the potential for the modulation of angiotensin II, and its impact on suicidal ideation and/or attempts in this patient population.

Assessment of Student Pharmacist Sleep Habits

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Type: Work in Progress. **Background:** Experts have opined that adults should receive a minimum of seven hours of sleep nightly, with some sources indicating a range of 7-9 hours. Chronic short sleep (CSS), defined as $\leq$ six hours of sleep in a 24-hour period, is reported by 30% of US-employed adults. Studies examining the effect of sleep on academic performance are few in the student pharmacist population. In studies with medical students; poor sleep habits have been correlated with weaker academic performance. Evidence also suggests that inadequate REM sleep in students results in worse recall of newly learned information in comparison to students with normal or missed non-REM sleep. **Objectives:** (1) Obtain data about the sleep habits of student pharmacists from three schools/colleges of pharmacy. (2) Evaluate the knowledge obtained from this study to further develop student wellness initiatives. **Methods:** Participants were recruited through emails sent to the entire student body at three schools/colleges of pharmacy, with a minimum target response rate of 30%. The electronic survey included the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), and demographic questions such as year in school, caffeine intake, approximate grade point average (GPA), age, and identified gender. For objective (1) PSQI and ESS scores will be calculated. Demographic information will be assessed to identify any correlation with PSQI and ESS scores. The knowledge obtained from the survey results will be utilized in future development of wellness initiatives, possibly including interventions targeting improved sleep among the student body. **Outcomes:** Surveys have been administered at two of three institutions. All outcomes will be examined in aggregate and within each individual school/college. We will report total PSQI and ESS scores along with PSQI subsets such as mean sleep latency, total sleep time, and overall sleep quality. Themes regarding reasons for poor sleep such as nightmares or anxiety will also be reported. Correlation between the PSQI and ESS will be evaluated, along with the impact of demographic features.

Benzodiazepine Deprescribing Following Academic Detailing of Prescribers and Disbursement of Direct-to-Consumer Materials to Veterans Affected by Benzodiazepine-Opioid Co-Prescribing

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Type: Work in Progress. **Background:** Risks associated with benzodiazepines (BZDs) include respiratory depression, memory impairment, dependence, falls, and mood changes. In a prominent deprescribing trial, Eliminating Medications Through Patient Ownership of End Results (EMPOWER), 62% of elderly patients who received direct-to-consumer (DTC) materials on BZD deprescribing initiated discussion with a provider and 27% discontinued therapy within six months. Current literature pertaining to BZD deprescribing efforts in BZD-opioid co-prescription is scarce. Studies demonstrate increased overdose risk in veterans receiving concurrent BZD and opioid prescriptions, with increased risk as BZD dose increases. Further investigation is warranted to establish successful deprescribing modalities in this high-risk population. **Objectives:** (1) Determine efficacy of academic detailing (AD) of prescribers and DTC materials in prompting patient-centered change in BZD therapy. Additionally, evaluate the percentage of patients who: (2) initiate risk discussion with their provider, (3) modify opioid therapy, and (4) receive naloxone. (5) Explore provider satisfaction. **Methods:** The Psychotropic Drug Safety Initiative (PDSI) dashboard was used to identify veterans with concurrent prescriptions for BZD and opioid therapies. Veterans were excluded for the following reasons: hospice or palliative care, BZD duration $<$28 days, or opioid duration $<$90 days. Veterans prescribed BZD therapy through mental health received intervention and were compared to standard care for those receiving BZD prescriptions outside of mental health services. Demographic information (age, sex, ethnicity), fill histories for BZD, opioid, and naloxone prescriptions, BZD indication, and diagnosis history were collected at baseline via chart review. Mental health providers prescribing BZD therapy to veterans on opioid therapy participated in AD on BZD deprescribing. Providers were alerted to disbursement of DTC materials, which occurred 7-10 days before each veteran's upcoming appointment. Study objectives were evaluated three

months from the veteran's targeted appointment via chart review. Chi-squared tests were used to assess all study objectives except provider satisfaction, which was portrayed through descriptive statistics. **Outcomes:** We will report deprescribing outcomes related to both BZD and opioid therapies in addition to safety outcomes, including risk discussion initiation and provision of naloxone.

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

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Type: Work in Progress. **Background:** The BoilerWoRx mobile health program is a Purdue College of Pharmacy public health initiative currently focusing on a response to 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 addressing substance use disorders, medication-assisted treatment (MAT), harm reduction, and naloxone training. Continuing Education was delivered to healthcare providers in rural counties in North Central Indiana to improve understanding of these services and provide outreach and support to providers. The educational programs provided may aid in decreasing stigma and disinformation regarding substance use disorder and treatment modalities. **Objectives:** (1) Analyze the degree of change in attitudes towards substance use disorders, MAT therapy, harm reduction strategies, and naloxone usage through de-identified pre- and post-presentation surveys. (2) Determine whether initial attitudes correlated with demographic data. (3) Determine degree of change correlated with demographic data. (4) Analyze effectiveness of training/education based on pre- and post-test knowledge-based question results. **Methods:** Participants were healthcare professionals who participated in a continuing education program about opioid use disorder, medication-assisted treatment, harm reduction, and naloxone training. Demographic data including age, zip code, sexual orientation, healthcare profession, highest level of education, professional satisfaction, and estimated success will be collected. Participants have been given a 15 question pre- and post-survey, formatted into a five-point Likert scale, including 10 knowledge-based questions. Paired t-test and Fisher's exact test will be used to determine statistical significance of change in attitudes in the pre- and post- questionnaires. Based on the preliminary data from the previous years' study, we will be evaluating the entire participant group the pilot study was comprised of, healthcare workers. The data and consequent findings will add to the larger picture of our intended outcomes. **Outcomes:** Data will be reported regarding attitude change among health care professionals before and after participation in the continuing education presentation regarding substance use disorder, MAT therapy, harm reduction, and use of naloxone.

Buprenorphine for Asphyxial Non-Suicidal Self-Injury in an Opioid Naïve Patient: A Case Report

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Type: Work in Progress. **Background:** Non-suicidal self-injury (NSSI) is a deliberate form of self-harm utilized by patients in attempt to seek emotional relief, punish themselves, or gain attention. These behaviors can manifest in a variety of ways, such as superficial scratching and cutting, head banging, and in this case, self-asphyxiation. The opioid system is thought to play a role in patients who use NSSI to find relief from negative emotional states. Studies have shown certain populations, such as patients with borderline personality disorder, have decreased endogenous opioid signaling tone and robust endogenous opioid responses from painful stimuli, such as NSSI. This case describes a patient with daily asphyxial NSSI, who was successfully treated with buprenorphine, a mixed mu opioid receptor partial agonist, kappa and delta opioid receptor antagonist. **Objectives:** (1) Evaluate the effects of buprenorphine on asphyxial NSSI by measuring the number of attempts to asphyxiate while being admitted. (2) Evaluate the effects of buprenorphine on urges to self-harm through a content analysis of daily patient documentation of urges, behaviors, and emotions. (3) Present the titration of buprenorphine in an opioid naïve patient from buprenorphine transdermal patch to buprenorphine sublingual tablet. **Methods:** A retrospective review of a single patient's case data will be evaluated to present the course of treatment while admitted inpatient to illustrate the effects of buprenorphine on asphyxial NSSI. Review of demographic information, progress notes, labs, medications, procedures, and vital signs will be analyzed to meet objective (1). For objective (2), a content analysis of the patient's self-documentation of safety, urges to self-harm, behaviors, and emotions will be performed by a panel of health care professionals not involved in the treatment of this patient to reduce risk of

bias. Words and phrases will be classified into subject headers such as: self-injurious urges, positive affect, negative affect, positive coping behavior, and negative coping behavior. For objective (3), the titration of buprenorphine will be presented along with time course of asphyxial events and content analysis. **Outcomes:** The number of asphyxial events while admitted will be reported as well as the results of the content analysis in relation to the titration of buprenorphine.

Characterization of Inpatient Pain Management for Patients Admitted to a Psychiatric Hospital With a Home Opioid Prescription

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Type: Work in Progress. **Introduction:** Patients admitted to a psychiatric hospital with a home opioid prescription may have the opioid withheld during admission based on provider discretion due to suspicion for opioid misuse or abuse. Characterizing inpatient pain management and medication utilization for this population may be informative in improving care. **Objective:** To characterize inpatient pain management for patients admitted to a psychiatric hospital with a home opioid prescription whose opioid was continued or withheld during admission. **Methods:** Patients discharged from the medical center's psychiatric hospital between June 1 and August 31, 2019 with an active opioid prescription prior to admission were included in the study. An active opioid prescription was defined as an electronic order placed or a patient-reported home medication entered in the electronic medical record within 30 days prior to admission. Buprenorphine and methadone prescriptions were excluded. Patients were divided into two cohorts: those who were continued on their home opioid medication during admission, defined as having an active order of an inpatient opioid medication during the last 24 hours of admission; and those whose home opioid medication was withheld during admission. Study outcomes included change in average pain scores from admission to discharge, use of adjunctive pain medications, utilization of as-needed behavioral medications, need for seclusion or restraints, discharges against medical advice, length of hospital stay, and 30-day readmission rates. **Results:** Completion of this project is anticipated in March 2020. At this time preliminary demographic data is available. Thirty-five patients met study criteria. Twenty out of these were male and the average patient age was 50.3-years-old. Eighteen of 35 patients were continued on their home opioid medication during admission.

Clinical Implementation of Pharmacogenomic Testing at a Forensic Psychiatric Hospital: A Pilot Study Examining Implementation Strategies, Prescriber Acceptability, and Barriers to the Service

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Type: Work in Progress. **Background:** Institutions worldwide have begun utilizing pharmacogenomic testing as a support tool to help clinicians make better informed medication decisions. Pharmacogenomic tests provide insight on how inherited genetic variations may influence drug metabolism and response in individuals. This personalized approach to medicine can optimize drug efficacy and minimize the likelihood of adverse drug reactions. Prescribers have commonly been identified as a key stakeholder necessary to drive the successful implementation and adoption of pharmacogenomic testing into clinical practice. Thus, their perceptions, attitudes, and preparedness to work with genetic testing reports should be well characterized, with barriers identified and addressed to ensure successful adoption. **Objective:** To explore the views and attitudes of prescribers regarding pharmacogenomics and examine the benefits and barriers to the clinical implementation of pharmacogenomics testing at a state psychiatric hospital. **Methods:** Hospital prescribers, administrators, and pharmacists will receive approximately 12-hours of extensive training provided by a team of pharmacogenomics specialists. The training will elaborate on implementing the clinical utility of pharmacogenomic testing, integrating clinical knowledge of pharmacogenomic testing into practice, and utilizing evidence-based guidelines and recommendations. Trained pharmacists will provide additional educational sessions to the hospital staff on the utility of pharmacogenomic testing. Prescribers will be encouraged to exercise clinical reasoning in selecting patients for pharmacogenomic testing. The patient's consent for the test must be obtained prior to the collecting the buccal swab sample. Upon receipt of the test report, the prescriber must also exercise clinical decision making for actions to take based on the results of pharmacogenomic testing. Prescribers may order consults from pharmacists to help interpret the results and provide recommendations based on current guideline recommendations. Clinicians will be given pre-surveys prior to receiving pharmacogenomics training and post-surveys two months after implementation of the service. **Outcomes:** The result of the clinician pre- and post-surveys will be reported in numbers and percentages of the participants' experience with pharmacogenomics

training, overall user experience with pharmacogenomics testing, satisfaction with pharmacogenomics training/education, and its clinical utility in improving patient health outcomes.

Community Pharmacist Impact and Perceptions of Patient Benefit Following Implementation of an Evidence-Based Opioid Use Disorder Training Program

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Type: Work in Progress. **Background:** As the most accessible healthcare provider, community pharmacists are critical to assisting patients living with a substance use disorder. Legislation allows naloxone to be dispensed in pharmacies without a prescription in almost all US states, but studies show that some pharmacies may not stock naloxone and pharmacists may struggle to effectively counsel patients on its appropriate use. Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based approach used to decrease risky alcohol and drug use. This project was designed to equip pharmacists with education and training to implement SBIRT in community pharmacies, increase naloxone dispensing, and evaluate patient benefits. **Objectives:** To describe the impact and pharmacist perceived patient benefit from implementing naloxone and SBIRT services in a community pharmacy setting. **Methods:** Eleven pharmacies in Philadelphia, Pennsylvania were selected to participate in a training program to equip community pharmacists with the skills needed to increase naloxone dispensing and effectively implement SBIRT services. The training program consisted of an online course with SBIRT training modules and videos, and an additional one-day live training session focused on naloxone education, SBIRT, and motivational interviewing techniques. In total, 18 pharmacists were trained. All pharmacists attended the live session, however only 14 completed the online training course. One of the eleven pharmacies was designated to formally implement SBIRT services. The total number of naloxone prescriptions dispensed at each pharmacy will be measured pre- and post-training implementation and the number of screenings, brief interventions, and treatment referrals at the single SBIRT pharmacy will be quantified. Participating pharmacists will be asked a series of key-informant questions pertaining to their experiences dispensing naloxone and engaging in SBIRT services with their patients. The interviews will be recorded and transcribed to identify emerging themes. **Outcomes:** The quantity of naloxone dispensed and SBIRT screens, brief interventions, and treatment referrals will be reported and responses from the key informant interviews will be coded to identify emerging themes. The resulting themes and data analysis will help explain the pharmacists' impact, attitude, and perceived benefit to implementing these evidence-based services in the community pharmacy setting.

Comparing Student Pharmacist and Pharmacist Perceived Role in Depression Screening and Suicide Prevention

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Type: Work in Progress. **Objectives:** To determine student pharmacist and pharmacist perceived role in depression screenings and suicide prevention using the Theory of Planned Behavior (TPB). Specifically, the study will identify the perceived role of the community pharmacist in mental health screenings and compare student pharmacist perceptions to identify similarities or discrepancies. Previously, 79% of first-year student pharmacists at the study institution reported that it was a professional responsibility to assess a patient's mental health while only 12% of licensed pharmacists viewed this as a professional responsibility. This study will elucidate a better understanding of this discrepancy and enable the researchers to develop an appropriate response. **Methods:** Qualitative semi-structured key informant interviews will be conducted with second-year and third-year student pharmacists enrolled at Wingate University School of Pharmacy and pharmacists licensed in North Carolina. Pharmacists who do not practice in the community setting will be excluded. The interview guide will be developed according to the TPB. The TPB was chosen as a theoretical framework as it allows prediction of an individual's intent to engage in a behavior at a specific time and place. It was designed to explain all behavior over which people have self-control to engage or not engage in a specific activity. Interviews will be recorded, either by voice recorder or Zoom video technology, transcribed, and deidentified prior to data analysis. NVivo 12 software will be used to code the transcripts and to analyze the codes. Qualitative methods will be used to identify major themes and illustrative quotes will be selected. **Results:** Interviews are ongoing and will be conducted until saturation is met. It is anticipated that approximately 15 interviews will be required to meet saturation for each population. Results are pending. **Conclusion:** Conclusions are pending. Identified themes can be utilized to develop professional training and resources to prepare student pharmacists and pharmacists for greater engagement in mental health screening and referral.

Comparison of Lithium and Second Generation Antipsychotics for Treating Bipolar Disorder in Older Veterans

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Type: Work in Progress. **Background:** Bipolar disorder affects approximately 2.8% of US adults, and of these individuals, 25% are older than 65 years of age. This number is expected to increase to 50% by 2030. Currently, no literature on the direct comparison of lithium to second-generation antipsychotics (SGA) in older adults exists. The purpose of this study is to compare both the efficacy and safety of lithium to SGA for treating bipolar disorder in older veterans. The results of this study may indicate which medication is a better therapy option in older adults thus potentially limiting side effects and improving disease state related symptoms in this population. **Objectives:** The primary objective of this study is to compare the time until discontinuation of therapy between lithium patients versus SGA patients. Secondary objectives are to compare the number of mental health hospitalizations and tolerability between the two treatment groups. Intolerability of a treatment will be defined by one of the following criteria: (1) discontinuation of the medication due to an adverse reaction or (2) negative changes in lab parameters likely due to the medication. Death rates between the two treatment groups will also be analyzed. **Methods:** This study is a retrospective cohort design that will include patients 65-89 years of age with a diagnosis of bipolar I or II disorder who were prescribed lithium or SGA treatment and were followed by geriatric psychiatry providers. The date range chosen to capture eligible patients was Janurary 1, 2005 to September 30, 2017. Patients will be excluded if they have a diagnosis of schizophrenia, schizoaffective disorder, dementia, or bipolar disorder with psychotic features. Additional exclusion criteria include (1) concurrent use of lithium and a SGA, (2) use of other mood stabilizers while prescribed lithium or SGA, and (3) lost to follow-up within the first six months of being prescribed lithium or SGA. Continuous data will be analyzed by students t-test and nominal data will be analyzed by chi-square or Fisher's exact. **Outcomes:** Data collection and analyses will be completed by April 2020. Study outcomes will be reported at the CPNP Annual Meeting.

Comparison of Lithium Related Toxicity Following Changes in Lab Monitoring Requirements

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Type: Work in Progress. **Background:** The 2002 American Psychiatric Association (APA) guideline for the treatment of bipolar disorder lists lithium as a first-line agent in the acute treatment for manic or mixed episodes, an acute depressive episode, and in patients experiencing mixed cycling. With lithium's narrow therapeutic index (0.6-1.2 mEq/L), toxicities can be seen at levels $>$ 1.2 mEq/L. On July 25, 2016 a National Pharmacy Benefits Management (PBM) Bulletin for Lithium Safety was released, which recommended lithium level monitoring every six months after a patient was treated in the ICU for lithium toxicity. It was later found that this patient had not had a lithium level drawn in several years. This retrospective chart review will determine if increased lithium level monitoring has led to fewer lithium related adverse events. **Objectives:** (1) Determine the number of lithium related adverse events reported in VA Adverse Drug Event Reports (VADERS) when monitoring was required every twelve months versus when it was required every six months. (2) Determine the number of lithium levels $>$ 1.2 mEq/L during the two time periods. (3) Quantify the outcome of an elevated level (symptoms of toxicity versus asymptomatic) as well as the provider's intervention (eg, change medication, change dose, re-draw level, recommend hospitalizations etc.). **Methods:** In this retrospective chart review, researchers will extract data from the Computerized Patient Record System (CPRS) for patients prescribed lithium between January 1, 2014 and December 31, 2019. Data will be collected from the VADERS report as well as chart notes within CPRS. Data to be collected includes age, gender, ethnicity, lithium dose, lithium start date, lithium indication, adherence to lithium level monitoring, renal function, medication list, and provider intervention(s). Descriptive statistics will be used to analyze the data. **Outcomes:** We will report the number of lithium related VADERS reports that were made the two years before and after monitoring requirements changed, the number of lithium levels $>$ 1.2 mEq/L and quantify the data.

Comparison of Metabolic Adverse Effects With Clozapine Compared to Olanzapine

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Type: Work in Progress. **Background:** Schizophrenia and schizoaffective disorder are complex mental health conditions that are difficult to treat. The American Psychiatric Association recommends second-generation antipsychotics as first line therapy for the treatment of these disorders. However, they are associated with significant metabolic adverse effects including increase in blood sugar, weight gain, and increase in low-density lipoprotein cholesterol (LDL-C). Clozapine is associated with the greatest amount of metabolic adverse effects due to its chemical structure.

However, other second-generation antipsychotics have significant metabolic adverse effects as well, specifically olanzapine which is structurally very similar to clozapine. At the Tuscaloosa VA Medical Center, a clinical pharmacy specialist provides close monitoring of veterans taking clozapine and has a scope of practice to monitor metabolic adverse effects. This retrospective study will provide important data for veterans at the Tuscaloosa VA Medical Center to determine if the close monitoring of veterans taking clozapine leads to a decrease in metabolic adverse effects compared to veterans taking olanzapine. **Objectives:** (1) Determine if there is an increase in hemoglobin A1c in veterans taking clozapine compared to olanzapine. (2) Determine if there is an increase in weight gain in veterans taking clozapine compared to olanzapine. (3) Determine if there is an increase in LDL-C in veterans taking clozapine compared to olanzapine. **Methods:** Veterans aged 18-89 with an active order for clozapine or olanzapine at the Tuscaloosa VA Medical Center will be recruited. Retrospective chart review will be conducted to collect demographic variables (age, race, antipsychotic dose and directions), height, weight, hemoglobin A1c, and entire lipid panel. Hemoglobin A1c, weight, and LDL-C from January 1, 2017 will be compared to results in December 31, 2017 to determine if these values worsened. For objective (1): descriptive statistics will be used to report differences in hemoglobin A1c. For objective (2): descriptive statistics will be used to report differences in weight. For objective (3): descriptive statistics will be used to report differences in LDL-C. **Outcomes:** We will report hemoglobin A1c, weight, and LDL-C of veterans on clozapine and olanzapine and analyze the difference to identify if the close metabolic monitoring of clozapine patients leads to a decrease in metabolic adverse effects.

Compliance With Suicide Risk Identification Protocol Between Mental Health Pharmacists and Other Healthcare Providers at a Veterans Affairs Health Care System

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Type: Work in Progress. **Background:** Veterans have a suicide rate 1.5 times higher than the non-veteran adult population. In 2017, veterans accounted for 13.5% of all deaths by suicide among US adults while only constituting 7.9% of the US adult population. The risk of suicide in veterans has increased 6.1% between 2005 and 2017. The Veterans Affairs (VA) developed a suicide risk screening protocol that was implemented in October 2018. Past studies have assessed suicide prevention training programs available for pharmacists, self-efficacy, and attitudes toward suicide prevention. These studies have only evaluated community pharmacists. No studies have evaluated the role of Mental Health Clinical Pharmacy Specialists (MH CPS) in suicide risk screening and assessment compared to other healthcare providers at the VA. **Objective:** Assess MH CPS impact on suicide risk screening protocols utilizing other providers as a comparison **Methods:** Patients with a positive question 9 (from the Patient Health Questionnaire) via any screening tool with a same-day Columbia Suicide Severity Rating Scale (C-SSRS) between November 1, 2018 and November 1, 2019 at the South Texas VA will be reviewed using the Computerized Patient Record System. One hundred patients with the most recent positive question 9s will be assessed for each group. The following variables will be collected: age, gender, healthcare provider type who completed positive primary screen, date of screen, completion of same day Comprehensive Suicide Risk Evaluation (CSRE) if indicated, completion of Suicide Safety Plan (SSP) if indicated based on CSRE, number of patients who did not get naloxone despite access to opioids, number of patients who did not get a gunlock despite access to firearms, and time between CSRE and Suicide Behavior and Overdose Report. **Outcomes:** We will report the number and percent of risk management documentation per protocol between MH CPS and other providers. Baseline characteristics and outcomes will be assessed for significance with a Chi-square analysis, assuming data will not be normally distributed.

Depression Care and Suicide Risk Assessment at a Community Health Center in Los Angeles

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Type: Work in Progress. **Background:** The Centers for Disease Control and Prevention reported a 25.4% increase in suicide rates from 1999 to 2016 in the United States. Many individuals with depression and suicidal ideation are seen in primary care settings because of limited access to behavioral health services and stigma involved in seeking psychiatric care. A large proportion of suicidal patients see a primary care provider within a month of completing suicide. This emphasizes the need for optimal depression care and suicide assessment in primary care. While past studies have established the suboptimal management of depression in primary care, few evaluate suicide risk assessment in these settings. This study will add to what is known about depression management in primary care and provide additional data on suicide risk assessment in a primary care clinic in Los Angeles. **Objectives:** (1) Evaluate the extent and quality of depression care provided. (2) Assess extent and quality of suicide risk assessment in

patients with depressive symptoms. (3) Assess change in suicide risk assessment with education of providers on Columbia-Suicide Severity Rating Scale. **Methods:** Adults with Patient Health Questionnaire (PHQ-9) scores $\geq$15 in 2018 will be recruited. Data will be collected between January 1, 2018 and May 31, 2020. Demographic variables, all PHQ-9 results during study period, documented suicide risk assessment, and depression treatment will be collected from >100 patient charts. For objective (1), number and percent of depressed adults who had 2 follow-up PHQ-9 scores within one year, had PHQ-9 score of <5 after treatment, and had optimal antidepressant dose will be reported. For objective (2), extent and quality of documented suicide risk assessment will be analyzed with descriptive statistics. Descriptive statistics will be used to analyze changes in quality of suicide risk assessment between January 1, 2019 through May 31, 2019 and January 1, 2020 through May 31, 2020 for objective (3). **Outcomes:** The number and percent of adults who received treatment for depressive symptoms, suicide risk assessment, repeat administration of PHQ-9, and those who achieved remission of depressive symptoms will be reported and analyzed in addition to changes in suicide risk assessment after provider education.

Description of the Pharmacist's Role Within a Homeless Outreach Program

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Type: Work in Progress. **Background:** Limited literature exists regarding the barriers and concerns of individuals experiencing homelessness related to their access to healthcare and medications. Even less literature exists evaluating the barriers that are unique to individuals who are seen by non-clinic based treatment teams. In one study, the prevalence of homelessness in individuals experiencing serious mental illness was identified to be 15%. A pharmacist's role to help manage these patients has not clearly been defined. Therefore, a psychiatric clinical pharmacist could be beneficial in managing the potential barriers unique to those individuals experiencing homelessness with a mental illness. **Objectives:** (1) Determine barriers to healthcare access and medication adherence among individuals experiencing homelessness. (2) Evaluate an individuals' medical history and examine what gaps exist in their care, specifically related to mental health diagnoses. (3) Propose what role a psychiatric clinical pharmacist may have in filling the gaps identified through the survey. **Methods:** Data is being collected by an investigator from December 2019 to March 2020 through a survey. The survey will be completed by patients seen by a social worker with the Homeless Outreach Team. Since this team is not associated with a clinic, the investigator meets patients in the community, typically at a local homeless shelter, in order to complete the survey. The primary endpoint is identification of the barriers that individuals experience in regards to healthcare and medication access. Secondary endpoints will include diagnoses, current medications, emergency department and primary care service utilization, and laboratory values relevant to diagnoses. This study was approved by the University Institutional Review Board. **Outcomes:** Barriers identified through the survey will be reported as well as relevant information within the medical record that may identify gaps in care, specifically with regards to mental health disorders. Final results will be utilized to impact the overall care provided by the Homeless Outreach Team to ensure the needs of the individuals are addressed. Through identification of these barriers, a psychiatric pharmacist's role with this particular patient population can be better defined, including how they may impact the barriers that may be contributing to current gaps in care.

Development and Implementation of a Borderline Personality Disorder Treatment Protocol at a Veterans Affairs Medical Center

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Type: Work in Progress. **Background:** Borderline Personality Disorder (BPD) is a pervasive pattern of instability of interpersonal relationships, affects, and self-image, as well as marked impulsivity. BPD is the most common personality disorder seen in a clinical setting. About four percent of the general population exhibits BPD compared to up to twenty percent in the clinical psychiatric population. Psychotherapy such as dialectical behavioral therapy (DBT) or cognitive behavioral therapy (CBT) is the primary treatment for behavioral symptoms. The Practice Guideline for the Treatment of Patients with Borderline Personality Disorder from the American Psychiatric Association (APA) and the Borderline Personality Disorder: Recognition and Management guidelines from the National Institute for Health and Care Excellence (NICE) in the United Kingdom, vary widely in approach to treatment of these patients, but agree pharmacotherapy should be adjunctive to psychotherapy. Caring for patients with BPD often causes negative emotions to arise from caregivers. Lack of continuity in care can be a trigger for patients with BPD to act out due to decrease in structure. Currently, this facility does not have a uniform process to approach treatment and stabilization for patients admitted to inpatient psychiatry with BPD. **Objectives:** (1)

Develop a protocol to provide guidance on treatment of patients with BPD who present to the inpatient psychiatry unit; and (2) Decrease length of stay and readmission rates in patients admitted to inpatient psychiatry with BPD. **Methods:** The investigators will review protocols from outside facilities, treatment guidelines, journal articles, and other primary literature to compare best practices for treating BPD patients. Interdisciplinary discussion among psychiatry, psychology, nursing, and pharmacy staff will supplement the literature. Clinical judgement will be utilized to determine commonalities among research and formulate the data into a step-by-step treatment protocol. Investigators will present the proposed protocol to the Medical Staff Executive Committee for approval prior to implementation. Implementation will include education of staff involved with BPD patient care on the inpatient psychiatric unit. **Outcomes:** We will report on patient length of stay and readmission rates using retrospective data pre and post implementation of the proposed protocol and use surveys to determine staff satisfaction pre and post implementation.

Development and Implementation of a Collaborative Physician-Pharmacist Care Model for Medication Assisted Treatment With Buprenorphine/Naloxone

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Type: Work in Progress. **Background:** A marked increase in synthetic opioid-related deaths occurred, with a 21.4% increase from 2015 to 2016 and a 12% increase from 2016 to 2017. Medication-assisted treatment (MAT) programs utilizing buprenorphine/naloxone for opioid use disorder decrease all-cause mortality. However, patient access to services is limited due to underutilization of services by clinicians. Reasons for underutilization include complexity of monitoring, medication safety concerns, and lack of supportive services, time, and expertise. Collaborative care physician-pharmacist care models decrease barriers and increase access to treatment but are not routine in practice. **Objective:** The objective of this quality improvement initiative was to develop and implement a collaborative physician-pharmacist care model for management of patients on MAT with buprenorphine/naloxone to minimize provider burden, expand access to treatment, and optimize patient care. **Methods:** A physician-pharmacist collaborative practice model for management of patients on MAT with buprenorphine/naloxone was piloted at the Clement J. Zablocki Veterans Affairs Medical Center outpatient substance use disorder clinic. One-half day of clinic time per week was dedicated to physician-pharmacist shared medical appointments for a five-month trial period. Patients were included if currently prescribed buprenorphine/naloxone under the care of the addiction psychiatrist with appointments scheduled during the allotted joint clinic time. During the shared appointment, the pharmacist met with the patient first and then staffed the case with the physician. Pharmacist responsibilities included review of urine drug screens and state prescription drug monitoring reports, assessment of stability on current buprenorphine/naloxone treatment, naloxone prescribing and education, general medication review, and assessment and management of comorbid conditions. The physician was responsible for reviewing information collected by the pharmacist during the appointment and prescribing buprenorphine/naloxone. **Outcomes:** Descriptive data collected will include the number of patients seen, physician-time saved, medication interventions, and referral for other supportive services.

Domoic Acid and Related Marine Harmful Algae Bloom (HAB) Neurotoxins: Risks, Pathogenesis, Prevention, and Treatment Implications

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Type: Work in Progress. **Background:** Reports of neurotoxin exposures from Harmful Algae Blooms (HABs), including domoic acid (DA) (aka amnesic shellfish poisoning) and related neurotoxins are becoming more frequent. This study will review scientific and public health literature to help pharmacists discuss preventive measures with patients, as well as understand the risks, pathogenesis, clinical course, and treatment implications. **Objectives:** Serious human DA exposures were linked to blue mussel ingestions in the Canadian Maritime Provinces in 1987, including neurological injury, seizures, temporal lobe sclerosis, and death. Subsequent public health efforts have focused on detecting and preventing human exposures, as well as treating and rehabilitating wild marine mammals suffering status epilepticus and neurological injuries. In the recent decade, Washington and California have reported elevated DA levels in Dungeness crabs and shellfish, animals that accumulate DA toxin produced by HABs. This necessitated intermittent closures of commercial and recreational crabbing and shellfish harvesting. Marine mammals, including sea lions, have been directly impacted, with severe acute and chronic neurological problems. These events provide warnings of potentials risks to humans and animals, and the importance of ongoing vigilance. The neurotoxic mechanism of DA is likely due to activation of kainic acid receptors, which are central glutamatergic excitatory amino acid receptors present in limbic areas, including the hippocampus. Reports of HAB and risks of

exposures to DA and other marine toxins are increasing, however, most DA reports are in the veterinary, environmental, and public health literature. Few sources are written for practicing pharmacists, although many practice in at-risk coastal regions. Accordingly, it is important for pharmacists and other healthcare workers to understand HABs, DA and related neurotoxins, including the risks, preventive measures, pathogenesis, possible clinical course, and potential treatment implications. **Methods/Outcomes:** This project aims to provide an overview of basic science, clinical, and public health issues of HABs, DA, and related marine neurotoxins. We will review relevant sources, including sources outside literature typically consulted by practicing pharmacists, such as state/national agencies that, in the event of an emergent outbreak, provide current and regional information.

Effect of Cannabidiol Products on Mental Health Disorders

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Type: Work in Progress. **Background:** Cannabinoid receptors are expressed throughout the brain and are important for cognition, emotional regulation, and other physiological responses. Recently, the potential role of cannabinoids in treating a range of neurological and psychiatric disorders has been popularized due to the widespread use of cannabidiol (CBD) products. Preclinical and clinical studies show cannabinoids may possess a range of therapeutic properties, including anxiolytic, antipsychotic, anti-depressive, and neuroprotective features. **Objectives:** The primary outcome was to compare any worsening of mental health symptoms between patients who reported taking cannabidiol products and those who did not. Secondary outcomes compared psychiatric rating scales and additional hospital care related to mental health. **Methods:** Patients were included if they were at least 18 years of age, diagnosed with common Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) mental health disorders, and reported taking non-VA CBD products between January 1, 2009 and October 1, 2019 via electronic medical records. Patients were excluded if they reported using marijuana or other illicit substances at any time in conjunction with CBD products. For every unique patient with reported non-VA CBD product use, an individual was randomly selected from the set of matched non-CBD product exposed patients. Patients were matched by age, sex, race, psychiatric hospitalizations in the prior year and Charlson Comorbidity Index. After the patients were matched, a retrospective chart review was conducted to identify treatment strategies for mental health conditions in both groups. If patients required treatment or if a treatment strategy was changed, the number of treatments were recorded and subsequently compared. **Outcomes:** We will report the number and percent of participants initiated on psychotropic medications for various mental health disorders and assess the treatment strategies trialed during the study period between patients with reported cannabidiol use and their matched controls.

Effect on Hospital Readmission Rates in Veterans Treated With Typical Versus Atypical Long-Acting Injectable Antipsychotics

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Type: Work in Progress. **Background:** Non-adherence, persistent substance use, caregiver criticism, and discontinuation of antipsychotic medication have been found to be the most common risk factors for relapse in patients with schizophrenia. In veterans with schizophrenia, the rate of adherence defined as a medication possession ratio $<$ 0.8 in one year was found to be 61%. One of the strategies employed to improve medication adherence in patients with schizophrenia includes the use of long-acting injectable antipsychotics (LAIA). Observational studies comparing the effectiveness of oral antipsychotics and LAIA have shown that LAIAs are superior likely due to adherence. Landmark schizophrenia trials have demonstrated that there are no differences in oral typical and atypical antipsychotics in regards to compliance, quality of life, and effectiveness. However, there are limited studies comparing the rates of readmission following administration of LAIA. **Objectives:** The primary objectives of this study are to determine if there is a difference in readmission rates and adherence rates between typical and atypical LAIA in veterans with schizophrenia or schizoaffective disorder. The secondary objectives of this study are to determine if there is a difference in time to discontinuation and adverse effects between typical and atypical LAIA. **Methods:** A retrospective chart review will be conducted to include patients identified from the Veterans Health Administration electronic medical record who were prescribed a LAIA between June 30, 2016 and June 30, 2019. To be included in this study, patients must be $>$ 18 years of age and admitted for schizophrenia or schizoaffective disorder, started on a LAIA, and only receiving one antipsychotic medication. Patients must have previously been on the oral formulation of the LAIA prescribed and show tolerability. The patients must receive their follow-up care from Michael E. DeBakey Veterans Affairs Medical Center. Patients will be excluded if they are greater than 65 years of age, have an indication other than schizophrenia or schizoaffective, or have dementia related cognitive impairment. Data collection

for the primary objectives will include LAIA, hospital readmissions within one year, and days the patient was adherent. Data collection points for the secondary objectives will include time before discontinuation and adverse effects reported.

Effectiveness of Naltrexone Oral Versus Long-Acting Injection for Alcohol Use Disorder Among Veteran Patients

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Type: Work in Progress. **Background:** Alcohol use disorder (AUD) is a chronic disease characterized by the compulsive and uncontrollable consumption of alcohol despite harmful consequences. More than 40% of US veterans have a life-time prevalence of AUD. Veterans with comorbid Post-Traumatic Stress Disorder are more likely to have a suicide attempt compared to those without AUD. Currently, both oral and long-acting injectable (LAI) naltrexone are approved by the Food and Drug Administration for the treatment of AUD. Guidelines have not established recommendations regarding which formulation is preferred. This study aims to evaluate differences in effectiveness between the 2 formulations of naltrexone in the treatment of AUD. The results from this study will be used to assist in establishing best practice in the treatment of AUD to guide further initiatives to improve quality of care. **Objectives:** The primary objective of this project is to determine the difference in treatment effectiveness defined as time to treatment discontinuation of naltrexone oral versus LAI and the reason for discontinuation (eg, sobriety, relapse, intolerance, etc.). Secondary objectives include change in alcohol consumption, medication adherence, reduction in alcohol cravings, time between naltrexone formulation change, and cost-effectiveness. **Methods:** This proposal has been approved by the facility's Research and Development Committee. The project will be a retrospective chart review of patients who received an initial prescription of either oral or LAI naltrexone between January 2016 and January 2018 for the indication of AUD. Patient records will be assessed over a 1-year period. Patients are to be excluded if they have a diagnosis of opioid use disorder, if naltrexone therapy was initiated outside of the VA system, if they have previously failed naltrexone therapy, or if they have concurrent therapy with disulfiram, acamprosate, gabapentin, or topiramate (with indicated use for AUD). Data will be collected via chart review through the Computerized Patient Record System throughout January, and data collection and analysis will be completed in March. **Outcomes:** There were 313 unique patients (141 on LAI naltrexone; 172 on oral naltrexone) identified through the Veterans Information Systems and Technology Architecture (VISTA). Full results will be presented at the 2020 CPNP annual meeting.

Effects of Barcode Medication Administration (BCMA) Implementation on Medication Error Reporting for Long-Acting Injectables

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Type: Work in Progress. **Background:** Errors associated with medications are the most frequent cause of adverse medical events. The implementation of computerized physician order entry (CPOE) has helped prevent order entry errors, but medication errors still occur in other areas such as dispensing and administering. Barcode medication administration (BCMA) has helped improved medication safety in these areas. Prior to December 2019, the Columbia Veterans Affairs Health Care System documented the administration of long-acting injectable (LAI) antipsychotics via a note in the electronic medical record (EMR). However, it was often difficult to determine how and when these medications were administered to patients. BCMA was implemented in the LAI clinic in December 2019 to assist nurses with documentation, administration, and time management. This study will assess changes in medication error reports before and after BCMA implementation. **Objectives:** (1) Evaluate the difference in medication error reports in the mental health LAI clinic via the Joint Patient Safety Reporting (JPSR) system between January 1, 2019 and March 31, 2020. (2) Determine if there are specific trends in medication errors such as day of the week, time of day, or medication. **Methods:** A retrospective review of the JPSR system to collect data on errors reported for patients receiving injections through the LAI clinic at the Columbia VA Health Care System. Information on service line, date, time, medication, and error will be collected for each JPSR report. **Outcomes:** We will report the number and percent of JPSR reports between January 1, 2019 through April 30, 2019 compared to December 1, 2019 through March 31, 2020 and analyze the specific types of errors that were reported during this time frame.

Estimating Pharmacy Adherence in a Mental Health Population

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Type: Work in Progress. **Background:** Medication adherence can be an obstacle for many patients. When medical conditions are treated sub-optimally, symptoms may worsen and can lead to increased use of hospital services, office visits and other medical resources. Having diagnoses such as bipolar disorder or schizophrenia, and/or receiving a complex medication regimen can increase a patient's risk for readmission. There has been little research done on screening for medication adherence in a psychiatric population. A 3-item pharmacy adherence estimator created by Merck is currently being utilized by pharmacists at an inpatient psychiatric facility to assess patient medication adherence. A lack of accuracy has been observed with the estimator over the past year. There have been numerous cases where a patient scores "low likelihood" for non-adherence yet is being admitted or re-admitted for medication non-adherence. Currently, there are no validated pharmacy adherence estimators for a mental health population. Developing a new pharmacy adherence estimator provides the opportunity to collect data that can be used to help target patients for discharge counseling, assess the impact of increasing medication adherence and potentially lower readmission rates. **Objectives:** (1) Develop a new pharmacy adherence estimator for a mental health population. (2) Evaluate estimator scores and assess for correlation with 30-day readmission rates. **Methods:** A new pharmacy adherence estimator questionnaire will be developed. The new pharmacy adherence questionnaire will be asked of each patient when conducting medication reconciliation upon admission by a pharmacist, pharmacy intern, or pharmacy student during the period of February 1, 2020 through March 31, 2020. Baseline patient data for non-adherence (such as age, sex, payer source, discharge diagnosis, positive urine drug screen, and blood alcohol level) will be collected. Retrospective chart review and assessment for correlation between pharmacy adherence scores and 30-day readmissions from February 1, 2020 through March 31, 2020 will be conducted. **Outcomes:** We will report the number and percent of patients that were screened with the new pharmacy adherence questionnaire. Analysis of any correlation found between adherence scores and 30-day readmissions during the study period and patient demographics will also be reported.

Evaluating Outcomes of Veterans on Long-Acting Injectable Antipsychotics

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Type: Work in Progress. **Background:** Antipsychotic medications are vital in the treatment of patients with schizophrenia spectrum disorder and bipolar disorder. These patients have a high rate of medication non-adherence and discontinuation. This contributes to hospitalizations and long-term dysfunction, which is a huge challenge for clinicians. Long-acting injectable antipsychotics (LAI-APs) were created to improve medication adherence and prevent psychiatric hospitalizations in these patients. With many LAI-APs in the market, there is limited data on the ideal patient characteristics that should be started on these agents. This is a continuation study of a previous residency research project with a focus on second-generation LAI-APs, attempting to identify these ideal characteristics. **Objectives:** The primary outcome of this retrospective cohort study is to evaluate clinical outcomes of veterans pre and post initiation of a LAI-AP. The secondary outcomes are to compare efficacy, safety, and cost-related outcomes pre and post initiation of the LAI-AP. **Methods:** This IRB-approved retrospective cohort study will review veterans at VA Loma Linda Healthcare System who were initiated on a LAI-AP from September 1, 2017 to September 1, 2018. Data will be collected on demographic and clinical characteristics, including outcomes for efficacy, safety, and cost. Clinical characteristic data that will be collected will include history of psychotropic use, psychiatric hospitalizations, mental status, and relevant diagnosis. Statistical analyses will include descriptive, one-sample t-test, paired t-test, chi-square test, and the Wilcoxon Signed-Rank test. *P*-value will be set at $< .05$ for statistical significance. **Outcomes:** We will report the proposed ideal patient characteristics based on demographic data and clinical outcomes. We will also analyze the efficacy, safety, and cost-related outcomes pre and post initiation of LAI-APs.

Evaluating the Decision to "Double Down": Implementation of a Pharmacy Consult to Optimize Risk Mitigation for Concomitant Opioid and Benzodiazepine Therapy

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Central Virginia Veterans Affairs Healthcare System, Richmond, VA

Type: Work in Progress. **Background:** Concomitant use of opioid and benzodiazepine therapy has been associated with an increased risk of falls, respiratory depression, overdose, cognitive impairment, and death. This led national agencies to release recommendations against use of this high-risk combination. Despite this knowledge, 5.2% of Veterans Affairs patients prescribed an opioid were also prescribed a benzodiazepine as of September 2019. A previous study from 2017 established that pharmacy consults may reduce frequency of co-prescribing this combination, but impact on risk mitigation

utilization remains unclear. To facilitate safe and effective prescribing, a Prior Authorization Drug Request (PADR) consult was implemented for all new start outpatient prescriptions that would result in greater than a five day-supply of concomitant opioid and benzodiazepine therapy. **Objectives:** Evaluate (1) The approval rate of PADR consults for new start concomitant opioid or benzodiazepine prescriptions; (2) Clinical appropriateness of opioid and benzodiazepine therapy; (3) Frequency of required risk mitigation strategies; and (4) System level prescribing trends for opioid and benzodiazepine prescriptions within a defined portion of fiscal year (FY) 2019 to FY2020, including new start prescriptions, average day supply for each drug class, and number of patients prescribed both medications. **Methods:** Data will be obtained from the Corporate Data Warehouse using Structured Query Language (SQL) queries via SQL Server Management Studio (SSMS) during defined time parameters. A chart review of all patients for whom a PADR was entered will be completed to obtain pertinent information. For objective (1) number and percent of consults approved will be reported. For objectives (2) and (3) descriptive statistics will be used to report if preferred, safer alternatives had been trialed in the past and compliance with required risk mitigation strategies. For objective (4) a student's t-test will be used to compare values from a defined portion of FY2019 to FY2020. **Outcomes:** The approval rate of PADR consults for new start concomitant opioid or benzodiazepine prescriptions will be reported. Additionally, we will evaluate clinical appropriateness of opioid and benzodiazepine therapy, frequency of required risk mitigation strategies, and the impact of PADR on prescribing trends.

Evaluating the Efficacy of Melatonin Versus Diphenhydramine in Sleep and Next-Day Performance in Pediatric Patients on an Inpatient Psychiatric Unit

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Type: Work in Progress. **Background:** Diphenhydramine and melatonin are both over-the-counter (OTC) medications indicated for facilitation of nighttime sleep. Our institution previously exclusively used diphenhydramine as needed (prn) for patients reporting symptoms of insomnia. However, diphenhydramine has many reported side effects, such as dizziness, drowsiness, and headaches. In 2016, melatonin was added to formulary as an option for pediatric insomnia. This retrospective chart review aims to assess the effects of diphenhydramine vs. melatonin. **Objectives:** (1) Investigate the effects of diphenhydramine as compared to melatonin on effectiveness for insomnia. (2) Investigate the effects of diphenhydramine as compared to melatonin on next-day drowsiness as measured by patient participation in the next day's group therapy activities. **Methods:** This study will consist of a retrospective chart review of patients admitted to the pediatric inpatient psychiatry unit between July 1, 2018 to December 31, 2018. Baseline patient data will include age, sex, psychiatric diagnosis, and prior sleep medication administration. Treatment factors to be collected include choice and dose of insomnia medication, additional medications administered, nursing notes on as needed (prn) medication effectiveness, and participation level in group therapy documentation notes. Key words such as "sleepy," and "tired" will be considered negative. If the charts do not include such descriptions, it will be counted as positive data (negative formulary approach). Data regarding any subjective complaints, drug interactions, and adverse drug reactions will also be collected. For objective (1), we will report n and % of patients who found the medication effective for insomnia. For objective (2) we will use descriptive statistics to report level of group activity. **Outcomes:** We will compare efficacy and adverse outcomes of diphenhydramine and melatonin. Based on results, we will determine if prospective studies should be done to potentially adjust the admission order set.

Evaluating the Impact of a Pharmacist-Managed Outreach Clinic at a Day Shelter for Homeless Veterans

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Type: Work in Progress. **Background:** Due to transportation, communication, and financial barriers not all homeless veterans utilize clinical services offered at the Veterans' Affairs (VA) Hospital, increasing, likely preventable, emergency department (ED) visits. On October 17, 2018, a once weekly half-day, pharmacy clinic was established at a day shelter to provide clinical care. The clinic encountered 40-percent of homeless veterans located within the area over a 6-month period and demonstrated benefit to patient care. This quality improvement project (QI) aims to measure the impact of a Postgraduate Year Two Psychiatric (PGY2) Pharmacy Resident in the day shelter with modifications from the prior year. **Objectives:** (1) To compare time to and number of follow-ups, reported adverse drug reactions (ADRs) and drug-drug interactions (DDIs), treatment of chronic conditions, and referrals for untreated conditions before and after pharmacy clinic evaluation. (2) To decrease the number of preventable ED visits. **Methods:** The PGY2 Psychiatric Pharmacy Resident will run a one-half day per week clinic for a 6-month period at the day shelter. The pharmacy clinic will integrate walk-in appointments with

30-minute scheduled clinic appointments. Additionally, veterans will be offered follow-up by either the pharmacy resident or other disciplines. The pharmacy resident will be under the scope of a supervising psychiatric clinical pharmacy specialist (CPS) preceptor. Under the scope of a psychiatric CPS, the resident will provide the following services: medication reconciliation, adjustments, and initiation (as appropriate), clinical assessments, DDIs, ADRs, blood pressure and glucose readings, counseling, medication processing, referrals, and assisting in follow-up appointment scheduling. Patients will be compared to themselves pre- and post-pharmacy clinic appointment. Data collection includes sex, age, mental health diagnosis, last appointment date with primary care and/or a mental health provider, adherence rate, last mental health assessment score, the date of last completed labs, and last visit to the ED (all if applicable). The prospective and retrospective group data will be recorded and compared. **Outcomes:** At the conclusion of the QI project, we expect an increase in adherence rates and the number of follow-up appointments. We expect a decrease in polypharmacy, untreated disease states, DDIs, ADRs, and preventable ED visits.

Evaluating the Impact of Long-Acting Injectable Antipsychotics Versus Oral Antipsychotics on Psychiatric Hospitalization Rates in Veterans With Chronic Schizophrenia

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Type: Work in Progress. **Objective:** This project aims to evaluate the effect of long-acting injectable antipsychotics on psychiatric hospitalization in veterans with chronic schizophrenia compared with conventional oral antipsychotics. **Background:** Schizophrenia is a chronic psychiatric illness where frequent relapse is common over the course of illness. Relapse can be described as an exacerbation of psychotic symptoms and can lead to hospitalization. Medication nonadherence, including medication discontinuation, has been identified as a strong risk factor for relapse. Unfortunately, medication nonadherence rates are high in patients with schizophrenia. Long-acting injectable antipsychotics (LAIAs) were developed to address medication nonadherence seen in patients on oral antipsychotics. Because LAIAs eliminate the need for daily dosing, they are considered a valuable option in patients with medication nonadherence. However, evidence regarding the utility of LAIAs in reducing schizophrenia rehospitalization has remained controversial. It has been identified that randomized controlled trials may be limited due to their highly selective patient populations and poor generalizability. Observational studies have suggested decreased hospital readmission rates with the use of LAIAs and mirror-image studies have been used to enact a more real-world comparison of LAIAs and oral antipsychotics. **Methods:** This project will be conducted at the VA Portland Healthcare System. Patients will be identified according to certain specifiers. First, the patient must have a diagnosis of schizophrenia or schizoaffective disorder per International Classification of Diseases (ICD-10) codes. Second, the patient must have received an LAIA medication either while admitted to the inpatient psychiatric ward, as an outpatient while enrolled in the Mental Health Intensive Care Management (MCHIM) program, or the Veterans Community Center and Resource Referral (CRRC) program. Patients must have received a LAIA within the past 5 years. After the patient population has been an identified, a retrospective chart review will be conducted by the primary investigator (pharmacy resident) with guidance from the inpatient mental health clinical pharmacy specialist. Chart review will compare a period of oral antipsychotic treatment with a subsequent period of LAIA treatment for each patient. We will be looking at number of rehospitalizations between these two time periods as an indicator of efficacy for oral versus injectable antipsychotics.

Evaluating the Impact of Oral to Long Acting Injectable Antipsychotic Conversion in a Veteran Population With Schizophrenia

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Type: Work in Progress. **Background:** Schizophrenia is a debilitating condition, having significant impact on relationships, capacity to work, and quality of life. Antipsychotics are an important class of medication for the treatment of schizophrenia; despite this, ensuring adequate adherence to these agents is challenging. Multiple strategies for improving antipsychotic adherence among patients with schizophrenia have been explored in literature. Among these, conversion from oral formulations to long acting injectables (LAI) is of particular interest to pharmacists. **Objectives:** (1) Evaluate the impact of conversion from oral to LAI formulations of antipsychotics on medication possession ratio (MPR); and (2) Evaluate the impact of a pharmacist-managed adherence clinic on MPR. **Methods:** A database will be used to identify veterans with a diagnosis of schizophrenia and an antipsychotic MPR of less than 0.8 (corresponding to the veteran having access to medication less than 80% of the time based on prescription fill history). A chart review will then be conducted to determine which patients are appropriate for conversion to a LAI antipsy-

chotic. Results will be relayed to the prescribing provider through a consult in the electronic health record. If the provider and patient are agreeable, the patient will be converted to a suitable LAI antipsychotic. Veterans who are ineligible or decline conversion will be offered enrollment into a pharmacist-managed adherence clinic. The adherence clinic will involve contacting the veteran every two to three weeks and employ motivational interviewing to address barriers to adherence. Appointments will be conducted during a four-month intervention window. A follow-up chart review will be performed following the intervention period to evaluate changes in MPR. **Outcomes:** We will report changes in antipsychotic MPR for veterans that are converted to a LAI antipsychotic or enrolled in the adherence clinic. The percentage of patients converted to a LAI antipsychotic, percentage of patients completing the adherence clinic, percent compliance with metabolic monitoring recommendations, and the number of statin therapy changes will also be reported and analyzed using descriptive statistics.

Evaluation of a Standardized Order Set for Treatment of Acute Agitation in the Emergency Department and Impact on Evidence-Based Rating Scale Score Reduction

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Type: Work in Progress. **Purpose:** Limited resources and access to mental health services can lead to patients with psychiatric diagnoses to present to the Emergency Department (ED) for treatment while in crisis or for medication stabilization. A large-health system initiative was to create an order set to provide emergency department personnel with as-needed (PRN) medications to treat acute agitation and aggression based on patient's agitation rating scale scores. An evidence-based agitation rating scale is utilized by nursing staff, to assess and predict the likelihood of agitation or violent behaviors. This order set was initiated enterprise wide in November 2018. The objective of this study is to evaluate the impact of the acute agitation order set on the agitation rating scale score reduction in the ED setting. **Methods:** This retrospective study will evaluate the impact of evidence-based order sets for the treatment of acute agitation and aggression on agitation rating scale score reduction in the ED. Patients will be included if they were 18 years of age or older and had a documented agitation rating scale score while in the ED from February 01, 2019 to July 31, 2019. An external data warehouse will be utilized to populate patients with documented evidence-based agitation scale scores within the study time frame. Additional data to be collected includes demographics; time to first psychotropic medication; medications given during ED admission; time to first agitation rating scale; agitation rating scale documentation frequency; utilization of PRN acute agitation order sets; average ED length of stay; and discharge disposition. Data will be compared to current standards to determine the impact of order set utilization in the emergency department and identify areas for improvement. **Results:** To be presented.

Evaluation of Benzodiazepine Use in Post-Traumatic Stress Disorder (PTSD) Utilizing the Psychotropic Drug Safety Initiative (PDSI) Tool

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Salem Veterans Affairs Medical Center, Roanoke, VA

Type: Work in Progress. **Introduction/Background:** In recent years, benzodiazepines have been the focus of numerous deprescribing and drug safety initiatives due to their addictive properties and risk of harm associated with concurrent use of other central nervous system (CNS) depressing agents. Benzodiazepines work by enhancing the activity of gamma-aminobutyric acid (GABA) particularly at the GABAa receptor. Recommended use of benzodiazepines is typically short term. Benzodiazepine use in Post-Traumatic Stress Disorder (PTSD) patients is not recommended according to the American Psychiatric Association (APA) or Veteran Affairs/Department of Defense guidelines (VA/DoD). In the treatment of PTSD, evidence support the use of psychotherapy options as well as adequate trials of first line medications. Benzodiazepines can also hinder treatment outcomes for psychotherapy treatment in PTSD patients. Research into the use of benzodiazepines in PTSD has shown that benzodiazepines can increase overall severity, aggression, depression, and likelihood of substance abuse. **Objective:** The goal of this quality improvement project is to identify opportunity for clinical interventions in patients with PTSD concurrently on benzodiazepines. Primary outcome is to report the Psychotropic Drug Safety Initiative (PDSI) patient assessments completed and pharmacist interventions of the selected patients reviewed. **Methods:** This is a single center quality improvement project. Data from the PDSI tool generated from the medical facility. Patients will be identified from the PDSI tool. The PDSI is a dynamic database, as a result a date will be defined and patients will be identified from that date for chart review. Baseline characteristics will be gathered on the patients. This includes patient age, sex, type of benzodiazepine used,

indication for benzodiazepine, duration of benzodiazepine use, if a taper was attempted/in process, location/type of provider writing benzodiazepine prescriptions, Prescription Drug Monitoring Program (PDMP) review, substance use disorder, concurrent medications such as antidepressants, antipsychotics, opioids, and stimulants. Patient chart review recommendation will be documented in the PDSI tool to reflect recommended intervention. Patients will be excluded if they are no longer on the dashboard when data is collected, or moved to a different Veterans Affairs (VA) facility. **Outcomes:** Will report the demographic information, prescribing patterns, and recommended/accepted pharmacy interventions made using the information from the PDSI tool.

Evaluation of Initial Atypical Antipsychotic Monitoring Parameters in Children and Adolescents

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Type: Work in Progress. **Background:** Atypical antipsychotics are recommended over typical antipsychotics since they are generally more tolerable in terms of adverse effects, especially extrapyramidal symptoms (EPS). However, atypical antipsychotics have been shown to cause cardiometabolic disturbances including hyperlipidemia, hyperglycemia, and weight gain. The American Diabetes Association (ADA) recommends obtaining many markers of cardiometabolic disturbance at baseline and throughout the course of therapy with atypical antipsychotics. Though these recommendations are for adult patients, the American Academy of Child and Adolescent Psychiatry (AACAP) Practice Parameter for the use of atypical antipsychotics in children and adolescents encourages the same monitoring schedule be applied to the pediatric population. **Objectives:** Our study aims to assess adherence to the ADA and AACAP monitoring recommendations for atypical antipsychotics in children and adolescents admitted to an inpatient child and adolescent psychiatry unit. We also hope to identify an opportunity for a pharmacist to be involved in monitoring of these medications or for provider education. **Methods:** Patients age $<$ 18 years will be included if they initiated therapy with an atypical antipsychotic during an admission to the inpatient child and adolescent psychiatry unit between October 1, 2018 and October 31, 2019. Patients will be excluded if they were prescribed an atypical antipsychotic prior to admission or if the atypical antipsychotic was ordered as needed for agitation. Basic patient and therapy demographics will be collected. Additionally, we will confirm the following were documented upon initiation: body mass index (BMI), fasting blood glucose (FBG), blood pressure (BP), fasting lipids, pulse (HR), waist circumference, electrocardiogram (ECG) when indicated, and assessment of efficacy and EPS. Any adverse effects and means of mitigation of those adverse effects will be collected. **Outcomes:** In our preliminary analysis of 17 patients, the following monitoring parameters were collected: 94.1% had a BMI, 70.5% had a FBG, 35.2% had fasting lipids, and 0% had a waist circumference recorded. Additionally, 100% of patients had an assessment of EPS and efficacy, a BP, and a HR documented. This project will be completed by February 29, 2020. Our results will support development of optimizing interventions for atypical antipsychotic initial monitoring and opportunities for provider education.

Evaluation of Inpatient Lithium Monitoring Practices in a Public Health and Hospital System

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Type: Work in Progress. **Background:** Lithium is a mood stabilizer commonly used to manage symptoms of bipolar disorder and acute episodes of mania. Lithium is a narrow-therapeutic index medication that requires baseline assessments, follow-up monitoring, and serum drug monitoring to maximize efficacy, identify contraindications, and minimize adverse drug events (ADEs). Despite guideline-concordant recommendations, monitoring for patients prescribed lithium is often substandard with monitoring practices varying by institution, provider, and care-setting. Furthermore, ADEs of lithium are not often monitored inpatient. Some side effects cannot be entirely anticipated due to inter-patient variability and pharmacokinetics, while others may be mitigated if monitoring practices are optimized. **Objectives:** The objectives of this medication use evaluation are to assess: (1) Laboratory monitoring practices; and (2) The identification and management of lithium-related ADEs for patients receiving a dose of lithium inpatient in a large public health system (Parkland Health and Hospital System). **Methods:** A total of 3,402 lithium administrations to 267 unique patients over 364 encounters occurred inpatient from September 1, 2018 to September 26, 2019. In this retrospective descriptive study, a random sample of 50 inpatient encounters were used to evaluate the appropriateness of lithium monitoring. For objective (1), laboratory monitoring will be evaluated using descriptive statistics. The following baseline laboratory values will be documented as obtained or not obtained: pregnancy test, basic metabolic panel, thyroid panel, urine specific gravity, and electrocardiogram. For patients continuing lithium inpatient as a prior-to-admission medication, the following laboratory values will be documented as obtained or not obtained: renal function (every 2-3 months during the

first 6 months of treatment, then once every 6-12 months) and thyroid monitoring (once in the first 6 months of treatment, then once every 6-12 months). Additionally, timing and frequency of serum drug concentration monitoring will be evaluated. For objective (2), lithium-related ADEs will be collected via chart review and evaluated using descriptive statistics. **Outcomes:** We will report the number, percent, and descriptive statistics associated with inpatient lithium monitoring practices at this institution. Analyzing our findings, we will present next steps and solutions to increase appropriate monitoring practices that may be adapted by similar institutions.

Evaluation of Low Dose Prazosin for PTSD Associated Nightmares in Children and Adolescents

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Type: Work in Progress. **Background:** Despite increased awareness of post traumatic stress disorder (PTSD) nightmares in adults, knowledge about fundamental sleep disorders and dysregulation that occur in children with PTSD is limited. In pediatric PTSD and trauma-exposed populations, self-reported, parent-reported, and clinician-administered questionnaires reveal higher reports of nightmares than in the average pediatric populations. Our institution is an 84-bed acute, inpatient psychiatric bed facility dedicated to helping youth with mental illness and behavioral challenges by offering a continuum of specialized behavioral healthcare services for children and adolescents. At admission, patients diagnosed with PTSD according to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) criteria are assessed to initiate low-dose prazosin for treatment of nightmares. If effective and well-tolerated, it may be continued and dose adjusted as necessary. **Objectives:** (1) Evaluate change in frequency of PTSD associated nightmares in patients treated with low dose prazosin for PTSD associated nightmares in pediatric and adolescent patients admitted with PTSD nightmares. (2) Evaluate change in sleep quality. (3) Evaluate the safety and tolerability of prazosin. (4) Assess 30-day readmission rates. **Methods:** A retrospective, single center chart review of inpatients at our institution who have been diagnosed with PTSD admitted between January 1, 2017 and July 31, 2019. Data will be obtained from the electronic medical record and electronic databases, and will only reflect information during the inpatient stay. Patients age 2-18 years old diagnosed with PTSD and having nightmares receiving any dose of prazosin will be included. Demographic variables (age, gender, race), nightmare status, psychiatric co-morbidities, dosing of prazosin, adverse effects, blood pressures will be collected. **Outcomes:** We will report the number and percent of participants with reported improvement in PTSD nightmares. We will analyze sleep improvement and tolerability of prazosin in the pediatric and adolescent population.

Evaluation of Metabolic Side Effects in Patients With Posttraumatic Stress Disorder Using Atypical Antipsychotics

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Veterans Affairs Loma Linda Healthcare System (VALLHS), Loma Linda, CA

Type: Work in Progress. **Background:** Posttraumatic stress disorder (PTSD) is a psychiatric disorder that may develop after a person has been directly or indirectly exposed to a traumatic event. The prevalence of PTSD in veterans is much higher than in the general public, ranging from 11 to 30%. Serotonin reuptake inhibitors and serotonin and norepinephrine inhibitors are the cornerstones of PTSD pharmacotherapy. However, atypical antipsychotics are often used as monotherapy or as augmentation therapy in patients with PTSD despite lack of strong evidence for efficacy and risk of adverse events including movement disorders and metabolic symptoms. According to the recommendations from multiple organizations, all patients prescribed atypical antipsychotics should receive baseline and follow-up metabolic monitoring. Despite these recommendations, metabolic monitoring rates for patients prescribed atypical antipsychotics remain low. **Objectives:** (1) To evaluate the incidence of metabolic side effects in patients with a diagnosis of PTSD who are prescribed an atypical antipsychotic medication; and (2) To evaluate the utilization of psychotherapy and antidepressant medications in patients with a diagnosis of PTSD who are prescribed an atypical antipsychotic medication. **Methods:** This study will be a retrospective chart review utilizing medical records from the Computerized Patient Record System at VALLHS. Study subjects will be veterans at VALLHS diagnosed with PTSD who were initiated on an atypical antipsychotic medication between January 1, 2018 and January 1, 2019. Metabolic parameters (fasting glucose, hemoglobin A1c, lipid panel, blood pressure, and weight) will be collected at the index date, 3, 6, and 12 months ($\pm$1 month). Demographic variables (age, gender, and ethnicity), comorbid psychiatric disorders, presence of the following medical conditions: obesity, diabetes, hypertension, hyperlipidemia, and coronary artery disease, enrollment in any type of psychotherapy, antidepressant use, medication possession ratio, and duration of antipsychotic medication use will also be collected. **Outcomes:** We will report the number and percent incidence of metabolic side effects in patients with a diagnosis of PTSD who are prescribed an atypical antipsychotic medication and the number and percent of

patients utilizing psychotherapy and antidepressant medications in patients with a diagnosis of PTSD who are prescribed an atypical antipsychotic medication.

Evaluation of Safety and Efficacy of Newly-Approved Pimavanserin for Parkinson's Disease Associated Psychosis

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Type: Work in Progress. **Background:** Pimavanserin is an atypical antipsychotic approved by the Food and Drug Administration (FDA) in 2016 for the treatment of hallucinations and delusions associated with Parkinson's Disease (PD) psychosis. The treatment of PD psychosis has been difficult since there has historically been no FDA-approved medications. Common treatment modalities include trial of low doses of quetiapine or clozapine for symptom management. However, all antipsychotics carry a black box warning for increased mortality in elderly patients with dementia-related psychosis. Pimavanserin is the first FDA-approved medication indicated for the treatment of psychosis specific to PD. Clinical trials comparing pimavanserin with placebo for PD psychosis demonstrated significant efficacy of pimavanserin over placebo in decreasing the frequency and/or severity of hallucinations and delusions however, pimavanserin comes with potential significant risks including QTc prolongation, and a potential increased risk of death. Pimavanserin is currently only available for use though a non-formulary approval process at this institution. **Objectives:** (1) Evaluate safety and efficacy of pimavanserin for the treatment of PD psychosis at a single institution since drug approval. (2) Determine if patients receiving pimavanserin at this institution are receiving clinical benefits outweighing the risks of this medication. **Methods:** This is a retrospective, single-site evaluation which will assess the safety and efficacy of pimavanserin for PD associated psychosis. All patients with a non-formulary request for pimavanserin between April 1, 2016 and August 31, 2019 will be considered for inclusion. Safety and efficacy data will be collected through the Computerized Patient Record System including demographic information, treatment-related information in progress notes, documented adverse reactions, clinical rating scales, mental status exams, and laboratory data related to cardiovascular effects. The total duration of pimavanserin therapy and medication refill history will be analyzed to assess for medication adherence. Analysis of results will be completed utilizing descriptive statistics. **Outcomes:** The number of non-formulary requests for pimavanserin during the study inclusion period and the percentage of requests that were approved will be reported. Outcomes as they related to safety and efficacy of pimavanserin including any documented reasons for medication discontinuation will also be evaluated and reported.

Evaluation of Test Anxiety and Its Effect on Pharmacy Students

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Type: Work in Progress. **Background:** Anxiety is an emotional state experienced in anticipation of potential threats. It consists of two factors fear and worry, which may manifest as irritability, fatigue, poor concentration, and impaired sleep. These manifestations may lead to poor decision-making, and classroom performance. The more anxiety that students feel the more likely they are to inappropriate decisions with regards to cheating, plagiarizing, and bullying. A cross-sectional study conducted in August 2009, at three sites and, centralized at Dow University of Health Sciences assessed the level of test anxiety felt by medical students and what they do to alleviate that anxiety. The study found that out of 388 participants, 220 students experienced high normal to extreme test anxiety. **Objectives:** To assess the levels of test anxiety across the didactic portion of the PharmD curriculum, and additionally, its connection to antisocial behaviors and conflicts with the honor code. Results will be used to make recommendations to reduce test anxiety and its possible correlating behaviors to improve outcomes within the program. **Methods:** Using Qualtrics, a survey was assembled to collect and analyze test anxiety among pharmacy students in the P1 through P3 classes. Portions of the survey were derived from questions from the Westside Test Anxiety Scale. The survey was administered in the pharmacy practice lab prior to the beginning of class in the Fall of 2019 (September 29, 2019 through October 22, 2019). In addition, basic demographic data, previous involvement with the program's Honor Council, and the self-perceived likelihood of violating the honor code were collected. **Results:** A total of 169 responses have been recorded, including 67 each from the P2 and P3 classes, and 35 from the P1 class. Analysis of aggregate and specific items on the survey is currently being conducted.

Evaluation of the Clinical Impact of Different Administration Sites for Paliperidone Palmitate in Psychiatric Patients at a Veteran's Affairs Medical Center

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Type: Work in Progress. **Background:** Paliperidone, an active metabolite of risperidone, is a second-generation atypical antipsychotic most commonly used for treating psychotic symptoms. Paliperidone is available in a long acting injectable formulation, which can be administered intramuscularly once a month in either the deltoid muscle or the gluteal muscle; however, the therapeutic differences between the gluteal and deltoid administration sites are still uncertain. Pharmacokinetic studies have shown that the plasma concentrations of paliperidone are higher during the first week following a deltoid injection when compared to the gluteal injection. Studies have considered the differences in safety and tolerability between the two injection sites, but did not reveal any major variations. Despite having studies focusing on pharmacokinetic and safety data, the clinical differences between injections of paliperidone palmitate in the deltoid muscle versus the gluteal muscle are not fully elucidated. **Objectives:** The primary objective will be to determine if there is a difference in effectiveness of paliperidone palmitate based on injection of the loading doses in either the gluteal muscle or the deltoid muscle. The secondary objective will be to determine the differing rates of adverse events, the number of patients that are able to transition from one-month paliperidone to three-month paliperidone, and the number of patients switched to a different long acting injectable antipsychotic. **Methods:** A retrospective chart review will be conducted on patients receiving loading doses of paliperidone palmitate in either the deltoid muscle or the gluteal muscle between July 1, 2015 to July 1, 2019. Outcomes will be evaluated at 6 months and at 12 months from the date of loading dose administration. Patients will be included if they are greater than 18 years old, diagnosed with schizophrenia or schizoaffective disorder, initiated treatment with the paliperidone palmitate long acting injectable, and have a stable renal function with an estimated creatinine clearance greater than 50 mL/min. Patients will be excluded if they did not receive both loading doses during the inpatient admission, they received maintenance doses during their inpatient admission, and if the has moderate or severe tardive dyskinesia at the time of screening.

Evaluation of the Implementation of a Protocol Examining First Episode Psychosis in an Acute, Inpatient Psychiatry Setting

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Type: Work in Progress. **Background:** Studies in patients with schizophrenia have found that most damage occurs early in the disease and poorer outcomes are seen as the duration of untreated psychosis increases. Intervening in the first 1-5 years can "disproportionately alter the trajectory of schizophrenia-like illnesses compared to the usual models of care" (Srihari et al. Psychiatr Clin North Am. 2012;35(3):613-31.). More favorable long-term outcomes can be seen when the duration of untreated psychosis is reduced from 1.5 years to 0.5 years. Recent studies, such as the Danish OPUS trial and National Institute of Mental Health Recovery After an Initial Schizophrenia Episode (RAISE) initiative, have examined the successes of early intervention programs and found positive effects of these specialized services on the patients' ability to live independently, global level of functioning, and symptom improvement. Our institution has developed First Episode Evaluation and Services (FEELS) to provide extra care to patients experiencing First Episode Psychosis (FEP). Members of the multidisciplinary treatment team including social workers, physicians, nurses, pharmacists, psychologists, and occupational/recreation therapists are mobilized to provide specialized assessments. Pharmacists are tasked with determining substances that could contribute to patient presentation and educating the patient on medications. **Objectives:** (1) Determine the efficacy of the FEELS protocol in preventing psychosis related readmissions; (2) Determine the number of FEP patients identified as having a contributing medical condition; and (3) Characterize pharmacy interventions in the FEP population. **Methods:** Patients with recent first episode admissions will undergo chart review within the electronic medical record. Length of stay, readmission, community support, and linkage to services will be collected. Comorbid substance use and potential medical conditions will be assessed to identify cases of secondary psychosis. Pharmacy involvement will be defined and described. **Outcomes:** We will report rates of readmission to emergency psychiatric services and elucidate medical conditions or substance use contributing to first episode psychosis. We will quantify the types of interventions made by the pharmacist as part of the FEELS protocol.

Examining the Association Between Statin Use and New-Onset Dementia Risk

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Type: Work in Progress. **Introduction:** Statin use has been associated with a 15 to 40 percent reduced risk of being diagnosed with dementia in several large retrospective studies. This observed benefit has been attributed to several mechanisms including one involving a direct association between amyloid processing and cholesterol in the brain. We are unaware of any published studies that have specifically investigated the association between

statin use and dementia in veterans. **Objective:** Determine whether veterans who have undergone therapy with a statin have a lower risk of developing dementia than those who have not. **Methods:** We will conduct a retrospective case-control study of hyperlipidemic veterans with dementia diagnosed between January 1, 2010 and December 31, 2019. Dementia cases will be matched with non-dementia controls by age, sex, and comorbid risk factors (stroke, diabetes, or neither). Patients in both groups will be categorized by statin exposure (none, low, high). Patients will be classified as "high exposure" if they received $>$ 730 total days of statin therapy and had a medication possession ratio $>$ 0.5 between January 1, 2000 and January 1, 2009. Patients prescribed a statin who did not meet criteria for high exposure will be categorized as "low-exposure." Patients will be excluded from the study if they were diagnosed with dementia prior to the outcome period, had an initial statin exposure $<$ 3 years prior to diagnosis, or were $>$ 85-years-old when the statin exposure period ended. The primary analysis will examine the association between statin exposure and subsequent incidence rates of dementia. Medication dispensing records will be reviewed to identify statin exposure, and demographic information will be collected to appropriately describe the sample. **Outcomes:** We will report the relative risk of developing dementia in patients with no statin exposure compared to both high and low exposure cohorts.

Exploring Perceptions of Adverse Drug Reactions Among Pharmacists and Providers in an Inpatient Psychiatric Facility

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Type: Work in Progress. **Background:** The World Health Organization (WHO) defines adverse drug reactions (ADRs) as "A response to a drug which is noxious, and unintended, and which occurs at doses normally used in man for prophylaxis, diagnosis or therapy of disease, or for the modification of physiological function". However, the definition of an ADR varies among different resources, including the Food and Drug Administration (FDA) who include reports of ADRs which may be dismissed as "side effects" to some. Knowledge of and opinion towards ADRs can affect the rates of reporting. **Purpose:** Current literature validates that psychiatric medications can comprise half of ADRs experienced by hospitalized psychiatric patients. Healthcare professionals play an important role in reporting ADRs, however, adverse drug reaction reporting can be perceived in various ways which can impact patient care. We will examine the perceptions of and barriers to adverse drug reaction reporting and how both can be addressed. **Hypotheses:** (1) Providers and pharmacists define adverse drug reactions differently. (2) Providers and pharmacists perceive barriers to adverse drug reaction reporting. (3) Perceived barriers to ADR reporting differ between providers and pharmacists. (4) The definition of adverse drug reactions is a barrier to reporting adverse drug reactions. **Methods:** This project is a cross-sectional review of pharmacists and providers practicing within an inpatient state psychiatric facility. A self-administered anonymous questionnaire to be completed between January 1, 2020 and April 30, 2020 will be used to collect data and address the project's hypotheses. Our project will evaluate these similarities and differences among pharmacist and provider perceptions of ADRs. Appropriate descriptive analyses will be used to examine the questionnaire results. Demographics of the sample identifies title, age, and length of service. If there are differences between psychiatric and medical providers will be examined.

Folic Acid Metabolism and Depression: A Review of the Role of Pharmacogenomic Testing in Folic Acid and L-Methylfolate Supplementation for Patients With Major Depressive Disorder

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Type: Work in Progress. **Background:** Folic acid is an essential cofactor in the production of neurotransmitters and regulation of DNA methylation, thus folic acid deficiency has been linked to depression. Methylenetetrahydrofolate reductase (MTHFR) catalyzes the conversion of folic acid to its biologically active form, genetic polymorphisms impact the function of this enzyme which poses as a possible risk factor for depression and treatment resistance. Pharmacogenomic (pgx) testing is being used more frequently and most psychiatric pgx panels include MTHFR polymorphisms. There is one FDA approved food l-methylfolate, indicated as a nutritional supplement for major depressive disorder (MDD). The efficacy of l-methylfolate in MDD and the increasing popularity of pgx testing prompted a review of the literature to examine the link between folic acid/l-methylfolate supplementation, pgx testing and clinical outcomes such as remission in patients who have MDD. **Objectives:** (1) Report results of studies that meet established criteria. (2) Understand the role of folic acid/l-methylfolate and pharmacogenomics in the treatment of depression. (3) Determine the clinical role of folic acid/l-

methylfolate supplementation in patients with and without MTHFR polymorphisms. **Methods:** A systematic review of the literature was performed utilizing The Cochrane Central Register of Controlled Trials (CENTRAL) using keywords folic acid, depression, l-methylfolate, pharmacogenomic testing, and methylenetetrahydrofolate reductase. English-language clinical trials will be included in this review. Bibliographies of selected articles will be reviewed manually for relevant publications focusing on the role of folic acid and l-methylfolate supplementation and pharmacogenomics in the treatment of depression. Review articles will be excluded. **Outcomes:** An accurate review of pertinent clinical trials will report on the role of pharmacogenomic testing for MTHFR polymorphisms as a decision making criteria when prescribing folic acid or l-methylfolate supplementation in patients with MDD.

Gabapentin: Utilization Evaluation at Mental Health Facilities

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Type: Work in Progress. **Background:** Currently gabapentin is only FDA approved for the treatment of partial seizures in adults and pediatric patients three years and older with epilepsy and for the treatment of post-herpetic neuralgia. Once gabapentin reached the market, multiple off-label uses have emerged, including many areas of mental health. Proposed uses for conditions such as bipolar disorder, depressive disorder, anxiety disorder, aggression/agitation, post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), alcohol use disorder and withdrawal, and substance use disorder have been evaluated. This wide variety of mental health and medical off-label uses comprises 95% of gabapentin use today. This project aims to assess the utilization by indication at three psychiatric facilities. **Objective:** The primary objective of this project is to assess the utilization of gabapentin at three mental health facilities. **Methods:** The project will be a retrospective chart review aimed at evaluating the indication for gabapentin use and the dosages associated with those indications at three psychiatric facilities during the study period of January 1, 2014 through August 31, 2019. The three facilities included in the study will be The Center for Behavioral (CBM), Northwest Missouri Psychiatric Rehabilitation Center (NMPRC), and Truman Medical Center (TMC). CBM and NMPRC are inpatient forensic psychiatric facilities that houses adult extended-care forensic patients and patients currently incompetently to stand trial. TMC is an adult acute inpatient psychiatric facility. A report from Cerner™ (TMC) and Meta™ (CBM and NMPRC) electronic medical record systems will be generated to identify patients prescribed gabapentin within the study period. The following data will be collected from the individual patient electronic and paper medical record at all three facilities for those that appear on the generated list above for gabapentin orders: indication and dose for gabapentin, the prescriber's name, and patient demographics (age, gender, and race) along with renal function including serum creatinine and creatinine clearance. The gabapentin prescribing for all three facilities will be assessed individually and combined for a cumulative assessment and this data will be compared to the current literature for gabapentin use.

Identifying Opportunities for Pharmacist Optimization of Antipsychotic Therapy in Early Psychosis

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Type: Work in Progress. **Background:** Nonadherence is the biggest predictor of relapse and hospitalization among patients with severe mental illness. Studies have shown that up to 58.8% of people living with schizophrenia are not adherent to their antipsychotic medication regimen. By overcoming barriers and optimizing therapy early on, pharmacists can promote adherence and achieve better patient and health system outcomes, including reducing risk of relapse and hospitalization. This study will add to the literature about the pharmacist's role in the optimization of antipsychotic treatment in patients experiencing first-break psychosis. **Objectives:** The objective of the present study is to optimize antipsychotic therapy in patients with early psychosis. Specifically, we aim to: (1) Characterize antipsychotic prescribing practices; (2) Evaluate prescribing rationale, including perceptions and barriers; and (3) Identify opportunities for pharmacist intervention to optimize antipsychotic therapy. **Methods:** Patients currently enrolled in the Services for the Treatment of Early Psychoses (STEP) Clinic as of July 1, 2019 and prescribed an antipsychotic medication were included in this analysis. Demographic, clinical and pharmacotherapy data were extracted from the electronic health record to evaluate prescribing trends and medication adherence for both oral antipsychotics and long-acting injectable antipsychotics (LAIA). Prescriber and patient surveys will be conducted to explore perceptions

and barriers to treatment optimization and identify opportunities for pharmacist intervention in an early psychosis clinic. **Outcomes:** Of the 155 patients currently enrolled in STEP, 32 patients (20%) are maintained on long-acting injectable antipsychotics while 105 patients (68%) are maintained on oral antipsychotics. Of the patients maintained on long-acting injectables, the majority (57%) were African American males with a primary diagnosis of schizophrenia. Paliperidone palmitate was the most prescribed LAIA, while aripiprazole was the most prescribed oral agent. Reasons some patients were maintained on oral antipsychotics included patient preference, fear of needles, consistent oral adherence, as well as lack of knowledge about LAIAs. In regard to nonadherence, patients reported contributing factors such as side effects, pill burden, difficulty with administration, paranoia, and the belief that the medication is unnecessary. Prescriber rationale for antipsychotic selection will be surveyed. Potential opportunities for pharmacist intervention will be evaluated and reported.

Impact of Academic Detailing on Clinical Pharmacy Specialist Involvement in Medication Assisted Treatment for Opioid Use Disorder in a Primary Care Setting

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Type: Work in Progress. **Background:** An estimated two million people had a diagnosed opioid use disorder (OUD) in 2018. The use of medication-assisted treatment (MAT) for OUD reduces the use and cravings of opiates, and risk of all-cause and opioid-related mortality. The inclusion of clinical pharmacy specialists (CPSs) on multidisciplinary healthcare teams has been shown to improve health outcomes, increase cost-effectiveness, and improve the quality of healthcare. Nevertheless, CPS involvement in MAT for OUD in a primary care setting remains limited. This study will provide information regarding barriers to CPS involvement in MAT, and the effectiveness of academic detailing provided to CPSs in increasing CPS involvement. **Objectives:** (1) Assess the impact of academic detailing on CPS comfort level with being involved in the care of patients undergoing MAT for OUD in the primary care setting. (2) Assess the hypothesis that academic detailing will increase the number of patients with a CPS involved in the treatment of OUD. **Methods:** Study participants will be CPSs recruited from a large medical group in Oregon. A survey will be used to assess demographics, current involvement with MAT, and perceived barriers to involvement in MAT, before and after academic detailing. It will also ask participants to anonymously assess their comfort level, knowledge, and beliefs regarding MAT for OUD using a 0-5 point scale. Academic detailing will consist of handouts, two 45-minute interactive presentations, and small group work with case-based application. Survey results will be compared and summarized by using either % of respondents in each category or mean (standard deviation) for each question across all respondents. Results will be analyzed on April 1, 2020 and reported at study completion on June 1, 2020. **Outcomes:** The impact of academic detailing on CPS beliefs and comfort with MAT and number of patients with a CPS involved in the treatment of OUD will be reported. Preliminary pre-survey results show 14% (2/14) of responding CPSs report current involvement in MAT, with the most common barriers identified as a lack of time (22.5%), lack of knowledge regarding MAT (20%) and lack of X-waivered providers (20%).

Impact of Alpha-Stim Device for the Treatment of Anxiety, Depression, Sleep and Pain in Veterans at the Central Texas Veterans Healthcare System

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Type: Work in Progress. **Background:** Alpha-Stim® AID is a Cranial Electric Stimulation (CES) device for the treatment of anxiety, depression, and insomnia. CES is a non-invasive method that applies low-intensity electrical current to the head. The Alpha-Stim AID has been approved by the US Food and Drug Administration for the treatment of anxiety, depression, and insomnia. There is also building evidence for the use of Alpha Stim for the treatment of chronic pain; a common co-morbidity in veterans with mental health disorders. This quality improvement study will provide new data regarding Alpha-Stim as a non-medication treatment option for anxiety, depression, pain, and insomnia. **Objectives:** (1) Evaluate the change in anxiety, depression, pain, and sleep with the Alpha-Stim device as an adjunct to medication in the outpatient setting after initial training sessions, at 3 months, and at 6 months. (2) Evaluate the number and dosages of psychotropic medications prior to and after initiation of Alpha-Stim device. (3) Evaluate the number and dosages of pain medications prior to and after initiation of Alpha-Stim device. **Methods:** Patients will have received referral to Mental Health Clinical Pharmacy Specialist clinic for Alpha-Stim training. Training must have been conducted between October 1, 2018 and January 1, 2019 with documentation via medical chart. Demographics, anxiety, depression, and pain scores on 0-10 Likert scale prior to and after Alpha-Stim trial, average number of hours slept, psychotropic medications and dosages at time of initial trial will be collected. Additional data to be collected as available: Patient Health

Questionnaire (PHQ-9), Generalized Anxiety Disorder 7-item scale (GAD-7), and average number of hours slept prior to initiation, at 3 months and at 6 months after initiation based on chart review. T-tests will be used to evaluate differences in pre- and post-assessment scores for anxiety, depression, pain, and sleep. Descriptive statistics will be used to describe demographics and psychotropic medication use. This study is pending Institutional Review Board approval. **Outcomes:** We will report the impact of Alpha-Stim device on anxiety, depression, pain, and sleep after two sessions. Additionally, we will examine for notable changes in PHQ-9, GAD-7, average sleep scores, psychotropic medication and pain medication use at 3 months and 6 months.

Impact of an Interactive Registry Tracking Geriatric Patients Prescribed Anticholinergic Antidepressants

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Type: Work in Progress. **Background:** The American Geriatrics Society (AGS) Beers Criteria for Potentially Inappropriate Medication Use in Older Adults considers tricyclic antidepressants (TCAs) and paroxetine as highly anticholinergic medications with the recommendation to avoid use in patients aged 65 or older due to the risk of sedation, orthostatic hypotension, dizziness, and confusion, among other side effects. Due to these risks, the Office of the Inspector General (OIG) included antidepressants with anticholinergic properties as part of their Comprehensive Health Care Inspection Program (CHIP) reviews. CHIP reviews are part of OIG's efforts to ensure Veteran Health Administration (VHA) facilities and providers comply with various standards and clinical practice guidelines in order to provide high-level health care to patients. To improve care, guidance has been released including criteria to be met at both initiation and follow-up, which ensure that benefits of the potentially inappropriate medication continue to outweigh the risks. Upon initiation, required documentation includes justification for the medication, evidence of patient/caregiver education and understanding, and that an accurate medication reconciliation was performed. At follow-up, which should occur within 30 days, documentation must include assessments of symptom improvement, medication adherence, adverse effects, and an accurate medication reconciliation should be performed. **Objective:** Improve compliance with OIG recommendations regarding prescribing practices of anticholinergic antidepressants to geriatric patients at a VA Health Care System, regardless of indication. **Methods:** Patients will be identified by an electronic report that captures male and female veterans age 65 or greater who were started on any of the following medications, regardless of indication or duration: amitriptyline, nortriptyline, imipramine, clomipramine, desipramine, doxepin $>$ 6 mg/day, or paroxetine. Investigators will search the patient's electronic health record to determine compliance with recommended standards for both time periods of initial prescription issuance and follow-up. Interventions may include, but are not limited to, providing education to patients and/or providers, scheduling patients for follow-up, and/or performing follow-up appointments as necessary to ensure all OIG criteria are met. **Outcomes:** Descriptive statistics will be used to compare anticholinergic medication prescribing trends and electronic documentation requirements prior to quality improvement intervention with those during the intervention period.

Impact of Continuing Education Focused on Drugs of Abuse for High School Faculty and Staff

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Type: Work in Progress. **Background:** The Center on Addiction reported that more than 90% of people with a substance problem began smoking, drinking, or using other drugs before the age of 18. Substance abuse is a growing problem, and adolescence is a critical period for substance-use prevention. A group of student pharmacists from the University of Minnesota developed an educational program on drugs of abuse (DA) for high school teachers, nurses, counselors, and other staff. The educational program covers the basic pharmacology of substances, current trends and statistics, signs of drug misuse, and safety considerations. This project aims to empower school faculty and staff to recognize drug abuse among students. **Objectives:** (1) Develop and analyze the effectiveness of the educational program for high school teachers, nurses, counselors, and other staff; (2) Provide tools to identify drug abuse in high school students; and (3) Describe methods for prevention and intervention. **Methods:** Building on an established research partnership, school nurses, college faculty and student pharmacists developed and pilot tested educational materials for DA. After incorporation of feedback from 6 school nurses and counselors, materials were presented at an Inservice day ($n = 42$) at a large suburban high school. Participants completed a 10-item online survey. Questions included text entry and 5 point star rating (Likert). **Outcomes:** Materials were rated as follows: would recommend to a colleague (3.9); overall quality of information and content (3.9); easy to follow (3.8); engaging (3.7); logical sequence (3.9). Text answers will be used to improve educational

materials. Phase 2 will include three school districts: two urban and one rural community with a large American Indian population bringing the total educational impact to over 200 staff members and 10,000 students. The leadership of student pharmacists in this project offers the opportunity to support additional school districts and positively impact the lives of community members and students. This program opens opportunities for pharmacists to impact school health and increases access to information that educates faculty and staff, empowering them to combat substance use among students.

Impact of Integrated Behavioral Health Services on Adherence to Long-Acting Injectable Antipsychotics

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Type: Work in Progress. **Background:** Integrated mental and physical health care occurs when specialty and general care providers work together to address both the physical and mental health needs of their patients. The Substance Abuse and Mental Health Services Administration (SAMHSA) model of integration is broken into six levels of coordinated, co-located, and integrated care. Our institution offers both co-located and integrated care between eight clinic sites. The care team is typically composed of the primary care provider, nurse, and medical assistant, but other professionals may be introduced based on the patient's medical and psychiatric conditions. The purpose of this prospective, quality improvement study will be to compare the rates of adherence to long acting injectable antipsychotics (LAIs) between both types of integrated primary care settings at our institution. The comparison of the two settings will help to determine which environment provides improved outcomes for patients with serious psychiatric illnesses. **Objectives:** (1) Compare the rates of adherence to LAIs between integrated primary care settings; (2) Characterize the quality of medication monitoring between integrated primary care settings; (3) Identify which treatment team composition has the greatest impact on adherence to LAIs; and (4) Evaluate the ability of pharmacists to deliver interprofessional education and training on LAIs. **Methods:** Subjects were identified and included in the study if they had received primary care services from HJAHC within the previous 12 months. Patient demographic and laboratory variables will be collected at baseline and when clinically indicated. Adherence will be assessed at intervals that align with the medication's administration schedule. Medication monitoring parameters will be collected at baseline and when clinically indicated. The interprofessional care team will complete Likert scale surveys to evaluate the pharmacist's LAI education and training. For objective (1), the Chi-squared method will be used to assess rates of adherence between different sites. Descriptive statistics will be used to measure objectives (2), (3), and (4). **Outcomes:** We will report the percentage of subjects who are adherent to their medication at each site and analyze the quality of medication monitoring and ability of pharmacists to deliver interprofessional training.

Impact of Medication for Disruptive Mood Dysregulation Disorder

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Type: Work in Progress. **Background:** Disruptive mood dysregulation disorder (DMDD) is a mental health disorder in pediatric patients between the ages of 6- and 17-years-old. It is characterized by chronic, severe irritability that is present between temper outbursts. DMDD was added to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) to appropriately distinguish pediatric patients from classic bipolar disorder and depression. Currently, there are no Food and Drug Administration (FDA) approved medications or published guidelines for the treatment of DMDD. **Objectives:** (1) Assess the impact of antidepressants, mood stabilizers, and antipsychotics for symptom management of DMDD; (2) Characterize the type, dose, and duration of medication used; (3) Determine improvement or worsening of symptoms; and (4) Evaluate the incidence of adverse effects. **Methods:** A single-center retrospective medical record review will be conducted on all patients with DMDD or similar diagnoses who are prescribed at least one medication: an antidepressant, antipsychotic, or a mood stabilizer. These patients will be identified by International Classification of Diseases-9 (ICD-9) and ICD-10 codes from July 1, 2016 through December 31, 2019. Patients will be included in the evaluation if they are age 6-years-old or older, receive treatment at the designated site by an outpatient psychiatrist, and have a diagnosis of DMDD with at least one medication as listed previously. The following data will be collected: medication name, maximum dose (mg/kg/day), changes in dose or therapy, duration of therapy, changes in body mass index, adverse effects, hospitalization, and prescriber. Efficacy will be measured by the following terms: decreased aggression intensity, and frequency. Medication changes such as dose increases, decreases, or medication class changes will be monitored to assess for efficacy and side effects. Descriptive statistic will be used for baseline demographics, chi-squared test for dichotomous outcomes, and a student's t-test for continuous variables. **Outcomes:** All patients included will be analyzed to assess the impact of their medication regimen. The results of this study will be used to guide clinicians to use the most effective treatment for this disorder.

Impact of Medications on Electroconvulsive Therapy Outcomes

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Type: Work in Progress. **Background:** Electroconvulsive therapy (ECT) is a common procedure used primarily for the treatment of depression. The mechanism of ECT involves inducing a therapeutic seizure. Many factors are known to affect seizure threshold, including age, sex and medications. Benzodiazepines, commonly used for pre-procedural anxiety, increase the seizure threshold, but may be reversed with flumazenil. Caffeine and theophylline have been used to lower the seizure threshold. Previous studies on the effects of benzodiazepines, flumazenil, caffeine, and theophylline on ECT outcomes have been limited by small samples and sometimes conflicting data. A larger study is therefore warranted to better understand the directionality and extent of the effects, as well as to compare and contrast effects between medications on ECT induced seizures. **Objectives:** The primary objective of this study is to evaluate the effect of benzodiazepines, flumazenil, caffeine, and theophylline on (1) the duration of motor- and (2) electroencephalography (EEG)-proven seizure activity in people undergoing ECT. **Methods:** A single-center, retrospective cohort study will be conducted on adults with a depressive episode that received ECT from January 1, 2015 to December 31, 2019. People with a diagnosis of catatonia, psychosis (primary or secondary), mania, or mixed mood episode will be excluded. A preliminary search yielded a possible sample of n = 349 unique subjects, spanning 10,169 ECT treatments. **Outcomes:** The preliminary demographics indicate patients were about 60% female, 48% older than age 60, and 14% diagnosed with bipolar depression. Electrode placement (unilateral versus bilateral), number of ECT encounters, and use of other medications will be collected. Secondary efficacy outcomes include change in Hamilton Depression Rating Scale and Montgomery Åsberg Depression Rating Scale scores. Safety outcomes include vital signs, prolonged seizures, and Montreal Cognitive Assessment scores. ECT data (eg, stimulus charge, treatment medications) will also be collected. The co-primary outcomes of motor- and EEG-proven seizure duration will be analyzed using linear mixed-model regression.

Impact of Pharmacist Counseling on Psychiatric Readmission Rates

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Type: Work in Progress. **Background:** Medication non-adherence is a modifiable risk factor for many negative health care outcomes, including a greater number of clinic and emergency room visits, psychiatric hospitalizations, and higher costs. Improving medication adherence through pharmacist driven discharge counseling has been investigated as a method to reduce re-hospitalization rates. However, there are limited data regarding the impact of pharmacist counseling on readmissions to acute, inpatient mental health facilities. This project is the last phase of a study initiated in 2017 after starting a formal medication education and counseling service on the inpatient mental health units at VA North Texas Healthcare System. Preliminary results were presented at the 2017 CPNP Annual Meeting. **Objectives:** The primary objective of this study is to compare 30 and 60 day readmission rates to an acute inpatient psychiatric unit due to medication non-adherence between the treatment group (patients who participated in a formal medication education and counseling session before discharge) and a control group (patients admitted to inpatient mental health before the education service was implemented). Additionally, 90, 180, and 365 day readmission rates will also be compared between the two groups as secondary outcomes. **Methods:** Patients were eligible for the treatment group if they were admitted to inpatient mental health for at least 48 hours, participated in an education group session that emphasized the importance of medication adherence, and agreed to one-on-one medication counseling with a pharmacist or pharmacy student. During the counseling sessions, discharge medication lists and medication changes made during the hospitalization were reviewed with the patient. Education was provided in regards to indication, dosing instructions, adverse effects and side effect management. Charts of study participants were then followed for up to 365 days post-discharge to assess psychiatric readmissions due to medication nonadherence. Readmission rates of the treatment group will be compared to a control group of patients that were admitted to inpatient mental health before the education/counseling service was provided. **Outcomes:** Patient enrollment for the treatment group ended June 30, 2019. Final data collection and analyses will be completed by April 2020. Study outcomes will be reported at the CPNP Annual Meeting.

Impact of Pharmacist Interventions on Dosing and Administration of Long-Acting Injectable Antipsychotics

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Type: Work in Progress. **Background:** Patients with schizophrenia are often nonadherent to their oral

antipsychotic medications, with discontinuation rates of around 60-90%. Use of long-acting injectable antipsychotics (LAIAs) in these patients can help to reduce hospitalizations associated with worsening symptoms. However, these medications have specific dosing and administration requirements, such as overlap with an oral antipsychotic during initiation for certain LAIA formulations, which can lead to medication errors. At the VA Pacific Islands Health Care System, there have been multiple medication errors regarding LAIA use. A review of the current process to determine areas of intervention will help to ensure accurate dosing and administration of these medications and improve patient safety. **Objectives:** (1) Identify dosing and administration errors associated with LAIAs at the VA Pacific Islands Health Care System in the past year. (2) Develop a pharmacist-led intervention to reduce medication errors associated with LAIAs. **Methods:** A retrospective chart review will be performed on a list of veterans at the VA Pacific Islands Health Care System who have received an LAIA in the past year to determine number of dosing and administration errors associated with these medications. Based on the results of the retrospective chart review, a pharmacist-led intervention will be implemented to improve accuracy of dosing and administration with these medications. **Outcomes:** Number and type of medication errors determined by the retrospective chart review will be reported. After the intervention is implemented, LAIA orders will be reviewed and error data collected and reported to determine the impact of the intervention.

Impact of Pharmacist Involvement in Psychiatric Rounds on Psychotropic Medication Prescribing in an Institutionalized Forensic Population

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Type: Work in Progress. **Background:** Involvement of clinical pharmacists on multidisciplinary teams has been shown to yield improved patient outcomes in a variety of healthcare settings. Pharmacist interventions most frequently identified in the literature include recommending pertinent lab monitoring and discontinuation of unsafe or ineffective medications. In psychiatry, the role a pharmacist can play is particularly meaningful due to the prevalence of polypharmacy and Joint Commission quality measures focused on reducing inappropriate antipsychotic medication use. This project aims to quantitatively identify the impact clinical pharmacists have made on an institutionalized forensic population following their steadily increasing presence on the treatment teams of select units within the facility. **Objectives:** (1) Evaluate the impact of pharmacist involvement on multidisciplinary teams on the total number of psychotropic medications prescribed and the cumulative antipsychotic daily doses compared to units without pharmacist involvement; and (2) Identify areas for improvement that may benefit from increased pharmacist involvement. **Methods:** A retrospective chart review of select units located within a state forensic hospital was conducted at three distinct time points (January 1 in 2015, 2017, and 2019) to gather information regarding demographics and psychotropic medications prescribed to each patient. The aim of capturing data from varied dates was to best assess the consistency of pharmacist involvement and how it has evolved over time. The units included for review at each time point were divided into two groups depending on whether a pharmacist was involved in psychiatry rounds or not. Due to the differing psychiatric diagnoses and psychiatric history, patients were further divided into subgroups based on complexity. Each subgroup was then reviewed for (1) total number of psychotropic medications, (2) total number of antipsychotics, and (3) the incidence of high-dose antipsychotics, defined as doses above the FDA recommended maximum. **Outcomes:** The authors will report the effect of pharmacist involvement on total number of psychotropic medications prescribed, total antipsychotics prescribed, and frequency of antipsychotic dosages above the FDA recommended maximum compared to units without pharmacist involvement. Results will be stratified based on patient-specific diagnoses and length of psychiatric history.

Impact of Pharmacy Concierge Services on Psychiatric Readmissions at a Large Academic Medical Center

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Type: Work in Progress. **Background:** The psychiatric patient population is at an increased risk of hospital readmission. One largely contributing factor is poor medication accessibility and delayed adherence to treatment regimen. The implementation of a pharmacist-driven, transition of care (TOC) program has been previously shown to have a positive impact on repeat and rapid readmissions. Within the study institution, Pharmacy Concierge Service (PCS) is a coordinated effort between inpatient and outpatient pharmacy services with the goal of identifying and resolving barriers related to medication accessibility prior to discharge. This system ultimately ensures that discharging patients leave with a 30-day supply of medication. **Objectives:** Evaluate the impact of a newly implemented, pharmacist-driven, medication service on rapid readmissions in the acute psychiatric patient population. **Methods:** This is a retrospective, cohort review conducted at a multi-site academic medical center in Kansas City, Kansas from

January 1, 2019 to December 31, 2019. All adult (>18 years) inpatients discharged from an acute care psychiatric unit are eligible for study inclusion. Patients will be excluded if medications were not prescribed at time of discharge, if discharged to an outside facility where medications are not self-managed, or if discharged against medical advice. Variables to be collected include demographic information (age, gender), primary discharge diagnosis, PCS utilization status, healthcare utilization details (length of stay, treatment location, time to readmission), medication payor status (insured, self-pay, hospital provided voucher), and if treatment regimen includes a long acting injectable antipsychotic (LAIA). **Outcomes:** We will report rapid (30-day) hospital readmissions for patients utilizing PCS versus those that did not at a single site within the health system. We will also examine overall rapid readmissions between the same single site and a comparable acute psychiatric unit within the health system, where PCS was not available, to serve as a control. Subgroup analysis will be conducted using confounding variables of demographics, discharge diagnosis, medication payor status, and use of LAIA.

Impact of Quick-Order Set Implementation for Paliperidone Palmitate Long-Acting Injectables in a Veterans Affairs Health Care System

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Type: Work in Progress. **Background:** Paliperidone palmitate is a long-acting injectable (LAI) antipsychotic medication that has been shown to significantly delay the time to first treatment failure when compared to oral antipsychotics in adults with schizophrenia. Per the product's manufacturer, paliperidone palmitate initiation doses should be administered on days 1 and 8 into the deltoid muscle to allow for rapid and optimal serum concentrations while maintenance injections may be administered into the deltoid or gluteal muscles. Improper administration of the injections may lead to decreased LAI efficacy. In an attempt to improve quality and efficiency of care and increase adherence to recommendations, a Veteran Affairs Health Care System implemented paliperidone palmitate quick-order sets for initial and maintenance injections. Each order set requires selection of the indicated dose and has prepopulated instructions for route and schedule. The order set for initiation also provides additional instructions for administration into the deltoid muscle only as well as timing for the second dose in the series. This project is intended to determine the clinical value of an order set by examining provider utilization and focusing on changes in frequency and accuracy of entered orders. **Objectives:** (1) Determine if quick-order sets increase prescribing; and (2) Improve accuracy of orders entered for paliperidone long-acting injectables in the outpatient setting. **Methods:** Quick-order sets for initial and maintenance doses of paliperidone palmitate injections were built and implemented in the computerized patient record system (CPRS). Outpatient providers received educational training on the availability and proper use of quick-order sets. Reports will be generated, and charts reviewed to assess the change in orders entered for paliperidone palmitate in the 12 months surrounding order set implementation. Descriptive statistics will be used to describe the change in the number and accuracy (dose/site/timing) of orders entered into CPRS before and after order set implementation. **Outcomes:** We will report the change in the number and accuracy of paliperidone palmitate orders entered into CPRS before and after order set implementation to determine if order-set implementation improved frequency and quality of paliperidone palmitate prescribing patterns.

Implementation and Evaluation of Expanded Clinical Pharmacist Service Within Residential Rehabilitation Treatment Programs at a Veterans Affairs Medical Center

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Type: Work in Progress. **Background:** At Jesse Brown Veterans Affairs Medical Center (VAMC), the Mental Health Residential Rehabilitation Treatment Program (MHRRTP) and the Substance Abuse Residential Rehabilitation Treatment Program (SARRTP) are each 20-bed units that provide a structured environment for eligible veterans in a five to six week outpatient program focused on treatment of their mental illness and/or substance abuse. A specialty-trained clinical pharmacist can provide unique knowledge and skills for comprehensive medication management, and inclusion within a multidisciplinary team has been associated with improvements in pharmacotherapy. Currently, limited clinical pharmacy services are offered to these units at Jesse Brown VAMC. **Objectives:** (1) Describe the role and process for integrating a specialty-trained clinical pharmacist within the MHRRTP/SARRTP setting. (2) Identify the number and types of clinical recommendations made. (3) Determine the potential cost savings based on clinical recommendations made and clinical interventions implemented by the provider. **Methods:** This quality improvement project was comprised of a three-step process including completion of medication reconciliation and clinical recommendations through a note entered into the electronic medical record

upon admission and face-to-face interview with patient if able, follow-up chart analysis within 21 days of initial admission note, and phone follow-up within 7 days of discharge. The project was implemented one day per week, over a four month period. Data will be collected through January 13, 2020 and will be reported using descriptive statistics. **Outcomes:** The following data will be reported: number of patients followed, number of clinical pharmacist interventions completed, number of medications per veteran at admission compared to discharge, types of clinical recommendations made, number of mental health and non-mental health clinical recommendations made compared to those accepted and/or implemented by the provider, the potential cost savings based on clinical recommendations made compared to those implemented, and 30-day readmission rate of the included population compared to the same population during the previous year.

Implementation and Impact of a Pharmacist-Led Telemental Health Transitions of Care Clinic on Psychotropic Medication Adherence and Psychiatric Rehospitalization

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Type: Work in Progress. **Background:** Psychotropic medication adherence is a vital factor in successful treatment for patients with psychiatric comorbidities. Medication non-adherence in patients following discharge from psychiatric hospitalization may increase risk for adverse outcomes. A focused effort on coordinating transition of medication management from inpatient to outpatient may improve outcomes. Psychiatric pharmacists are uniquely trained and positioned to identify and address medication-related issues leading to medication non-adherence and rehospitalization. **Objectives:** The primary objective of this study will be to determine the impact of a post-discharge telemental health transitions of care clinic on improving medication adherence rates. Secondary objectives will be to evaluate psychiatric hospital re-admission rates, time to first mental health provider follow-up, and to characterize various interventions made during the clinic visit. **Methods:** This project will be a single center, multi-site, retrospective cohort study (historical control). Patients enrolled in the VA Video Connect (VVC) mental health (MH) transitions of care (TOC) clinic starting November 1, 2019 will be evaluated for inclusion in the study. The VVC MH TOC clinic will be offered to patients prior to discharge from acute psychiatric units on new psychotropic medications. Patients included in the clinic will complete a one-time VVC appointment with a focus on medication adherence and resolving any barriers to adherence. A historical cohort of patients, prior to the initiation of the VVC MH TOC clinic, will be used for comparison of outcomes. **Outcomes:** Primary and secondary outcomes will include comparison of medication possession ratio, time to first MH provider follow up, and time to psychiatric hospital readmission. Interventions made during the clinic visit will also be characterized. Additional data for collection will include baseline characteristics (age, gender, psychiatric diagnoses) and psychotropic medications information (dosing, instructions, day supply).

Implementation of a Benzodiazepine De-Prescribing Tool for Elderly Veterans at a Veterans Affairs Health Care System

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Type: Work in Progress. **Background:** There is increasing evidence that benzodiazepines can increase the risk for adverse events in the elderly. The Veteran's Health Administration implemented the Psychotropic Drug Safety Initiative (PDSI) to ensure veterans have access to safe, effective and evidence-based psychopharmacological treatment. Despite this initiative, benzodiazepine utilization remains high; therefore, new and innovative strategies are needed to improve safe prescribing practices. At the Veterans Affairs Palo Alto Health Care System (VAPAHCS), benzodiazepine use in the elderly (age >65) is a priority. The goal of this project is to combine a pharmacist intervention with Eliminating Medications Through Patient Ownership of End Results (EMPOWER) direct-to-consumer Vets decision aid to support benzodiazepine de-prescribing efforts in a high-risk patient population at VAPAHCS. **Objectives:** (1) Determine the impact of combining a pharmacist intervention with the EMPOWER decision aid tool on benzodiazepine use in elderly veterans. (2) Determine the impact of the pharmacist intervention on benzodiazepine prescribing. **Methods:** This study is a single-center prospective quality-improvement project taking place at VAPAHCS. A target of 60 patients identified by the PDSI 65+ benzodiazepine dashboard from December 2019 will be reviewed using systematic randomized sampling. Charts selected will be reviewed for the risks, benefits and clinical appropriateness of the prescribed benzodiazepine and recommendations to safely taper or discontinue the medication will be documented in the electronic health record. The EMPOWER brochure will be mailed to patients in whom benzodiazepine use was determined to be inappropriate to reinforce deprescribing. Data including number of patients discontinued from benzodiazepine, number of patients started on a benzodiazepine taper, benzodiaze-

pine dose pre- and post-intervention, and number of pharmacist's recommendation implemented by prescribers will be collected 2 months post intervention. For objective (1) and (2), the number and percentage of patients will be reported. For objective (1), descriptive statistics will be used to report the mean difference in benzodiazepine dose. **Outcomes:** The primary outcomes include the number of patients discontinued from benzodiazepine use, number of patients started on a benzodiazepine taper and mean difference in benzodiazepine dose pre- and post-intervention. The secondary outcome is the percentage of pharmacist's recommendations implemented by prescribers.

Implementation of a Benzodiazepine Risk Review and Pharmacy Intervention

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Type: Work in Progress. **Background:** Benzodiazepines are a widely prescribed class of medications that are associated with serious adverse events including cognitive impairment and falls, with increasing risk in adults over the age of 65. The American Geriatrics Society strongly recommends against the use of benzodiazepines in this population. In general, benzodiazepines are recommended for acute use only and there is little evidence to support chronic use for the treatment of conditions such as post-traumatic stress disorder or insomnia. Despite this guidance, benzodiazepines are often continued as the patient ages and is at increased risk. In order to promote safe and appropriate prescribing practices, a prescriber risk review and pharmacist led intervention were implemented at a Veterans Affairs (VA) medical center. **Objectives:** (1) Evaluate the average benzodiazepine dose reduction following a benzodiazepine risk review by the prescriber and optional pharmacist intervention. (2) Describe and quantify the pharmacist-recommended interventions that are implemented by the prescriber **Methods:** This is a prospective quality improvement project to evaluate a pharmacist led intervention to reduce inappropriate benzodiazepine use in patients 65 years of age or older at a VA medical center. The National VA Psychotropic Drug Safety Initiative dashboard will be utilized to identify patients in the target age group with an active benzodiazepine prescription from a mental health prescriber. Mental health prescribers will complete risk evaluations using a standardized risk review for each identified patient. Upon prescriber request, a pharmacist will recommend non-benzodiazepine pharmacologic options and taper recommendations if appropriate. Lastly, direct to consumer educational materials will be mailed to all patients identified by the dashboard. The average benzodiazepine dose in lorazepam equivalents per day supply will be evaluated pre and post intervention. A paired T-test with a P value $< .05$ will be considered significant for the primary objective. Descriptive analyses will be used for the secondary objective. **Outcomes:** The primary objective will be reported through numerical data. The secondary objective will be reported as descriptive analyses describing the pharmacist-recommended interventions and quantity of interventions that are implemented by the prescriber at a 3-month follow-up period.

Implementation of a New Service for Esketamine Prescribing

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Type: Work in Progress. **Background:** Major depressive disorder is highly prevalent in the veteran population. The Sequenced Treatment Alternatives to Relieve Depression (STAR*D) trial resulted in only one-third of patient's entering remission after their first antidepressant trial. New treatment modalities are needed for treatment resistant major depressive disorder. Esketamine is a newly FDA approved medication for treatment resistant major depressive disorder. Several facilities in our healthcare system have started to implement esketamine services. Individual facilities have been charged with developing procedures for local use following the national criteria. **Objective:** The objective of this project is to develop a clear procedure to implement esketamine prescribing and administration at our facility. **Methods:** On June 12, 2019, a national esketamine community of practice monthly call series was started throughout the healthcare system to ensure clear communication, provide a forum to discuss progress, barriers, and develop best practices. Before implementation of an esketamine service, the system wide protocol was reviewed. Requirements are that each individual site must develop a procedure to screen and refer potential candidates for esketamine treatment, determine a location to administer and monitor patients during and after the dosing, and develop a procedure for ordering esketamine. Education about Risk Evaluation and Mitigation Strategies (REMS) criteria and the criteria for use were provided to all behavioral health providers to assure consistent knowledge to screen for potential patients. Potential sites for administering esketamine will be reviewed and discussed with behavioral health staff as well as infusion center staff. Administration site must have access to immediate care and proper monitoring including nursing staff that are Advanced Cardiovascular Life Support (ACLS) certified and availability of emergency treatment (code cart). The medication will be ordered by a psychiatrist and will be delivered by the pharmacy on the day of administration. The process for ordering medication, storage and delivery will be developed in collabora-

tion with pharmacy service. **Outcomes:** We will have a clear protocol and guidelines to administer esketamine at our facility by establishing a location for administration and a collaboration with a psychiatrist who agrees to comply with all monitoring requirements.

Implementation of a Pharmacist-Led Benzodiazepine Taper Clinic

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Type: Work in Progress. **Background:** Approximately 30% of adults in the United States are prescribed long-term benzodiazepines with an estimated 40% inappropriately prescribed to older adults in the outpatient setting. Prescribing guidelines do not recommend long-term benzodiazepines use due to adverse events including medication dependence, hip fractures and cognitive impairments that outweigh their therapeutic effectiveness. Currently, there is no FDA approved medication for benzodiazepine use disorder, but patient education has led to successful tapering. This study proposes to illustrate the benefits of a pharmacist led benzodiazepine taper clinic with interventions of education, benzodiazepine taper recommendation, and frequent patient follow-up. **Objectives:** Primary: Assess the percentage of veterans who decrease their benzodiazepine usage. Secondary: (1) Compare the change from pre- and post-clinic implementation in: total daily benzodiazepine dose (diazepam milligram (mg) equivalents), Generalized Anxiety Disorder-7 (GAD-7), and Pittsburg Sleep Quality Index (PSQI) scores. (2) Evaluate the impact on Emergency Department (ED) and hospital admission rate. **Methods:** This is a single-center prospective study at the Martinsburg VAMC. Patients will be identified through the submission of a benzodiazepine taper consult to a mental health (MH) pharmacist entered by their prescriber or through the Benzodiazepine/Z-drug Dashboard, a report that portrays high-risk veterans with active benzodiazepine prescriptions. Veterans meeting enrollment-criteria will be contacted by a MH pharmacist to introduce the taper clinic followed by in-person educational session. The veteran may then choose to enroll in the clinic. Appointments with a MH pharmacist will occur every two to four weeks for evaluation of: withdrawal symptoms, GAD-7 and PSQI self-assessments, and taper progress. The referring prescriber will maintain prescriptive benzodiazepine authority. One month after completion of taper, veterans will be contacted for follow-up. Descriptive statistics and the t-test will be used for data analysis. **Outcomes:** We will report the number of participants; demographics; and percentage of veterans who decreased usage, achieved cessation, and those who maintained these changes in benzodiazepine therapy. The pre- and post-clinic comparisons for total daily benzodiazepine doses (diazepam mg equivalents) and GAD-7 and PSQI scores will be reported. Finally, the number of hospitalizations, ED visits, and unscheduled outpatient psychiatry visits during the taper process will be reported.

Implementation of a Primary Care Mental Health Integration (PCMHI) Longitudinal Rotation and Telephone Clinic to Provide Pharmacy Mental Health Services to Patient Aligned Care Teams (PACT)

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Type: Work in Progress. **Background:** Primary Care Mental Health Integration (PCMHI) was established system-wide by the Veterans Health Administration in 2007. Since then, many Veterans Affairs (VA) medical centers and Community-Based Outpatient Clinics are implementing PCMHI teams to assist Primary Care Providers in managing uncomplicated mental health conditions. PCMHI team members strive to provide evidenced-based care by ensuring validated symptom measurements are used and patients receive an adequate medication trial. **Objectives:** The objectives of this project are to: (1) Determine what services offered by a Clinical Pharmacy Specialist in Mental Health are most requested in primary care at a Veterans Affairs Health System; and (2) Evaluate interventions made by a pharmacist in primary care given the implementation of a longitudinal rotation for pharmacy residents. **Methods:** A weekly block of four hours has been allotted to a Post-Graduate Year Two (PGY2) Psychiatric Pharmacy Resident to devote to making mental health interventions in primary care. These can originate from the pharmacy mental health e-consult service or warm hand-offs. Data from all interventions made in primary care by a mental health pharmacist or a trainee from October 1, 2019 through December 31, 2019 will be collected. Follow-up data will be collected through February 11, 2020. **Outcomes:** The number of interventions made in primary care by a mental health pharmacist or trainee will be reported. These results will be described further by origin (warm hand-off vs. e-consult), type of intervention made, and if it occurred within the time allotted to the pharmacy resident. Additionally, the degree to which pharmacy recommendations were implemented and if appropriate follow-up took place will be collected. Details regarding rotation and clinic set-up and barriers to implementation will also be reported.

Implementation of a Scheduled Glucose Monitoring Protocol: A Study Investigating Asymptomatic Hypoglycemia During Weight Restoration on an Eating Disorders Unit

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Type: Work in Progress. **Background:** In the United States, an estimated 20 million women and 10 million men will have an eating disorder during their lifetime. Though rates of eating disorders are modest in the general population, anorexia nervosa has the highest mortality rate of any psychiatric disorder. Due to chronic starvation, those with a restrictive-type eating disorder commonly have asymptomatic hypoglycemia, which has been correlated to severity of illness. Furthermore, hypoglycemia requires aggressive medical and nutritional therapy to improve chance of survival. In the emergency department setting, asymptomatic hypoglycemia related to chronic starvation is commonly noted, however it is only anecdotally reported during the weight restoration phase. At a large academic medical center, a scheduled blood glucose protocol was implemented on the eating disorders unit in an effort to identify and treat asymptomatic hypoglycemia. The purpose of this study is to determine the incidence of, as well as risk factors for, asymptomatic hypoglycemia and determine if scheduled blood glucose monitoring results in more frequent identification of asymptomatic hypoglycemia in those undergoing weight restoration. **Objectives:** (1) Evaluate the incidence of asymptomatic hypoglycemia in the Pre- and Post-Order Set cohorts; (2) Identify risk factors for asymptomatic hypoglycemia; and (3) Analyze rates of asymptomatic hypoglycemia by age, weight, body mass index, electrolyte laboratory values, medication orders, length of stay, and eating disorder diagnosis. **Methods:** A single-center, retrospective chart review will be conducted of patients on an eating disorders unit over a four year period. Exclusion criteria include a diagnosis of diabetes mellitus and/or presence of active orders for anti-diabetic medications or corticosteroids. Eligible subjects will be placed into the Pre- and Post-Order Set cohort based on admission date. The following data will be collected and analyzed: age, sex, race, ethnicity, diagnosis codes, weight, height, body mass index, length of stay, medication orders, electrolyte and blood glucose concentrations, and glucose administration. **Results:** Results are anticipated to demonstrate a higher incidence of asymptomatic hypoglycemia after implementation of a scheduled blood glucose monitoring protocol. Data may also show correlation between asymptomatic hypoglycemia and patient specific factors. Potential limitations include small sample size and inter-rater reliability.

Implementation of an Esketamine Clinic at a Veterans Affairs Medical Center

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Type: Work in Progress. **Background:** As one-third of patients with major depressive disorder fail multiple medication trials and are considered to have treatment-resistant depression, the approval of esketamine nasal spray by the FDA for this specific subset of patients has sparked new hope for the psychiatric community. However, as this medication has specific Risk Evaluation and Mitigation Strategy (REMS) requirements and monitoring, the implementation of this medication into facilities will require more protocols and guidance than typical medications. This project was designed to uncover obstacles and gaps in facility operations that will need to be addressed to implement the use of intranasal esketamine for the treatment of treatment resistant major depressive disorder in a Veterans Affairs medical center. **Objectives:** To establish an esketamine clinic at a Veterans Affairs Medical Center in order to further increase treatment options for those experiencing treatment resistant depression. **Methods:** An esketamine clinic protocol will be developed to assist in treatment resistant depression. The esketamine clinic protocol will be reviewed by the pharmacy and therapeutics committee for approval. The facility and pharmacy will be registered with the Risk Evaluation and Mitigation Strategy program, as well as each patient with the Risk Evaluation and Mitigation Strategy program. A location on campus for administration and monitoring of the medication will be chosen, as the patient must be monitored for two hours following the dose administration. A procedure to screen and refer potential candidates for therapy will be developed. A process for esketamine procurement and prescribing must be initiated. Note templates will be created for documentation of monitoring and to assist in reporting to the Risk Evaluation and Mitigation Strategy program. Lastly, staff education and training will be provided to pharmacy, nursing, psychiatry, and infusion clinic personnel. **Outcomes:** Clinic implementation will be completed with final approval from the medical executive committee, completed education of staff, and initial patient enrollment.

Implementation of Depression Screenings at a University-Affiliated Community Pharmacy: Obstacles and Solutions

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Type: Work in Progress. **Background:** Suicide is the 3rd leading cause of death in young adults 10-24 years of age and a major issue in college students. Emphasis on mental health has grown recently in healthcare, but there are 1,010 patients for each mental health provider in Texas. A 2012 national survey found that 91% of participants feel very comfortable going to their community pharmacy for their health concerns. Implementing depression screenings in a community pharmacy using Mental Health First Aid (MHFA) trained community pharmacists is a unique and highly accessible solution. **Objectives:** (1) Demonstrate that community pharmacy-based depression screenings will be used by college students and faculty/staff. (2) Demonstrate screening can effectively identify patients with clinically significant depression or suicidal thoughts. (3) Demonstrate MHFA-trained pharmacists can accurately evaluate screenings and effectively provide timely and critical information about treatment. **Methods:** All patients at an on-campus community pharmacy will be offered screening prior to medication pick-up. The screening will consist of the Patient Health Questionnaire (PHQ-9) hierarchically administered using custom, secure software on a tablet. Prescription pick up and interaction workflows including pharmacist guidelines and protocols were developed with input from university counseling services and reviewed by BCPP faculty. Positive screenings will result in a private interview with a MHFA-trained pharmacist. Based on the interview, the pharmacist may provide contact information about mental health providers, or if there is a crisis or suicidal thoughts are present have them escorted immediately to a mental health provider. All interactions will be documented in HIPAA-compliant software. Participants will be asked to participate in a post-screening survey. **Outcomes:** (1) Describe the steps taken to integrate the screenings into existing workflow. (2) Report observed obstacles and troubleshooting during implementation. (3) Report the number of participants that participate in the screening compared to the number of patients served at the pharmacy and the percent that screen positive vs. negative. (4) Participant-reported feedback regarding experience and referral outcomes. **Disclosure:** Nothing to disclose.

Implementation of Telehealth Clinical Pharmacy Services in a Mental Health Intensive Case Management (MHICM) Program at a Veterans Affairs Health Care System (VAHCS)

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Type: Work in Progress. **Background:** Mental Health Intensive Case Management (MHICM) teams provide care to veterans who are appropriate to receive services in the outpatient setting but have severe mental illness (SMI), significant functional impairment, and high inpatient psychiatric resource use. The interdisciplinary MHICM program at this VA Health Care System (VAHCS) does not currently include clinical pharmacy services. Evidence supports the positive impact of pharmacist services, including comprehensive medication management (CMM), on patient outcomes by optimizing pharmacotherapy and decreasing adverse effects. In addition, the utilization of telehealth services in the community and the VA has increased patient access and improved health care outcomes. This project aims to combine the above interventions, incorporating clinical pharmacy services via video telehealth into the MHICM program at this VAHCS, and evaluate the outcomes on medication management of patients enrolled in the program. **Objectives:** (1) Record the number and types of interventions completed by the pharmacy resident and recommended to other providers. (2) Record the number and types of interventions accepted by other providers. (3) Evaluate MHICM team members' satisfaction with the service. **Methods:** This is a prospective quality improvement project. Eligible subjects for this project will be veterans currently enrolled in this VAHCS's MHICM program. Subjects will receive one video telehealth appointment with the postgraduate year 2 (PGY-2) Psychiatric Pharmacy Resident, supervised by a Clinical Pharmacy Specialist, to provide CMM and medication education prior to their scheduled MHICM psychiatrist appointment. Interventions will be completed or recommendations will be made to patient's providers, as appropriate. A chart review will be completed by the pharmacy resident after the scheduled psychiatrist appointment. The number and type of interventions completed by the pharmacist and recommendations made to providers will be recorded, as well as baseline characteristics. Interventions to be captured include adjusting the dosage or frequency of a medication, changing a medication, discontinuing a medication, initiating a medication, renewals or refills, monitoring, drug interactions, adverse drug events, referrals, adherence, education and recognition of incorrect use of medication. An anonymous questionnaire will be provided to case managers to assess satisfaction with clinical pharmacy services. Descriptive statistics will be used to assess outcomes.

Implementing an Algorithm-Based Protocol for the Pharmacologic Management of Acute Agitation and Aggression in Pediatrics: An Academic Medical Center Experience

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Type: Work in Progress. **Background:** Management of pediatric acute agitation and aggression creates uncertainty for pediatricians and nursing staff who are unfamiliar with psychotropic medications. The psychiatric inpatient treatment facility (ITF) in the county of Riverside is restricted to patients ages $\geq$ 13 years. As a result, the pediatrics unit at the main medical center in this county has recently gained an influx of younger pediatric patients with psychiatric related diagnoses. As such, there have been requests for guidance on the pharmacologic agents used for the management of acute pediatric agitation and aggression in non-psychiatric inpatient units, particularly from the Behavioral Emergency Response Team (BERT). There continues to be a lack of guidelines on this matter, therefore, opportunity exists for the creation of an algorithm-based protocol that can help guide the safe and appropriate use of pharmacologic agents in this setting. **Description of Innovative Service:** Guided by the American Association for Emergency Psychiatry recommendations, and in collaboration with inpatient psychiatry and pharmacy, an algorithm-based protocol was created to provide a concrete set of recommendations that the pediatric medical teams can refer to when deciding which agents to use in the setting of a code BERT. This algorithm provides the preferred pharmacologic agents based on the etiology of agitation as well as dosing recommendations. Additionally, it provides further recommendations on what agents to avoid. **Impact on Patient Care:** The algorithm is pending implementation this upcoming February 2020. The anticipated impact is overall improvement in therapeutic selection of psychotropic agents in the setting of acute pediatric agitation, and a decrease in the use of agents that can potentially worsen the agitation or cause paradoxical excitation. This impact will be assessed via a comparison of pharmacologic selection prior to and after the implementation of this algorithm. **Conclusion:** With an increase in influx of pediatric patients with psychiatric-related diagnoses at the main medical center, it is crucial that the pediatricians and nursing staff on the pediatric unit feel comfortable handling these psychotropic agents. This algorithm will assist with streamlining the selection of pharmacologic agents in pediatric behavioral emergencies.

Implementing Care Management Telephone Calls in a VA Integrated Care Community Based Outpatient Clinic

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Type: Work in Progress. **Background:** At a large Veterans Affairs Hospital serving 130,000 veterans in a regional Midwest area, care management calls have been an effective approach to providing mental health care for patients. It has been shown that telephone and face-to-face interventions have statistically similar effects on depression management, with telephone management resulting in less medication use, likely due to closer follow-up of medication adjustments. This increase in contact can lead to alternative non-pharmacologic measures offered, such as therapy referrals to augment, or even take place of medications. Providing this follow-up with mental health-trained providers allows for less burden on the primary care team, and increased access to safe and effective mental health care. **Objectives:** Our goal is to implement these care management calls at one of the community-based outpatient clinics (CBOC), in attempt to expand outreach to a larger population of veterans in the primary care setting. **Methods:** Veterans are eligible for care management calls if they are a patient at the CBOC, have a diagnosis of depression and/or anxiety, and active prescriptions for medications including selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), mirtazapine, bupropion, tricyclic antidepressants, and/or buspirone. Patient enrollment started October 1, 2019. After initiation of the aforementioned medication(s), veterans will receive telephone follow-up by a mental health-trained pharmacist or nurse practitioner in 3-6 week increments for ongoing assessment of changes in their depression and/or anxiety both subjectively and objectively, using the Patient Health Questionnaire (PHQ9) and/or Generalized Anxiety Disorder Questionnaire (GAD7). These assessments will lead to medication adjustments as necessary. Once a patient reaches response and/or remission, the care is transitioned back to the primary care team. **Outcomes:** We will report the number of patients who reach response/remission, time to that outcome, and changes in GAD7 and PHQ9 scores, showing the impact of care management calls on veterans' mental health. We will also report changes in VA strategic analytics for improvement and learning (SAIL) metrics MDD 43 and MDD 47, which identify medication adherence for 84 and 180 days, respectively. Preliminary data will be collected March 30, 2020.

Improving Access to Office-Based Buprenorphine/Naloxone Therapy in Veterans

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Type: Work in Progress. **Background:** The opioid crisis continues as a nation-wide challenge and opioid-related overdose death rates continue to rise. Buprenorphine/

naloxone has proven efficacy in the management of opioid use disorder (OUD) but is frequently underutilized for treating OUD and especially opioid dependence in the office-based setting. Patients within our health care system may experience extended wait times to induction of outpatient buprenorphine/naloxone treatment, commonly resulting in loss to follow-up. **Objectives:** (1) Evaluate current wait times to induction of buprenorphine/naloxone treatment in veterans with opioid dependence or OUD; and (2) Reduce wait times to office-based induction of buprenorphine/naloxone to less than 4 weeks. **Methods:** To initiate office-based buprenorphine/naloxone therapy, current policy within a multi-site Texas VA health care system requires an initial psychiatric evaluation to rule in the required diagnosis of opioid use disorder and suitability for medication-assisted treatment (MAT). Additionally, a history and physical must be completed by the primary care provider within 30 days preceding buprenorphine initiation, including urine drug screen (UDS), complete blood count (CBC), comprehensive metabolic panel (CMP), gamma-glutamyltransferase (GGT), hepatitis panel, human immunodeficiency virus antibody, rapid plasma reagin, pregnancy testing, electrocardiograph, breathalyzer, and purified protein derivative results within the prior 6 months. As this must occur within the preceding 4 weeks before induction and prescription of buprenorphine/naloxone requires an OUD diagnosis at this facility, patients often do not meet requirements and must be either be turned down for outpatient induction or experience extended wait times. Data will be collected regarding wait times to induction from referral for suspected OUD and loss to follow-up to determine wait times before and after office-based MAT policy change and educational in-service. Value stream mapping will be performed to reduce waste and improve efficiency of the induction and follow-up process. **Outcomes:** Improvements will be monitored by re-assessing loss to follow-up and wait times to induction of buprenorphine/naloxone following policy change and educational in-service. Outcomes will be reported as percentage of patients with referral for suspected OUD without induction of buprenorphine/naloxone and time in days from initial referral to initiation of MAT.

Incorporation of a Bar Code Medication Administration (BCMA) Protocol for Long-Acting Injectable Antipsychotics in a Primary Psychiatric Outpatient Care Setting

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Type: Work in Progress. **Background:** Since its creation, BCMA has improved medication administration safety across healthcare systems by optimizing accuracy and limiting medication administration errors. Currently, long-acting injectable (LAI) antipsychotics within the Veterans Health Administration (VHA) are ordered using an outpatient medication prescription, with the administration history being documented in a nursing progress note. Occasional administration errors have been reported as a result of the manual progress note review of the patient chart not being done thoroughly. BCMA has consistently shown improvements in patient safety, continuity of care, and workflow efficiency throughout other NMVAHCS clinic services with the inclusion of the administration history in the BCMA-associated order reducing opportunities for dose timing errors. This quality improvement project will evaluate the impact of incorporating BCMA in a psychiatric outpatient clinic setting. **Objectives:** To determine if implementing BCMA within a psychiatric outpatient clinic can optimize outpatient clinical workflow, improve medication adherence rates, and limit medication errors. **Methods:** This single-center quality improvement project will evaluate the impact of BCMA on veterans receiving outpatient care through the NMVAHCS LAI Clinic. This protocol is expected to launch by January 31, 2020 with the following workflow approved by Behavioral Health, Nursing, and Pharmacy services: medication order entry (using a Clinic Quick Order Set built into the VHA electronic medication record), medication order verification, Clinic Order verification, patient identification verification, medication bar code verification, and medication administration. A survey will be provided to clinic nurses one week before and roughly six weeks after the go-live date to evaluate change in workflow. The number of patients being followed within the clinic, number of administrations given on time, and number of administration errors will also be evaluated. **Outcomes:** By incorporating BCMA in the NMVAHCS Long-Acting Injectable Clinic, lower administration errors and higher productivity are expected. The trends from this study will be used to further confirm the positive impact of BCMA on patient safety and the rationale for the need to expand this resource to other services of the VHA on a local and national basis.

Increasing Access to Substance Use Disorder Pharmacotherapy at Veterans Affairs Hilo Community Based Outpatient Clinic

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Type: Work in Progress. **Background:** According to the 2015 VA/DOD Clinical Practice Guidelines, alcohol and opioid use as well as its associated mortality has been steadily increasing. Veterans are at an increased risk for developing alcohol use disorder (AUD) and opioid use

disorder (OUD). However, these substance use disorders (SUD) remain widely undertreated. Of those diagnosed with lifetime AUD only about 20% received treatment for AUD. As of mid-December, there were 158 veterans with AUD and 32 veterans with OUD at the Veterans Affairs (VA) Hilo Community Based Outpatient Clinic (CBOC) who may be candidates for SUD pharmacotherapy. Collaboration with a MHCPS can further support access to evidence-based pharmacotherapy and further support long term remission. **Objectives:** (1) To improve access to SUD pharmacotherapy for veterans at the VA Hilo CBOC. (2) Establish a mental health clinical pharmacy specialist (MHCPS) ran clinic for SUD pharmacotherapy which includes telehealth video conferencing and VA Video Connect (VVC) appointments to reach rural veterans. (3) Create a long-standing collaboration with the Hilo mental health team (HMHT) for the referral of veterans with SUD to MHCPS for SUD pharmacotherapy. **Methods:** The Psychotropic Safety Drug Initiative dashboard will be used to monitor the percentage of veterans diagnosed with SUD receiving SUD pharmacotherapy at Hilo CBOC. The mental health pharmacy consult was edited to include specific options for SUD in order to facilitate the referral process to the MHCPS clinic for SUD pharmacotherapy. HMHT will be educated on the consultation process and the role of MHCPS. Veterans will be contacted by MHCPS to coordinate clinic appointments once consult is received. MHCPS will consult and follow-up as needed with veterans for SUD pharmacotherapy. MHCPS will utilize the Brief Addiction Monitor-Revised (BAM-R) scale to note SUD improvement. The number of consults received, number of veterans seen in the clinic, type of SUD treatment, and number of visits attended will be tracked throughout SUD management. **Outcomes:** SUD treatment quality improvement from this project will be assessed by the number of consults received and veterans reached through the MHCPS clinic, and the aggregated BAM-R scores to track veteran improvement of SUD.

Increasing Naloxone Accessibility in the Homeless Population: A Pharmacist-Driven Initiative

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Type: Work in Progress. **Background:** According to the CDC, opioid prescriptions have tripled since 1999, with 200 million opioids prescribed annually. With this, a steady increase in the incidence of opioid use disorder (OUD) has been seen in the homeless population. The Substance Abuse and Mental Health Services Administration estimated in 2003 that 26% of homeless people abused drugs. During this time, the United States has seen a surge in the rate of deaths by overdose. A recent study conducted in Boston determined that drug overdose is the leading cause of death in the homeless population, with opioids playing a role in 81% of cases. Naloxone is an opioid antagonist that has the capability to reverse the effects of an opioid overdose. Despite countless studies proving that naloxone reduces the incidence of death by overdose, one study found prescription rates for patients at a high-risk of an opioid overdose upon discharge from hospital emergency rooms to be as low as 12%. **Objectives:** (1) Evaluate the impact pharmacist intervention has on naloxone accessibility for high-risk, homeless patients. (2) Evaluate the impact pharmacist-led education has on patient's understanding of proper naloxone administration. **Methods:** A patient list identifying patients as homeless will be used in a chart review to determine if the patient meets criteria for OUD or is at a high-risk of opioid overdose from January 20, 2020 to April 15, 2020. The pharmacist will contact the treatment team for patients meeting criteria to recommend prescribing naloxone upon discharge. Pharmacist-led education will then be provided to the patient. Patients will complete a pre-education and a post-education questionnaire to assess the level of understanding on the proper administration of naloxone. Prescribing patterns will be compared to patients admitted in the 6 months prior to the study period. **Outcomes:** The rate of naloxone prescriptions for homeless patients with co-occurring OUD upon discharge, the impact of a pharmacist-led counseling session on patient's understanding of proper naloxone administration, patient satisfaction scores, and methods by which the medication was received will all be presented at the CPNP annual meeting.

Long-Acting Injectable Antipsychotics to Decrease Readmission Rates in Adolescents

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Type: Work in Progress. **Background:** Half of mental health conditions develop by age 14. Immediate initiation of appropriate and optimized treatment may therefore be crucial to prevent poor adult outcomes. In the adult population, long-acting injectable antipsychotics (LAIAs) are associated with higher functionality, better prognosis, and reduced relapse compared to oral formulations. Currently, however, there is very limited evidence of their use and clinical benefit in adolescents. This study will investigate whether administering LAIAs decrease read-

mission rates and remain safe for use in adolescents in aims of decreasing exacerbations, preventing progression of mental illnesses, saving health care resources, and improving overall quality of life. **Objectives:** (1) Evaluate the rate of readmission to the adolescent unit of an inpatient treatment facility (ITF) within 30 days of LAIA administration. (2) Evaluate the rate of readmission to the adolescent ITF unit within 1 year. (3) Establish tolerability of any LAIA administered to adolescents. (4) Determine whether outpatient follow-up, demographic variables, urine drug screen (UDS), and the number of previous psychotropic medication trials are associated with the primary objective. **Methods:** This retrospective chart review will include adolescents aged 13-17 years (at the time of injectable administration) given paliperidone palmitate, aripiprazole extended-release injectable suspension, or aripiprazole lauroxil while admitted in the adolescent unit of an ITF in Riverside County, California between October 1, 2016 to November 1, 2019. Patients will be excluded if they do not meet the age requirement or have received a study medication less than 30 days before the study end date. In addition to demographic variables (age, gender, and ethnicity), the name, dose, and administration location of the LAIA, previous psychotropic medication trials, UDS at admission, side effects post-injection, the number of readmissions within 30 days and 1 year after injection, the number of admissions 30 days and 1 year before injection, and outpatient follow-up will be recorded. **Outcomes:** We will report the percent of patients readmitted within 30 days of LAIA administration. Secondary outcomes will include the percent of readmissions within 1 year, the percent of patients who experience adverse events post-injection, and the impact of the collected variables on readmission rate.

Medication Assisted Treatment (MAT): The Pharmacy Student Perspective

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Type: Work in Progress. **Background:** With the opioid epidemic brought the increased need for medication-assisted treatment (MAT). Communities across the United States had been met with devastation stemming from increased drug abuse and addiction, incarceration, and mortality. Unfortunately, due to the stigma that surrounds the treatment, many providers are reluctant to prescribe, and pharmacists are reluctant to dispense, medications for the treatment of Opioid Use Disorder (OUD). The negative connotations often develop during training. Therefore, breaking the stigma regarding OUD treatment must be emphasized during the training of future pharmacists in order to properly treat the patients that could greatly benefit from potentially life-saving therapy. **Objectives:** Assess stigma among pharmacy students regarding MAT for OUD. **Methods:** This study is a cross-sectional survey design, in which students will be asked to complete a 33-question survey to determine their current views on MAT. Individuals will be excluded from the study if they are not enrolled at a College/School of Pharmacy in the United States, cannot provide informed consent, and/or are less than 18-years-old. Students will be reached through their school administration and/or social media. Overall answers will be compared through descriptive analysis and standard deviation. Pharmacy classes and other demographic groups may be analyzed through correlation and/or comparison. **Outcomes:** We will report overall data of perspective towards MAT including frequency of responses to survey questions. Correlations will also be reported to compare attitude, geographic location, whether MAT is part of core curriculum, option of elective courses, personal experience(s), and current year in pharmacy school.

Methods to Mitigate Serotonergic Medication Withdrawal Symptoms: A Systematic Review

Lauren Stummer, PharmD, BCPP[1]; Agustin Yip, MD, PhD[1,2]; Fernando Rodriguez-Villa, MD[1,2]

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Type: Work in Progress. **Background:** Withdrawal symptoms related to serotonergic medications are well documented. Affective, gastrointestinal, sexual, cognitive, and sensory symptoms, along with sleep disturbances and disequilibrium, are all potential withdrawal symptoms that patient's may experience when serotonergic medications are being discontinued. While these withdrawal symptoms are well documented, there are no standardized guideline recommendations for discontinuing serotonergic medications to mitigate withdrawal symptoms. **Objective:** Determine the most effective method for mitigating withdrawal symptoms associated with serotonergic medications. **Methods:** A literature search was performed to compile publications regarding discontinuations, withdrawals, and tapers of serotonergic medications, including SSRIs, SNRIs, and TCAs. All systematic reviews, randomized controlled trials, case series, and case reports regardless of publication date were reviewed. Studies in patients less than 18 years of age and where serotonergic medications were being used for non-FDA approved indications or non-psychiatric illnesses were excluded. **Preliminary Results:** A total of 94 studies were included in this systematic review; 36 case reports, 32 case series, 14 randomized controlled trials, and 12 systematic reviews. Of these studies, 15 addressed specific methods for discontinuing serotonergic medications, such as gradual discontinuation, abrupt discontinuation, switching to a

serotonergic medication with a long half-life, like fluoxetine, or using supportive therapies for symptom management. Specific serotonergic medications were evaluated in 52 of the studies reviewed, while the other 42 addressed various serotonergic medications and medication classes. Venlafaxine and paroxetine were the most common specific serotonergic medication interventions that were studied. **Preliminary Conclusion:** While serotonergic medication withdrawal is well documented, specific mitigation strategies have not been extensively studied. Further randomized controlled trials are needed to develop specific recommendations and guidelines for serotonergic medication discontinuation.

Navigating Complexities of Brexanolone Administration: A Medication Use Evaluation

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Type: Work in Progress. **Background:** According to the CDC, postpartum depression (PPD) affects approximately 1 in 9 women. PPD can impair mother-infant bonding leading to negative effects on the cognitive, behavioral, and emotional development of the child. While there are a variety of biochemical and environmental factors associated with PPD, one theory suggests that a dramatic decline in allopregnanolone levels after delivery may be a significant factor. Brexanolone, a synthetic form of allopregnanolone, is an intravenous antidepressant approved by the FDA in March 2019 for the treatment of PPD. Clinical trials assessing the efficacy of brexanolone in PPD showed a statistically significant reduction in symptom severity in 2.5 days, a vast improvement in symptom response compared to oral antidepressants, the current standard of care treatment for PPD. Despite brexanolone's efficacy and rapid onset, there are a variety of barriers that must be addressed before patients receive brexanolone. They include a 60-hour duration, monitoring requirements, cost, and mandatory training conditions. In order to mitigate these obstacles, a protocol for brexanolone administration was developed for nursing, pharmacy, and physician use in a tertiary care, academic medical center. The purpose of this medication use evaluation (MUE) is to assess the utility and practicality of a brexanolone protocol and to identify areas for improvement. **Objectives:** (1) Assess the utility and efficacy of a protocol for the use of brexanolone. (2) Identify areas for improvement with regards to the protocol and brexanolone use. **Methods:** Patients who received brexanolone over a 6-month timeframe will be identified via pharmacy dispense reports. Outcomes will be evaluated by retrospective chart review. Clinical outcomes to be assessed include: inpatient readmission, depressive symptom response, utilization of adjunctive antidepressants, length of stay, and adverse events during and/or after the infusion. Investigators will also assess amount of product dispensed from pharmacy, deviations from the protocol, patient location, drug cost, and insurance reimbursement data. **Outcomes:** An estimated 6 to 10 brexanolone administrations are expected to be reviewed. The short observation window of six months will limit interpretation of results. Despite this short study window, data collection will continue to maintain a steady quality improvement process.

Opioid Prescribing Patterns for Cancer Patients With Opioid-Dependency at an Academic Medical Center

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Type: Work in Progress. **Background:** Treating pain is a highly individualized practice. Several organizations have released guidelines on how to safely prescribe opioids, such as the Centers for Disease Control (CDC), World Health Organization (WHO), National Comprehensive Care Network (NCCN), and American Society of Clinical Oncology (ASCO). The CDC guidelines largely recommend limiting opioid prescriptions to the lowest effective dose for the smallest quantity but does not include recommendations for chronic cancer pain. Guidelines that do make recommendations for chronic cancer pain often advocate accessibility to opioids for all patients who need it, but in cancer patients with substance use histories, many guidelines recommend caution. The conflicting recommendations for opioid prescribing led us to look at how an academic medical center differs in prescribing patterns for cancer patients with and without substance use histories. **Objectives:** (1) Compare mean daily morphine milligram equivalents (MME) of cancer patients with substance use histories to cancer patients without. (2) Characterize the following prescribing patterns between the two groups: non-opioid pain medications, opioid selection (such as long-acting versus short-acting agents), abuse-deterrent formulations, and naloxone. (3) Characterize prescribing based on pain scores. **Methods:** Participants will be identified via a retrospective chart review from a multi-site, academic medical center. An online collection tool (REDCap®) will be used to store and report patient data regarding demographics and patient information. Inclusion criteria are patients with a diagnosis of malignancy, at least one outpatient opioid prescription

during the study period of June 1, 2018 through May 31, 2019, and age 18 years or older. **Outcomes:** We will determine the mean daily MME for cancer patients with outpatient opioid prescriptions. We will compare mean MME values between patients with substance use histories and patients without. We will also compare the following prescribing patterns between the two subgroups: non-opioid pain medications, opioid product selection (such as frequency of long-acting and short acting agents), percentage of abuse deterrent formulations, and naloxone prescriptions. We also aim to compare opioid prescribing patterns based on pain scores.

Optimizing a Pharmacy Resident-Led Specialty Mental Health Electronic Consultation (e-consult) Service at a Veterans Affairs Health Care System

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Type: Work in Progress. **Background:** Electronic consultations (e-consults) are a means to provide clinical support from provider to provider using electronic health records as the platform for communication. Psychiatric pharmacists have previously demonstrated their role in improving mental health outcomes through an e-consult service available to primary care providers at our Veterans Affairs facility. In August 2018, this e-consult service was expanded with the goal of providing access to clinical drug experts beyond primary care to allow for clinical recommendations to psychiatry and other specialty providers. These e-consults were to be answered by psychiatric pharmacy residents (supervised by preceptors) in order to facilitate a resident learning opportunity. This project aims to assess the value of the pilot specialty mental health e-consult service. **Objectives:** The primary objective of the present study is to provide a descriptive analysis of e-consults answered by psychiatric pharmacy residents. The secondary objective is to assess psychiatric provider, pharmacy resident, and preceptor satisfaction with the e-consult service and identify barriers to and benefits of the current process for quality improvement. **Methods:** A mixed-methods study design will be utilized including a retrospective chart review of completed all e-consults answered by psychiatric pharmacy residents between August 1, 2018 and January 31, 2020 and survey data obtained from submitting providers, pharmacy residents, and resident preceptors involved in the e-consult process. Data collected will consist of patient and provider characteristics, date and time of consult submission and completion, clinical question type, recommendation type, and subsequent action taken. Survey questions will use a 5-point Likert-type scale to assess several satisfaction domains. Open ended questions to assess barriers to, benefits of, and suggestions for improvement of the current e-consult process will also be included. Information gathered from chart review and Likert-type survey questions will be analyzed using descriptive statistics, and open-ended survey data will be reviewed using conventional content analysis. **Outcomes:** We will report the monthly rate of e-consult submissions, percent of question and recommendation types, percent of e-consults resulting in implementation of recommendation, percentage of submitting providers and residents/preceptors in agreement with the satisfaction domains, and reported benefits, barriers, and suggestions for improvement.

Outcomes Associated With Once-Daily Versus Multiple-Daily Dosing of Buprenorphine/Naloxone for Opioid Use Disorder

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Type: Work in Progress. **Background:** According to research published by the Centers for Disease Control and Prevention (CDC) in 2016, 2.1 million people in the United States suffered from opioid use disorder (OUD) related to prescription opioids and 262,000 had an OUD diagnosis related to heroin. Buprenorphine, a partial opioid agonist, is commonly prescribed for the treatment of OUD; however, a diversity of prescribing patterns (dosing, frequency) exist with little evidence to support one prescribing method versus the other. Despite the plethora of literature supporting efficacy with daily doses of up to 24 mg/day, there have not been any clinical studies examining buprenorphine/naloxone once-daily dosing versus multiple-daily dosing in patients with OUD without comorbid pain indications. This retrospective evaluation will provide new insights into whether once daily versus multiple-daily dosing regimen is associated with a difference in clinical outcomes, including negative urine drug screens. **Objectives:** (1) Determine whether once-daily or multiple-daily dosing of buprenorphine/naloxone, to treat opioid use disorder, increases the number of negative urine drug screens. (2) Compare these dosing regimens on outcomes including, but not limited to, time-to-opioid relapse, number of opioid relapses, opioid overdose events, side effects, and opioid withdrawal symptoms. **Methods:** A retrospective chart review of 100-200 outpatients prescribed buprenorphine/naloxone for the management of opioid use disorder between January 1, 2016 and December 31, 2018 will be conducted. Patients will be included if prescribed at least a 28-day supply of buprenorphine/naloxone. Patients will be divided into two cohorts; cohort 1 will consist of patients prescribed buprenorphine/naloxone once daily and cohort

2 will consist of patients prescribed buprenorphine/naloxone twice or thrice daily. **Outcomes:** We will report the number of negative urine drug screens for each group as a marker of treatment efficacy and evaluate other potential reasons to support either once-daily versus multiple-daily dosing such as presence of side effects or opioid withdrawal symptoms noted in chart.

Patient Attitudes About Tobacco Cessation in a Veteran Substance Use Disorder Population

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Type: Work in Progress. **Background:** Although there is a high incidence of tobacco use among individuals with substance use disorder (SUD), tobacco use disorder is often under-treated. Historically, smoking cessation has been thought to negatively impact substance use outcomes among smokers with SUD. Therefore, there has been a trend for substance abuse treatment programs to encourage patients to focus on one addiction at a time, overlooking and under-treating tobacco dependence. However, recent evidence suggests that tobacco cessation has a positive impact on patients with SUD, and therefore tobacco cessation advice should be offered to all smokers with a diagnosis of substance use disorder. **Objectives:** The objective of this study is to characterize patient attitudes towards tobacco cessation in patients with substance use disorder. This study seeks to identify differences in veteran attitudes toward tobacco cessation based on patient-specific factors such as choice of substance of abuse, personal history of tobacco cessation attempts, and history of substance abuse. By identifying barriers to tobacco cessation, we may be able to provide targeted education and tobacco cessation interventions for patients with SUD. **Methods:** This is a prospective, survey-based project. During treatment for SUD, eligible patients will be offered the opportunity to participate. The survey will have questions evaluating history of substance use disorder, history of using tobacco, quit behaviors (desire to quit smoking, history of smoking attempts in the past, smoking cessation modalities used in the past), perceived intervention attempts made by providers, perceived effect of quitting smoking on their substance use, along with baseline characteristics such as age, gender, race, and concomitant disease states. **Outcomes:** We will report the survey responses which will address patient attitudes about tobacco cessation, desire to quit using tobacco, tobacco cessation history, and perceived impact on sobriety.

Patient Experiences With Pharmacogenomic Testing: Systematic Review and Focus Groups to Inform Future Development of a Pharmacogenomic Literacy Assessment Tool

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Type: Work in Progress. **Background:** Pharmacogenomic (PGx) testing is increasingly entering psychiatric practice, buoyed by interest from patients and providers alike. Meanwhile, patients' knowledge of pharmacogenetic concepts remains a barrier to implementation. Disease risk genomics research indicates that individuals with greater genomic literacy are better equipped to make informed decisions about whether to obtain genetic testing, understand results, and take appropriate action. While researchers have created survey instruments to evaluate disease risk genomic literacy, no validated pharmacogenomic literacy assessments currently exist. We intend to create a psychometrically validated knowledge assessment that may be used to evaluate patient understanding of core PGx concepts prior to undergoing testing or return of results. This work in progress describes the first steps in this process: understanding patients' experience with pharmacogenomics as identified via literature review and patient focus groups. **Objectives:** (1) Perform systematic review of published literature regarding patient experiences of PGx testing to inform development of semi-structured interview guide and (2) Conduct focus groups with patients who have received psychiatric PGx testing using the aforementioned interview guide. **Methods:** Systematic PubMed search was performed using discrete search strings. Eligible studies were required to include patients or consumers and report on participants' actual or expected subjective experience with PGx testing. Thematic analysis of abstracted results will be performed, followed by focus group interview guide development. Patients who have received PGx testing will be enrolled in focus groups to discuss the pharmacogenomic concepts identified in the systematic review as well as hypothetical test results. Focus groups of 5-8 participants will be performed until content saturation is met (minimum of 3 groups). Sessions will be recorded, transcribed, and coded for thematic analysis using standard qualitative thematic analysis techniques. **Outcomes:** The PubMed search produced 38 full-text articles that are currently under review (to be completed by February 20, 2020). Preliminary emerging themes include: patients' reasons for undergoing PGx testing, psychological response to test results, perceived utility of results, patient actions taken on the basis of results, and perceived harms/concerns associated with results. Patient focus groups will be completed by March 31, 2020. We will report the final

thematic analysis of both literature review and focus groups.

Patient Perception of a Pharmacist's Role on Their Mental Health Treatment Team

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Type: Work in Progress. **Background:** Medication adherence is one of the biggest challenges when treating mental health disorders. Non-adherence can lead to worsening symptoms, hospitalization, suicide, and decreased quality of life. Proper medication counseling that stresses the importance of adherence and provides education on the management of side effects is essential to improving adherence rates. Variability exists in the quality and quantity of counseling for pharmacist counseling on psychiatric medications and the level to which patients are comfortable addressing medication concerns to their pharmacist, both of which would affect adherence and therefore quality of life. As the most accessible healthcare provider, community pharmacists should be an integral part of a patient's mental healthcare team. Ultimately, the goal of the study is to find ways of improving the patient-pharmacist relationship, thereby enhancing patient care as a part of the outpatient mental health team. **Objectives:** (1) Identify patient current knowledge of their psychiatric medication. (2) Identify patient levels of adherence. (3) Explore the role of stigma in adherence and/or patient-pharmacist relationship. (4) Ascertain perceived barriers in the patient-pharmacist relationship. **Methods:** Participants will be recruited from outpatient pharmacies of health systems with mental health services in the Pittsburgh, PA area. Participants will complete a 36 question de-identified survey either online via Qualtrics or hardcopy. The survey assesses patient demographics, mental health background, medication knowledge, stigma, and pharmacist interactions. The data will be analyzed descriptively and using multivariate logistic regression model to examine associations between the extent of the pharmacist-patient relationship with patient demographics, psychiatric disease state(s), and/or number of medications based on the survey responses. **Outcomes:** We will report the number of anonymous participants as well as their responses to the survey questions. Associations will be included to highlight if certain subgroups or attributes of patients respond more positively or negatively to their pharmacist interactions.

Emergency Treatment Option Prescribing Trends for Inpatient Pediatric Psychiatry

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Type: Work in Progress. **Background:** Agitation tends to be the primary presenting symptom for psychiatric emergencies independent of etiology. The increased risk of harm to self and others with agitated psychiatric patients necessitates quick treatment in acute care settings. Appropriate and prompt prescribing leads to reduced harm to self and others, as well as improved outcomes for patients. Yet, there exists significant knowledge gaps in the prescribing for agitation in the acute care setting, especially for pediatric psychiatric emergencies. Most controlled trials of medications for acute agitation have been conducted with adults. This study aims to compare antipsychotic prescribing patterns for acute agitation in pediatric patients at a psychiatric hospital with evidence-based literature to improve prescribing practices. **Objectives:** Identify evidence-based recommendations for emergency treatment options in pediatric psychiatry patients to current prescribing trends at an acute psychiatric hospital. **Methods:** This retrospective study is approved by the ethics committee at the acute psychiatric hospital and the IRB at the University. Patients who received an antipsychotic as an emergency treatment option for acute agitation were included. All patients included were between ages 4- and 18-years-old between December 1, 2017 and November 31, 2018. Data collected contains gender, age, length of stay, prescribing physician, prescribed medication, dosage, route and frequency. Evidence-based recommendations for data comparison were obtained through a literature search of Medline/PubMed. **Outcomes:** We will report the number and percent of patients who received an emergency treatment option for agitation, including first-generation and second-generation antipsychotics employed, route of administration, diagnosis and need for additional treatment of agitation within 24 hours.

Perception of Awareness of Veteran's Affairs Wellness Resources by Pharmacy Residency Directors and Their Respective Residents

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Type: Work in Progress. **Background:** Depression is a mental health disorder that effects approximately 7% or 14.8 million Americans. This disorder is characterized by low mood and hopelessness, which is often accompanied by alterations in sleep, appetite, and concentration. Depression rates in medical students and residents has been studied at length and, when compared to the general population of the same age groups, their

depression rates have been documented at 30% vs 7%. Much less research has been done looking at current pharmacy residents. **Objectives:** Using two separate surveys, one sent to VHA Residency Program Directors and one to residents, can we determine how well wellness resources are being advertised by the program to their residents? From there identifying high overall wellness scores, finding with program they come from and determining what best practice is being utilized by that facility. **Methodology:** Two voluntary, 3-5 minute surveys will be sent in January 2020 via VA email, utilizing VHA listservs and will be open for responses for 30 days. The RPD survey will help determine what wellness resources are reported from directors to be available to the residents. It asks questions about orienting residents to the Employee Assistance Program, whether they plan social events for their residents, as well as if they feel comfortable talking with their residents about residency related stress. The resident survey will determine if the resident knows what resources are available to them. The RPD survey will be sent directly to the RPDs so their identities will be known; however resident surveys will only be identified by facility, not by individual resident. Using survey data, RPDs will be matched to residents from the same facility to determine if there is any disconnect between reported resources and resident awareness of those resources. Resident's whose surveys reflect an open relationship with their RPD and feel that their mental and physical well-being are being supported will have their program's additional resources looked at more closely to see if that program utilizes any different techniques that can be disseminated to other programs as ''best practices.'' **Outcomes:** Best practices to be determined after study closure.

Pharmacist Role in an Outpatient Suboxone® Clinic: Improving Adherence Rates and Access for Veterans at Carl Vinson VA Medical Center (CVVAMC)

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Type: Work in Progress. **Background:** Opioid use disorder (OUD) remains a major public health concern among the veteran population. Suboxone® (buprenorphine/naloxone) is a Food and Drug Administration (FDA) approved medication to treat OUD. At CVVAMC, it is estimated that less than 7% of veterans with a diagnosis of OUD are receiving Suboxone® with an adherence rate of only 73%. Currently, there is no formal outpatient Suboxone® clinic at CVVAMC. **Objectives:** The goal of this project is to improve veteran access and adherence rates to Suboxone® by effectively utilizing the clinical pharmacy specialist (CPS) in the creation of an outpatient Suboxone® clinic. **Method:** The following objectives will be met for this project: creation of an outpatient Suboxone® clinic, implementation of a consult referral process for veterans to the clinic, definition of the CPS role within the Suboxone® clinic and the improvement of veteran access and adherence to Suboxone®. Team members have been assigned to this clinic and include a CPS, X-waivered prescriber, registered nurse and social worker. A formal consult to refer veterans was devised and implemented by team members. The CPS has assumed roles within the Suboxone® clinic to include review of patient appropriateness to clinic, medication monitoring at induction and follow up for Suboxone®, medication education, naloxone kit distribution, interpretation of urine drug screens and completion of prescription drug monitoring program (PDMP) reviews. The study period began in November 2019 and will continue until March 2020. **Outcomes:** During the study period, the number of consults received, veterans successfully started and continued on Suboxone®, and veterans' refill rate of Suboxone® will be monitored by the CPS to prove clinic sustainability. The outcome measure will be to increase the number of eligible veterans who receive Suboxone® from 7% to 15% and to increase adherence rates to 85% during the intervention period.

Pharmacist-Driven Screening to Increase Utilization of Extended-Release Naltrexone for Alcohol Use Disorder in an Inpatient Psychiatric Hospital

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Type: Work in Progress. **Background:** Individuals with mental illness have a high incidence of comorbid substance use disorders, including alcohol use disorder (AUD). Excessive alcohol use is associated with medication nonadherence, poorer treatment outcomes, rehospitalization, and homelessness. Naltrexone is a medication-assisted treatment option for AUD that benefits patients by increasing the time to first heavy drinking day, reducing alcohol cravings, increasing rates of abstinence, and delaying time to relapse. This study will utilize a pharmacist-driven screening process to identify individuals in the inpatient psychiatric setting with AUD, who may benefit from administration of extended-release naltrex-

one (XR-NTX). **Objectives:** (1) Determine if a pharmacist-driven screening process will increase utilization of XR-NTX in patients with AUD and a co-occurring mental health condition. (2) Evaluate if use of XR-NTX will reduce hospital readmission rates. **Methods:** In this prospective study, data will be collected using the electronic medical record (EMR), EPIC, to identify patients who are candidates for XR-NTX for AUD. From September 1, 2019 to January 1, 2020, pharmacists will screen all patients admitted to the county inpatient psychiatric hospital in Riverside, California. Patients 18 years and older who have the diagnosis of AUD and a negative urine drug screen for opioids will be included in the study. Exclusion criteria includes opioid use within the past 7-10 days, opioid dependence, acute hepatitis, pregnancy, or severe renal impairment. The investigators of this study will utilize provider and nursing documentation, ICD-10 codes, and laboratory values to determine if patients meet the criteria to receive XR-NTX. Once a patient is identified as a candidate, the pharmacist will document their recommendation in the EMR. The pharmacist will review the patient's EMR prior to discharge to verify if XR-NTX was administered during their hospitalization. If XR-NTX was administered, pharmacists will review if readmission occurs 30-days post-discharge. Study outcomes will utilize data including demographics, primary psychiatric diagnosis, and adverse drug events associated with XR-NTX. **Outcomes:** The number of patients screened who are candidates for XR-NTX, number of administered XR-NTX doses, 30-day readmission rates, percentages of recommendations accepted by provider, and reasons for not administering XR-NTX will be reported.

Pharmacy Students Knowledge and Attitudes Regarding Cannabidiol Uses, Risks, and Adverse Events

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Type: Work in Progress. **Background:** Cannabidiol (CBD), in its various forms, is being used more frequently by patients for various medical conditions, and many are coming to the pharmacy to better understand its use. However, are pharmacy students being adequately prepared to counsel patients about CBD? There are only a few indications for CBD, and more often than not, what it is being used for by patients is incorrect or even contraindicated. Moreover, there are a plethora of drug interactions associated with its use. It is imperative that pharmacy students are aware of CBDs various indications, adverse drug reactions, and risks. This study seeks to assess knowledge and attitudes of pharmacy students towards CBD. **Objective:** To determine the current attitudes and understandings of cannabidiol (CBD) products within pharmacy school settings and how these particular views by students may impact clinical practice. **Methods:** The study design involves an anonymous survey sent out to current pharmacy students throughout the United States. A random sampling of pharmacy schools in the US will be selected from the full list of US pharmacy schools. An email invitation will be sent to the Dean of each school requesting they forward the survey to their students during the Spring semester of 2020. The survey will assess pharmacy student knowledge of FDA-approved uses of CBD oil, current attitudes towards its use, and current teaching on CBD in pharmacy schools. SPSS will be used for statistical analysis to help determine differences in answers between schools, regions in the US, years in the pharmacy program, and personal use. The study has been approved by the IRB for Belmont University and the University of Kansas. **Outcome:** We will report demographic variables, knowledge and attitudes of the respondents as well as current curricular activities regarding CBD.

Pharmacy Wellness Committee: Improving the Lives of Our Colleagues

Melissa M. Mitchell, PharmD, BCPS, BCPP, BCGP

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Type: Work in Progress. **Background:** Employee wellness and risk of burnout can have a large effect on productivity. Furthermore, employees with lower job satisfaction have higher risks of high blood pressure, back pain, and clinical depression, as well as higher levels of absenteeism. In addition, burnout can lead to more medication errors and in turn, harm to patients. The County of Riverside implemented a Culture of Health, identifying five wellness domains - social, physical, processional, financial, and community domains. In December of 2019, the department of pharmacy developed a wellness committee to help target these needs for the almost 200 pharmacy personnel. The committee aimed and providing resources and trainings for each of the domains, as well as a monthly newsletter. **Objectives:** To assess the effectiveness on the implementation of a pharmacy wellness committee, we will (1) Evaluate the department of pharmacy's level of health and wellness across 5 domains at baseline and again at 1-year post-implementation; (2) Evaluate the level of burnout within the pharmacy department; and (3) Evaluate the number of sick calls year over year. **Methods:** Within 90 days of creation of a pharmacy wellness committee, a survey will be sent electronically to all pharmacy personnel. Within 90 post-annual creation of the wellness committee, a follow-up survey will be sent to the pharmacy personnel. Survey results will be broken down into areas of wellness as well

as burnout scores. The scores will be averaged and compared to determine changes year over year. Additionally, total sick hours for the year prior to and the year following the implementation of the wellness committee will be collected. All results will be compared using two sample t-test. **Outcomes:** The changes in scores for each wellness domain, as well as overall burnout score will be report. Additionally, number of sick days will be reported.

Promoting Innovative Mental Illness Education and Awareness in a Private University Setting

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Type: Work in Progress. **Background:** Since the founding of our College of Psychiatric and Neurologic Pharmacists (CPNP) student chapter in 2009, our priority has been spreading awareness, providing information, and bringing mental illness to the forefront of pharmacy education on our campus. As the first and one of the largest CPNP student chapters in the country, we have always looked for innovative ways to promote psychiatric pharmacy. By bringing in speakers from different facets of psychiatric practice, we have focused on building a stigma-free community that is prepared with the resources necessary to recognize and treat mental illness, including substance use and neurologic disorders. The growth of our chapter over the past 10 years is reflected in both the increase in membership, as well as the quantity and quality of events provided each year. Studies have shown that pharmacy students often hold negative perceptions and stigmatizing views towards individuals with mental illness. Our goal as a CPNP student chapter is to help fight these perceptions and promote patient-centered care to those with mental illness. **Objectives:** (1) Promote CPNP's mission to "advance the reach and practice of psychiatric pharmacy" to pharmacy students. (2) Provide opportunities for research, education, and community outreach in the field of psychiatric and neurologic pharmacy. **Methods:** Our chapter had three major goals over the past years: student education, community outreach, and stigma fighting. Each month, students are offered the unique opportunity to learn from speakers on diverse topics such as the role of NAMI (National Alliance on Mental Illness); Alzheimer's Dementia; patient cases like Cotard's Syndrome; issues surrounding Substance Abuse, including the issue of student stimulant use; identifying and treating Adolescent Eating Disorders; and Epilepsy. Additionally, students were trained in administering Patient Health Questionnaire-9 (PHQ-9) Depression Screenings; recognizing the signs of opiate overdose and providing nasal naloxone; and certified in Mental Health First Aid. Through events like the Suicide Prevention Ice Cream Social, Psychiatric Movie Night, and various community mental health walks, our chapter has worked to fight stigma surrounding mental illness. Finally, we place a strong focus on community outreach, where we interact directly with our community members through health fairs and our annual Mental Health Awareness Festival.

Providing Clinical Pharmacy Services Within a Veteran's Affairs Mental Health Intensive Case Management Program

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Type: Work in Progress. **Background:** In 2017, it was estimated that 46.6 million U.S adults live with a mental illness; of those 1.7 million veterans were receiving treatment. Mental Health Intensive Case Management (MHICM) was established to help veterans with severe and ongoing mental illness improve and maintain their independence and reduce system costs through intensive clinical monitoring services. Many MHICM services do not include a clinical pharmacy specialist. **Objectives:** Clinical pharmacy services (CPS) will be systematically developed and provided to veterans enrolled in MHICM services. **Methods:** CPS integrated into the team by attending weekly meetings, providing in-services, and providing patient specific drug information. Clinical services were then expanded to patient referrals from MHCM team members with home visits and established clinic hours. Services consist of medication reviews, patient assessments, and identifying patient-specific medication concerns. **Outcomes:** Interventions, including encounter type (face-to-face, home, or telephone) were captured and recorded by the CPS using the Pharmacists Achieve Results with Medications Documentation (PHARMD) tool and a deidentified, secured Excel spreadsheet. The number, types, and descriptions of interventions performed by the CPS will be reported. Identifying and quantifying referrals and referral sources will be described.

Psychiatric Pharmacist Medication Management via Telehealth

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VA San Diego Healthcare System, San Diego, CA

Type: Work in Progress. **Background:** With the significant growth in telemental health (TMH), there is data demonstrating that TMH is an effective way to provide care compared to traditional face to face (FTF) visits. However, the current TMH literature consists largely of

interventions made by psychologists and psychiatrists. Clinical pharmacists may also offer significant contributions to mental health care via TMH to increase access to medication management services for patients. **Objective:** Evaluate if pharmacist provided outpatient medication management services for patients with psychiatric health conditions via telehealth encounters are any different than FTF care with measures of health service utilization. **Methods:** We are conducting a retrospective chart review to examine patients receiving mental health care in an outpatient psychiatric pharmacists' TMH clinic between January 1, 2018 and December 31, 2019. Data is being collected up to a maximum of 12 months of TMH care and compared to an equivalent amount of time prior to initiation of TMH services. Veterans who had not been followed in a FTF clinic prior to their initial TMH visit are excluded. Demographic and clinical information such as age, gender, mental health diagnoses is being collected to describe the sample. Health service utilization such as appointment adherence, medication adherence, and psychiatric hospitalizations is being collected to calculate any changes in the prior versus during TMH periods. Excel SPSS software will be used to analyze the complete data set. **Results:** To date, we have data from 48 veterans who have received TMH care from 3 psychiatric clinical pharmacist specialists at the VA San Diego Healthcare System. The mean age of the sample is 53 $\pm$ 13.9 years, majority are male (71%) and the most common psychiatric diagnoses consist of post-traumatic stress disorder, major depressive disorder, and bipolar disorder. Appointment adherence (number of cancellations, no shows, and retention rate), medication adherence (medication possession ratio) and hospitalizations (number of hospitalizations, days admitted, and psychiatric emergency department visits) in addition to demographics data are being analyzed and will be reported at the conference.

Stamping Out Stigma With Naloxone Training and Simulation

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Type: Work in Progress. **Background:** When administered correctly, naloxone rapidly reverses the effects of an opioid overdose and prevents subsequent death. Despite the life-saving properties of naloxone, lack of knowledge and training as well as the stigma associated with substance use disorders remain barriers to its use. Anyone may be at risk for overdose including patients with an opioid prescription or anyone in a home where opioids are present. With overdose deaths becoming increasingly more prevalent, naloxone education is an important step in addressing misconceptions, reducing stigma and maximizing access to naloxone. **Objectives:** (1) Evaluate impact of naloxone training on viewer confidence in their ability to identify signs of an overdose and administer naloxone. (2) Determine if use of an automated patient simulator increases effectiveness of the training. **Methods:** An innovative naloxone training and simulation was developed to educate individuals about the opioid epidemic, signs of opioid overdose and the important role of naloxone including how to acquire, store, and safely administer available dosage forms. Training took place at several sites throughout the surrounding city, including both inpatient and outpatient treatment centers and the School of Pharmacy. Treatment center clients, staff, and pharmacy students watched a brief presentation followed by either a clinical discussion or a demonstration utilizing an automated patient simulator to mimic the physiologic signs of an opioid overdose and subsequent reversal following simulated administration of naloxone. A brief ten-question survey was developed to assess knowledge regarding use of naloxone at baseline and after participating in the training. **Outcomes:** Survey outcomes will be reported including differences in percentage of "Strongly Agree", "Agree", "Neutral", "Disagree", and "Strongly Disagree" responses across all questions pre- and post-naloxone training in addition to identifying areas of greatest impact. Additionally, we will compare effectiveness of naloxone training with and without the automated patient simulator.

Systematic Review of Atypical Antipsychotics and Antidepressants in the Management of Agitation in Patients With Dementia

Jessica Greenwood, PharmD; Jose Rey, PharmD, BCPP

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Type: Work in Progress. **Background:** Approximately ninety percent of patients with dementia will experience a behavioral and psychological symptom (BPSD) during their lifetime. One of the most difficult BPSD to manage for family and caregivers is agitation. Often antipsychotics are prescribed to manage agitation but are associated with increased risk of death and serious adverse effects in this patient population. Certain antidepressants have demonstrated some benefit in managing agitation and in general have a safer profile compared to antipsychotics. The comparative effects between atypical antipsychotics and antidepressants is not fully known. **Objective:** To assess the relative benefits and safety of atypical antipsychotics in comparison to antidepressants in the treatment of agitation in patients with dementia shown in randomized clinical trials. **Methods:** Data sources will include searches from PubMed/MEDLINE, Embase, PsychINFO, and Cochrane Library from inception till January

15, 2020 using the key terms dementia, atypical antipsychotics and antidepressants. Randomized clinical trials comparing any atypical antipsychotic to an antidepressant in the management of agitation for patients with dementia will be included in the analysis. Effect sizes will be reported as standardized mean differences (SMDs) for continuous outcomes and odds ratios (ORs) for dichotomous outcomes with 95% CIs. **Outcomes:** The primary effectiveness outcome assessed will be the Neuropsychiatric Inventory (NPI). The primary safety outcomes will be death and cerebrovascular adverse events (CVAEs) with secondary safety outcomes including extrapyramidal signs/symptoms; tremors; hyponatremia; somnolence/sedation; falls, fracture, or injury.

The Effects of Opioid Use on Cognitive Processing Therapy for the Treatment of Post-Traumatic Stress Disorder Among Veterans

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Type: Work in Progress. **Background:** Post-traumatic stress disorder (PTSD) and chronic pain co-occur frequently and are common in veterans. Opioids are prescribed at high rates among these patients; however, their impact on PTSD outcomes has not been fully elucidated. Evidence suggests that in addition to its role in pain perception and analgesia, the endogenous opioid system may contribute to the development and symptomatology of PTSD. Aside from the traditional risks of tolerance and addiction, opioid use in PTSD may potentially interfere with the ability to engage fully or productively in trauma-focused psychotherapy, leading to reduced effectiveness of these first-line PTSD treatments. This pilot study will determine the effects of concomitant opioid use during Cognitive Processing Therapy (CPT). **Objectives:** To determine if concurrent opioid use negatively affects CPT treatment among veterans diagnosed with PTSD, as demonstrated by the change in PTSD Checklist (PCL-5) scores (primary outcome) and psychotherapy compliance. **Methods:** This retrospective cohort study includes veterans who received CPT for PTSD treatment at our institution from January 1, 2014 to December 31, 2018. Subjects will be excluded for concomitant benzodiazepine or partial opioid agonist prescriptions, unstable opioid doses, acute pain conditions, active substance abuse, and completion of <4 CPT sessions. The sample will be categorized by opioid exposure (Yes versus No). Demographic and clinical information including opioid prescriptions, concomitant use of core serotonergic agents, pre- and post-treatment PCL-5 scores, psychotherapy compliance, number of completed CPT sessions, number of psychiatric hospitalizations, and presence of opioid overdose and/or suicide during treatment will be collected via chart review. Appropriate parametric and non-parametric tests will be performed to identify significant differences between the opioid exposure groups. **Outcomes:** Change in PCL-5 scores and psychotherapy compliance will be reported. Additional outcomes will include psychiatric hospitalizations as a measure of health services utilization, and rates of opioid overdose and suicide for safety outcomes. Our findings may inform ongoing efforts to improve opioid prescribing and treatment outcomes among veterans with PTSD, a population that is particularly vulnerable to opioid misuse and dependence in the context of the current opioid epidemic.

The Impact of a Pharmacist-Run Substance Use Disorder Transitions of Care Clinic on Medication-Assisted Treatment Retention Rates Post-Discharge

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VA Tennessee Valley Healthcare System, Nashville, TN

Type: Work in Progress. **Background:** Medication-assisted treatment (MAT) is commonly utilized for the treatment of substance use disorders including opioid use disorder (OUD) and alcohol use disorder (AUD). Veterans Healthcare Administration (VHA) has made significant improvements in increasing prescribing of MAT, however, several barriers to treatment retention remain. In an effort to improve MAT retention, a pharmacist-run, substance use disorder (SUD) transitions of care telephone clinic was established at a Veterans Affairs (VA) facility. The telephone clinic provides follow-up for veterans discharged on MAT including buprenorphine/naloxone and extended-release (ER) naltrexone injections. Pharmacists in the clinic assess aspects of treatment retention such as prescription tolerability, perceived barriers to continuing treatment, status of current prescriptions, and appointment coordination. **Objectives:** The primary objective is to evaluate the impact of a pharmacist-run SUD transitions of care telephone clinic on MAT retention following inpatient initiation in patients with OUD or AUD. Secondary objectives will include subanalysis of clinic impact on MAT retention based on study medication or diagnoses, healthcare utilization, and characterization of pharmacist interventions. **Methods:** Patients for inclusion will be identified from inpatient units at a VA hospital. Patients will be included if they are >18 years of age, have a diagnosis of AUD and/or OUD, and initiated ER naltrexone or buprenorphine/naloxone during admission and continued at discharge between August 1, 2018 to December 31, 2019. Patients will be excluded if they declined clinic involvement, transferred facilities, moved beyond the VA catchment area, or were unable to be

reached for initial contact after 3 telephone attempts. **Outcomes:** Primary composite outcome will assess 1- and 3-month post-discharge MAT retention rates following inpatient initiation of both ER naltrexone or buprenorphine/naloxone during admission for patients enrolled in a pharmacist-run SUD transitions of care telephone clinic versus usual care. Secondarily, this study will compare individual 1- and 3-month post-discharge MAT retention rates for ER naltrexone, 1- and 3-month post-discharge MAT retention rates for buprenorphine/naloxone, 1- and 3-month emergency department visit rates, 1- and 3-month hospital re-admission rates, number of missed mental health appointments in the 3 months post-discharge, rate of entry into a buprenorphine clinic for buprenorphine/naloxone patients, and characterization of pharmacist interventions.

The Impact of Long-Acting Injectable (LAI) Antipsychotics on Aggression in a Long-Term State Forensic Psychiatric Facility

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Type: Work in Progress. **Background:** Aggression in schizophrenia is often associated with inadequately controlled symptoms, increasing the risk for violent behaviors. Atypical antipsychotics, such as clozapine, are an effective treatment option for schizophrenia patients with persistent aggression. However, non-adherence to oral antipsychotics due to adverse effects and noncompliance with clozapine's strict monitoring requirements often limit their efficacy and use. A potential alternative option to oral antipsychotics is long-acting injectable (LAI) antipsychotics. LAI antipsychotics provide a more stable serum drug concentration, resulting in better symptom control and a decrease in adverse effects. Additionally, patients may be more willing to trial a LAI antipsychotic to decrease pill burden and improve adherence. This project will provide important additional data on the impact of LAI antipsychotics on persistent aggression, offering psychiatrists an alternative medication option for this population. **Objectives:** Determine if switching from an oral antipsychotic to a LAI antipsychotic changes the: (1) Frequency of verbal and physical aggression; (2) Frequency of self-injurious behaviors; (3) Frequency of restraint use; (4) Frequency of as needed (PRN) antipsychotic use; and (5) Frequency of patient medication refusals. **Methods:** This project will be completed at a 449-bed long-term state forensic psychiatric facility. Patients treated with an oral antipsychotic for at least 6 months then switched and treated with an equivalent LAI antipsychotic for 6 months between February 1, 2013 and September 30, 2019 will be included. Patients will be excluded if they discontinued the LAI antipsychotic within 6 months of initiation or if they received two or more concomitant LAI antipsychotics. Data will be collected via retrospective chart review and reports will be generated to determine the frequency of verbal aggression, physical aggression, self-injurious behaviors, restraint use, PRN antipsychotic use, and medication refusals. Demographic variables (age, sex, race), psychiatric diagnoses, oral antipsychotic and LAI antipsychotic dose and frequency, antipsychotic serum concentrations, and concomitant psychotropic medication changes will also be analyzed. Descriptive statistics will be utilized. **Outcomes:** The frequency of aggression, self-injurious behavior, restraint use, PRN antipsychotic use, and medication refusals in the 6 months prior to and following the switch from an oral antipsychotic to a LAI antipsychotic will be reported.

The More the Merrier: Using Primary Care Clinical Pharmacy Specialists for Alcohol Use Disorder Pharmacotherapy Management

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Type: Work in Progress. **Background:** The 2018 National Survey on Drug Use and Health demonstrated only 17.5% of Americans with an alcohol use disorder (AUD) received treatment. Similarly, reports from October to December 2019 show only 16.2% of veterans with an AUD were receiving pharmacotherapy at our Veterans Affairs Hospital. Most of these veterans are established with primary care, where clinical pharmacy specialists (CPS) manage medications as part of an interdisciplinary care team. In 2019, AUD made up less than 0.2% of the disease states managed by our primary care CPS. **Objectives:** Given the prominence of AUD in this setting, the goal of this project is to expand the scope of the CPS to include managing pharmacotherapy for those patients who are appropriate to get treatment in primary care. **Methods:** Pharmacists initially attended a didactic presentation to learn more about first line pharmacotherapy options for AUD. Following initial education, the new services are being implemented in a phased approach. Phase 1 involves primary care CPS identifying veterans with heavy drinking behaviors by screening with a condensed version of the alcohol use disorders identification test (AUDIT-C). Eligible veterans will be referred to a mental health CPS for medication management via telephone follow up. Once competency is established in Phase 1, CPS may begin Phase 2 no later than February 17, 2020. During Phase 2, primary care CPS will initiate appropriate

pharmacotherapy and then connect them with the mental health CPS for follow up. Competency in Phase 2 will be established through at least 3 coached visits. Once this is completed, Phase 3 will involve full autonomy to initiate and manage these medications within primary care. **Outcomes:** We will track changes in AUDIT-C score while veterans are being managed in Phase 3 to show the impact on drinking behaviors. We will also recalculate percentage of veterans receiving pharmacotherapy for AUD and CPS encounters for managing AUD by March 31, 2020 for preliminary results, and again by May 15, 2020 to assess the success of this initiative.

The Use of Clozapine for Aggressive Behaviors in Involuntarily Committed Psychiatric Patients

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Type: Work in Progress. **Background:** Violent outbursts are more common in patients with schizophrenia compared to the general population. These behaviors may lead to involuntary commitment to psychiatric facilities. Clozapine is considered the antipsychotic of choice in the 30% of patients considered treatment resistant; moreover, there is growing evidence to support clozapine use for the treatment of aggressive behaviors secondary to schizophrenia. Currently, the literature examining clozapine's use in involuntarily committed patients is scarce, and often include small sample sizes due to challenges in regulations for clinical trials in this population. The results of this study will aid in growing this body of evidence by retrospectively reviewing data from patients enrolled in a prospective open-label six-month clozapine trial. **Objective:** Evaluate clozapine's effect on aggressive behaviors in patients involuntarily committed to state psychiatric facilities. **Methods:** Participants were recruited from two state psychiatric facilities in Baltimore, MD. Patients of African ancestry between 18- and 64-years-old were included if they were eligible/recommended for clozapine treatment and able to sign informed consent. The following data will be collected for each patient: demographic information; clozapine indication; number of 'as needed' medication dosages administered for aggression/agitation; number of seclusion and restraint episodes; time within seclusion and restraints; changes in hospital privileges; side effects; concomitant medications; and Brief Psychiatric Rating Scale total and hostility rankings. **Outcomes:** In total, 69 patients who were enrolled in the clinical trial and considered an involuntary committed patient were included in this retrospective data collection. The primary outcome of 'as needed' medication usage will be compared before clozapine initiation and after six months of clozapine treatment, such that each patient acts as their own control. The Wilcoxon Signed Ranks Test will be used to compare all ordinal or interval data within the matched pairs, except side effects and demographic data, which will be descriptively reported.

Timing of Gabapentinoid Initiation During the Stabilization Phase of Methadone Treatment and Impact on Adherence and Safety in an Opioid Substitution Program

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Type: Work in Progress. **Background:** Gabapentinoid (gabapentin and pregabalin) prescribing and misuse has been increasing, but non-fatal risks of gabapentinoid and opioid co-prescribing are not well-studied. Methadone is an opioid agonist used in opioid substitution programs (OSPs). Patients in an OSP must adhere to administration and monitoring schedules and can achieve increasing dosing independence through defined phase progression. OSP patients have high risks of relapse and overdose during the stabilization phase, typically the initial three months. It is unknown whether initiation of gabapentinoids during methadone stabilization affects adherence and progression in an OSP. This project will provide quality-improvement information regarding gabapentinoid use in an OSP within a Veterans Affairs (VA) Medical Center. **Objectives:** (1) Assess relationship between the timing of gabapentinoid prescribing and adherence within the OSP. (2) Evaluate documentation of gabapentinoid safety, tolerability, and dosing within the OSP. (3) Recommend specific monitoring or education to improve safety and adherence of OSP patients prescribed a gabapentinoid. **Methods:** A query generated a list of patients with orders for methadone solution between June 1, 2016 and October 31, 2018, and gabapentinoids dispensed within three months of that time frame. Patients from this list will be reviewed if they meet parameters for one of two cohorts: (1) having at least 3 months of stable dosing on a gabapentinoid upon OSP initiation or (2) initiated on a gabapentinoid between 30 days prior and 3 months after OSP initiation. Pre-specified outcomes data will be gathered via chart review, up to one year after OSP initiation. Adherence-related outcomes will include: percent adherence to OSP-related appointments, highest phase achieved, and percent of urine drug screens negative for unauthorized substances. Gabapentinoid use and monitoring outcomes will include:

documentation of gabapentinoid indication, efficacy, renal monitoring, overdose deaths, and early refills. Specific recommendations will be drafted based on these outcomes. The two cohorts will be compared using descriptive statistics, with subgroup analyses stratified by gabapentinoid characteristics (pregabalin versus gabapentin, low dose versus high dose). **Outcomes:** We will report outcomes for patients in each cohort, evaluate potential differences between cohorts and overall deficits in gabapentinoid monitoring, and draft strategies to improve safety and adherence of OSP patients.

Trends of Anxiety in Professional Pharmacy Students

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Type: Work in Progress. **Background:** Anxiety is a predominant feeling reported by professional pharmacy students across the country. It interferes with student performance both in school and outside of the classroom and can have a significant impact on student wellbeing. Understanding the main sources of anxiety in this population can help both students and schools of pharmacy create better ways to manage anxiety. This pilot study will provide important new data regarding the specific perceived sources of anxiety in this student population as well as insight into what can be done to mitigate levels of anxiety. **Objectives:** (1) Understand the relationship between anxiety in this student population and their environments. (2) Identify specific perceived sources of anxiety in this population. (3) Provide insight to initiate new methods to mitigate anxiety in this population. **Methods:** All Professional level (P1-P4) pharmacy students at our institution will be eligible and approached for study participation, with a target enrollment of $\geq$600. A novel survey will be used to collect demographic and lifestyle variables. The Generalized Anxiety Disorder 7-item scale (GAD-7) will be used to assess participants' anxiety severity. For objective (1) descriptive statistics will be used to report anxiety severity related to demographic and lifestyle variables. For objective (2) n and % of subjects reported to identify specific variables as top contributors to their anxiety will be analyzed. For objective (3) lifestyle and demographic variables identified as being most commonly associated with higher levels of anxiety for the total population will be used to propose potential mitigation strategies. **Outcomes:** We will report the number and percent of students that report having minimal, mild, moderate, and severe anxiety per class year, as well as the variables most commonly associated with causing anxiety.

Un-MAT Needs: Effectiveness of Interprofessional Education on Initiation of Medication Assisted Treatment for Veterans Admitted With Alcohol Use Disorder

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Type: Work in Progress. **Background:** Medication assisted treatment (MAT) has been shown to significantly reduce alcohol relapses, frequency and quantity of alcohol consumption, alcohol cravings, and healthcare utilization; however it remains underutilized in the treatment of alcohol use disorder (AUD). Previously identified barriers to prescribing include philosophy against prescribing, lack of access to willing prescribers, lack of interest from leadership, and perceived lack of patient interest or need; however the most effective method to improve prescribing rates has not been identified. This project will assess the impact of two interprofessional educational interventions on the percentage of veteran patients receiving MAT at discharge following admission for alcohol related disorders. **Objectives:** To identify the impact of two interprofessional educational outreach interventions on MAT prescribing for veterans with AUD discharged from the medicine service for alcohol-related diagnoses. **Methods:** This project will be a single-center, retrospective chart review in veteran patients admitted and discharged from a Veterans Affairs Medical Center for alcohol related disorders prior to and following two phases of interprofessional education interventions regarding MAT prescribing for AUD. Session one will consist of an in-service style educational session for internists and pharmacists. Session two will consist of an academic detailing style educational intervention for pharmacists and social workers as well as increased educational outreach to internists. All veterans admitted to the medicine service for alcohol-related diagnoses during the collection time will be included in the project. Veterans will be excluded if they have a negative Alcohol Use Disorders Identification Test (AUDIT-C) score on admission or if discharged to hospice care. Demographic variables, MAT prescribing trends, re-admission data, engagement with substance abuse treatment, co-occurring mental health disorders and contraindications to MAT will be collected. **Outcomes:** The number and percent of patients with MAT prescribed at discharge will be reported and prescribing trends will be analyzed as a function of scheduled and completed engagement with substance abuse treatment, 30-day all-cause re-admis-

sion rates, MAT contraindications, and co-occurring mental health disorders. Pre-intervention prescribing data will be compared to post-session one and post-session two prescribing data.

Utilizing Patient Empowerment to Decrease Benzodiazepine Use Among Older Adults Within a Veterans Affairs Healthcare System

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Type: Work in Progress. **Background:** Benzodiazepines have many indications for use, however benzodiazepines are only generally recommended for short-term use. Benzodiazepines have several risks associated with use including cognitive impairment, increased risk of falls, risk of oversedation and risk of accidental overdose. These risks are all increased in older patients. Due to these risks, this institution is aiming to decrease benzodiazepine use in patients aged 65 years and older. **Objectives:** (1) Evaluate the impact of a patient-empowering educational brochure on the success rate of decreasing the dose or discontinuing a benzodiazepine in patients aged 65 years and older. (2) Determine if patient-empowering educational brochures led to a documented risk versus benefit discussion between patient and provider about benzodiazepine use. **Methods:** This is a prospective, single-site evaluation which will assess the effectiveness of providing patients with educational brochures describing the risks of benzodiazepine use in elderly patients and instructions to discuss the information with their prescriber at the next visit. All patients aged 65 years and older prescribed a benzodiazepine from a mental healthcare provider within this institution will be considered for inclusion. Exclusion criteria includes hospice patients and patients who received a supply of a benzodiazepine for less than six days. Once identified, patients selected for inclusion will be mailed a standardized educational brochure. Data will be collected from the Computerized Patient Record System (CPRS) and Psychotropic Drug Safety Initiative (PDSI) Dashboard before patients receive the educational brochures, and six months after receiving the educational brochures to assess for changes in benzodiazepine prescribing. **Outcomes:** The number and percentage of patients who either discontinued prescribed benzodiazepine(s) or had a decrease in benzodiazepine dose during the 6-month period will be reported. The number of patients who had a documented discussion with the provider regarding the risks and benefits of continued benzodiazepine use since the receipt of the patient brochures will also be evaluated and reported.

Utilizing the Clinical Global Impressions (CGI) Clinician Rating Scale to Measure Patient Care Outcomes: Expanded Retrospective Review of Comprehensive Medication Management (CMM) Services Over Four Years

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Type: Work in Progress. **Background:** Comparable and replicable metrics are needed to demonstrate optimal pharmacotherapy outcomes that are applicable to any Comprehensive Medication Management (CMM) service setting. Secondly, "Practice Management" the third core component of pharmaceutical care, recommends an ongoing maintenance review process. Most importantly, pharmacotherapy outcome results can be used to highlight improvement, value, and success of CMM practices. Utilizing validated metrics is an effective approach to demonstrate the effectiveness of the pharmacist's "Patient Care Process". **Objectives:** (1) Demonstrate how the CGI rating scores can provide a measure of clinical outcome status. (2) Describe the advantages and limitations of the CGI rating scale for determining the impact of providing CMM services. (3) Evaluate and compare baseline and follow-up results of clinical rating scales and CMM practice management metrics. **Methods:** A retrospective review of 72 new patients provided CMM services in a community mental health setting over a 4-year period. All de-identified subjects have at least 2 CMM visits. Mixed models analysis will be used to evaluate baseline to end-point change scores of clinical ratings including the Symptom (CGI-S) and Improvement (CGI-I) rating scores, the Patient Health Questionnaire-9 (PHQ-9) scores, Generalized Anxiety Disorder-7 (GAD-7) scores, and CMM practice management metrics including number of identified and resolved medication therapy problems. An external review of the study results by a pharmacist and psychiatrist will validate results and minimize performance bias. **Originality of Project:** This project expands on previous evidence of improved patient care outcomes observed in 30 patients receiving Comprehensive Medication Management (CMM) services over a two-year period. Based on pilot data, the combined assessment of the CGI clinician-rating scale and PHQ-9 patient-rating scale with CMM practice management metrics appears to effectively assess the pharmacist's patient care process and successful delivery of CMM services. **Significance of Project:** The Clinical Global Impression scale (CGI) is a validated and easy to implement outcome measure that may be combined with

other specific condition-targeted outcome measures. Regularly assessing the overall level of severity of patient's symptoms and improvement can help the CMM provider self-assess the impact of their pharmaceutical care practice.

Utilizing Workflow Intervention Techniques to Increase Antidepressant Adherence and Engagement in Patients Within a Primacy Care Mental Health Setting

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Type: Work in Progress. **Background:** Antidepressants are one of the three most commonly prescribed therapeutic classes of medications in the United States. The Department of Veterans Affairs developed measures to monitor patients with new or recent antidepressant medication starts via MDD43h (percentage of patients with acute phase compliance, 84 of 114 days of continuous treatment) and MDD47h (percentage of patients with continuation phase compliance, 180 or 231 days of continuous treatment) metrics. Providing timely follow-up to assess medication adherence and tolerance after an antidepressant is initiated is critical to a patient's overall mental health care. Mental health specialty services are available to veterans through various teams, including Primary Care Mental Health Integration (PC-MHI) embedded within the primary care setting. PC-MHI serves as one avenue for medication management by a Clinical Pharmacy Specialist (CPS) following the initiation or adjustments to antidepressant medications made by a Primary Care Provider (PCP). **Objective:** (1) Increase the utilization of the MDD43h and MDD47h reports within the primary care setting to identify and engage patients in medication management services provided by PC-MHI medication provider. (2) Improve quarterly MDD43h and MDD47h metrics. **Methods:** A chart review performed by Pharmacy Resident, beginning FY19Q4, of patients within VATVCBHCS who were determined to be non-adherent on their antidepressants via the MDD43h and MDD47h reports. Chart review will exclude as needed medications, assessment of Traveling Veteran profiles and patients who have changed healthcare systems. Telephone encounter and intervention to be completed by Pharmacy Resident. If not reached following 3 attempts, a letter will be mailed. For objective (1): number of interventions made and number of patients who engage in PC-MHI services will be reported, and descriptive statistics will be used to report reasons for non-compliance. For objective (2): the pre-intervention MDD43h and MDD47h metrics will be compared to post-intervention. **Outcomes:** We will report the number of interventions made, the number of new patients/encounters from report in PC-MHI CPS clinics, reasons for non-compliance, change in MDD43h and MD47h rates before and after patient-care intervention; and occurrence of previously intervened patients form the MDD43h list on the MDD47h report.

Validation of an Algorithm for the Assessment, Management, and Monitoring of Drug-induced QTc Prolongation in the Psychiatric Population

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Type: Work in Progress. **Background:** QTc interval prolongation leads to serious complications, making it a concern for all clinicians. Assessing the risk of QTc interval prolongation, especially in the psychiatric population, can present a challenge for pharmacists. This challenge is partly due to the complexity of regimens in this population and the difficulty faced by pharmacists in retrieving the needed information for the risk assessment. Guidelines and protocols for QTc prolongation risk assessment may vary among clinicians. An algorithm was developed based on an extensive literature review of the latest available guidelines for the assessment, monitoring and management of drug-induced QTc prolongation in the psychiatric population. This project will focus on establishing data-driven content validity to the algorithm developed. **Objective:** To determine the content validity of the algorithm from a panel of subject matter experts including cardiologists and mental health pharmacists. **Methodology:** This project will consist of two phases. The initial phase will include qualitative semi-structured interviews to gather information regarding the cardiologist's approach in assessing risk of QTc prolongation. This will be followed by an orientation to the algorithm and a self-administered, anonymous survey which includes quantitative and qualitative components. Purposive sampling will be used to enroll cardiologists employed at various health centers in Qatar. Data gathered will be used to evaluate their perspective on the clinical content provided in the algorithm and its use by other health care professionals. The next phase will involve the enrollment of mental health pharmacists. Participants will be sampled from the Hamad Medical Corporation in Qatar and the membership list of the College of Psychiatric and Neurologic Pharmacists. During this phase, a cross-sectional, anonymous, self-administered online survey will be utilized to assess the content

validity from a pharmacist perspective. **Outcomes:** We will determine the content validity ratings for the steps and decision processes in the algorithm. Themes from the interviews will provide an understanding of the cardiologists' method of assessing risk of QTc prolongation prior to reviewing the algorithm. Themes from the online survey will provide an understanding on the strengths, weaknesses and safety concerns of the algorithm. This project is currently in the initial phase.

Women's Health Management in Patients With Serious Mental Illness

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Type: Work in Progress. **Background:** Women with serious mental illnesses (SMI) have been shown to receive suboptimal healthcare regarding general women's health wellness, sexual health, and perinatal care. Certain medications pose risk to the fetus, and women with SMI have been shown to have poorer outcomes surrounding pregnancy. This highlights a point in care that could be addressed within a mental illness clinic. Currently, limited literature exists evaluating whether or not women with SMI are provided with adequate general wellness and women's health resources within a mental health clinic. It would be beneficial to evaluate whether there is a gap in women's health within these clinics that could be addressed. **Objectives:** The objectives of this study are to (1) Determine the current women's health management occurring for those of childbearing age with SMI within Prevention and Recovery Center for Early Psychosis (PARC); (2) Ascertain whether the approach to parenthood planning, sexual health, and continuation of care are areas for improvement within this clinic; and (3) Evaluate whether women's health management has a place within the workflow of this center. **Methods:** Female subjects will be identified via a retrospective chart review from January 1, 2019 to January 1, 2020. The following will be collected: age; diagnosis; pregnancies; sexual activity; current medications and interactions with pregnancy and breastfeeding; medication adjustments; pregnancy and contraception education; pregnancy tests ordered; STI lab orders, results, and treatments; vaccinations recommended; HPV vaccinations; date of last appointment; and referrals to made to an OBGYN. The number of pregnancies during the first trimester resulting in medication changes, number of STIs screening orders, and the number and type of vaccinations recommended and administered by PARC clinic will be recorded. **Outcomes:** This study will provide clinicians with information about the current management of women's health occurring for women with SMI within the PARC clinic. We hope that our study could lead to a process improvement regarding management of women's health within the clinic.

Innovative Practices Abstracts

Addition and Impact of a Clinical Pharmacist to a Community Hospital Psychiatric Consult Liaison Team

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Type: Innovative Practices. **Background:** Clinical pharmacists are increasingly imbedded in practice models, although the addition of a clinical faculty member to psychiatric consult liaison teams is relatively unique. Ongoing treatment barriers for optimized mental health care include provider shortage, lack of patient access to care, and complex medication regimens. The objective of this data analysis was to assess the impact of the addition of a clinical psychiatric pharmacist to a community hospital inpatient psychiatric consult liaison team. **Description of Innovative Service:** Consult liaison psychiatry deals with medically ill patients in general hospital settings and involves timely recognition and treatment of mental health conditions while coordinating with other medical providers. Each patient consulted to the psychiatry team was reviewed by the clinical pharmacist. Patients were triaged and split between members of the consult team (psychiatrist, nurse practitioner, and clinical pharmacist). The clinical pharmacist met with patients obtaining a full patient history including current symptomatology and past psychiatric history. A medication reconciliation was completed if indicated. The encounter was documented in a long Subjective, Objective, Assessment, Plan (SOAP) note form including pharmacologic recommendations. **Impact on Patient Care:** Interventions, or recommendations, made by the clinical pharmacist were tracked from August 1, 2017 to April 30, 2018. During that time frame, 1295 patients were consulted and interventions were documented in real time and reviewed retrospectively. Overall, 597 problems were identified. The largest proportion of identified problems related to admission medication reconciliations, equating to roughly 30%. Optimization of safe medication use had the second largest number of identified problems at approximately 27% (such as diphenhydramine ordered for sleep in patients with delirium and over-sedation with benzodiazepines). Information also reviewed included time spent, reason for consultation, and number of accepted recom-

mendations based on medication class/type of intervention. Overall, recommendations were accepted by providers over 80% of the time. **Conclusion:** A third of the clinical pharmacist's time was spent completing medication reconciliation and order clarifications. It is the hope that this descriptive data detailing the work distribution of a clinical pharmacist on a psychiatric consult liaison team will lead to continued analysis of ways to fill gaps in patient care.

CPNP Collegiate Chapter: Student Pharmacists Bridging the Gap With Community Partnerships

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Type: Innovative Practices. **Background:** The CPNP collegiate chapter is a student organization that strives to advance mental health awareness and education, reduce stigma, and volunteer in the local community. The CPNP collegiate chapter is strengthened by collaboration with partner organizations, including national/local mental health advocacy organizations and recovery housing centers. The national/local organization advocates for effective treatment and education for families affected by mental illness in the surrounding community. The recovery housing center provides a continuum of care and environment conducive to recovery following treatment for substance use disorders. These non-profit partnerships rely heavily upon volunteers, donations, and advocates to provide services and support. **Description of Innovative Service:** The CPNP collegiate chapter students respond to community events by offering ideas and volunteering their time. Students have played an integral role in organizing unique fundraising events for advocacy organization and in coordinating a number of community outreach events, such as the "Ask a Pharmacist Day" during Mental Health Awareness Week and leading support group events. The CPNP collegiate chapter obtained grant funding and has worked closely with the recovery housing center to provide much-needed items including first aid kits, medication organizers, and HIV/STD testing. This service will be expanded to include education materials and discussion groups for residents in the recovery housing. **Impact on Patient Care:** The ability for student pharmacists to collaborate with community partnerships can strengthen the events provided to the mental health community. Together, patients in the mental health community are better supported and have student pharmacists advocating for their care. Fundraising efforts will allow national/local advocacy organization to continue to expand their outreach in the local community. Objectives for the recovery housing center grant will provide residents healthcare resources that are essential for appropriate care and recovery. **Conclusion:** The CPNP collegiate chapter continues to grow as a student organization and in its partnerships. Connections with national/local advocacy groups and recovery housing centers will continue to strengthen, supporting a continued positive impact on the mental health community. As accessible healthcare professionals, student pharmacists have a valuable opportunity to provide unique services that can bridge gaps faced by community partnerships.

Deploying Student Pharmacists for Harm Reduction for Opioids Through Community Pharmacist Engagement

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Type: Innovative Practices. **Background:** The United States faces an opioid epidemic with far reaching repercussions. Pharmacists, the most accessible healthcare providers, are uniquely poised to assist by identifying patients at risk for overdose and providing naloxone. Pharmacists can also manage patients with opioid use disorder (OUD) by addressing stigma, providing evidence-based medicine, and implementing harm reduction strategies. However, a need for further education has perpetuated barriers to optimal care in the community pharmacy. **Description of Innovative Service:** Academic detailing, an in-person, individualized educational technique, is an effective intervention to enhance treatment outcomes. Project HOPE (HarmReduction for Opioids through Pharmacist Engagement), funded by the State of Maryland, was developed to improve education and access to care through academic detailing to community pharmacies. Initially, pharmacy executives attended a roundtable discussion about current procedures and barriers, which served to inform the project. To prepare students to provide academic detailing, 6 online training modules, a 3-hour in-person workshop, and educational materials for pharmacies and patients were developed. The training modules focused on naloxone, medications to treat OUD, legal issues surrounding standing order and Good Samaritan laws, and harm reduction strategies. The workshop reviewed naloxone administration, scenarios for approaching pharmacy staff and patients, techniques for managing difficult conversations, and strategies to overcome potential barriers. Educational materials included posters, prescription bag stuffers, patient brochures, buprenorphine/naltrexone fact sheets, and mouse/counter pads. To receive academic credit, student pharmacists were required to complete all training, visit and provide materials to 10 pharmacies, and document post-visit

surveys. **Impact on Patient Care:** Fifteen students attended training, earning an average score of 99.0% on post-training didactic quiz. Twelve students completed a post-training satisfaction survey. All students rated training as very good/excellent. Of the 10 students who responded to the question regarding training preparation, all agreed that they were somewhat or strongly prepared to provide academic detailing after completing training. During 2019, 10 students and 2 pharmacists detailed 136 Maryland pharmacies. Student pharmacists completed 50% of the visits. **Conclusion:** Student pharmacists can be effectively trained to provide academic detailing and improve gaps in educational needs of community pharmacies managing patients with OUD.

Description of a Novel Advanced Pharmacy Practice Experience in Addiction Medicine

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Type: Innovative Practices. **Background/Rationale:** The United States faces a substantial burden of societal harms related to substance use disorder (SUD). Pharmacists are uniquely positioned to address this problem in collaboration with other healthcare providers, but must be adequately trained to do so effectively. The 2019 American Association of Colleges of Pharmacy's environmental scan of opioid-related activities demonstrated recent growth in educational opportunities related to SUD, however, a concerning shortage of advanced pharmacy practice experiences (APPEs) in this domain was identified. Addressing this lack of opportunity should be a high priority for academic pharmacy. **Description of Innovative Service:** Beginning July 1, 2019, a college of pharmacy began offering a new elective APPE in addiction medicine. APPE preceptors included (1) a clinical pharmacist with expertise in addiction medicine practice and research; and (2) a physician with board certification in general psychiatry, addiction psychiatry, and addiction medicine. Two P4 student pharmacists completed 250 hours of training with a combination of responsibilities in direct patient care and clinical research. Practice sites included (1) an outpatient medical home for patients with SUD; (2) an addiction treatment center offering services ranging from medically-supervised withdrawal to intensive outpatient programming; and (3) a county-funded opioid treatment program specializing in treatment with methadone. Research projects included (1) a clinical case series describing experiences with lofexidine for opioid withdrawal; (2) a patient survey of accidental and intentional exposure to illicitly-manufactured fentanyls; and (3) a patient satisfaction survey of the long-acting injectable formulation of buprenorphine. **Impact on Patient Care/Institution:** Throughout the APPE, the P4 students engaged with an estimated 106 patients clinically and 76 patients during medication education groups. None of the APPE practice sites had ever previously employed or otherwise engaged a pharmacist in the provision of direct patient care. The physician preceptor and other clinical team members reported positive experiences working with the student pharmacists and have agreed to host additional P4 student pharmacists and a post-PharmD fellow in future years. **Conclusion:** A novel APPE in addiction medicine addressed a current gap in pharmacy education while earning positive evaluations from student pharmacists and commitments to expanded participation from practice sites.

Description of Psychiatric Pharmacist-Led Psychotropic Medication Deprescribing in Older Adults

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Type: Innovative Practices. **Background:** Deprescribing is the planned and supervised process of dose reduction or discontinuation of medication that might be causing harm or is no longer beneficial. There is a need for proactive deprescribing initiatives to reduce the unnecessary burden associated with potentially inappropriate medications for older adults. There is limited information on pharmacist-led deprescribing efforts, especially for antidepressants. Psychiatric pharmacists are well-poised to lead psychotropic deprescribing efforts. **Description of Innovative Service:** This population health quality improvement initiative occurred within an integrated healthcare delivery system that employs 2 full-time psychiatric pharmacists in outpatient behavioral health (BH) clinics. A list of patients 65 years and older prescribed benztropine ($n = 9$), nortriptyline ($n = 26$), and/or paroxetine ($n = 28$) by a BH provider from February 1, 2019 to May 26, 2019 was obtained using a data analytics system called Permanente Online Interactive Network of Tools. Either a psychiatric pharmacist or trainee (clinical intern and/or PGY-2 ambulatory care resident) reviewed the electronic medical record (EMR) of each patient to evaluate candidacy for deprescribing. Twelve patients were ineligible as they were deceased, a nonmember, or already had medication discontinued. Pharmacists' recommendations were documented in a templated note within the EMR and sent to the BH provider for review. If the BH provider agreed with the recommendation, they would coordinate patient outreach and implementation of recommendations. **Impact on Patient Care:** BH provider acceptance of

psychiatric pharmacists' deprescribing recommendations ranged from 86-100%. Psychiatric pharmacists guided overall deprescribing in 39.2% (n = 20) of patients whereas recommendations to continue the medication were made for 37.2% (n = 19) of patients. Reasons for not deprescribing include patient refusal (n = 6, 11.8%), provider refusal (n = 3, 5.9%), and lost to follow-up (n = 3, 5.9%). Percent deprescribed varied by drug: benztropine (71%, n = 5), paroxetine (42%, n = 10), nortriptyline (25%, n = 5). No adverse outcomes related to these recommendations have yet been noted. On average, pharmacists spent 22.5 min to complete or supervise chart review/documentation. Of all reviews, 88.2% were completed by a trainee. **Conclusion:** Psychiatric pharmacist-led deprescribing recommendations of benztropine, nortriptyline, and paroxetine in older adults receiving care in an integrated specialty behavioral health clinic are productive and feasible, especially if partnering with trainees.

DNA, Easy as 1-2-3: Design and Implementation of a Pharmacogenomics Consult Service in High-Risk Patients

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Type: Innovative Practices. **Background/Rationale:** Adverse drug reactions and treatment failures are associated with higher rates of emergency visits and hospital admissions contributing to greater healthcare costs. A pharmacogenomics consult service was developed for academic medical center psychiatry and neurology clinics for patients with treatment resistant disorders and/or multiple failed medication trials. Pharmacists meet with patients to discuss medication history, risks and benefits, and goals before sample collection. At a subsequent visit, pharmacists review results with patients, and collaborate with patients and physicians to make individualized recommendations. **Description of Innovative Service:** Based on this pilot study, a pharmacogenomics consult service will be implemented into clinics serving high-risk, high-utilizing Medi-Cal beneficiaries (eg, homeless, discharged from jail or psychiatric facilities). Pharmacogenomic testing will be incorporated into care at outpatient clinics to improve treatment of physical/psychiatric conditions (anticipated start date of April 1, 2020). Testing criteria and consult workflow will be adopted from the pilot study. Providers will refer patients to pharmacists for pharmacogenomic testing consult. Patients will meet with pharmacists for 45 minutes on two separate occasions. Results will be discussed with patients, answers to questions provided, and patients will take home a summary report. Necessary medication recommendations per patients' pharmacogenomics data will be discussed with referring providers directly. Recommendations may include individualized titration schedules, dosage adjustments, and/or medication changes to improve efficacy/tolerability. **Impact on Patient Care:** In the ongoing pilot study, 24 patients have received this service. Services were rated 10, indicating patients were "very satisfied," and reasons being pharmacogenomic results provided them an explanation as to why past medications may have failed or are currently suboptimal. Pharmacogenomics-guided treatment could help improve clinical outcomes by reducing avoidable adverse reactions and/or suboptimal treatment and reducing time to disease control, which may ultimately decrease costs across multiple health systems. Individualizing patient education can help improve understanding, self-management of health, and participation in healthcare decisions. **Conclusion:** Pharmacogenomics will likely have a significant impact on the future of medical/pharmaceutical practices; however, barriers such as limited provider pharmacogenomics knowledge or lack of effective patient education resources limit its utilization. This service addresses these barriers for a high-risk patient population.

Educating Student-Athletes on Medications Used for the Treatment of Depression and Anxiety as a Component of an APPE Integrating Pharmacy Practice and Pharmaceutical Science Faculty

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Type: Innovative Practices. **Background:** Addressing mental health among student-athletes is increasingly important. The National Collegiate Athletic Association (NCAA) states that "mental health is a part of, not apart from, athlete health". Student-athletes are not exempt from mental health issues. They mirror the general student body population in the prescription medications taken for depression and anxiety. Student-athletes face challenges in knowing whether these medication might affect their play and/or conflict with rules of the NCAA (ie, Is the medication banned/classified as a performance enhancing drug). In addition, the importance of integrating pharmaceutical science content with clinical content is increasingly emphasized in pharmacy school curricula. While integration of science and clinical content is perhaps more common in the didactic portion of pharmacy school curricula, it is not as evident at the advanced pharmacy practice experience (APPE) level. **Description of Innovative Service:** As a component of an APPE, and under the mentoring of both a pharmacy practice faculty member

with a background in psychiatric pharmacy and a pharmaceutical sciences faculty member with a background in medicinal chemistry, a fourth-year (P4) student-pharmacist attended a Mental Health First Aid course and subsequently prepared a brochure on the typical medications used to treat depression and anxiety. The student-pharmacist then presented the brochure to a cohort of first-year NCAA Division II student-athletes at Palm Beach Atlantic University and discussed depression and anxiety medications from both a clinical and chemical perspective. **Impact on Patient Care:** Student-athletes were subsequently surveyed regarding their perceptions of their own mental well-being and the perceived value of having a pharmacist or student-pharmacist intern available for student-athletes seeking information on supplements or medications. A majority (75%, n = 30) of student-athletes polled agreed or strongly agreed that a dedicated pharmacy intern would be of benefit to student-athletes seeking information on supplements and medications. **Conclusions:** The student-pharmacist was able to integrate knowledge of pharmacy practice and pharmaceutical sciences for the benefit of the patient-athlete during a P4 APPE rotation. Integrating the pharmacy student into student-athlete education improved first-year patient-athlete awareness of medications used to treat depression and anxiety and served to further integrate pharmacy into the university's athletic program.

Evaluating Outcomes of a Pharmacist Medication Management Program for Outpatient Treatment of Opioid Dependence

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Type: Innovative Practices. **Background:** This study demonstrates a novel multidisciplinary care model incorporating clinical pharmacy intervention for medication-assisted treatment (MAT) of opioid use disorder (OUD). This study will describe and quantify the impact of this practice model on patient outcomes. Investigators aim to expand the scope of ambulatory care pharmacy practice by demonstrating pharmacist services in a clinic providing MAT for OUD. **Innovative Practice Description:** The multidisciplinary practice model included pharmacists, physicians, and physician assistants in an outpatient psychiatry clinic. Following physician consult, patients with OUD had periodic visits with physicians/physician assistants and frequent follow-up visits with a pharmacist with physician oversight between visits with other providers. Pharmacists identified medication issues, monitored treatment, made recommendations and coordinated care while working in conjunction with other providers to optimize patient care. **Methods:** A multi-center retrospective study was conducted to compare outcomes in this multidisciplinary practice model (multidisciplinary clinic) with a typical physician practice (physician clinic). Patient charts from each clinic were reviewed for up to 1 year after starting treatment. Additionally, a prospective, observational study was conducted to describe pharmacist interventions at the multidisciplinary clinic. Patients receiving treatment in the multidisciplinary clinic were enrolled and followed for up to 1 year after starting treatment. **Impact on Patient Care:** In the retrospective study, treatment retention did not differ between clinics ($P > .05$) but multidisciplinary clinic patients experienced fewer opiate relapse months ($P < .05$). Similar rates of engagement with counseling ($P = 1$) and follow-up visits with a positive toxicology for any illicit substance ($P > .05$) were observed. More diversion/noncompliance was identified at the physician clinic ($P < .01$). In the prospective study, pharmacist recommendations included: buprenorphine dose/schedule/formulation changes, other medication dose/formulation changes, and the addition of new medications for un/undertreated conditions. Pharmacists also provided care coordination, medication counseling, non-pharmacologic/lifestyle recommendations, and counseling regarding future/alternative treatment options. **Conclusion:** This study describes and demonstrates the ability of a multidisciplinary clinic utilizing pharmacist medication management to provide quality care to patients with OUD in an outpatient setting. Results of this study have implications for outpatient OUD treatment to expand addiction services in this underserved patient population.

Expanding the Role of Pharmacists in Mental Health and Addiction Treatment Through a Post Graduate Year One Behavioral Health Pharmacy Residency Program

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Type: Innovative Practices. **Objective:** Describe the added value that can be brought to various practice sites utilizing a Post Graduate Year One (PGY1) Behavioral Health Pharmacy Resident. **Practice Description:** A Pharmacy resident is incorporated into patient-focused behavioral health initiatives at a Managed Care Organization for behavioral health services for Medicaid beneficiaries, a local independent community pharmacy, and a local college of pharmacy in Philadelphia. **Practice Innovation:** Incorporating a behavioral health-focused pharmacy resident into managed care, community pharmacy, and

academia settings with the goal of expanding the scope of today's pharmacist to improve the health of individuals as well as a population's health. **Interventions:** In an effort to expand the roles pharmacists play in providing behavioral health services, this PGY1 Behavioral Health Pharmacy Residency Program was collaboratively developed. One of the major themes of the residency entails creating and expanding sustainable behavioral health programs in a community pharmacy setting. Through the implementation of Screening, Brief Intervention, Referral to Treatment (SBIRT) in a community pharmacy, pharmacists can identify those with a substance use disorder, deliver an intervention, and refer them for treatment as necessary. The resident is also incorporated into patient-directed behavioral health initiatives at the Managed Care Organization, such as the piloting of an interdisciplinary home visiting program with community-based care managers. The purpose of these home visits are to complete medication reconciliations to improve patient outcomes. **Impact of Innovation:** The resident has completed case reviews for high risk CBH members, educated hundreds of high school students about naloxone, is implementing a rigorous tobacco cessation program at the local pharmacy, delivered lectures on psychotropic medications for case managers, and delivered presentations promoting this new innovation to various stakeholders including a local pharmacy conference and a pharmacy school in the region.

Hope Stems: Implementation of a Public Health Campaign at a College Campus

Brianne Alman, PharmD Candidate[1]; Megan Clark, PharmD Candidate[1]; Carolanne Wartman, PharmD Candidate[1]; Ashley Lee, PharmD Candidate[1]; Maria Shelley, PharmD Student[1]; Kristina Stoncius, PharmD Student[1]; Jonathan Berry, PharmD Student[1]; Carol Ott, PharmD, BCPP[1,2]; Catherine Scott[1,3]

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Type: Innovative Practices. **Background:** Each day, 130 Americans die from an opioid overdose. Stigma surrounding the opioid epidemic prevents those struggling with substance use disorder from seeking treatment. In an effort to raise awareness and combat stigma, a college of pharmacy launched the second installation of the "Hope Stems" campaign. Creating a highly visible floral representation of opioids attached at receptor sites in the brain provided an interactive opportunity in a university setting to educate many about stigma as a barrier to treatment. **Description of Innovative Service:** The focal point of the campaign was the "Brain Flower". Over 48 hours, numerous student volunteers assembled the sculpture comprised of 9,000 pink carnations symbolizing the healthy brain. Three hundred black paper poppies, signifying physical changes occurring in the brain when opioids attach to receptor sites, were placed among the pink carnations. Visitors to the "Brain Flower" had the opportunity to remove a black poppy from the floral brain to symbolize the removal of stigma as a barrier to treatment. The first poppies were removed by the Surgeon General of the United States and local families who had lost a loved one to opioid overdose. The ribbon-wrapped stem of each poppy included a message with a link to resources. The university expanded the campaign by providing campus-wide naloxone training sessions and hosting educational pedestals placed at various campus locations. Student volunteers manned each of the pedestals, providing education and resource materials. **Impact on Patient Care:** This event encouraged open conversation regarding opioid use disorder, stigma, ways to reduce stigma, and treatment options. Naloxone trainings resulted in an increased number of students, faculty and staff trained from all disciplines and increased awareness of harm reduction strategies. **Conclusion:** Shame and fear of judgement discourages those struggling with substance use disorder from seeking treatment. Implementation of a public health campaign in a university setting helps to remove stigma surrounding substance use disorders and promotes access to recovery. Hope stems from treating opioid use disorder as brain disease, not a moral weakness. Together we can help save lives.

Integration of Clinical Pharmacists Into a Psychiatric Community Clinic Serving Patients With Moderate-to-Severe Mental Illness

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Type: Innovative Practices. **Background:** Approximately one in five adults in the United States live with a mental illness. The shortage of psychiatrists, coupled with a growing need as the population ages, further limits access to care. In recent years, the role of psychiatric pharmacist as mid-level providers, addressing the shortage of psychiatric providers in the community clinic setting, has been growing. **Description of Innovative Service:** The integration of four clinical pharmacists into the 3 clinics of the organization occurred between December 2016 and July 2018. The establishment of the clinical pharmacists' Collaborative Practice Agreement (CPA) facilitated delivery of care. The clinical pharmacists built patient caseloads, managed medication treatment after diagnoses were established, and billed for services. Medication classes included in the CPA were antidepressants, mood stabilizers, oral and long-acting injectable (LAI) antipsy-

chotics, medications for the treatment of extrapyramidal symptoms (EPS) and tardive dyskinesia (TD), nicotine replacement products, benzodiazepines, and attention-deficit/hyperactivity disorder (ADHD) medications. Additionally, clinical pharmacists made contributions to the team by taking part in treatment team meetings and educating other health care providers on best prescribing practices. **Impact on Patient Care:** The program expanded care to the diverse, underserved patients with moderate-to-severe mental illness served at 3 community clinics in Alameda County. The clinical pharmacists' efforts have led to increases in access to psychiatric care for patients as measured by the total number of patients served, total number of encounters, and total number of hours of services provided by clinical pharmacists. The number of hours of services increased from 607 hours during the 2016-2017 Fiscal Year (FY), to 3492 hours in 2017-2018 FY and 5133 hours in 2018-2019 FY. Pharmacists provided care that increased patient satisfaction. Of note, 82.7% of patients surveyed regarding their care expressed the highest level of satisfaction (5 out of 5). **Conclusion:** Pharmacists possess unique expertise in medication management to enhance the treatment of psychiatric patients. The successful integration of psychiatric pharmacists in under 3 years' time in 3 high acuity community clinics as well as billing for psychiatric medication management services, serves as a model to be followed by other community clinics.

Pharmacist Managed Lithium in an Inpatient Academic Medical Center: Six Month Review

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Type: Innovative Practices. **Background:** Lithium is a commonly utilized medication for the treatment of mood disorders which possesses a narrow therapeutic index. A medication utilization evaluation performed regarding lithium use 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 $\geq$4 days prior to level obtainment. This is a concern due to multiple factors which may result in lithium toxicity; additionally, signs of toxicity may mimic other conditions for which patients seek treatment. **Description of Innovative Practice:** This protocol was instituted with other pharmacy service offerings at an academic medical center and psychiatric hospital for hospitalized patients at least 16 years of age being maintained or initiated on lithium therapy. Pharmacists completing consultations were required to successfully complete a training assessment via the organization's learning management system and were offered attendance at a 1-hour continuing education session on lithium. Pharmacist responsibilities included but were not limited to: patient interview and assessment, medical record review, lithium dose adjustments, laboratory monitoring, and patient education. Requests for consultations were generated utilizing an order panel within the electronic medical record. **Impact on Patient Care:** During the study period of April 12, 2019 through October 12, 2019, pharmacists managed 67 patients compared to 63 provider-managed patients. Patients were aged 41 years compared to 34.5 years on average for pharmacist- and provider-managed patients, respectively. Pharmacist managed patients were more likely to receive a lithium level within 24 hours of admission (100% vs 89.1%, $P = .0122$); receive a pregnancy test if indicated (90.5% vs 41.7%, $P = .0004$); have a drug interaction effecting lithium levels (47.8% vs 27%, $P = .0140$); and receive pharmacist provided education (71.6% vs 34.9%, $P < .0001$). **Conclusion:** Patients initiated or maintained on lithium therapy require a unique level of monitoring and management within the inpatient medical and psychiatric hospital realms. The addition of lithium management to existing pharmacy service offerings within this realm creates the opportunity for the deliverance of safer and more complete patient care while expanding practice offerings for clinical pharmacists.

Pharmacist-Run Long-Acting Injectable Antipsychotic and Addiction Therapy Clinic: A 10-Year Review

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Type: Innovative Practices. **Background:** In 2009 our institution opened a pharmacist-run clinic to administer long-acting injectable antipsychotics (LAIAs). Pharmacists treat patients under a collaborative drug therapy management (CDTM) protocol. This CDTM allows eligible pharmacists to be credentialed by the institution to manage long-acting injectable (LAI) therapy including medication administration. Medications are primarily obtained via a hospital-owned outpatient pharmacy that deliver medications to the clinic. The initial intent of the clinic was a cost-avoidance platform to defer LAIAs to the outpatient setting, thereby reducing inpatient medication costs. Over the past 10-years this clinic has grown, and the purpose has evolved to include maintenance therapy and to include LAI naltrexone. A significant overhaul of clinic structure and billing occurred in 2018 to migrate from the original cost-avoidance strategy to a broader access platform given limited availability of similar clinics in our area. By moving to 340B eligible space, we were able to hire an additional pharmacist and increase clinic

census. **Practice Description and Impact:** The clinic has grown from 8 encounters during the initial 4-month pilot to 312 encounters in 2019. Currently, 25 patients are seen for maintenance therapy and approximately 4 patients receive injections each month immediately after hospital discharge to facilitate transitions of care (TOC injections). The initial loading dose of paliperidone palmitate is the primary TOC injection provided; however, other LAIAs and LAI naltrexone are provided. The maintenance therapy cohort spans a wide variety of ages (17 to 79 years) with a median age of 33.5 years and is predominantly male. Most patients are diagnosed with a primary psychotic disorder ($n = 12$), followed by bipolar disorder and alcohol use disorder (both $n = 4$). Twelve (48%) of patients in this cohort receive paliperidone palmitate monthly or every 3 months. Due to the limited availability of similar services in our area, 32% ($n = 8$) of patients travel at least 25 miles to attend clinic appointments and of those, 5 travel >50 miles. **Conclusion:** A pharmacist-run long-acting injectable clinic is a feasible model to expand pharmacist involvement in outpatient care, increase access to a limited service in our area, and reduce inpatient medication costs.

Shared Medical Appointment Clinic in a Substance Use Disorder Intensive Outpatient Program

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Type: Innovative Practices. **Background:** A need exists for providing medication assisted treatment (MAT) for substance use disorders (SUD) to veterans that are not receiving MAT in primary care or are not established with psychiatrists. In a shared medical appointment (SMA), providers collaborate with members of the healthcare team to allow for multiple patients to be seen as a group in a fixed period of time. This provides an interactive setting in which patients have improved access to providers, counseling, and medication changes. To meet MAT needs, an SMA has been implemented in the Substance Use Disorder Clinic (SUD-C) Intensive Outpatient Program (IOP). **Description of the Innovative Service:** Veterans with SUD diagnoses are referred to SUD-C IOP. Referred veterans have intake assessments with SUD-C staff (social worker or psychologist) to complete treatment planning and psychosocial assessment. Veterans enrolled in SUD-C who are candidates for MAT are offered to attend the SMA SUD-C group co-led by a pharmacist and SUD-C staff. Attendees are educated on medications for alcohol use disorder and encouraged to ask questions. The pharmacist then meets with veterans individually during groups to discuss individualized MAT. Through shared decision making, the pharmacist prescribes non-controlled substances and orders the necessary labs utilizing a scope of practice. The pharmacist follows up with veterans during SMA SUD-C groups until the veterans' completion of the program. Once veteran is stabilized on MAT, his/her primary care or mental health provider will continue prescribing medications as appropriate. **Impact on Patient Care:** Since the start of this service on November 15, 2019, 11 patients have been seen by the pharmacist. Two patients were started on naltrexone, 1 patient was started on topiramate, 2 patients were started on nicotine replacement therapy, and 6 patients requested education on different psychotropic medications. One social worker requested a chart review for one of the SUD-C IOP patients. **Conclusion:** There is a need for education on psychotropic medications, including medications for substance use disorders, as well as access to those medications within the SUD-C IOP. A psychiatric pharmacist is needed to help fill the void of psychiatry provider shortage in this space at our institution.

Subcutaneous Buprenorphine in a Veteran Affairs Substance Use Disorder Clinic

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Type: Innovative Practices. **Background:** Medication-assisted therapy (MAT) is considered the gold-standard of treatment for substance use disorders. Commonly prescribed medications for opioid use disorder (OUD) include methadone, naltrexone, and buprenorphine. A new subcutaneous injectable formulation of buprenorphine (SC-BUP) has recently been FDA-approved and offers a convenient, once-monthly alternative to oral buprenorphine. Providing access to this dosage form of buprenorphine to the Veterans Affairs (VA) patient population may help improve compliance and decrease relapse rates. **Description of Innovative Service:** Psychiatric clinical pharmacy specialists have worked directly with the prescribing physicians in the Substance Use Disorder Recovery Program (SUDRP) at this VA Medical Center to setup the clinic for utilization of SC-BUP. The clinical pharmacists have developed informational documents to support physicians, assisted in acquisition of the medication, and will review all non-formulary requests for utilization of SC-BUP. Collaboration will be ongoing in an effort to increase access to SC-BUP and alleviate provider concerns and reservations regarding its use. **Impact on Patient Care/Institution:** While the clinic has yet to administer SC-BUP to its first patient, all appropriate preparations have been made. The clinic is fully equipped with all necessary furniture, providers' questions have been addressed and continue to be fielded, tentative plans

to address injection-site pain have been developed, and a target patient population has been identified by the prescribers. Prescribers continue to evaluate patients who have been successful on transmucosal buprenorphine-containing products for an extended period for consideration of the subcutaneous dosage form. The clinical pharmacists and SUDRP staff hope to conduct future studies to evaluate potential impact of this new dosage form on compliance and relapse rates as utilization increases. **Conclusion:** A new subcutaneous, once-monthly injectable formulation of buprenorphine has been FDA-approved for treatment of OUD and may aid in improved compliance and decreased relapse rates for patients. Continual collaboration between prescribing physicians and clinical pharmacy specialists in a VA substance use disorder clinic will allow for successful and ongoing administration of this new formulation. Future studies will aim to assess impact on local compliance and relapse rates.

Utilizing the Layered Learning Practice Model to Expand and Sustain Patient Medication Education Groups at an Inpatient Psychiatric Hospital

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Type: Innovative Practices. **Background:** Pharmacy student involvement in patient medication education groups (PMEG) in the mental health setting has been shown to improve student pharmacists' self-confidence, empathy, and grant exposure for engaging in direct patient care. Layered learning practice models (LLPM) facilitate successful expansion of services, while also providing trainees with unique learning experiences. Currently, data showcasing the provision of PMEG via LLPM is lacking. PMEGs have been implemented at a safety net mental health campus on June 26, 2017 in response to a need to decrease patient idle time. The mental health campus consists of 2 psychiatric emergency departments (ED) and 77 inpatient psychiatric beds. Pharmacy residents, advanced pharmacy practice education (APPE), introductory pharmacy practice education (IPPE), pharmacy student interns/volunteers, and pre-pharmacy volunteers are present year round and have been incorporated into all PMEG activities and responsibilities. **Description of Innovative Service:** PMEG were implemented on June 26, 2017. All 4 inpatient units (3 adult and 1 adolescent) receive 2 30-minute groups a week on the unit, with each group led by the psychiatric clinical pharmacist. Staff pharmacists were subsequently trained to lead group. Each rotation, residents and APPEs are trained by a pharmacist to lead PMEG independently. As IPPEs, pharmacy interns, or pre-pharmacy students present to the hospital, rotating residents or APPEs train these visitors and supervise them during group. Additionally, trainees accompany clinical pharmacists at interdisciplinary therapeutic group process committee meetings, and serve as department representatives. **Impact on Patient Care:** Pharmacy trainees aided in PMEG expansion to the adolescent psychiatric ED effective September 12, 2018 and to the adult psychiatric ED effective December 3, 2018. A total of 1081 medication groups have been conducted by the pharmacy team over a 30-month period, allowing for over 10,000 direct patient interactions. Since implementation of PMEG at this hospital: 6 pharmacists, 10 pharmacy residents, 40 APPE students, 44 IPPE students, and 17 student volunteers have participated in the group process. As a result of this consistent dedication from pharmacy trainees, services have been expanded to weekends, allowing for 7 day/week provision of PMEG. **Conclusion:** Implementation and provision of PMEG services can be sustained via a layered learning practice model (LLPM).

Therapeutic Case Report Abstracts

A Potential Case of Refeeding Syndrome in a Patient With Severe Mental Illness

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Type: Therapeutic Case Report. **Background:** Refeeding syndrome (RFS) is characterized by previously malnourished patients that are being refed and the corresponding metabolic response. Electrolyte abnormalities, vitamin deficiencies and liver enzyme elevations often develop. There are multiple cases describing how eating disorders can be a risk factor for RFS, however presentation in severe mental illness is not well described. The current report describes a patient with schizophrenia-induced starvation leading to a possible presentation of RFS during psychiatric stabilization. **Patient History:** The patient was 28-year-old African American male with a past psychiatric history significant for unspecified psychosis, rule-out substance induced psychosis, rule-out schizophrenia, major depressive disorder with psychotic features previously treated with olanzapine and bupropion. There was no significant past medical/social history. He presented from an outside hospital for altered mental status and suicidal ideation. For an unknown amount of time, the patient was only drinking bottled water and eating prepacked foods due to paranoia about being poisoned.

At admission the patient refused all oral intake including food, liquids, and medications for several days. He was started on haloperidol intramuscularly and symptoms of paranoia began to improve a week into the admission. Eleven days later, the patient developed some signs of refeeding syndrome including edema, elevated liver enzymes, hypomagnesemia, and an elevated NT-proBNP 711 pg/mL. With the exception of magnesium oxide 400 mg daily, the symptoms of RFS normalized without intervention. The patient was discharged from the hospital with a primary discharge diagnosis of schizophrenia with outpatient follow-up scheduled and a plan for monthly haloperidol decanoate injections. **Review of Literature:** A PUBMED search was completed and this appears to be the first case of possible refeeding syndrome in a patient with severe mental illness and no comorbid diagnoses. While refeeding syndrome is well described, it is still often underdiagnosed and rarely seen in psychiatric disorders outside of eating disorders. **Conclusion:** This case describes a patient with possible refeeding syndrome upon commencement of oral intake after psychosis-induced starvation. RFS is likely underdiagnosed in practice, especially when presentation may differ from classic signs and symptoms. Increased awareness of the syndrome and at-risk populations will help assist with prevention and treatment.

Acute Dystonia or Angioedema: Haloperidol-Induced Adverse Drug Reaction in a Pediatric Patient

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Type: Therapeutic Case Report. **Background:** Adverse drug reactions (ADRs) in adults are underreported and even more so in the pediatric population. Angioedema and acute dystonia, well-described ADRs, are mostly dissimilar in nature. Drug-induced angioedema is ordinarily related to angiotensin converting enzyme inhibitors (ACE-I) or nonsteroidal inflammatory drugs (NSAIDS) while typical antipsychotics can cause acute dystonia. There is literature documenting the relationship between angioedema and ACE-Is and that of acute dystonia and haloperidol, however minimal case reports exist establishing a connection between haloperidol and angioedema. Here we present a case of a pediatric angioedema likely caused by haloperidol. **Patient History:** A 14-year-old male with psychosis boarded in the emergency department for eight days due to bed unavailability. He became increasingly agitated requiring anxiolytic and antipsychotic medications. He received oral risperidone and lorazepam however his psychotic symptoms continued to worsen, necessitating intramuscular injections of haloperidol, lorazepam and diphenhydramine. Twenty-four hours later, he was noted to have a swollen tongue, sialorrhea and dysarthria. Due to suspicion for acute dystonia, he was administered diphenhydramine 50 mg twice, with no effect. He continued to experience intermittent moderate symptoms until his nurse noticed he was unable to speak or open his mouth. Because anticholinergic administration was ineffective, the initial diagnosis of acute dystonia was questioned and angioedema was considered to be more likely. The patient received prednisolone 40 mg and cetirizine 10 mg. Within 45 minutes, his tongue edema, sialorrhea and dysarthria resolved completely. The patient's allergy list was updated to include haloperidol-induced angioedema and reports were entered into both the hospital safety reporting system and FDA MedWatch. **Review of Literature:** PubMed and Embase were queried using the terms "haloperidol" and "angioedema" resulting in less than 10 results applicable to this case study. No pediatric cases were found. Only 3 case reports specifically associate haloperidol-induced angioedema. Using the Naranjo probability scale, the likelihood of haloperidol causing angioedema was noted to be probable. **Conclusion:** This case of haloperidol-induced angioedema is unusual due to patient age and drug culprit. Clinicians should remain alert to alternative diagnoses when atypical effects occur in response to administration of a reversal agent.

Alcohol-Based Hand Sanitizer Abuse: A Case Report

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Type: Therapeutic Case Report. **Background:** In 2017, Alcohol Use Disorder (AUD) affected over 14 million adults over the age of 18. Individuals with AUD who are unable to obtain alcoholic beverages may seek out unconventional sources, such as alcohol-based hand sanitizers, as an alternative. Adverse effects from hand sanitizers include conjunctivitis, oral irritation, abdominal pain. Severe effects such as seizure, metabolic acidosis, and respiratory depression have been reported. Few case reports have been published on the treatment of hand sanitizer abuse. This case study serves to broaden the current literature on the treatment of alcohol-based hand sanitizer abuse as it compares to traditional AUD. **Patient History:** This is a case report of a 44-year-old Caucasian female with a history of bipolar disorder and alcohol use disorder. Patient was admitted to the psychiatric hospital

for alcohol detoxification treatment and depressive symptoms. The patient reported ingesting 8 to 16 oz of ethyl alcohol-based hand sanitizer for the last several years due to limited financial access to purchase alcohol. Her last reported ingestion of hand sanitizer was 3 days prior to admission and she also ingested isopropyl alcohol the day before admission. She presented with tachycardia, nausea, vomiting, and tremor. Her laboratory findings were unremarkable with the exception of ketonuria. She received 7 days of symptom-triggered benzodiazepines, which were dosed according to the Clinical Institute Withdrawal Assessment for Alcohol scale. She also received multivitamin, folic acid, and thiamine. Patient reported cravings for alcohol and she was discharged on acamprosate. **Review of Literature:** A MEDLINE and PubMed search using MeSH terms "hand sanitizers", "poisoning", and "alcoholism/abuse" was conducted. Limited data exists regarding the epidemiology of alcohol-based hand sanitizer abuse and it is likely underreported. The goal of this literature search is to identify the prevalence and symptoms associated with alcohol-based hand sanitizer toxicity, as well as to evaluate the treatment methods. **Conclusion:** In our case report, symptoms and management of alcohol-based hand sanitizer abuse were similar to those of alcohol withdrawal. Clinicians should be cognizant of the rising prevalence of and treatment for alcohol-based hand sanitizer abuse and withdrawal.

Alice in Wonderland Syndrome in a Patient With Schizoaffective Disorder at a State Hospital

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Type: Therapeutic Case Report. **Background:** Alice in Wonderland Syndrome (AWS) is a rare neurological condition that is commonly believed to be caused by migraines, infections, psychiatric disorders, and epilepsy. It's characterized by episodes of distorted body images, objects, time, and/or sound, and loss of limb control. Approximately 170 cases of AWS have been reported between 1955-2015, with most patients being under the age of 18. **Patient History:** We present a case of a 49-year-old Asian male diagnosed with schizoaffective disorder bipolar-type, who was readmitted to a psychiatric facility multiple times over the past six years due to persistent psychotic behavior. His delusions were primarily related to the belief that he was being held down by "little people". The patient also experienced both visual and olfactory hallucinations, which included seeing "tiny talking intruders" around his face and body, and smelling fragrances under his nose. Prior to his diagnosis, he had a career as a physical therapist and appeared extremely intelligent; he was fully cognizant of how bizarre his delusions sounded to others. Despite treatment with several different antipsychotics (typical and atypical) and one mood stabilizer (divalproex sodium), he continued to have delusions and hallucinations. The only medications that provided relief were lorazepam and acetaminophen, which he received frequently on an as-needed basis. He reported that the lorazepam helped "settle down the intruders," while the acetaminophen treated his headaches; however, he continued to report being constrained and abused by these "intruders" daily. These AWS symptoms could be a result of his underlying schizoaffective disorder, chronic migraines, or even a seizure disorder. **Review of Literature:** A MEDLINE search revealed several published case reports of AWS in which the origin and symptoms vary widely. AWS may be under reported because there is no formal classification and diagnostic criteria for AWS. **Conclusion:** This case highlights a rare occurrence of AWS-like symptoms. Our patient's description of his symptoms, as well as his treatment resistance to antipsychotics, suggest an organic cause, rather than a functional psychosis. Awareness of these symptoms would help rule out other possible causes for these types of symptoms and guide treatment to the best evidenced-based medications.

Antipsychotic Alternative After Incidence of Hematologic Changes With Divalproex and Quetiapine: A Case Report in a Pediatric Patient

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Type: Therapeutic Case Report. **Background:** Divalproex in combination with quetiapine has been observed to cause hematologic abnormalities including thrombocytopenia, neutropenia and leukopenia. The mechanism by which this occurs is unknown. Neutropenia and leukopenia increase the risk of infections and it is recommended to monitor these laboratory values for patients receiving divalproex and quetiapine. **Complete Patient History:** The patient is a 12-year-old Caucasian female with a past psychiatric history including bipolar disorder and post-traumatic stress disorder. The patient has a history of childhood physical, sexual and emotional abuse with multiple acute hospitalizations and placements at residential treatment facilities as a result of multiple, serious suicide attempts. The patient's home medications: fluoxetine 20 mg daily, divalproex delayed-release 500 mg twice daily, and quetiapine 400 mg at bedtime were continued on admission. The patient's white blood cells, absolute neutrophil count (ANC), and platelet count were within normal limits at the time of admission; a valproic

acid level was not obtained. During the course of the hospitalization, the dose of divalproex was increased to 500 mg every morning and 750 mg every evening. The patient developed neutropenia, leukopenia, and thrombocytopenia after nine days. The dose of divalproex was reduced, quetiapine was increased to 500 mg daily, and after five days the hematologic abnormalities resolved. The patient's psychiatric symptoms worsened, a second attempt to increase divalproex was made but the patient again developed neutropenia. Quetiapine was immediately discontinued and olanzapine was initiated while the dose of divalproex was maintained at 500 mg twice daily. The ANC fluctuated at the lower limit of normal the remainder of the admission. **Review of Literature:** A PUBMED search was done to determine recommended treatment options after an incidence of hematologic changes with divalproex and quetiapine. There are multiple case reports recognizing the significance of the drug interaction. There are no identified reports guiding what next steps should be taken regarding treatment if this drug interaction occurs. **Conclusion:** In this case report, two trials of divalproex in combination with quetiapine at varied doses resulted in significant neutropenia. An alternative antipsychotic, such as olanzapine, in combination with divalproex appeared to be beneficial.

Atomoxetine for the Treatment of Neurogenic Orthostatic Hypotension

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Type: Therapeutic Case Report. **Background:** Orthostatic hypotension (OH) is a drop in systolic blood pressure (SBP) >20 mmHg or diastolic blood pressure (DBP) >10 mmHg from sitting to standing within 3 minutes. Neurogenic orthostatic hypotension (nOH) is a form of OH results from nervous system failure for which there are only two FDA approved medications: midodrine and droxidopa. Atomoxetine is indicated for the treatment of attention deficit hyperactivity disorder. It is a selective norepinephrine reuptake inhibitor, which increases norepinephrine levels peripherally and, given at pediatric doses (18 mg), can increase blood pressure in patients with autonomic failure (AF). **Patient History:** A 73-year-old white male presented with 6 unwitnessed falls over 3 days after standing from the supine position, denies associated loss of consciousness, but endorses associated lightheadedness, dizziness, nausea. These episodes began recently, following deep brain stimulator placement 2 weeks prior. Past medical history is significant for Parkinson's Disease (PD) and type 1 diabetes. Patient diagnosed with OH, with etiology likely PD plus diabetic autonomic neuropathy. Patient was titrated up to midodrine 15 mg twice daily / 10 mg at night and fludrocortisone 0.1 mg daily and still persistent 57 mmHg SBP drop upon standing. Atomoxetine 18 mg was initiated and orthostatic SBP decreased by only 14 mmHg without any lightheadedness. **Review of Literature:** A MEDLINE search revealed 2 randomized, control trials. Shiabo et al and Ramirez both investigated the effects of atomoxetine 18 mg patients with AF. Both studies found an increase in seated-to-standing SBP. **Conclusion:** In this case report, the use of atomoxetine after failure of midodrine and fludrocortisone provided both objective and subjective relief. Atomoxetine has therapeutic potential for nOH in patients with AF.

Complexities of Medication Therapy in Managing Bipolar Disorder in a Patient With a Nothing Per Mouth (NPO) Order: A Case Report

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Type: Therapeutic Case Report. **Background:** Managing psychiatric patients following medical complications of a suicide attempt requiring nothing per mouth (NPO) requires increased maneuvering to optimize health outcomes. Gastrostomy tubes provide nutritional and medical support for patients with functioning gastrointestinal tracts unable to consume products by mouth. Percutaneous endoscopic gastrostomy (PEG) tubes are preferred for long-term feedings. Complications of delivering medications via these tubes include obstruction, potential interactions, alterations in pharmacokinetics, adverse gastrointestinal reactions and reduction or loss of medication efficacy **Patient History:** A 47-year-old patient presents to inpatient psychiatry after an inpatient medicine stay recovering from facial reconstructive surgery status-post failed suicide attempt via self-inflicted gunshot wound. He presents tracheostomy and PEG dependent with urinary retention, speech difficulty and multiple skin rashes on the following medications: bupropion sustained-release, quetiapine, topiramate, trazodone, meropenem, vancomycin, fluticasone and saline nasal sprays, chlorhexidine oral rinse, lansoprazole solution, and heparin. His mental status exam upon transfer was improved and non-significant. Past medical history is significant for bipolar depression, hypertension, gastroesophageal reflux disease and seasonal allergies. Lithium therapy was discontinued 6 months prior to the event due to polypharmacy and fear of adverse reactions despite bipolar disorder being controlled. The patient reports depressive symptoms returning around the same time. Patient reports having inadequate response to over 10 psychotropic medications. **Review of Literature:** Special care must be given when administering medications using nutritional tubes. Ideal dosage forms for administration through gastrostomy tubes include liquid and immediate-release formulations. Dosage forms that are timed-release, sustained-release, or extended-release should be avoided. Considerations when designing regimens in managing

bipolar depression will be presented. **Conclusion:** Pharmacy can play a role in adjusting the medication list to account for a patient's PEG tube. Lithium 300 mg solution twice daily was initiated along with topiramate de-escalation towards discontinuation. Bupropion sustained-release was adjusted to an immediate-release formulation. Medication instructions and dosage forms were adjusted to use liquid formulations when available and immediate release solid forms that could be crushed and administered through the feeding tube. The patient and family were educated on proper administration of medications.

Hematologic Adverse Reactions With Multiple Antipsychotics: A Case Report

Nisha Bhavsar, PharmD Candidate 2021[1]; Muriel Olazo, PharmD Candidate 2021[1]; Mei T. Liu, PharmD[1,2]; Megan E. Maroney, PharmD[1,3]; Stephanie Taormina, MD, MS[2]

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Type: Therapeutic Case Report. **Background:** Antipsychotics are used to treat thought disorders such as schizophrenia. Hematologic adverse reactions, such as neutropenia and leukopenia, are cause for an interruption in therapy and medication re-evaluation. Neutropenia is defined as an absolute neutrophil count (ANC) of $<$1500/μL and leukopenia is defined as a white blood cell (WBC) count of $<$4000/μL. While clozapine is the most well-known antipsychotic associated with hematologic adverse reactions, there have been case reports of other second-generation antipsychotics (SGAs) such as olanzapine, quetiapine, and risperidone causing neutropenia and leukopenia. This case study serves to broaden current literature by reporting on neutropenia associated with SGAs other than clozapine. **Patient History:** The patient is a 27-year-old African American male with past psychiatric history of schizoaffective disorder and multiple psychiatric hospital admissions. The patient was started on olanzapine 12 days prior to hospital admission. Seven days prior to admission, olanzapine was discontinued due to a decrease in WBC and ANC from 3900/μL to 2500/μL and 1900/μL to 843/μL, respectively. The patient's WBC and ANC returned to 3900/μL and 2520/μL, respectively, 1 day prior to admission. Previous hospitalization records showed a history of haloperidol-induced neutropenia. The patient was started on aripiprazole while inpatient and again experienced a drop in WBC and ANC to 1900/μL and 680/μL, respectively, after 6 days. Aripiprazole was discontinued and fluphenazine was initiated. Although WBCs and ANCs remained low, no further decrease in blood counts occurred during treatment with fluphenazine. The last recorded WBC and ANC were 2400/μL and 690/μL, respectively, and the patient was discharged on fluphenazine 10 mg twice a day. **Review of Literature:** A MEDLINE search was conducted using the MESH terms antipsychotic agents, leukopenia, and neutropenia. Although neutropenia and leukopenia have been reported with various antipsychotics in addition to clozapine, limited data exists on alternate antipsychotic treatment options. **Conclusion:** In our case report, a temporal relationship was observed between the initiation of multiple antipsychotic agents and the development of neutropenia. Clinicians should be aware that antipsychotics use may result in hematologic adverse reactions and periodic monitoring is recommended.

Lessons Learned From an Unsuccessful Transition From Methadone to Buprenorphine Using a Published Micro-dose Protocol: A Case Report

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Type: Therapeutic Case Report. **Background:** Buprenorphine, which is a mu-opioid partial agonist, has several advantages for treating opioid use disorder over methadone, including the ability to be prescribed in office-based settings and a built-in safety mechanism for respiratory depression due to its "ceiling" effect. Traditionally, if a patient is utilizing any full mu-opioid agonist, they must undergo a wash-out period until they experience withdrawal symptoms prior to transitioning to buprenorphine to avoid precipitated withdrawal. During this time, their opioid-use disorder is untreated and the patient may be at risk for relapse due to withdrawal symptoms and return of cravings. To avoid a period of untreated illness, micro-dosing strategies have been proposed for transitioning patients from various full mu-opioid agonists (including methadone, heroin, and hydromorphone) to buprenorphine. This is a case that utilized a methadone to buprenorphine micro-dosing protocol that was tolerated by other patients, but was unsuccessful for this patient. **Patient History:** Patient is a 34-year-old male with past medical history significant for depression and severe opioid use disorder who was admitted to inpatient psychiatry for an exacerbation of depressive symptoms. He expressed desire to transition from methadone 120 mg to buprenorphine/naloxone so he could live at a sober living facility that didn't allow residents on methadone. Therefore, he was initiated on a micro-dosing buprenorphine protocol. The patient received a buprenorphine/naloxone titration for the first 2 days of the planned 8-day protocol, but elected to discontinue it after experiencing significant nausea leading to 5 episodes of emesis on day 3. **Review of the Literature:** Multiple case series have been published since 2016 describing patients successfully transitioned from a variety of full mu-opioid agonists to buprenorphine without a washout period, each with

different strategies. Most recently, Terasaki et al. published a case series on 3 hospitalized patients who were transitioned to buprenorphine from methadone using the protocol implemented at Denver Health Medical Center, which was also used on the patient in this case report. **Conclusion:** Buprenorphine micro-dosing is being used with increased frequency to transition patients from full mu-opioid agonists, but protocols may need to be adjusted based on patient tolerability.

Management of Psychiatric Disorders in Patients With Kleefstra Syndrome: A Case Report

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Type: Therapeutic Case Report. **Background:** Kleefstra syndrome (KS) is a rare disorder caused by defects in the EHMT1 gene. Clinical presentations of KS can include developmental and intellectual disabilities, craniofacial and organ-system malformations, psychiatric and neurologic disorders, and a host of other medical complications. Research on evidence-based treatments for psychiatric illness in these medically complex patients is very limited. **Patient History:** The patient is a 30-year-old Hispanic female with KS and a past medical history of obesity, recurrent vaginitis, migraines, seasonal allergic rhinitis, nonalcoholic steatohepatitis, recurrent urinary tract infections, and partial hysterectomy. Caregivers reported a confirmed KS diagnosis from a geneticist in 2016. At age 21, the patient developed problems with insomnia. Subsequent problems included depressed mood, visual hallucinations, aggressive behaviors, increasing reliance on non-verbal communication, and self-injury. Worsening of these symptoms resulted in state hospitalization in 2016 and a discharge regimen of clonazepam 1 mg every morning and 1.5 mg every evening, haloperidol 5 mg twice daily, and hydroxyzine 50 mg at bedtime. In 2017, her care was transferred to an outpatient mental health clinic. Diagnoses of bipolar disorder with psychotic features, moderate intellectual or developmental disability, anxiety, and insomnia were confirmed. On the initial exam, the patient continued to demonstrate insomnia and aggression, as well as excessive drooling and bruxism. Her clinical picture deteriorated further with the development of a complicated urinary tract infection. The patient's untreated infection, increasing sleeplessness, and repeated administration of deliriogenic medications resulted in repeat hospitalization for aggressive behaviors and self-injury. The patient's clinical picture has since been stabilized with placement in a group home and a regimen of valproic acid 750 mg at bedtime, hydroxyzine pamoate 25 mg three times daily, and olanzapine 7.5 mg three times daily. **Review of Literature:** A Google Scholar and PubMed literature search of the following keywords and medical subject heading (MeSH) terms: EHMT1 gene, Kleefstra syndrome, and Kleefstra syndrome therapeutics, produced 5 case reports that documented psychotropic use in patients with KS. **Conclusion:** Sleep problems appear to predict worsening of psychiatric symptoms in patients with KS. This case report adds to the limited body of evidence on the use of psychotropic agents in patients with KS.

Memantine for Benzodiazepine-Refractory Catatonia: A Case Report

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Type: Therapeutic Case Report. **Background:** Catatonia is a neuropsychiatric disorder that occurs in the context of various medical and psychiatric conditions, and its presence involves a burden of medical comorbidities, thus requiring rapid diagnosis and effective treatment for this disorder. Despite a lack of robust clinical controlled trials, successful treatments for catatonia have been discovered. There is overwhelming clinical evidence on the efficacy of benzodiazepines and electroconvulsive therapy (ECT), leading to their establishment as first-line treatments for catatonia. In contrast, there are few conventional alternative treatment strategies when first-line therapies are ineffective, unavailable, or contraindicated. The proposed pathophysiology of catatonia includes several theories involving a dysregulation of the γ-aminobutyric acid (GABA)-A, glutamate, and dopamine neurotransmitter systems, suggesting methyl-D-aspartate (NMDA) antagonists may be suitable alternatives. **Patient History:** The patient was a 62-year-old Hispanic male with a past medical history significant for schizoaffective disorder, cerebrovascular accident (CVA), type 2 diabetes mellitus, and hyponatremia. The patient's social history was noncontributory. Admitted to the inpatient psychiatric hospital over 2 years prior for increasing irritability, threatening staff and peers at his assisted living facility and not sleeping, despite medication compliance. Extensive changes were made to the medication regimen to mitigate mood lability and anxiety during the 2-year period. Lorazepam was discontinued due to possibility of benzodiazepine-induced delirium or disinhibition, however, patient continued to have aggressive outbursts and

fluctuating catatonic symptoms. Memantine was initiated and titrated to 20 mg daily with marked improvement demonstrated by an 83.3% reduction in severity score (30 to 5) on the Bush-Francis Catatonia Rating Scale (BFCRS). **Review of Literature:** A PubMED search was performed using keywords "catatonia", "catatonias", "catatonic disorder", "amantadine", "memantine", "glutamate antagonist", and "NMDA antagonist" to identify reports of benzodiazepine-refractory catatonia and treatment with glutamate antagonists, specifically memantine. Seven published case reports utilizing memantine as an alternative treatment strategy for catatonia were identified. **Conclusion:** In our case report, a positive association was observed between the initiation of memantine and reduction in catatonia severity.

Olanzapine-Induced Fatty Liver: A Case Report

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Type: Therapeutic Case Report. **Background:** Nonalcoholic fatty liver disease (NAFLD) is defined as fat accumulation in the liver that is not caused by alcohol. While NAFLD itself is not overly serious, some cases can progress to nonalcoholic steatohepatitis (NASH) and eventually cirrhosis. Olanzapine, a second-generation antipsychotic, is commonly noted for its potential to cause significant metabolic side effects including weight gain, hyperlipidemia, and hyperglycemia. These side effects are also well-known causes of NAFLD, though NAFLD itself is not a commonly reported adverse event of olanzapine. **Patient History:** The patient is a 20-year-old Hispanic male with a past psychiatric history of schizoaffective disorder and previous suicide attempts who was admitted for worsening depression and concern for a possible suicide attempt. Olanzapine, fluoxetine, and trazodone had been initiated eight months before this hospitalization. The patient reported he had been compliant with these medications prior to presentation, though did express concerns of recent weight gain. Labs were completed and compared to the results obtained 8 months prior. The comparison revealed that since starting olanzapine the patient's hemoglobin A1c (HbA1c) had increased from 4.7% to 5.0%, his low-density lipoprotein (LDL) cholesterol had increased from 89 mg/dL to 198 mg/dL, and he had gained 72 pounds. Furthermore, his liver enzymes had significantly increased from an alanine aminotransferase (ALT) of 28 to 214 units/L and an aspartate aminotransferase (AST) of 35 to 98 units/L. Given this significant change in liver enzymes, an ultrasound of the patient's liver was completed and ultimately revealed hepatomegaly with fatty liver infiltration. **Review of Literature:** A PubMed search revealed no previously published case reports of olanzapine-induced NAFLD in humans. Cases of transient liver biochemistry abnormalities have been reported in the literature, though the mechanism behind the cause in such instances has remained undetermined. One study that was completed in mice implicated that hepatic steatosis may be attributed to olanzapine's propensity to disrupt transporters involved in the uptake and oxidation of fatty acids. **Conclusion:** This case demonstrates that the adverse metabolic effects of olanzapine, while still a significant concern for increased cardiac events, may also be a potential cause for hepatic injury.

Oral Haloperidol in Cannabinoid Hyperemesis Syndrome: Two Case Reports

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Type: Therapeutic Case Report. **Background:** Cannabinoid hyperemesis syndrome (CHS) is characterized by abdominal pain and periods of intractable nausea/vomiting often relieved by hot water bathing/showering and resolved through cannabis cessation. The exact pathophysiology is unknown, resulting in a lack of clear consensus for pharmacologic treatment. While supportive therapy can include parenteral rehydration, benzodiazepines, and antiemetics, these are rarely effective in eliminating symptoms. With failure of common supportive therapy, alternative treatment strategies have been evaluated including topical capsaicin and intravenous haloperidol. We present two cases of CHS successfully treated with oral haloperidol. **Patient History:** Case 1 is a 19-year-old Hispanic female with a history notable for daily marijuana use, presenting to the emergency department (ED) with persistent abdominal pain and vomiting that was unresponsive to supportive therapy, topical capsaicin and opioids. Other causes of her symptoms were ruled out and she was admitted. She was diagnosed with CHS on hospital day 2 and received one dose of 5 mg oral haloperidol in combination with 50 mg oral diphenhydramine. Her symptoms resolved and she was discharged that afternoon. Case 2 is an 18-year-old Hispanic male with a history notable for marijuana use, presenting to the ED with worsening epigastric abdominal pain and intermittent nausea and vomiting. He received intravenous fluids and morphine for decreased oral intake and reported 9/10 pain. Other causes of his symptoms were ruled out and he was admitted. A diagnosis of CHS was made on hospital day 3 and he was given a dose of 2.5 mg

oral haloperidol. Following administration, he reported significant symptom improvement with no complaints of pain overnight. On hospital day 4, he was given a second 2.5 mg dose of oral haloperidol and was discharged home with instructions to cease marijuana use. **Review of Literature:** A PUBMED search revealed published case reports and case series of intravenous haloperidol in adult patients with CHS in addition to review articles describing this and other treatment strategies. Current literature is lacking regarding administration and dosing regimens for oral haloperidol in the treatment of CHS. **Conclusion:** Oral haloperidol was an effective treatment strategy for two patients with CHS.

Psychiatric Manifestations in a Patient With Neuro-Behcet's Disease at a State Hospital

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Type: Therapeutic Case Report. **Background:** Behcet's Disease (BD) is a rare, multisystem inflammatory disease suspected to be caused by widespread vasculitis of arteries or venules of all sizes. It is typically characterized by recurrent mucocutaneous lesions, oral and genital ulcers, and uveitis. It's most prevalent in the Mediterranean and Middle East, and its incidence remains scarce in the United States. Central nervous system (CNS) involvement in BD varies from 2 to 50% of cases. Of those patients diagnosed with Neuro-Behcet's Disease (NBD), few present with psychiatric and behavioral disturbances. **Patient History:** We present a case of a 35-year-old African American male diagnosed with NBD, who has resided at a state psychiatric hospital for the past 3 years due to his ongoing psychiatric symptoms. Upon admission to the hospital, the patient presented with very limited verbal skills and comprehension, disorganized speech, diminished intellectual functioning, impulsive aggression, and bizarre behavior placing him at risk for self-neglect. He denied hallucinations or delusions. The patient had a past diagnosis of paranoid schizophrenia, moderate intellectual disability (IQ 49), major neurocognitive disorder with behavioral disturbances and dementia, epilepsy, and NBD (date of diagnoses are unknown). The patient's social history included multiple criminal offenses, and alcohol and marijuana use. Despite treatment attempts with 10 different antipsychotics (typical and atypical), 4 anticonvulsants (levetiracetam, phenytoin, lacosamide, topiramate), benzodiazepines (lorazepam, clonazepam), a mood-stabilizer (lithium) and immunosuppressants (methotrexate and adalimumab), the patient's psychiatric symptoms persisted. He continued to have unpredictable aggressive outbursts towards others. Psychiatrists at the hospital believed he had no underlying psychiatric illness, but rather his psychiatric and behavioral symptoms were an unusual presentation of NBD. **Review of Literature:** A MEDLINE search revealed few published case reports of psychiatric disturbances in patients with NBD. The frequency of these characteristics may be underreported because of indefinite criteria for neurological involvement in BD. **Conclusion:** This case illustrates a rare manifestation of psychiatric symptoms in a person with NBD. Recognition that these symptoms could be related to the underlying condition of NBD, rather than a separate psychiatric disorder is of utmost importance in determining the best treatment for the patient.

Serotonin-Norepinephrine Reuptake Inhibitor (SNRI) Cross-Reactivity Reaction

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Type: Therapeutic Case Report. **Background:** Serotonin-norepinephrine reuptake inhibitors (SNRIs) are first line therapies for major depressive disorder (MDD). Duloxetine and venlafaxine are the most commonly used SNRIs in the United States. They each have contraindications for use in patients with previous allergic reactions to the specific medication, however, no cross-reactivity information is listed in their respective FDA labels. **Patient History:** The patient is a 62-year-old Caucasian male with a past medical history significant for major depressive disorder, alcohol use disorder, hepatitis, coronary artery disease, hypertension, hypothyroidism, hyperlipidemia, chronic obstructive pulmonary disease, and nicotine dependence. The patient's social history was noncontributory. Patient was admitted to the inpatient psychiatric ward on April 25, 2019 for suicidal ideation with a plan. Patient had a listed allergy to venlafaxine that indicated the reaction was a severe rash on torso and extremities on April 24, 2018. On admission day 3, patient was started on duloxetine 20 mg in the morning. On admission day 4, duloxetine was increased to 40 mg daily, and patient complained of drowsiness, and a generalized rash on his extremities and torso was observed. On admission day 5, duloxetine was switched to bedtime, the patient complained of dizziness and fell. Vitals were positive for orthostatic hypotension. C-reactive protein and WBC were both significantly elevated. At that time, duloxetine was stopped and the patient was transferred to the medical unit where fluids were given. On admission day 6, the patient's hands were swollen, reddened, warm to touch with an itchy macular rash, and prednisone was prescribed. On admission day 9, the appearance of the rash was improving, and the patient's skin was peeling. Duloxetine was added to the patient's medical chart as an allergy of rash and swelling of extremities. **Review of**

Literature: A PubMed search revealed no published case reports of SNRI cross reactivity reactions. **Conclusion:** In this case report, a cross-reactivity reaction between duloxetine and venlafaxine was observed in one patient. Clinicians should be aware that an allergic reaction to either SNRI could lead to an allergic reaction to the other.

Suspected Serotonin Syndrome in the Setting of Direct Antidepressant Switch

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Type: Therapeutic Case Report. **Background:** Serotonin syndrome (SS) is a potentially life-threatening condition caused by excessive serotonergic activity in the central and peripheral nervous systems due to exposure to serotonergic medications. Clinical presentation is characterized by a triad of altered mental status, autonomic instability, and neuromuscular dysfunction. When switching between antidepressants, there is an increased risk of SS if both agents are present within the serum concurrently. **Patient History:** The patient is a 37-year-old Caucasian male with a past psychiatric history of major depressive disorder and post-traumatic stress disorder. The patient was directly switched from sertraline 200 mg daily to fluoxetine 20 mg daily due to non-response to sertraline and was not prescribed other serotonergic agents. At the one-month follow up, the patient presented with his wife, a paramedic, who reported that the patient exhibited bizarre behavior, agitation, emotional lability, and memory impairment 1-2 days after switching to fluoxetine. She also noted that he exhibited muscle twitching, sweating, tachycardia and fever. She opted not to seek a formal medical assessment at that time due to his aberrant behavior and stopped his fluoxetine after about one week. She reported that his symptoms resolved within approximately 48 hours of fluoxetine discontinuation. **Review of Literature:** We identified 2 cases of suspected SS in the literature in the setting of antidepressant switching, only one of which was a direct switch. In that case, the patient was switched from fluoxetine 20 mg daily to citalopram 20 mg daily in the presence of reboxetine 4 mg daily, another serotonergic agent. To our knowledge, there are no prior case reports of suspected SS in the setting of a direct switch from one selective serotonin reuptake inhibitor to another in the absence of other serotonergic agents. **Conclusion:** While the risk of developing SS is low during a direct antidepressant switch, especially if the first antidepressant has a relatively short half-life, this case report suggests that it is still possible to experience SS in this setting. Health care professionals and patients should be educated on the signs and symptoms of SS in the setting of antidepressant switching.

Transaminitis and Naltrexone-Induced Precipitated Withdrawal Following Kratom Use

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Type: Therapeutic Case Report. **Background:** Recreational use of kratom, known as Mitragyna speciosa, has been associated with rare instances of acute liver injury. Kratom constituents, mitragynine and 7-hydroxymitragynine (7-OH) a minor alkaloid, exert agonist activity at the mu (μ)-opioid receptor. Notably, kratom shares similar opioid-related mechanisms of actions to morphine including high and selective opioid receptor affinity, and competitive interaction with opioid receptor antagonism activity of naloxone. **Patient History:** The patient is a 38-year-old white male with a history of stimulant use disorder, opioid use disorder, alcohol use disorder, posttraumatic stress disorder, and unspecified depressive disorder who was admitted to a residential rehabilitation treatment program at a Veterans Affairs (VA) Medical Center. Prior to admission, the patient had longstanding history of kratom use in the form of herbal teas. During admission, mitragynine urine drug screens were sent out on Day 10, Day 24, Day 36, Day 47 and all resulted positive. Each mitragynine screen took between 12-13 days for results to be reported. On Day 31 on admission, his basic metabolic panel showed significantly elevated AST and ALT at 173 U/L and ALT of 586 U/L, respectively. His LFTs were rechecked on Day 32, Day 33 and Day 39 with elevated AST levels of 161 U/L, 130 U/L, 136 U/L and elevated ALT levels of 520 U/L, 462 U/L, and 350 U/L, respectively. As the patient reported his last kratom use was on day 29 and results for mitragynine screen from day 36 had not yet been reported, patient agreed to receive intramuscular naltrexone suspension on Day 45 for treatment of alcohol use disorder and opioid use disorder. The next day, he subsequently experienced symptoms consistent with precipitated opioid withdrawal including nausea, vomiting, diarrhea, and muscle aches. **Review of Literature:** Kratom has been associated with instances of acute liver injury in previous case reports. A MEDLINE search revealed no published case reports of kratom-induced precipitated opioid withdrawal following naltrexone administration. **Conclusion:** This case report demonstrates that chronic, heavy use of kratom creates physiological opioid dependency placing alcohol use disorder and opioid use disorder patients at risk of precipitated withdrawal when starting naltrexone.

Transcranial Magnetic Stimulation-Induced Mania With Psychosis: A Case Report

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Type: Therapeutic Case Report. **Background:** Transcranial magnetic stimulation (TMS) is a procedure with growing popularity for the treatment of depression. To date, 2 cases have been published in the literature documenting the risk of treatment-emergent mania in patients treated with TMS, both in patients with a psychiatric history positive for hypomanic or manic episodes. We observed TMS-associated mania with psychotic symptoms in a 55-year-old man suffering from depression and generalized anxiety disorder without history of psychosis or mania. **Patient History:** The patient's medication history for the treatment of depression and anxiety included trials of several antidepressants, antipsychotics, benzodiazepines, as well as failed electroconvulsive therapy (ECT). TMS treatment was initiated due to persistently poor pharmacotherapeutic response. TMS was initially successful demonstrating positive effects on mood, however, the patient began to develop symptoms consistent with mania and was hospitalized after being placed on a psychiatric hold. TMS was discontinued and significant medication changes were initiated, including addition of oxcarbazepine and olanzapine, as well as cessation of phenelzine; the episode of mania resolved during his hospital stay. **Discussion:** Recent medication changes may have contributed to the development of manic and psychotic symptoms, notably the initiation of phenelzine in the months leading up to TMS treatment. However, manic symptoms have not re-emerged despite re-initiation of phenelzine in combination with a second-generation antipsychotic upon discharge. This timeline implicates TMS as a likely cause of mania symptoms.

Vasopressor-Refractory Shock From Clozapine Overdose Treated With Synthetic Angiotensin II Infusion

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Type: Therapeutic Case Report. **Background:** Clozapine is an antipsychotic with potent peripheral alpha-1 antagonism leading to hypotension in excessive dosages. Clozapine may inhibit the response to catecholamine vasopressors, and use of epinephrine causes a paradoxical hypotensive effect through unopposed beta-2-mediated vasodilation in peripheral vasculature. Arginine vasopressin is reported to have positive hemodynamic effects after clozapine overdose. However, in the setting of profound vasodilation refractory to catecholamines and vasopressin, angiotensin II may increase mean arterial pressure (MAP) independent of adrenergic receptors, and reverse shock from clozapine overdose. **Patient History:** A 39-year-old man with schizoaffective disorder was found what was determined to be a clozapine overdose. He required intubation for altered mental status and reduced respiratory effort. Profound vasodilatory shock necessitated rapid vasopressor titration. Infectious and cardiac workup was negative. Despite escalating vasopressor dosages to norepinephrine 1 mcg/kg/min, epinephrine 1 mcg/kg/min, vasopressin 0.08 unit/min, and hydrocortisone 50 mg every 6 hours, the MAP remained 52 mmHg. Angiotensin II was initiated at a rate of 20 ng/kg/min and the MAP promptly rose to 66 mmHg within minutes. All other vasopressors were subsequently weaned to maintain goal MAP $>$ 65 mmHg. Sixteen hours following angiotensin II initiation, vasopressors were no longer needed. Serum drug levels returned several days later, confirming clozapine overdose with clozapine and norclozapine levels reported as 3912 ng/mL and 1800 ng/mL, respectively. **Review of Literature:** Case reports of clozapine causing a blunted or paradoxical effect to catecholaminergic vasopressors, including phenylephrine, norepinephrine, and epinephrine have been reported. This is described both in overdose and usual dose settings. Based on non-opposing adrenergic mechanisms, vasopressin has been suggested as the vasopressor of choice in the setting of atypical vasopressor response. Angiotensin II is a synthetic analogue of the endogenous peptide that, during health, is produced from hepatically synthesized angiotensinogen with aid from renin in response to hypotension. Angiotensin II binds angiotensin type-1 receptors in the systemic vasculature, and has been shown to increase MAP and spare catecholamines in broad states of non-cardiogenic vasodilatory shock. **Conclusion:** Angiotensin II increases blood pressure not through adrenergic receptors and is an option for vasodilatory shock from clozapine overdose.