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CPNP 2021 Annual Meeting Poster Abstracts

Research Trainee Award Finalists

Free and Total Serum Valproic Acid Concentrations: Association With Clinical Response and Toxicities

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Type: Work in Progress. **Background:** Valproic acid (VPA) is an antiseizure medication indicated for the treatment of bipolar mania, epilepsy, and migraine prophylaxis. Therapeutic drug monitoring for treatment of epilepsy and bipolar mania may include free (fVPA) and total (tVPA) serum concentrations as well as weight and albumin. As a highly protein bound medication, fVPA concentrations may be increased by age, renal impairment, or low serum albumin or if displaced by concomitant highly protein bound medications. Studies have shown that patients with low albumin and old age have discordance between fVPA and tVPA. Previously published correction formulas are not consistently reliable in predicting fVPA and have not included assessment of clinical response or toxicity associated with fVPA and tVPA. **Objectives:** This study aims to determine the relationship between fVPA and tVPA and central nervous system (CNS) adverse effects. Additionally, this study will identify predictors of discordance between fVPA and tVPA and assess the validity of previously described correction equations. **Methods:** Patients aged > 18 years will be included if they were admitted to the hospital between January 1, 2016 and June 30, 2020 at a large academic medical center and had a fVPA and tVPA drawn concurrently, which are routinely utilized across all services at the study site. Patients will be excluded if their VPA serum concentrations were undetectable or drawn at different times. For adverse effects outcomes, patients in status epilepticus will be excluded. A linear regression model will be used to evaluate the relationship between CNS adverse effects and VPA serum concentrations. Factors associated with discordance between fVPA and tVPA and CNS adverse effects will be assessed using an adjusted logistic regression model. Spearman's correlation coefficient will be used to evaluate the relationship between measured and predicted VPA. **Outcomes:** Demographic data and potential predictors for discordance of VPA will be collected for 520 pairs of VPA serum concentrations and analysis will be completed in February 2021. The relationship between VPA and CNS adverse effects, odds ratios with 95% confidence intervals for independent predictors of discordance, and correlation between predicted and measured VPA will be reported.

Innovative Practices Award Finalists

Improving Hospital-Wide Prescribing Practices Through Pharmacist-Initiated Physician Peer Comparison Letters

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Type: Innovative Practices. **Background:** High doses of antipsychotics and antipsychotic polypharmacy are issues that have plagued clinical pharmacists for decades. While changes can sometimes be made on a patient-by-patient basis, it has been more difficult to effect system-wide changes. Peer comparison has been used to improve health care quality, physician performance, and for financial incentives to both the individual and organization. There is very little data on peer comparison and the impact on system-wide prescribing practices. **Description of Innovative Service:** The statewide Pharmacy and Therapeutics (P&T) Committee reviews hospital-level antipsychotic data for five facilities on a quarterly basis, including high doses and polypharmacy. Our hospital consistently stood out as having higher rates of high doses of haloperidol, olanzapine, and quetiapine as well as patients on three or more antipsychotics. In 2016, the clinical pharmacist, in conjunction with the hospital P&T committee, began to send out individual letters to the psychiatrists detailing their prescribing habits in these areas compared to other psychiatrists in the hospital as well as the other state facilities. No additional interventions were made by the clinical pharmacist. **Impact on Patient Care:** To date, the clinical pharmacist has sent out 17 quarterly physician peer comparison letters. Over the course of four years, the percent of patients on high dose olanzapine decreased from 28.57% (44.15% above the state average) to 13.51% (9.45% below the state average), high dose haloperidol from 28.36% (88.56% above the

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state average) to 9.68% (21.61% above the state average), and high dose quetiapine from 21.15% of patients (52.16% above state average) to 2.08% (64.44% below the state average). While the percent of patients on polypharmacy in the facility decreased from 10.33% to 8.42%, there was actually an increase compared to the state average from 21.51% above to 65.99% above. **Conclusion:** Pharmacist-initiated physician peer comparison letters considerably decreased the incidence of high dose olanzapine, haloperidol, and quetiapine, but did not appear to effect antipsychotic polypharmacy. This type of communication may be beneficial for stimulating system-wide changes in prescribing practices for high doses, but more individualized interventions are likely needed for polypharmacy.

Quality of Patient Care by Converting to Injectable Antipsychotics With Longer Duration of Actions During COVID-19 Pandemic

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Type: Innovative Practices. **Background:** In March 2020, medical centers nationwide began canceling non-essential in-person appointments to reduce spread of COVID-19. While long-acting injectables are a standard of care for improved adherence in patients with psychiatric disorders, administration requires in-person contact with a health-care professional. Experts have suggested converting stable patients to longer-acting injection formulations to reduce potential exposure to COVID-19. Some published data supports the safety and effectiveness of converting to longer-acting injections, but rigid inclusion and exclusion requirements in those studies limit applicability to real-world situations. **Description of Innovative Service:** To reduce clinic exposures during the pandemic, a pharmacist evaluated patient eligibility to switch to longer-acting injections based on FDA-approved labeling, and made recommendations to patients' providers. Possible changes included paliperidone palmitate monthly injection (PPMI) to paliperidone palmitate 3-month injection (PP3MI group) and risperidone every 2 weeks to PPMI (PPMI group). The pharmacist novel proactive role included: performing patient medical record reviews to identify appropriate candidates, providing drug information including appropriate dose conversions, and coordinating care between nursing and mental health providers. **Impact on Patient Care:** Of 102 patients evaluated, 41 were converted to longer-acting injections. Clinic visits for injections during a 40-week period decreased from projected average of 6 (PP3MI group) and 13 (PPMI group) to actual average of 2 and 6, respectively. Total clinic visits were reduced by 78% in the PP3MI group and 60% in the PPMI group, a total reduction from 420 projected visits to 101 actual visits. Of the 6 patients who had a psychiatric decompensation after transition, 4 cases identified where active substance use may have contributed to psychiatric decompensation. Other safety analyses included changes in average weight (-1.27 kg) and A1c (+0.07%). More patients experienced weight loss compared with weight gain (19 vs 6). There were no documented COVID-19 positive patients post-conversion. **Conclusion:** Converting patients to longer-acting injections reduced the number of clinic visits, which reduced potential exposure to COVID-19. There were no significant adverse safety outcomes, with very few psychiatric decompensations directly attributable to the conversion. This proactive approach to patient care represents a new practice strategy for the psychiatric pharmacy specialty.

Therapeutic Case Report Award Finalists

A Breath of Fresh Air: Treatment of Intramuscular Naltrexone-Induced Eosinophilic Pneumonia

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Type: Therapeutic Case Report. **Background:** Naltrexone, a competitive mu opioid receptor antagonist, is commonly used in the treatment of alcohol use disorder (AUD). As patients stabilize on the oral formulation, many transition to the intramuscular (IM) formulation to improve adherence and minimize pill burden. Intramuscular naltrexone is associated with a rare and potentially fatal adverse reaction of acute eosinophilic pneumonia (AEP). A diagnosis of exclusion and originally assumed to be idiopathic in nature, AEP is now associated with a variety of sources such as inhaled smoke, medications, and infection. As use of IM naltrexone expands, it is increasingly important for healthcare providers to not only be able to identify and treat naltrexone-induced AEP, but also be aware of appropriate AUD treatment following the adverse event. **Patient History:** The patient is a 35-year-old male veteran with past medical history significant for AUD. Approximately 72 hours following administration of his third naltrexone injection, the patient called the outpatient mental health pharmacist with complaints of nausea, migraine, shortness of breath, and pain with inspiration. After instruction to obtain further evaluation at the emergency department, the patient presented with oxygen saturation at 81% on room air, eosinophilia (7.9%), and diffuse nodular ground glass opacities observed on chest CT. The patient was admitted to the medicine unit and after a bronchoalveolar lavage (BAL) demonstrated 72% eosinophils, the pulmonology team confirmed the

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diagnosis of AEP and started an oral prednisone taper. The patient was discharged home after four days and the prednisone taper continued for a total of 45 days. The patient reinitiated oral naltrexone therapy 31 days after discharge. To date, there have been no reports of intolerability or serious adverse events. **Review of Literature:** A PubMed search revealed five reported cases of intramuscular naltrexone-induced AEP, with one including a retrial of oral naltrexone following the diagnosis. **Conclusion:** This case report demonstrates the identification and treatment of the rare adverse effect of IM naltrexone, AEP. Unique to other cases, this report demonstrates that intramuscular naltrexone-induced AEP may occur as late as the third injection and that the subsequent retrial of oral naltrexone may remain a safe and effective option.

Original Research Award Finalists

Perceptions of Adverse Drug Reactions Amongst Healthcare Professionals Within Inpatient State Psychiatric Facilities

Carolyn O'Donnell, PharmD[1,2]; Charisse Chehovich, PharmD[1]; Tammie Lee Demler, PharmD, MBA, BCGP, BCPP[1,2,3]

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Type: Original Research. **Background:** Conflicting definitions of an adverse drug reaction (ADR) can lead to confusion among healthcare professionals and reporting gaps. ADR reporting is vital for improvement in patient-centered care. The Joint Commission requires facilities to monitor ADRs, but there is concern that ADRs are underreported in healthcare facilities. **Objective:** To coalesce our shared understanding of the definition of ADRs, to address reporting gaps, and improve collaboration and facilitation of ADR reporting within inpatient state psychiatric facilities. **Methods:** An 11-question survey consisting of 10-multiple choice questions allowing free-text comments and one free-response question was developed by three pharmacists and reviewed by one pharmacist and one medical director. The survey was distributed to healthcare professionals within 25 state psychiatric facilities. The survey assessed the definition of an ADR, confidence in reporting, barriers to reporting, the role of reporting, who should report and review ADRs, and strategies to improve the process. **Results:** Among the already established definitions of an ADR, respondents (N=108) agreed that an ADR is an unintended, excessive, and unexpected response. Most respondents were moderately confident in the ADR reporting process. Barriers to reporting included the belief the ADR was not considered serious/the reaction is well-known, a lack of information, and a lack of clarity on how to report. Participants agreed that ADR reporting can improve the medication process, is part of pharmaceutical care, and decreases risks to the patient. Prescribers, nurses, and pharmacists were identified as the most needed participants in the ADR reporting and reviewing processes. Suggestions to improve ADR reporting included training and direction on what and how to report, training on perceived versus real consequences of reporting, a designated point person to assist with ADR reporting, and access to reporting technology. **Discussion:** We hypothesize that efforts to gain consensus on the definition of an ADR would be beneficial and would likely encourage reporting. Education is needed to encourage healthcare professionals to report ADRs and reduce the fear of retribution/retaliation. The results led to the development of a statewide pharmacy and therapeutics (P&T) sub-committee focused on improving and streamlining the ADR reporting process.

Pharmacists' Utilization of Prescriptive Authority of Naloxone and Tobacco Cessation Products in Idaho

Julia Boyle, PharmD; Richard Johns, PharmD; Gustavo Gonzalez Cuevas, PhD; Eric Silk, PhD; Kathy Eroschenko, PharmD

Idaho State University, Meridian, ID

Type: Original Research. **Background:** The opioid epidemic continues to claim more and more lives each year and the detrimental health effects of tobacco-containing products have been known for quite some time. In response to these issues, Idaho recognized the utility of pharmacists as health care providers. In 2015, Idaho law changed to allow pharmacists to independently prescribe naloxone and in 2017, to prescribe tobacco cessation products. In 2019, pharmacist's prescriptive authority was expanded even further. Despite progressive pharmacy practice laws, it is still not known if and how pharmacists are utilizing this opportunity. **Objectives:** To explore Idaho State pharmacists' utilization of the naloxone and tobacco cessation prescribing laws and their perceptions of these laws. **Methods:** An anonymous Qualtrics survey was sent to all practicing pharmacists within the State of Idaho. Survey questions were used to determine pharmacists' utilization and perceptions of naloxone and tobacco cessation prescribing laws. **Results:** A total of 320 pharmacists completed the survey. More than half (54%) of participants reported practicing in the retail setting. In regards to naloxone prescribing, 40% reported not prescribing naloxone at all, 45% reported prescribing naloxone 1-20 times per year and 15% reported prescribing naloxone more than 21 times per year. In regards to tobacco cessation prescribing, 62% reported not prescrib-

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ing any tobacco cessation products at all, 31% reported prescribing tobacco cessation products 1-20 times per year and 7% reported prescribing tobacco cessation products more than 21 times per year. A majority of pharmacists responded positively regarding the expanded naloxone and tobacco cessation prescribing laws, stating they felt comfortable implementing these laws, had adequate training and education, and these laws benefit the profession. **Conclusion:** Having prescriptive authority appears to not be enough to encourage pharmacists to engage in prescribing naloxone and tobacco cessation products. There is a disconnect between the high positive perception of these laws and their utilization. More research is needed to determine the barriers to increasing pharmacists' utilization of prescriptive authority.

CPNP Foundation Strategic Goals Award Finalists

Impact of a Neuropsychiatric Therapeutics Course and a Subsequent Case-Based Course on Mental Health Stigma Among Pharmacy Students

Rajkumar J. Sevak, PhD, RPh; Adam Kaye, PharmD; May C. Lui, PharmD, BCPS; Edward L. Rogan, PharmD, BCACP; Robert F. Halliwell, BSc, MSc, PhD
University of the Pacific School of Pharmacy, Stockton, CA

Type: Original Research. **Purpose:** Stigma towards psychiatric illness among pharmacists can diminish provider-patient relationships, resulting in inferior treatment outcomes. Structured mental-health education can reduce stigma but the impact of a pharmacy curriculum on student attitudes is not fully understood. This study investigated the impact of a neuropsychiatric course followed by a case-based course on mental health stigma amongst pharmacy students. **Methods:** A survey was conducted of 2nd year pharmacy students (N = 202) on the first and last day of a neuropsychiatric therapeutics course and 4 months later at the end of a case-based course. Periodically, during this time, student attention was directed towards societal mental health stigma. 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 omnibus Friedman test evaluated for significant main effect of time, followed by Wilcoxon Signed-Rank tests to compare baseline and post-course scores. Bonferroni corrections were also applied to adjust for multiple comparisons. **Results:** Outcomes from the Friedman tests indicated significant main effects of time for OMS-HC and Recovery scales ($\chi^{22} > 19.42$, $P < .001$). The post-hoc Wilcoxon test outcomes showed that, compared to the baseline OMS-HC score (Mean ± SEM, 38.68 ± 0.46), scores were significantly reduced at the end of the neuropsychiatric therapeutics (32.1 ± 0.48) and case-based courses (32.91 ± 0.45). Compared to baseline Recovery score (18.94 ± 0.26), the scores were significantly increased at the end of the neuropsychiatric (20.2 ± 0.28) and case-based courses (19.93 ± 0.27). There was no significant difference between post-therapeutics and post-case based courses for the OMS-HC and Recovery scores. Scores on other scales were not significantly changed. **Conclusions and Future Directions:** The decreases in OMS-HC scores and increases in Recovery scores indicate reductions in student mental health stigma. Although the case-based course did not further reduce mental health stigma, it sustained a reduction in stigma achieved after the therapeutics course. Future studies should evaluate whether clinical interactions with psychiatric patients further reduce mental health stigma in pharmacy students.

Original Research Abstracts

A Comparison of the Pharmacokinetics, Efficacy, and Tolerability of Long-Acting Injectable Risperidone Formulations

Emily Halsey, PharmD Candidate 2021; Mason Bader, PharmD Candidate 2021; Ericka Crouse, PharmD, BCPP, BCGP, FASHP, FASCP
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Type: Original Research. **Purpose:** The purpose of this review was to compare the pharmacokinetics, efficacy, and tolerability of long-acting injectable risperidone formulations: Risperdal Consta®, Perseris™, and Risperidone ISM®. Differences in drug administration and requirements for oral overlap, mechanisms of action, drug delivery, and drug cost were evaluated. These comparisons can be utilized by prescribers as they engage in a shared-decision making process with patients to assess the risks and benefits of each formulation. **Methods:** We conducted a retrospective database search for randomized, double-blind clinical trials using PubMed and critically reviewed studies in which long-acting injectable risperidone formulations were evaluated in the treatment of adults with schizophrenia. The following search terms were used in various permutations: risperidone, Risperdal, Consta, Perseris, ISM, schizophrenia, adults, antipsychotic medication, long-acting injectable, pharmacokinetics, efficacy, and tolerability. This information was compiled into tables to make clinically relevant comparisons of pharmacokinetics, efficacy, and tolerability. **Results:** Greatest reduction in total Positive and Negative Syndrome Scale (PANSS) score was seen with Consta® 50 mg, -8.6 ($P < .001$). A decrease of -3.5 ($P < .001$) was seen in the Clinical Global Impression scale with

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Perseris™ 90 mg. Adverse effects increased with dose, with injection site reactions and hyperprolactinemia predominating in ISM® (32.8% and 53.7%, respectively) and weight gain and akathisia predominating in Perseris™ (13% and 6.8%, respectively). Risperidone ISM® had the quickest time to steady state at two to eight hours. Two major administration differences include Consta® being an every two week injection that requires an oral overlap of three weeks in comparison to the other formulations being once monthly injections requiring no overlap. Cost information is not available for ISM® given that it has not gained FDA-approval, though comparison of Consta® versus Perseris™ shows a much higher cost with Perseris™. **Conclusion:** Oral antipsychotics are the backbone of schizophrenia treatment in the U.S. Long-acting injectable risperidone continues to be a mainstay of therapy due to improved adherence and efficacy rates. Consta® could be considered first-line because it is well-tolerated, offers more potential for an individualized dosing regimen, and has the greatest PANSS score reduction. As new formulations gain FDA-approval, it is essential that prescribers engage in multifactorial decision-making centered around each individual's needs.

Access to Medications for Opioid Use Disorder Within Integrated Healthcare Systems: Barriers and Potential Solutions

William Mullen[1]; Kathryn Bailey[2]; Ann Wheeler[1]; Christian Heidbreder[1]

[1] Indivior, Inc, North Chesterfield, VA; [2] Initium Health, Denver, CO

Type: Original Research. **Background:** Medications for opioid use disorder (MOUD) can effectively assist individuals with opioid use disorder (OUD) establish recovery and reduce the risk of relapse; however, many people with OUD do not receive treatment. Integrated healthcare systems play a significant role as MOUD providers, and their institutional processes may facilitate treatment utilization. **Objectives:** Review published literature, conduct interviews, and evaluate protocols in order to identify barriers to MOUD access within integrated healthcare systems, and propose clinical and administrative solutions. **Methods:** Published literature, including guidelines, were reviewed to inform the study and provide a benchmark for best practice. A convenience sample of three health systems with experience in providing MOUD were recruited, and seven total in-person interviews were conducted with stakeholders, including physicians. Exploratory questions were constructed to understand the patient journey within each system; content covered barriers to MOUD generally and to specific types of MOUD, available treatment options, decisions on treatment selection, and the impact of patients transitioning between service settings. Responses were analyzed using thematic analysis. Protocols related to MOUD were also reviewed, when available. **Results:** Five common barriers were identified: (1) lack of MOUD providers; (2) lack of screening to identify patients with OUD; (3) poor transitioning between initial care site (eg hospital, emergency department) and MOUD maintenance site (eg outpatient clinic); (4) limited MOUD availability and selection; and (5) lack of accountable monitoring and oversight of MOUD effectiveness. Proposed solutions included: (1) increasing the number of MOUD prescribing primary care providers; (2) early screening and identification of patients with OUD; (3) establishing successful referral processes between sites of care; (4) utilizing shared decision making; and (5) monitoring patient-important outcomes to evaluate MOUD effectiveness. **Conclusions:** This study identified barriers and potential solutions to MOUD access within three US healthcare systems. Adoption of the proposed solutions may mitigate reported barriers to MOUD within the systems and engage more patients in recovery. These strategies, when used in conjunction with a multidisciplinary and integrated approach within a healthcare ecosystem, may lead to transformative change in MOUD access and help increase the proportion of patients with OUD that receive effective treatment.

Analysis of Patient-Reported Satisfaction With Long-Acting Injectables for Opioid and Alcohol Use Disorder in a Central Texas Outpatient Clinic

Caitlin M. Vogt, PharmD Candidate 2021[1]; Madelynn M. Burgess, PharmD Candidate 2021[1]; Amanda N. Charles, PharmD Candidate 2021[1]; Lindsey J. Loera, PharmD[1]; Carlos F. Tirado, MD, MPH[2]; Lucas G. Hill, PharmD[1]

[1] The University of Texas at Austin College of Pharmacy, Austin, TX; [2] CARMAhealth, PLLC, Austin, TX

Type: Original Research. **Background:** Opioid use disorder (OUD) and alcohol use disorder (AUD) are chronic relapsing and remitting conditions placing individuals at considerable risk for adverse health outcomes. Treatment for OUD and AUD should typically include a combination of psychosocial interventions and FDA-approved medications. Buprenorphine (BUP), a partial agonist of the mu opioid receptor, is indicated for OUD. Naltrexone (NTX), an antagonist of the mu opioid receptor, is indicated for both OUD and AUD. Both BUP and NTX are available as long-acting injectables (LAIs) administered every four weeks. Research suggests LAIs to be superior to their daily counterparts in terms of adherence and efficacy; however, limited clinical research has been conducted to evaluate patients' satisfaction with these formulations. **Objective:** To assess patients' satisfaction, experience, and intentions during treatment with LAI formulations of BUP and NTX. **Methods:** A 13-question survey was administered via

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telephone from July 27, 2020 to August 10, 2020 to all 68 patients of a local outpatient clinic who recently received an LAI formulation of BUP or NTX. Primary outcomes included the number of patients rating BUP or NTX to have positively impacted their quality of life (QOL) and recovery. Secondary outcomes included patient-reported adverse effects and intention to continue treatment. Subjects who could not be reached by phone or declined to participate were classified as non-responders. **Results:** The obtained data included 43/68 subjects (63.2% response rate). Eleven patients received BUP and 32 received NTX. Buprenorphine was reported to have positively impacted both QOL and recovery by 11/11 (100%) patients. Naltrexone was reported to have positively impacted QOL by 27/32 (84.4%) patients, and to have positively impacted recovery by 28/32 (87.5%) patients. The most commonly reported adverse effect was soreness at the injection site (BUP = 36.4%, NTX = 53.1%). The vast majority of patients reported intent to continue treatment (BUP = 100%, NTX = 81.3%). **Conclusions and Future Directions:** Both BUP and NTX positively impacted overall QOL and recovery of surveyed patients with minimal side effects. Patients appeared willing to continue receiving LAI pharmacotherapy; however, further studies are needed to assess LAI impact on overall treatment retention and engagement in recovery.

Analysis of Student Pharmacists' Self-Reported Intention to Provide Harm Reduction Resources After Brief Education and a Simulated Patient Encounter

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Type: Original Research. **Background:** A college of pharmacy has provided a foundational 90-minute opioid overdose response training to P1 PharmD students during orientation since 2017. An interactive opioid overdose prevention module with a simulated patient encounter was added to the P2 curriculum in 2019, and it was converted to a virtual format in 2020. **Objectives:** To assess P2 PharmD students' self-reported likelihood of providing harm reduction resources after participating in a novel opioid overdose prevention module. **Methods:** A 50-minute lecture on non-discriminatory terminology, prescription monitoring programs, syringe service programs, overdose risk stratification, and overdose response counseling was provided to all P2 PharmD students. After the lecture, each student was tasked with offering naloxone and overdose response counseling in one of three simulated patient encounters: (1) third party naloxone request; (2) chronic opioid therapy for pain; or (3) non-prescription syringe purchase. Following the encounter, students completed an eight-item survey to evaluate their self-reported likelihood of providing harm reduction resources. Descriptive statistics and independent Kruskal-Wallis tests were used to analyze the data. **Results:** A total of 234 PharmD students completed the module in 2019 and 2020. Nearly all reported being extremely or somewhat likely to dispense naloxone to a potential overdose responder (97.9%) and to offer naloxone to a patient with overdose risk factors (98.7%). A substantial majority reported being extremely or somewhat likely to offer naloxone to a patient purchasing syringes without a prescription (88%) and to sell syringes without a prescription (82.1%). The proportion of students who indicated participation in this module made them more likely to engage in each of these activities was 90.2%, 91%, 82.5%, and 62.4%. Responses did not differ based on which simulated patient the student encountered. **Conclusions and Future Directions:** Students' self-reported likelihood of providing harm reduction resources in their future practice was high across a range of items after participation in brief education and a simulated patient encounter. Additional analyses could compare survey responses between in-person and virtual participants, and survey items assessing stigma could be added in future iterations.

Anxiety in Professional Pharmacy Students: A Literature Review on Anxiety and Effective Coping Mechanisms

Gyeong Min Lee, PharmD Candidate 2022[1]; Neha Nadkarni, PharmD Candidate 2022[1]; Jihyun Bae, PharmD Candidate 2022[1]; Ingrid Chou, PharmD Candidate 2022[1]; Kajal Rana, PharmD Candidate 2023[1]; Chandana Singathi, PharmD Candidate 2024[1]; Megan E. Maroney PharmD, BCPP[1,2]

[1] Ernest Mario School of Pharmacy at Rutgers, The State University of New Jersey, New Brunswick, NJ; [2] Monmouth Medical Center-RWJBarnabas Health, Long Branch, NJ

Type: Original Research. **Purpose:** Expanding upon a 2019 study by our institution titled "Analysis of Trends and Anxiety in Professional Students", more than half of professional pharmacy students meet the criteria for clinically significant anxiety, with the highest level being in the second professional year. According to the American Journal of Pharmaceutical Education, there is an increase in maladaptive coping behaviors among professional students, and thus worsening mental health-related quality of life. Our objective was to evaluate coping mechanisms that professional pharmacy students may use and techniques that faculty and staff can implement to relieve academically-induced anxiety. Extensive studies on stress and anxiety-related coping mechanisms in medical, nursing, and physical therapy students have previously been published, but there is less literature on the

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professional pharmacy student population. **Methods:** A literature review was conducted using PubMed and Medline from 2005-2020 with the following MeSH terms: anxiety, stress coping strategies, pharmacy students, professional students, anxiety disorders, and mental health. The chosen studies were conducted primarily in the United States but other countries included South Korea, Portugal, Ireland, and Malaysia. The majority of the studies evaluated pharmacy students; however, healthcare professional students of other majors such as medical and nursing were also included because they undergo experiences that may induce similar levels of stress. **Results:** We evaluated fifteen articles studying coping mechanisms that may be used by professional pharmacy students to relieve their anxiety and stress. Mindfulness practices, such as yoga and meditation, were shown to have statistical significance in reducing stress and ultimately improving mental well-being, whereas maladaptive strategies, such as venting and self-blame, were determined to be exacerbating anxiety and stress. Other modalities have been evaluated including spending time with family and friends, but no statistical analysis was performed. **Conclusion and Future Directions:** Spending time with family and friends, spending time alone, eating, exercising, and sleeping were shown to be some of the most commonly practiced coping mechanisms by pharmacy students to alleviate stress. Numerous studies have identified the potential of implementing the principles of mindfulness into a school curriculum. Future studies should focus on comparing these strategies to determine best practices.

Assessing Patient-Reported Outcomes and Pharmacist Interventions in Neurology Specialty Disease States Within an Integrated Care Center

Sabrina N. Livezey, PharmD, CSP[1]; Rebekah Finley, PharmD Candidate[2]; Nisha B. Shah, PharmD[1]; Ryan Moore, MS[3]; Leena Choi, PhD[3]; E. Danielle Bryan, PharmD[1]

[1] Vanderbilt Specialty Pharmacy, Nashville, TN; [2] Lipscomb University, Nashville, TN; [3] Department of Biostatistics, Vanderbilt University Medical Center, Nashville, TN

Type: Original Research. **Purpose:** Patient-reported outcomes (PROs), which measure aspects of a patient's health status directly from the patient, are effective for understanding patient insights into functioning, quality of life, and disease management. The primary aim of this study was to assess PROs gathered via monthly refill questionnaires (MRQs) within an integrated care center. **Methods:** This was a single-center retrospective analysis of patients completing 2+ MRQs from January 1, 2020 through March 31, 2020 for neurology specialty medication prescribed by the outpatient neurology clinic and dispensed by center's specialty pharmacy. The primary outcome was to evaluate patient responses to MRQs. Secondary outcome was to describe specialty pharmacist interventions prompted by MRQ responses. Monthly MRQ data included the following PROs: number of and reasons for missed doses, adverse effects, and medication effectiveness. Intervention data included intervention types and outcomes. Electronic health records provided demographic (gender, race, age) and clinical data (medication, indication). Intervention and MRQ data were collected from specialty pharmacy patient management database. Continuous variables are presented as medians with interquartile ranges (IQR) or means with standard deviations (SD), and categorical variables are presented as frequencies and percentages. **Results:** We included 168 patients: 57% male and 89% white with a median age of 51 years (IQR 18, 72). Prescribed medications included: cannabidiol (41%), deutetrabenazine (16%), pimavanserin (15%), droxidopa (11%), tetrabenazine (9%), valbenazine (4%), and tafamidis (4%). We collected 500 MRQs total. Patients completed a median of 3 MRQs (IQR 3, 3) over the three-month period. Ten percent of patients (n = 17) reported missing 1+ medication doses. Six percent of patients (n = 10) reported experiencing an adverse event. Patients rated medication effectiveness as excellent (n = 54, 11%), good (n = 425, 85%), or fair (n = 19, 4%). Specialty pharmacists performed 72 interventions, most commonly related to emergency, hospital, or urgent care visit (35%), adherence or missed dose (24%), medication list change (15%), and common side effect or toxicity (11%). **Conclusions:** Our findings demonstrate that MRQs are useful tools for collecting PROs data at an integrated care center. Patients within this model reported low rates of missed doses and side effects. Integrated specialty pharmacists performed targeted interventions to ensure safe and effective medication use.

Assessing the Characteristics of Veterans Over 65 Who Are Prescribed Benzodiazepines: Comparing Veterans in Mental Health Clinics and Primary Care Clinics

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Type: Original Research. **Purpose:** Benzodiazepines are a class of anxiolytic medications indicated for use in a number of mental health-related and somatic illnesses. While they are powerful clinical tools, they carry significant risks; these risks are even more pronounced in patients ages 65 years and older. The Veterans Affairs Medical Center (VAMC) in which this project took place is considering establishing a benzodiazepine taper clinic led by a geriatric psychiatrist, mental health clinical pharma-

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cist, and psychiatric pharmacy resident. The purpose of this project was to gather baseline demographics and background information to support and inform the establishment of such a clinic. **Methods:** Data for this project was retrieved on June 12, 2020 and chart reviews were performed in an ongoing manner until October 23, 2020. Twenty five patients ages 65 years and older with an active benzodiazepine prescription were randomly selected from the mental health (MH) clinic, and 25 patients meeting similar criteria were randomly selected from the primary care (PACT) clinic. Data was compiled, analyzed, and compared between the MH prescriber and PACT prescriber groups using descriptive statistics. **Results:** The average age of patients in MH and PACT clinics was 71.4 $\pm$ 4.5 years and 74.8 $\pm$ 7.1 years, respectively. The total daily dose (TDD) of benzodiazepines in diazepam equivalents was 14.4 $\pm$ 12.3 mg in MH clinic patients and 13.9 $\pm$ 14.2 mg in PACT clinic patients. The most prevalent indications for benzodiazepine use in patients followed by MH clinic were anxiety (64%) and insomnia or sleep (16%); in PACT clinic patients the most prevalent indications were anxiety (48%) and insomnia or sleep (32%). Patients in MH clinic were more likely to have a diagnosis of PTSD (40% vs 16%) or substance use disorder (28% vs 12%), while patients in PACT clinic were more likely to have a diagnosis of insomnia (48% vs 12%). **Conclusions and Future Directions:** Considering the current workload burden on health care providers and upon reviewing recent literature, the average age and TDD of benzodiazepines in patients reviewed for this project support the implementation a benzodiazepine taper clinic at this VAMC.

Assessing Use of Population Management Tools to Promote Safety for Long-Acting Injectable Psychotropic Medications

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Type: Original Research. **Background:** Long-acting injectable (LAI) medications have been shown to improve adherence in patient populations who commonly struggle with adherence. However, there are issues that arise with LAIs, such as missed doses, administration without an active order, and doses given at incorrect doses or frequencies. This project aims to analyze reduction in medication errors since the implementation of a LAI psychotropic medication dashboard. **Objective:** The objective of this project is to assess if medication errors surrounding LAI psychotropic medications have improved since the implementation of a population management tool in the form of a medication dashboard. **Methods:** Data was pulled from the computerized patient record system between the months of August 1, 2019 and January 31, 2020 and included all injectable psychotropic medications with active clinic orders, in hold status, or that were auto-discontinued. The psychotropic LAIs included were antipsychotics, naltrexone, and buprenorphine. The dashboard was fully implemented on August 8, 2020. Pre- and post-implementation data was analyzed to assess for reduced incidence in LAI medication errors since the implementation of the dashboard. Errors included missed doses, wrong doses or frequencies, and any doses given without an active order. **Results:** The initial data pull included 226 patients prescribed psychotropic LAIs between August 1, 2019 and January 31, 2020. Pre-intervention data showed 3 instances of wrong frequency, no wrong doses given, 9 doses given without an active clinic order, and 10 missed doses that were not documented to be due to a no-show by the patient. Post-intervention data showed no instances of wrong frequency, 1 wrong dose given, 2 doses given without an active clinic order, and 6 missed doses. **Conclusions:** Population management tools are useful to help prevent medication errors, especially in terms of LAI psychotropic medications. While LAI were formulated to improve adherence, it can be difficult to ensure adherence to follow-up injections if return to clinic orders are not properly scheduled, as well as other issues. This project shows initial benefit in using a LAI psychotropic medication dashboard to help monitor these medications and prevent medication errors. Future, long-term data is needed to fully support this conclusion.

Assessment of Opioid Withdrawal With the Clinical Opiate Withdrawal Scale (COWS) Treatment Protocol at a Community Psychiatric Hospital

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Type: Original Research. **Background:** The opioid epidemic continues to be a public health crisis. The Clinical Opiate Withdrawal Scale (COWS) can be used to assess the severity of opioid withdrawal symptoms and standardize the assessment criteria in patients with opioid use disorder. **Objectives:** Evaluate the adherence rate to the COWS treatment protocol at a community psychiatric hospital. Both medication selection and COWS documentation were assessed. **Methods:** This is a retrospective chart review from September 1, 2019 to December 31, 2019 of patients with opioid withdrawal who received medications via the COWS order set. Data collected from the electronic medical record included patients' baseline

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characteristics, medications administered and dosages, and COWS assessment frequency and scores. Data were analyzed using descriptive statistics. **Results:** In this retrospective study, a total of 175 patients who were initiated on the COWS protocol were evaluated. Heroin was the most commonly used opioid prior to admission in the majority of patients (71%). Thirty-two patients (18%) were assessed with the COWS every 4 hours consistent with the hospital COWS protocol. The average frequency of COWS assessment was twice per day. Eighty-five patients (49%) received the appropriate dose that corresponded to their respective COWS scores. As for medication administered, 145 patients (82%) received buprenorphine sublingual tablets with the average initial total daily dose of 6 mg per day. For the remainder patients, methadone was administered to 9 patients (5%), buprenorphine-naloxone sublingual tablets to 2 patients (1%), a combination regimen of buprenorphine and buprenorphine-naloxone to 5 patients (3%), and no medication to 15 patients (9%). In addition to opioid withdrawal treatment, 60% of patients received concomitant benzodiazepines. Of these, 41% received benzodiazepine for withdrawal treatment of alcohol use disorder, 34% for benzodiazepine withdrawal, 20% for concurrent benzodiazepine and alcohol use disorders withdrawal treatment, and 5% had other indications. **Conclusions and Future Directions:** The results show suboptimal opioid withdrawal assessment frequency and deviation of medication dosing that is inconsistent with the hospital protocol. Further analyses are needed to determine if modifications of the hospital COWS protocol or staff education are needed to improve patient care.

Benzodiazepine Prescribing Patterns at an Outpatient Family Medicine Clinic

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Type: Original Research. **Background:** Benzodiazepines are not recommended for first-line therapy or as chronic adjuvant therapy for indications such as anxiety or insomnia. Additionally, Beers criteria recommend the discontinuation of benzodiazepines in patients 65 years of age and older. This study will identify prescribing patterns of benzodiazepines which will inform development of an intervention in five local ambulatory clinics. **Methods:** From December 1, 2019 to February 29, 2020 each patient encounter at an outpatient family medicine clinic was reviewed for inclusion criteria. Patients were included in the study if they were over the age of 18 with a prescription for a benzodiazepine reported to the Prescription Drug Monitoring Program (PDMP). Patients were excluded if the encounter was with the clinical pharmacy team. If patients met inclusion criteria, charts were reviewed for demographics, indication for benzodiazepine, concomitant therapies utilized for management of anxiety disorders, and if the benzodiazepine was scheduled or as needed. Descriptive statistics were analyzed using Microsoft Excel. **Results:** A total of 5,675 patient encounters were screened for inclusion, of which, 164 patients met the inclusion criteria. Documented indications for each benzodiazepine prescribed included anxiety/panic disorder (n = 99, 57.23%), sleep (n = 3, 1.73%), procedure/flight anxiety (n = 18, 10.40%), and other (n = 7, 4.05%). Forty-six (26.59%) prescriptions did not have a documented indication. Of individual patients with anxiety/panic disorder as their indication for benzodiazepine use, 73.86% were on first-line therapy for an anxiety disorder. Individuals 65 years of age or older accounted for 30.48% (n = 50) of patients. Anxiety was the most common indication for benzodiazepines (n = 28, 56%) in older patients. In patients 65 years of age or older with anxiety/panic disorder, the rate of concomitant first-line therapy decreased to 57.1% (n = 16). Practice providers prescribed 46.95% (77/164) of the documented benzodiazepines. **Conclusions:** Most patients taking benzodiazepines were taking them for an FDA-approved indication and with a concomitant first-line therapy. A meaningful percentage of patients were over the age of 65 which is concerning given known Beers criteria. An intervention tailored to reducing benzodiazepine prescribing in patients over the age of 65 may have great value. One limitation to an intervention is the large percentage of prescriptions managed by outside providers.

Buprenorphine Prescribing Practices in US Emergency Departments

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Type: Original Research. **Background:** Patients presenting to the emergency department (ED) after an unintentional opioid overdose are at higher risk for fatal overdose immediately after discharge. Buprenorphine, a partial mu-agonist used to treat opioid use disorder, reduces morbidity and mortality. Most patients with opioid use disorder are not currently receiving buprenorphine, or an equivalent therapy. The ED is one area where patients can access buprenorphine as a potential bridge to long-term therapy. We conducted a prospective assessment of emergency medicine (EM) providers to evaluate current practice patterns and attitudes toward buprenorphine use in the ED. **Hypothesis:** New EM providers (< 5 years in practice) are more likely to have an XDEA waiver, prescribe buprenorphine, and have a more positive attitude of buprenorphine use. **Methods:** Participants

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were recruited through the Council of Residency Directors in Emergency Medicine website. Eligible participants included EM providers who can legally prescribe medications, including buprenorphine. Survey questions included demographic information about licensure and length of practice, information about current buprenorphine prescribing, and attitudes toward buprenorphine use. Participants' likelihood of having an XDEA waiver or prescribing buprenorphine was evaluated using a χ^2 test, attitudes toward buprenorphine were assessed using a Kruskal-Wallis test. **Results:** Eighty-three participants completed the survey over a two-month period, and the majority (85.5%) were physicians. Thirty participants had been in practice $<$ 5 years, 23 in practice 5-10 years, and 30 in practice $>$ 10 years. A majority (55.4%) did not have an XDEA waiver. Overall, the number of providers with an XDEA waiver, buprenorphine practices, and attitudes toward dispensing buprenorphine did not significantly differ based on years in practice. The only factor significantly associated with the use of buprenorphine in the ED and prescribing of buprenorphine at discharge, was the presence of an XDEA waiver ($P < .001$). **Conclusions and Future Directions:** Years in practice was not associated with any significant difference in XDEA waivers or buprenorphine practices. However, providers with an XDEA waiver were more likely to provide buprenorphine in the ED and at discharge. These results suggest that efforts to expand buprenorphine access should initially focus on increasing XDEA waiver rates among ED providers.

Characterization of Commercial Cannabidiol Oil Products and the In-Vitro Biomodulation of Citalopram and Escitalopram

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Type: Original Research. **Purpose:** Cannabidiol (CBD) products are marketed as nonprescription drugs with tetrohydrocannabinol (THC) content of 0.3% or less. Because these products are not mandated to undergo clinical safety and efficacy trials, the study's purpose was to characterize the compositional profiles of five commercial CBD oils and determine potential for clinically significant drug-herbal interactions when reacted with common antidepressants/anxiolytics, citalopram and escitalopram. These medications undergo hepatic metabolism by CYP2C19, CYP3A4, and CYP2D6. Enzyme inhibition by CBD may shift the medications' metabolic pathways, which can affect the amount of active drug or metabolites produced. **Methods:** The study's first phase utilized high performance liquid chromatography with diode array detection to characterize the oils' compositional profiles. Each oil was diluted with methanol into a 100 mcg/mL solution. The amounts of common cannabinoids were compared to each product's label claim. Then, the in-vitro metabolism of citalopram and escitalopram with the oils was analyzed. Reactions were completed in triplicate using phosphate buffer, human liver microsomes, substrate, inhibitor, and rapid-start NADPH. After incubation, the reaction was quenched using an equal volume of ice-cold acetonitrile containing 10 ng/mL of terfenadine. The vials were vortexed and centrifuged, and the solutions were analyzed by HPLC-tandem mass spectroscopy. **Results:** Oils 1, 2, 3, and 4 had accurate CBD levels compared to their claims, while Oil 5 had a significantly higher CBD concentration relative to its label. Oils 3 and 4 had undetectable THC levels, while the three remaining oils had THC concentrations below 0.3%. In the in-vitro reactions, citalopram and escitalopram had varying percentages of uninhibited metabolites depending on the oil and its concentration. Oil 1 produced increased inhibition with citalopram, while Oil 2 resulted in a larger inhibition of escitalopram. Oil 3 and escitalopram produced an increased amount of metabolites. Oil 4 produced similar inhibition for both substrates. Oil 5 caused significant inhibition of escitalopram, suggesting potential clinical impact. **Conclusions and Future Directions:** The CBD oils differed in concentrations and compositions. Each oil affected the metabolic pathways of citalopram and escitalopram differently, suggesting a potential for various clinical impacts when combining CBD products with common antidepressant/anxiolytic medications.

Clinical Utility of Pharmacogenomic Testing in a Veteran Mental Health Population

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Type: Original Research. **Background:** Personalized medicine is a growing movement and front-line providers have noted an increased demand for pharmacogenomic (PGx) testing from patients. Mental health patients often require multiple medication treatment trials prior to achieving response or remission of condition. If PGx testing could speed this process, it may have the potential to enhance care and treatment retention. There is currently limited information about the outcomes associated with routine PGx testing in mental health. **Objective:** To evaluate current use of PGx testing in mental health practice at a moderate sized Veterans Affairs hospital. **Methods:** This retrospective cohort review was granted University of Wisconsin-Madison Institutional Review Board exemption.

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Included subjects were veterans cared for by mental health prescribers who completed PGx testing from June 6, 2018 to June 6, 2020. Exclusion criteria were testing ordered by non-mental health prescribers or loss to follow-up prior to review of test results. Thirty-seven charts were reviewed. Demographic information, mental health diagnoses, genetic data, side effects, mental health screening instrument scores, and mental health hospitalizations were extracted from EHR by single manual chart review. Six mental health prescriber notes were reviewed per veteran; three visits prior to and after the date of review of test results. The primary outcome was probability of clinical response. Response was defined as score $<$ 10 or $>$ 50% reduction on Patient Health Questionnaire (PHQ)-9 or Generalized Anxiety Disorder (GAD)-7, or at least 10-point decrease on PTSD Checklist for DSM-5 (PCL-5). If more than one screening tool was utilized, patient was deemed a partial responder if met criteria for one screen only. Statistical analysis utilized Kaplan-Meier survival curve and paired t-test. **Results:** The percentage of veterans who clinically responded to mental health treatment post PGx testing was 40% +/- 19.8. The average number of side effects reported pre-test compared to post-test was statistically significantly decreased post-test, P=0.006. **Conclusion:** Pharmacogenomic testing did not demonstrate significant changes in clinical response within three visits following the test in a veteran population with an average of 14 prior psychiatric medication trials. In terms of tolerability, PGx testing may have clinical utility to help limit side effects for patients.

Effect of Pharmacogenetics-Based Decision Support Strategies in Improving Depression Outcomes: A Systematic Review

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Type: Original Research. **Objectives:** Evidence supporting pharmacogenetic (PGx) tests utility in depression is scarce. The main objectives of this study were to summarize, update, and assess the quality of the available evidence regarding PGX testing in depression as well as estimating the impact of using PGx testing tools in depression outcomes in the Middle East and North Africa (MENA) region. **Methodology:** Scientific databases were systematically searched from inception to March 20, 2020 for systematic reviews (SRs) and randomized controlled trials (RCTs) assessing clinical utility of PGx tests in treatment of depression. Meta-analysis only and RCTs that that were included in eligible SRs were excluded. Quality of the eligible studies were assessed using Crowe Critical Appraisal Tool. **Results:** Six SRs and three RCTs met the inclusion criteria and were included in this study. Results of the SRs have provided weak evidence on the efficacy of PGx testing especially in patients with moderate-severe depression at eight weeks. In addition, there was a lack of evidence regarding safety outcomes. Newer RCTs with better qualities showed clinical promise regarding efficacy outcomes especially in patients with gene-drug interactions. No evidence was found regarding PGx testing impact in the MENA region. **Conclusion:** This is the first SR that summarizes findings and assesses the quality of available SRs on this topic. Findings of this study have demonstrated that PGx testing prior to treatment initiation might improve efficacy outcomes. Further studies are warranted to assess PGx testing impact on safety outcomes.

Effect of Phenobarbital on Benzodiazepine Usage for Alcohol Withdrawal

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Type: Original Research. **Purpose:** Traditional management of alcohol withdrawal involves administration of benzodiazepines to alleviate symptoms. Phenobarbital similarly acts on post-synaptic GABA-A neurons, as well as reducing glutamate-induced neuronal excitability, both of which would be beneficial for alcohol withdrawal. Phenobarbital also has long half-life at approximately 80 hours, which may provide steady symptom management over longer periods with minimal to no repeat dosing. While each medication poses its own risks and benefits, benzodiazepines can cause over-sedation, hypotension, and respiratory depression, especially when used at high doses. This study analyzed the impact of phenobarbital bolus doses on benzodiazepine exposure for patients experiencing alcohol withdrawal. **Methods:** A retrospective chart review was performed in patients with a diagnosis of alcohol withdrawal and received one dose of either study drug, phenobarbital or chlordiazepoxide in January 2020. Chlordiazepoxide was chosen as the institution studied uses scheduled chlordiazepoxide as a standard for alcohol withdrawal. Total daily dose (TDD) of benzodiazepines were calculated and universally converted to lorazepam dose equivalents. Descriptive statistics were used for patient demographics and Student *t* test for benzodiazepine usage variables. **Results:** A total of 38 patients were included, 16 (42.1%) received at least one dose of phenobarbital. Phenobarbital 260 mg was given to 15 (93.8%) patients, and 4 (25%) required at least one additional dose of 130 mg. The mean TDD of chlordiazepoxide was 40.6 mg (SD = 34.6 mg) and 18.7 mg (SD = 19.1) in the benzodiazepine only group and phenobarbital group respectively (mean difference = 21.9 mg; 95% CI = 2.5 to 41.4). The TDD of all benzodiazepines were 6.8 mg

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(SD = 5.9 mg) for the chlordiazepoxide group and 5.3 mg (SD = 4.5 mg) in the phenobarbital group (mean difference = 1.5 mg; 95% CI = -2.1 to 5.1). Length of stay was comparable between groups at 8 and 9 days for chlordiazepoxide and phenobarbital groups, respectively. **Conclusions:** Phenobarbital lowers the need for scheduled chlordiazepoxide and may lower the overall use of benzodiazepines for alcohol withdrawal. Future studies should be performed in a prospective manner and analyze other patient outcomes, including patient safety and alcohol withdrawal assessment scores.

Effects of Different Cannabidiol (CBD) Oils on the Anti-Seizure Medication Phenytoin

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Type: Original Research. **Purpose:** There is little information on how cannabidiol (CBD) oils interact with prescription medications. Currently the only FDA-approved indications for CBD are Lennox-Gastaut syndrome and Dravet syndrome, which are pediatric seizures. Cannabidiol has been shown to be metabolized by the P450 enzymes, CYP2C9 and CYP2C19. Since these enzymes are used to metabolize phenytoin to its inactive metabolite, competition between phenytoin and CBD could lead to a decrease in the formation of phenytoin's inactive metabolite. The purpose of this study was to determine potential metabolic drug-herbal interactions between the anti-seizure medication, phenytoin, and commercially available over-the-counter (OTC) CBD oils using in vitro metabolism. **Methods:** In vitro metabolism reactions were conducted in triplicate using a mixture of human liver microsomes, a potassium phosphate buffer, various concentrations of different CBD oils, and phenytoin. Reactions were initially incubated in a water bath at 37°C for 5 minutes then initiated with rapid-start NADPH, then incubated again for 60 minutes. After the final incubation period, reactions were quenched with an equal volume of ice-cold acetonitrile containing 10 ng/mL of terfenadine. Reaction tubes were vortexed then centrifuged. The supernatant was collected and then analyzed by high performance liquid chromatography-tandem mass spectrometry. **Results:** All of the CBD oils showed a non-linear, concentration dependent decrease in metabolic activity versus increasing CBD oil concentrations. The percent of remaining metabolic activity at the highest concentration of oil tested was less than 45% for the weakest inhibitor and 17% for the strongest inhibitor. The largest decrease in activity was generally observed at the highest concentration evaluated for each CBD oil. Statistical evaluation of the data using a two-tailed Student *t* test showed that the decrease in percent remaining activity was statistically significant (CI 95%) when comparing the highest concentration group to the control group. **Conclusion:** The results of these experiments suggest that CBD oil could potentially inhibit the metabolism of phenytoin, which could put the patient at an increased risk of adverse events and toxicity when both an OTC CBD oil and phenytoin are taken together.

Efficacy of Esketamine in Conjunction With Adjunctive Atypical Antipsychotics in Patients With Major Depressive Disorder and Active Suicidal Ideation With Intent

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Type: Original Research. **Background:** 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). **Objectives:** This post hoc pooled analysis of the ASPIRE studies evaluated the efficacy and safety of ESK compared with placebo given in conjunction with an antidepressant(s) and atypical antipsychotic augmentation (AD+AP) as SoC. **Methods:** Adults (18-64 years) with MDSI were randomly assigned to ESK (84 mg) or PBO twice-weekly for 4 weeks in conjunction with SoC. Standard of care included initial hospitalization and newly initiated or optimized standard oral antidepressant therapy (monotherapy or augmentation therapy). This post hoc analysis examines treatment differences in change from baseline to 24 hours after the first dose in Montgomery–Åsberg Depression Rating Scale (MADRS) total score among patients who received AD+AP as SoC using analysis of covariance models. **Results:** In the full analysis set (n = 451), ESK or PBO was given in conjunction with antidepressant therapy. The least square mean (LSM) (±SE) changes in MADRS total score from baseline to 24 hours were –16.0 (±0.72) with ESK+SoC versus –12.1 (±0.72) with PBO+SoC (LSM difference [95% confidence interval], –3.8 [–5.75,–1.89]). A total of 118 patients received ESK or PBO in conjunction with AD+AP as SoC. Among these patients, baseline characteristics were similar in the ESK+SoC (n = 67) and PBO+SoC (n = 51) groups: mean age, 42.3 vs 40.7 years; female, 65.7% vs 58.8%; mean baseline MADRS total score, 40.6 (5.43) vs 39.9 (5.71). The LSM (±SE) changes from baseline to 24 hours after first dose in patients receiving AD+AP were –15.5 (±2.44) in patients treated with ESK versus –10.0 (±2.63) in patients treated with PBO (LSM difference, –5.5 [–9.5, –1.5]). The most common adverse events (>

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15% in the ESK+SoC AD+AP group) were dizziness, somnolence, headache, dissociation, and nausea. **Conclusions:** This post hoc analysis indicates that ESK, in conjunction with AP+AD, rapidly reduces depressive symptoms in adults with MDSI and has a safety profile similar to the overall analysis set (all patients who received ESK plus any antidepressant therapy).

Efficacy of Medication Means Restriction in Veterans With High-Risk Suicide Flags

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Type: Original Research. **Purpose:** Suicide is a public health challenge that causes significant distress. Most suicidal crises last minutes to hours and can be delayed/prevented through lethal means restriction. One strategy commonly employed is medication supply limits. This study aims to analyze the efficacy of 14-day medication supply limit in patients identified as high risk for suicide. **Methods:** Data from a single Veterans Affairs Medical Center was collected retrospectively via the electronic medical record. Patients included are those with high risk for suicide flags from December 18, 2018 to September 30, 2020. Demographic variables collected include age, gender, race, psychiatric diagnoses, method of suicide attempt, and presence of suicidal preparation/behavior. Efficacy of medication limits were assessed as a composite endpoint of subsequent psychiatric hospitalizations, crisis line calls, and extension of high risk for suicide flag. Secondary outcomes involving negative consequences of medication limits included late medication fills, medication supply errors, and medical visits related to gap in medication. Statistical analysis was completed using χ^2 for nominal variables and t-tests for continuous variables. **Results:** A total of 187 patients met inclusion criteria. Of those included, 102 utilized non-poisoning methods and 85 utilized poisoning as their primary method of suicide attempt. The most common non-poisoning method of suicide attempt was by firearm (33%, $n = 34$). More than half of poisonings were initiated using a prescription medication (56%, $n = 48$), There were no significant differences in the primary outcome when comparing method by poisoning versus all other methods: psychiatric hospitalizations ($P = .071$), subsequent medication overdoses ($P = .069$), contacts to the veteran crisis line ($P = 1$), extension of high risk for suicide flag ($P = .197$), and death by suicide ($P = 1$). There was a statistically significant difference in presence of suicidal behavior between the poison and non-poison groups ($P \leq .05$). **Conclusions and Future Directions:** Attempted medication overdoses were few for both comparator groups indicating benefit to the 14-day medication supply limit. Given no difference between the comparator groups in composite endpoints following the medication limit restriction, it is appropriate for all high risk for suicide patients to have a 14-day medication supply limit regardless of initial suicidal method.

Evaluating the Impact of Pharmacogenetic Testing on Medication Changes in Veterans With Mental Health Conditions

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Type: Original Research. **Background:** Pharmacogenetic (PGx) testing was approved for use in the Veterans Health Administration (VHA) in 2014. Guidance regarding drug-gene pair testing was released by the VHA Clinical Pharmacogenetics Subcommittee in 2018, but mainly focused on testing in an internal medicine setting. This quality improvement project aims to determine if documented PGx testing influenced medication changes in veterans who were diagnosed with mental health conditions at a single Veterans Affairs Health Care System (VAHCS). **Methods:** Corporate Data Warehouse identified patients who had received PGx testing between March 1, 2017 and March 31, 2020 (N=56). An extensive, individual chart review was conducted by one investigator. Patients were excluded if they had no documented diagnosis of a mental health condition. Primary outcomes included whether there was a documented change made in pharmacologic therapy as a result of PGx testing. Secondary objectives were to evaluate the degree to which treatment failures and adverse drug events were predicted by PGx testing. **Results:** Veterans included in this study were predominantly white males between the ages of 40-44. Patients had trialed a mean of 9 psychotropic medications prior to specimen collection. The most common diagnosis associated with PGx testing was depressive disorder and post-traumatic stress disorder (32% of included veterans). Documentation of PGx testing was included in patient charts 62.5% of the time, with changes made according to test results 48% of the time. Psychotropic medication treatment failures were predicted by PGx testing 34.6% of the time, and adverse drug reactions were predicted 2.7% of the time. **Conclusions:** Previous studies have shown that PGx testing improves outcomes and tolerability of psychotropic medication trials. At this VAHCS, over one-third of providers failed to document PGx test results and decision making. According to preliminary data, future studies could evaluate providers' comfort and knowledge regarding PGx testing and implement targeted education for documentation and interpretation of PGx test results.

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Evaluation of Commercially Available Cannabidiol Oils on the Metabolism of Commonly Prescribed Opioid Medications

Catherine Click; Marshall E. Cates, PharmD, BCPP, FASHP, FCCP; Greg Gorman, PhD; Danielle Cruthirds, PhD; Lori Coward

Samford University, Birmingham, AL

Type: Original Research. **Purpose:** The purpose of this study was to identify potential cytochrome P450 drug-herbal interactions between opioids and various commercially available cannabidiol (CBD) oils since they could conceivably be used together to treat pain. Cannabidiol oil is a known substrate/inhibitor of the isozymes CYP2C19 and to a lesser extent CYP3A4. **Materials and Methods:** Five different commercial CBD oils at six different concentrations were tested with fentanyl, hydrocodone, and oxycodone. Samples from in vitro metabolism using Human Liver Microsomes were analyzed using HPLC tandem mass spectrometry to measure changes in the metabolic profiles of fentanyl, hydrocodone, and oxycodone as a function of CBD oil concentration. All reactions were conducted in triplicate with the following control samples: no substrate, no NADPH, no microsomes. **Results:** Metabolic inhibition of all drug substances studied was found to vary as a function of each of the five CBD oil products studied. Inhibition of metabolic conversion of fentanyl to norfentanyl ranged from 35% to 81% and was statistically significant as compared to a no CBD oil control ($P < .001$). The formation of hydromorphone from hydrocodone was inhibited over a range of 28% to 70% and was also statistically significant ($P < .03$). Likewise, metabolic inhibition of noroxycodone from oxycodone ranged from 50% to 81% ($P < .009$). The lowest degree and range of inhibition was observed with the formation of oxymorphone from oxycodone, ranging from 4% to 26% ($P < .038$). **Conclusion:** The findings of this study suggest that CBD oil could potentially inhibit the metabolism of these specific opioids putting the patient at increased risk of adverse events and toxicity when these drugs are taken concomitantly.

Evaluation of Electrocardiogram (ECG) Monitoring in High Risk Patients Taking Known QTc Prolonging Drugs

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Type: Original Research. **Purpose:** Long QT Syndrome is a disorder of the heart's electrical activity that can lead to a life-threatening cardiac arrhythmia known as Torsades de Pointes (TdP). The CredibleMeds database lists 63 drugs known to cause QTc interval prolongation that are clearly associated with TdP even when used as recommended. In 2013, Tisdale et al validated a risk scoring tool to predict QTc interval prolongation in hospitalized patients. **Objectives:** The aim of this study is to identify patients who are on QTc prolonging medications with a known risk of TdP per the CredibleMeds® list, and who are of moderate/high risk per the Tisdale assessment, to evaluate if appropriate ECG monitoring was done. **Methodology:** This study retrospectively analyzed patient data in from September 1 to 30, 2020. Using our EHR analytics tool, patients who received a QTc prolonging agent, as defined on the CredibleMeds Known Risk of TdP list, during admission were identified. The medication order must have been a standing order, not PRN or one-time. Patients who met this criterion were evaluated using the Tisdale risk assessment tool. If their risk assessment was ≥ 7 (moderate/high risk for QTc prolongation), they were included in our study. **Results:** The majority of patients prescribed non-antiarrhythmic drugs who met the inclusion criteria had a low baseline risk for QTc prolongation. We were unable to assess baseline QTc risk score for 29 patients due to missing data. In patients for whom we were able to calculate the baseline risk score, all 110 patients met our criteria for appropriate ECG monitoring. Many of our psychiatric patients are transferred from other facilities, bypassing our emergency department admission process, which includes baseline ECGs. **Conclusion:** This study identifies a gap in our patient care process. While the majority of our patients were appropriately monitored based on their QTc risk score, several were not. With this data, we can address this issue to ensure that all of our patients are appropriately screened and assessed.

Evaluation of Pharmacogenomic Testing

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Type: Original Research. **Introduction:** Pharmacogenomic (PGx) testing is marketed as a data-driven strategy to personalize antidepressant therapy based on the pharmacokinetic and pharmacodynamic properties of the drugs. There is currently insufficient data to support the use of PGx testing for clinical efficacy; however, there may be some benefit in predicting tolerability. Regardless, the use of PGx testing continues to increase and it is important that clinicians can interpret and implement the results into patient care. The objective of this retrospective chart review is to evaluate the utilization of PGx testing by mental health prescribers in an outpatient psychiatry setting. **Methods:** Adult patients who were at least 18 years old with a diagnosis of major depressive disorder

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who had a PGx test between December 1, 2016 and July 30, 2018 were included in this retrospective chart review. Exclusion criteria included pregnancy, schizophrenia, those with a dose titration of a stimulant or lithium or were lost to follow-up within one year after PGx testing. The primary outcome was the percentage of patients who had a change in their medications from baseline, guided by PGx results. The secondary outcomes evaluated were the mean time to any intervention and the mean duration of therapy on the regimen implemented after the PGx results were interpreted. **Results:** A total of 56 patient charts were evaluated, 75% were female and the average number of psychotropic medications was 2.27 per patient. Nearly 79% of all patients had a change in their medications from baseline as a result of the PGx testing. The mean time to an intervention was 83 days, and the mean duration of therapy on the newly initiated mediation regimen after the PGx testing was 228.9 days. **Conclusion:** This study showed that the majority of patients who had PGx testing done required a change in their medications, but there was a delay of 83 days until the change occurred. This delay occurred despite having test results within 2 business days. Integration of a pharmacist into the outpatient setting may help interpret the PGx test results and make changes earlier.

Evaluation of the Safety of Intranasal Esketamine in VA Using a Real Time (Prospective) MUE

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Type: Original Research. **Title:** Evaluation of the Safety of Intranasal Esketamine in VA using a Real Time (Prospective) MUE. **Purpose:** Esketamine is the S-enantiomer of racemic ketamine, a non-selective, non-competitive antagonist of the N-methyl-D-aspartate (NMDA) receptor. Because of the risk of serious adverse outcomes resulting from possible sedation and/or dissociation caused by esketamine administration, and the potential for abuse and misuse of the drug, it is only available through a restricted distribution system, under an FDA approved Risk Evaluation and Mitigation Strategy (REMS). The purpose of this evaluation is to assess esketamine's safety via a real-time medication use evaluation (MUE). **Methods:** A prospective MUE was used to evaluate the adverse effects associated with the administration of intranasal esketamine. An Esketamine Safety Form, which, as a base, included all aspects of the REMS, was developed to monitor the safety of esketamine and to monitor the adherence to criteria for use provided in the VA National Protocol Guidance for esketamine. After registering with the VA Center for Medication Safety (VAMedSAFE) to set up user permission, all sites providing intranasal esketamine treatment were required to submit information in accordance with the VA PBM Real-time MUE on Intranasal Esketamine for Treatment Resistant Depression via the Esketamine MUE national data collection tool after every treatment session. The Safety Form assessed: if blood pressure was checked before, during and after treatment, and prior to discharge, if patients experienced sedation, dissociation, or cognitive dysfunction during treatment, if concomitant sedation medications or medications that influence BP were utilized, the patients' suicide risk, and if patients experienced any adverse drug event (ADE) during the course of treatment and in between courses of treatments. **Results:** A total of 108 patients have been treated with esketamine by 12 sites. The total number of doses administered is 1,540 with the longest duration of use 16 weeks. The most common adverse event was dissociation (90%) followed by sedation (77%) and transient hypertension (53%). Suicidal ideation was uncommon (1.9%). All adverse events resolved without incident. **Conclusions:** Adverse events with esketamine were common but transient and closely followed what has been reported in the clinical trials.

Health and Wellness in Pharmacy Students During the COVID-19 Pandemic

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Type: Original Research. **Background:** The well-being of pharmacy students is a key component in their ability to become successful pharmacists and to provide optimal care to patients. Pharmacy students have historically faced a myriad of stressors which has led to greater focus on programs providing support for student health and wellness. This study aimed to determine how the COVID-19 pandemic impacted students' perspectives on their wellness and ability to manage the additional stressors brought about by the pandemic and shift to remote learning. **Objectives:** To investigate the physical, mental, relationship, emotional, and financial health of pharmacy students during the COVID-19 pandemic, how that compares to pre-pandemic, and identify the resources that have been most beneficial to students. **Methods:** In June 2019, an internet-based survey was conducted to identify pharmacy students' perception of their own health and wellness and compared to their perception during the COVID-19 pandemic. In total, 74 students were surveyed. Descriptive statistics were used to analyze the

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collected data. **Results:** As a baseline, in 2019, 93.55% of students indicated that it is important as a health professional student to maintain a healthy body and mind, compared to 95.65% in our September 2020 survey. It was found that from 2019 to 2020 there was an increase in students' belief that health and wellness is important in work and academic performance. However, in 2020 there was a decrease in healthy behavior overall. Additional questions in the 2020 survey indicated that students' physical, mental, relationship, emotional, and financial wellness were either worse or much worse since the COVID-19 pandemic began. Students also indicated the need for services such as counseling, faculty support, and online resources. **Conclusions:** Pharmacy students faced additional stressors during COVID-19 that impacted their well-being. In many categories of health and wellness, students reported a decline during the COVID-19 pandemic. As the pandemic continues, future studies could investigate adaptations in physical and mental health, and investigate what factors contributed to students' success. These experiences have influenced students' perceptions of wellness as they become pharmacists and care for patients.

Impact of Clozapine Monitoring Overrides Due to COVID-19

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Type: Original Research. **Purpose:** As part of the Risk Evaluation and Mitigation Strategy (REMS) requirement to prescribe clozapine, providers must obtain a complete blood count (CBC) either weekly, bimonthly, or monthly depending on length of treatment. This project aimed to evaluate the impact of a national REMS override allowing certified prescribers to dispense clozapine without standard lab monitoring during the COVID-19 pandemic. **Methods:** The medical charts of veterans prescribed clozapine from March 1, 2020 to December 1, 2020 were reviewed, and monitoring frequency was assessed to determine if patients received a lab override due to COVID-19. Patient-specific characteristics as well as the frequency of adverse events, such as agranulocytosis, infections, emergency-department (ED) visits, hospitalizations, and other clozapine-associated events were collected. Incidence of each event was reported from the time of the first monitoring override to present, in addition to the year prior to the first override. Matched-pairs tests were used to determine if there was a statistically significant change in frequency of these events after overrides. **Results:** All veterans prescribed clozapine (N=11) received overrides to extend therapeutic monitoring. The average monitoring frequency was 15 weeks. Therapy was primarily managed by psychiatric pharmacists through telephone appointments. There were no patient-specific characteristics that influenced override decisions. Extending the CBC monitoring intervals for patients prescribed clozapine did not result in significant differences in ED visits, medical or psychiatric hospitalizations, infections, neutropenia, or other adverse events. **Conclusions and Future Directions:** There were no significant differences in the rate of adverse outcomes during regular and extended monitoring. These findings will help to inform ongoing clozapine prescribing and monitoring practices through the continued COVID-19 pandemic by providing information on safety and efficacy outcomes during this change in practice. Conclusions may be limited by the small homogenous population of veterans in this study. Future data-pooling across healthcare systems that have implemented lab monitoring overrides may be useful to confirm these results. Future research could review the necessity and practicality of current monitoring frequencies in patients prescribed clozapine.

Long- and Short-Term Disability and Workers' Compensation Trends for Employees With Mental Disorders in the United States

Richard A. Brook, MS, MBA[1,2,3]; Nathan L. Kleinman, PhD[4]; Ian A. Beren, MS[4]

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Type: Original Research. **Purpose:** United States (US) employee-benefits include Workers' Compensation (WC) for work-related injuries/illnesses, short- and long-term disability (STD and LTD, respectively) for non-work-related injuries/illnesses. These STD/LTD/WC absences can have significant impacts on business performance. Employers are intensifying efforts to manage these benefits and make connections with worker health. Research often inappropriately uses constant dollars and fixed salary-replacement percentages to estimate absence costs across benefits and diseases. This research compares all-cause STD/LTD/WC utilization and explores changes from baseline for employees with mental disorders. **Methods:** Employees with medical-claims from the US Agency for Healthcare Research and Quality mental disorders category were retrospectively identified in a commercial Research Reference Database (RRDb) from January 1, 2001 to December 31, 2019. Each year the analysis focused on the prevalence of mental disorders and by absence-benefit, the percent of eligible-employees utilizing the benefit, mean leave-length (days), and median payments as a percent of salary (MedianPayment). Disability/WC payments included lump-sum distributions and potentially extended beyond the year initiated. Workplace accidents were paid under the WC benefit.

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The WC-claims without absence from work (medical-only) were excluded. Sick leave claims may be taken for any reason and were excluded. All employees' absences were aggregated based on initiation-year. For each benefit, average leave-length and MedianPayment were compared with baseline (2001). **Results:** At baseline (2001), 6.8% of employees had mental disorders; of these, 12.7% filed STD-claims lasting 41.75 days at 70.6% MedianPayment, 0.7% filed LTD-claims lasting 198.52 days at 19.9% MedianPayment, and 1.3% filed WC-claims lasting 57.68 days at 68.0% MedianPayment. From 2002-2019 4.9%-11.4% of employees had mental disorders. 12.0% -15.0% of eligible-employees filed STD claims lasting 79.8% - 117.1% of baseline-days (BDs) and paying 69.0%-129.2 MedianPayment; 0.6%-1.2% of eligible-employees filed LTD-claims lasting 55.5%-398.7% of BDs at 111.2%-279.4% MedianPayment; 0.5%-1.3% of eligible-employees filed WC-claims lasting 109.4%-312.8% of BDs at 82.8%-253.4% MedianPayment. MedianPayment was highest in 2013 (STD), 2019 (LTD), and 2004 (WC). Claims-lengths were longest in 2019 (STD), 2005 (LTD) and 2010 (WC). **Conclusions:** Employees with mental disorders used different absence benefits over time with varying leave-lengths and payments as a percent of salary. Using a constant cost or salary replacement factor over time for all benefits is not accurate or appropriate.

Long- and Short-Term Disability and Workers' Compensation Trends for Employees With Substance Abuse Mental Disorders in the United States

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Type: Original Research. **Purpose:** United States (US) employee-benefits include Workers' Compensation (WC) for work-related injuries/illnesses, short- and long-term disability (STD and LTD, respectively) for non-work-related injuries/illnesses. Absences due to STD/LTD/WC can have significant impacts on business performance. Employers are intensifying efforts to manage these benefits and make connections with worker health. Substance-Abuse Mental Disorders (SAMD) prevalence has been increasing partially due to the Opioid Crisis. Research often inappropriately uses constant dollars and fixed salary-replacement percentages to estimate absence costs across benefits and diseases. This research compares all-cause STD, LTD and WC utilization and explores changes from baseline for employees with SAMDs. **Methods:** Employees with medical-claims from the US Agency for Healthcare Research and Quality SAMD category were retrospectively identified in a commercial Research Reference Database (RRDb) from 2002-2019. Each year the analysis focused on SAMD prevalence and by absence-benefit, the percent of eligible-employees utilizing the benefit, mean leave-length (days), and median payments as a percent of salary (MedianPay). Disability/WC payments included lump-sum distributions and potentially extended beyond the year initiated. Workplace accidents were paid under the WC benefit. The WC-claims without absence from work (medical-only) were excluded. Sick leave claims may be taken for any reason and were excluded. All employees' absences were aggregated based on initiation-year. For each benefit, average leave-length and MedianPay were compared with baseline (2002). **Results:** In 2002, 0.4% of employees had SAMD; of these 23.3% led STD-claims lasting 38.32 mean-days at 73.2% MedianPay, 2.5% led LTD-claims lasting 105.26 mean-days at 69.3% MedianPay, and 1.9% led WC-claims lasting 85.26 mean-days at 67.4% MedianPay. From 2003-2019: 0.3%-1.1% of employees had SAMDs. 18.6%-33.6% of eligible-employees filed STD-claims lasting 83.2%-137.9% of baseline-days (BDs) and paying 68.6%-125.6% Median-Pay; 0.5%-3.0% of eligible-employees filed LTD-claims lasting 122.7%-1042.2% of BDs and 27.6%-91.0% of MedianPay; 0.6%-3.6% of eligible-employees filed WC-claims lasting 47.0%-444.8% of BDs and 97.9%-481.6% of MedianPay. MedianPay was highest in 2012 (STD), 2014 (LTD), and 2006 (WC). Claims-lengths were longest in 2017 (STD), 2006 (LTD) and 2012 (WC). **Conclusions:** Employee prevalence of SAMDs has increased since 2002, with varying leave-lengths and payments as a percent of salary. Using a constant salary-replacement factor over time for all benefits is not accurate or appropriate.

Metabolic Monitoring in Active-Duty Soldiers Prescribed Second-Generation Antipsychotics: A Quality Improvement Project

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Type: Original Research. **Background:** In 2018, the Army had the highest rate of behavioral health disorders (BHD) at 10.7%, compared to the DoD average of 8.3%. Second generation antipsychotics (SGA) are medications for the management of schizophrenia and other BHDs. The SGAs can cause weight gain, dyslipidemia, and insulin dysfunction, predisposing individuals to develop cardiovascular disease (CVD). Persons with BHDs are more likely to experience morbidity and mortality from CVD, making metabolic monitoring (MM) imperative during SGA treatment. Current guidelines recommend baseline MM and follow up 12 weeks after initiation. **Objective and**

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Intervention: Determine if individuals prescribed SGAs have appropriate MM and order follow up fasting lipid panel (FuLP) and blood glucose (FuBG) if needed. **Methods:** Retrospective chart reviews were performed on all active duty soldiers with SGA prescriptions as of July 1, 2020 at Carl R Darnall Army Medical Center. The primary outcome was the occurrence of a fasting lipid panel (LP) and blood glucose (BG) at baseline and follow up. Secondary outcomes included whether a patient was seen by a clinical pharmacist (PharmD), time to follow up MM, the provider who ordered the labs, and whether an intervention was needed. **Results:** Of those reviewed, 160 charts were included and 1 was excluded because the SGA was never initiated. Over half of SGAs (52.5%) were active prescriptions at the time of review. Only 26.9% of patients were seen by a PharmD following medication initiation. Quetiapine was the most commonly prescribed SGA (41.88%). The BGs were more likely to be completed than LPs, both at baseline (35% vs 27%) and follow up (27% vs 16%). Median time to FuLP was longer than FuBG (15.57 vs 13.14 weeks). Psychiatrists were most likely to order baseline labs and FuLP. "Other" providers (eg, emergency medicine, specialist) were most likely to order FuBG. Over two thirds of individuals required an intervention. **Conclusion:** Most active-duty soldiers on SGAs do not have appropriate MM. PharmDs are familiar with proper MM and could increase ordering of labs, but further studies are necessary to determine if they can have a significant effect.

Montelukast and Risk for Antidepressant Treatment Failure

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Type: Original Research. **Introduction:** While montelukast carries a black box warning for serious neuropsychiatric events, the potential risk for adverse consequences in patients receiving antidepressants is unknown. We therefore examined two clinically salient scenarios; objective 1: depression relapse risk in patients on stable maintenance antidepressant therapy following initiation of montelukast, relative to comparator initiation of an inhaled corticosteroid (ICS); objective 2: acute treatment failure risk following antidepressant initiation in patients receiving pre-existing montelukast versus ICS. **Methods:** Both objectives used national administrative data from the Veterans Health Administration from January 1, 2006 to June 30, 2020. Patients with diagnosis codes for asthma and a depressive disorder were selected. Objective 1: 18,228 patients initiated montelukast or ICS after receiving stable antidepressant therapy for the preceding 6 months. The primary outcome of depression relapse was defined by a subsequent change in the pre-existing maintenance antidepressant regimen within 6 months, including increased antidepressant dose, initiation of a new antidepressant, or initiation of an augmenting agent. Objective 2: 13,292 patients initiated an antidepressant after receiving montelukast or ICS for the preceding 6 months. The primary outcome was acute antidepressant treatment failure, defined as the subsequent initiation of a second antidepressant or augmenting agent within 6 months. Log-binomial regression was employed to adjust for demographics, comorbidity, and concurrent pharmacotherapy. **Results:** Objective 1: Depression relapse was observed in 24.9% (354/1,423) and 22.9% (3,854/16,805) of patients initiating montelukast versus ICS, respectively. The relative risk in adjusted analyses was 1.09 (95% CI: 0.99, 1.21) for relapse within 6 months and 1.19 (95% CI: 1.04, 1.36) in a sensitivity analysis of relapse within 90 days. Objective 2: Acute antidepressant treatment failure was observed in 21.7% (698/3,217) and 22.5% (2,264/10,075) of patients receiving pre-existing therapy with montelukast versus ICS, respectively. The relative risk in adjusted analyses was 1.00 (95% CI: 0.92, 1.08). **Conclusion:** Our findings indicate that no prospective adjustment to asthma or depression treatment regimens is needed when initiating an antidepressant in patients on existing montelukast therapy. However, our findings suggest a modest (9-19%) increase in risk for depression relapse when montelukast is initiated and that more intensive psychiatric monitoring over the first 3-6 months may be indicated.

Pharmacogenetic Testing Implementation in a Rural Pediatric Psychiatric Hospital

Tianna Leitch[1]; Shayna Killam[1]; Kirk Katseanes[1]; Karen Brown[1]; Corbin Schwanke[2]; Abdallah Elias[2]; Susan Trinidad[3], Erica Woodahl[1]

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Type: Original Research. **Purpose:** Pharmacogenetic (PGx) testing enables providers to individualize patient therapies and improve outcomes in psychiatric clinical settings. Successful implementation strategies, however, have been limited to major academic medical centers and large health care systems. By contrast, rural, community-based health systems are slow to implement these advancements, threatening to exacerbate existing healthcare disparities. Shodair Children's Hospital is the only facility in Montana that provides inpatient and outpatient pediatric psychiatric services. Shodair is interested in partnering with the University of Montana to develop a PGx testing program utilizing telehealth consultation services and virtual access. **Methods:** We conducted semi-structured interviews (N = 21) with key stakeholders (eg, providers, staff, and administrators) at Shodair to identify barriers and facilitators for PGx implementation.

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Interviews were de-identified, transcribed, and downloaded into ATLAS.ti, a qualitative analysis software program, for thematic analysis. Researchers independently reviewed transcripts and created a codebook based on major themes. The codebook was then extensively revised through consensus by the group. **Results:** Participants perceived PGx results as a potentially beneficial clinical decision-making tool given the unique medication management challenges facing practitioners in pediatric psychiatry. Participants had clear goals and expectations for a PGx implementation effort and common themes included education and resources for both providers and patients, protocols for ordering and utilizing the services, as well as a focus on pre-emptive testing in outpatient facilities. Several practitioners identified pharmacists as potential primary champions for integration of PGx testing into treatment decisions, and cited access to PGx experts as a key factor in effective implementation. Overall, participants were optimistic regarding the utility of pharmacist-lead telehealth consultations and resources provided through a centralized service at the University of Montana Skaggs School of Pharmacy. Participants described the opportunity to serve as a leader in PGx testing implementation as a positive outcome for patients across the state, and felt it aligned with the mission of the institution. **Future Directions:** Together, Shodair Children's Hospital and the University of Montana Skaggs School of Pharmacy are creating a model for PGx implementation utilizing telehealth services that can ensure equitable access to PGx for patients living in rural communities.

Portrayal of Autism Spectrum Disorders and Related Treatments in Qatar's Printed Media

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Type: Original Research. **Objectives**: To assess Qatar's printed media for the portrayal of autism spectrum disorder (ASD), and to analyze the evidence behind the treatments recommended. **Methods**: Arabic and English Qatari daily newspapers were reviewed for a period of 1 year. Articles with autism spectrum disorder (ASD) as a central or subordinate theme were selected. A retrospective, quantitative, and qualitative content analysis of selected articles was then undertaken. Survey Monkey, Excel, and SPSS software were used for the quantitative analysis. Discourse analysis, utilizing a pre-determined coding approach derived from an extensive review of the literature, was followed for the qualitative thematic analysis. Articles discussing ADS treatments were analyzed separately, by reviewing the scientific evidence as outlined in the Qatar and the American Academy of Pediatrics (AAP) ADS treatment guidelines. **Results**: A total of 178 ASD-related articles were found. Quantitative analysis revealed that the overall attractiveness of these articles was low, most were in relation to general news or local events, and had a limited focus on the scientific aspects of this condition or its treatments. The discourse analysis revealed significantly more stigmatizing statements in articles in Arabic compared to English. The majority of the treatments discussed in the print media had insufficient or lacked scientific evidence. **Conclusions**: Results from this study indicate that there is a need to improve how the print media refers to when addressing ASD. More scientific and responsible writing is recommended particularly when recommending treatments for this condition.

Predictors of Persistence and Adherence to Deutetrabenazine Among Patients With Huntington's Disease

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Type: Original Research. **Objective:** To identify real-world predictors of adherence and persistence to deutetrabenazine in patients with Huntington's disease (HD). **Background:** Chorea is a common motor symptom of HD, characterized by sudden, involuntary, hyperkinetic movements. Deutetrabenazine is FDA-approved to treat chorea associated with HD. Factors that may be associated with persistence or adherence to deutetrabenazine are not well understood. **Design/Methods:** Insurance claims data from the Symphony Health Solutions Integrated Dataverse (May, 2017 to May, 2019) were retrospectively analyzed for patients diagnosed with HD (ICD-10-CM code G10) who had $\geq$ 1 deutetrabenazine prescription claim and did not discontinue treatment within 30 days of initiation (index). Patient characteristics were summarized during the 6-month baseline period. Persistence (ie, time to deutetrabenazine discontinuation) was summarized for the 6-month study period (after 30-day dose stabilization period); adherence rate (ie, proportion of days covered $>$ 80%) was summarized during the study period for patients with $\geq$1 pharmacy claim 7 months after index. Persistence and adherence prediction models were developed and validated separately. Hazard ratios (HRs) and odds ratios (ORs) with 95% confidence intervals (CIs) were estimated to identify predictors of persistence and adherence, respectively. **Results:** Baseline characteristics and outcomes described in this study are consistent with earlier studies. Persistence and adherence models included 27

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and 21 predictors, respectively (patient demographics, payer type, comorbidities, treatment history, and healthcare resource utilization). The persistence model fit the modeling set well, demonstrating strong predictive performance for the modeling set (AUC = 0.7969) and validation set (AUC = 0.8347). The adherence model fit the modeling set well, but had limited predictive performance (AUC: modeling = 0.6103; validation = 0.5625). Comorbid anxiety disorders predicted discontinuation (HR [95% CI]: 2.17 [1.08-4.36]; $P < .05$); use of anticonvulsants (0.50 [0.26-0.97]; $P < .05$), lipid-lowering agents (0.45 [0.21-0.97]; $P < 0.05$), and Medicaid versus Medicare insurance (0.44 [0.20-0.97]; $P < .05$) predicted persistence on therapy. Use of ≤ 2 treatments for chronic diseases (OR [95% CI]: 0.18 [0.04-0.81]; $P < .05$) and Medicaid versus Medicare insurance (0.27 [0.09-0.75]; $P < .05$) predicted lower odds of achieving 80% adherence. **Conclusions:** Findings from this analysis demonstrated that claims data can help predict real-world patient persistence to deutetrabenazine. Further studies with larger datasets may be helpful to expand these findings and build an adherence model with stronger predictive performance.

Predictors of Persistence and Adherence to Deutetrabenazine Among Patients With Tardive Dyskinesia

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Type: Original Research. **Objective:** To identify real-world predictors of adherence and persistence to deutetrabenazine in patients with tardive dyskinesia (TD). **Background:** Tardive dyskinesia is a hyperkinetic movement disorder characterized by involuntary movements that are typically stereotypic, choreiform, or dystonic. Deutetrabenazine is FDA-approved to treat TD in adults. The efficacy and safety of deutetrabenazine has been shown in clinical trials; however, factors that may be associated with persistence or adherence to deutetrabenazine are not well understood. **Design/Methods:** This retrospective analysis used insurance claims data from the Symphony Health Solutions Integrated Dataverse (May 2017 to May 2019) to identify patients diagnosed with TD who had ≥ 1 deutetrabenazine prescription claim and did not discontinue deutetrabenazine within 30 days of initiation (index). Patient characteristics were summarized during the 6-month baseline period. Persistence (ie, time to deutetrabenazine discontinuation) was summarized for the 6-month study period (after 30-day dose stabilization period); adherence rate (ie, proportion of days covered $> 80\%$) was summarized during the study period for patients with ≥ 1 pharmacy claim 7 months after index. Two prediction models were developed and validated separately for persistence and adherence. Hazard ratios (HRs) and odds ratios (ORs) with 95% confidence intervals (CIs) were estimated to identify predictors of persistence and adherence, respectively. **Results:** Baseline characteristics and outcomes reported in this study are consistent with previous studies. Persistence and adherence models included 36 and 29 predictors, respectively (patient demographics, payer type, comorbidities, treatment history, and healthcare resource utilization). The persistence model demonstrated strong predictive performance for the modeling set (AUC = 0.7919) and validation set (AUC = 0.7715). The adherence model fit the modeling set well, but had limited predictive performance (AUC: modeling = 0.5769; validation = 0.7011). Comorbid schizoaffective disorder/schizophrenia (HR [95% CI]: 6.22 [1.45-26.72]; $P < .05$) and sleep-awake disorders (5.61 [1.22-25.73]; $P < .05$) predicted discontinuation; use of lipid-lowering agents (0.21 [0.05-0.98]; $P < .05$) predicted persistence on therapy. Comorbid schizoaffective disorder/schizophrenia predicted lower odds of achieving 80% adherence (OR [95% CI]: 0.26 [0.07-0.91]; $P < .05$). **Conclusions:** Results from this analysis demonstrated that claims data can help predict patient persistence to deutetrabenazine in the real world. Future studies with larger datasets and additional variables (eg, socioeconomic) may help build an adherence model with stronger predictive performance.

Prenatal Cannabinoid Exposure Mediated Effects on Cerebellar Oxidative Stress and Mitochondrial Function in Adolescent Rat Offspring

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Type: Original Research. **Prenatal Cannabinoid Exposure Effect on Learning and Memory Through Mitochondrial Dysfunction:** Prenatal cannabinoid exposure adversely affects learning and memory through mitochondrial dysfunction. We investigated the effect of prenatal cannabinoid exposure on Complex I and Complex IV activity, the principal assays for detecting mitochondrial function. We observed a significant increase in both Complex I and Complex IV activity. This indicates cannabinoid might regulate the mitochondrial respiratory chain function differentially with acute and chronic exposure as well as in adult versus developmental exposure. **Prenatal Cannabinoid Exposure Effect on**

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Monoamines and Tyrosine Hydroxylase: Cannabinoid can also dysregulate various brain monoamines (MAO) levels (ie, dopamine, norepinephrine & serotonin). A significant reduction in total MAO activity in the cerebellum of prenatally cannabinoid exposed animals. Monoamine oxidase activity has been proposed as a biochemical marker for drug dependence and a reduction in MAO activity can also explain the mood and emotional changes in respect to cannabinoid use. Prenatal cannabinoid exposure can alter tyrosine hydroxylase (TH) activity along with changes in dopamine activity and receptor expression mediated by cannabinoid receptor type 1 (CB1R). **Prenatal Cannabinoid Exposure Effect on Synaptic Plasticity:** Since cerebellum has high density of CB1R, we wanted to examine whether prenatal cannabinoid exposure contributes to synaptic plasticity deficits in cerebellum. We examined the expression of GluA1R and GluN2AR in cerebellum which are major mediators of glutamate mediated learning and memory. We observed a significant reduction in GluN2AR expression with no changes in GluA1R in the cerebellum of prenatally cannabinoid exposed groups. **Prenatal Cannabinoid Exposure Effect on Caspase Complexes in Addition to Various Biochemical Markers for Neuronal Death:** To further investigate whether prenatal cannabinoid exposure initiates apoptotic cascade, we examined caspase 1 and caspase 3 in the cerebellum of these rats. Activation of inflammatory caspases like caspase 1 and caspase 3, can increase the production of various proinflammatory cytokines initiating cell death and apoptosis. We did not observe any change in the caspase 1 which is an inflammation marker but observed a significant decrease in caspase 3 which is an apoptotic marker. This indicates prenatal cannabinoid exposure might have a role in reducing apoptotic event in the brain.

Prescribing Delays in Clozapine and Associated Outcomes

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Type: Original Research. **Background:** Initiation of clozapine is recommended for patients with treatment resistant schizophrenia and schizoaffective disorders. Clozapine use is often delayed which could contribute to negative clinical outcomes. **Purpose:** The primary objective was to determine number of patients with schizophrenia and/or schizoaffective disorder who qualify to receive clozapine based on a clinical history of treatment resistance. Treatment resistance was defined as failure of two or more antipsychotics or use of antipsychotic polypharmacy. Secondary objectives were to examine the number of psychiatric related emergency department visits and hospital admissions among those classified as treatment resistant. **Methods:** Retrospective medical record review of patients with a diagnosis of schizophrenia or schizoaffective disorder meeting treatment resistant criteria seen by a UC San Diego Health outpatient psychiatry provider between January 1, 2016 and December 31, 2017 was conducted. **Results:** Of 156 records reviewed, 119 (76%) patients met inclusion criteria. Approximately 43 (36%) and 76 (64%) of patients had a primary diagnosis of schizophrenia and schizoaffective disorder, respectively. The mean age of the sample was 49 $\pm$ 15.9 years. A total of 38 (32%) patients qualified to receive a trial of clozapine based on antipsychotic failure or polypharmacy. There was no difference in treatment resistance based on primary diagnosis of schizophrenia or schizoaffective disorder (15 vs 23, $P = .683$, respectively) or comorbid diagnosis of anxiety (23 vs 15, $P = .13$), depression (31 vs 7, $P = .8$) or post-traumatic stress disorder (35 vs 3, $P = .5$). Treatment resistant patients had significantly more outpatient psychiatry encounters (13.3 vs 6.3, 95% confidence interval (CI): 1.9-12.0, $P = .008$) and emergency department visits for a psychiatric-related reason (0.1 vs 0.6, CI: 0.91-0.16, $P = .007$) compared to those who did not meet criteria for treatment resistance. **Conclusion:** There are patients with treatment resistant schizophrenia or schizoaffective disorder within UCSDH who could benefit from a trial of clozapine. Patients with treatment resistance were more likely to experience higher healthcare burden, including outpatient psychiatry encounters and emergency department visits compared to those who do not meet definition for treatment resistance.

Psychiatric Emergency Services Recidivism and Discharge Medications

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Type: Original Research. **Background:** Psychiatric emergency services (PES) recidivism is a multifactorial and prevalent occurrence among hospitals in the United States. There currently exists no literature evaluating the relationship between discharge medications and PES recidivism. The objective of our study is to determine if receiving discharge medications are associated with reducing PES recidivism. **Methods:** A single-center, retrospective review was conducted on all adult patients with a PES visit between July 1, 2018 and June 30, 2019 at Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG). The ZSFG PES electronic records and discharge pharmacy software were utilized to identify PES episodes, recidivism, patient demographics, and prescrip-

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tion status upon discharge from PES. Statistical analyses will be performed using a χ^2 test and logistic regression. **Results:** A total of 6,722 PES visits occurred upon exclusion between July 1, 2018 and June 30, 2019 at ZSFG. Of these, 2,357 (35.1%) episodes were associated with recidivism, defined as a re-visit within 30 days. For 107 (1.6%) patients who received discharge medications, 22 (21%) experienced recidivism. Of the 6615 (98.4%) patients who did not receive discharge medications, 2,335 (35%) patients experienced recidivism ($P = .002$). **Conclusion:** This study demonstrated that discharge medications are significantly associated with reducing PES recidivism, adding valuable information to existing literature. In line with similar studies, this study also found that homelessness, certain ethnicities, and specific diagnoses, such as psychotic disorders, were associated with increased rates of recidivism. Further studies are needed to identify additional modifiable factors to reduce PES recidivism.

Relationship Between Pharmacy Student Engagement in Curricular and Co-Curricular Activities and Wellbeing

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Type: Original Research. **Purpose:** (1) Determine the relationship between pharmacy student engagement in curricular and co-curricular activities and their wellbeing; (2) Discover the sources of pressure to participate in activities; (3) Describe activities that are linked to excessive stress **Methods:** An anonymous survey regarding engagement in activities and their wellbeing was sent to all students in a 4-year, private Doctor of Pharmacy program. Survey questions explored each respondent's involvement, motivation for involvement (positive and/or stressors), use of wellness resources, and sources of encouragement and/or barriers to use of wellness resources. Surveys were completed in November 2019 and 2020. **Results:** A total of 199 students completed the survey in 2019 (71% response rate) and 119 in 2020 (47%). All respondents reported participating in at least one optional activity. Students in 2019 reported working (79%), engaging in curricular pathways (66%), in professional organizations (60%), and in dual degrees (58%) because they felt it was valuable to their future career. The percent of students who felt pressure to participate in these four activities were 54%, 34%, 53%, and 16%, respectively. In 2020, the percentage working increased to 87% with the others unchanged. The pressure to participate in other optional activities increased by 11% for professional organizations, 7% in curricular pathways, 12% in dual degrees. The pressure most commonly came from employers and self for work, peers and self for organizations, and faculty and self for dual degrees and pathways. Students reported activities contributing to excessive stress at least some of the time (2019/2020): didactic coursework (55%/52%), work (37%/27%), experiential coursework (33%/38%), dual degrees (26%/25%), pathways (16%/19%), and organizations (15%/16%). Required activities and work was associated with more self-reported excessive stress than optional activities (P=0.000). **Conclusions:** Curricular pathways, dual degrees, professional organizations, work, and other activities provide opportunities for student development, as evidenced by students' perceptions of their benefit to their future careers. These activities also contribute to some pressure and excessive stress. Future work is needed to enhance the value of these activities and minimize any excessive stress, including how students are encouraged by mentors to prioritize opportunities.

Scoping Review of Policies Regarding Use of Medications for Opioid-Use Disorder in Professional Recovery Programs

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Type: Original Research. **Background:** Treatment modalities and return to practice decisions for physicians, pharmacists, and nurses with opioid use disorder (OUD) are controversial given concerns related to drug access and impairment. Professional recovery programs (PRPs) have made strides to assist health professionals in accessing treatment, maintaining their licenses, and returning to practice. While the efficacy of medications for the treatment of opioid use disorder (MOUD) is well documented, a hesitancy to allow their use in PRPs has been described by some clients and advocates. It is unclear whether there are formal policies within PRPs limiting MOUD use. **Objective:** To identify and describe policies related to the use of MOUD by physicians, pharmacists, and nurses in PRPs. **Methods:** A systematic search of PubMed, Medline, Web of Science, and Google Scholar was performed to identify articles from the US that address treatment of OUD with medications within PRPs for physicians, pharmacists, and nurses. **Results:** A total of 16 articles meeting the inclusion criteria were identified. Most PHPs described refer patients to treatment programs preferring abstinence if possible, but allow selective use of naltrexone if the provider approves. Three studies detailed the use of buprenorphine becoming more accepted in recent years, but stated that not all programs will endorse its use due to fears about impairment at work. Methadone was deemed "not recommended" by

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two studies and was not mentioned in most others. There do not seem to be formal policies against MOUD in most programs, but a minority of patients were reportedly treated with MOUD. Physicians were mentioned in all 16 studies, with nurses being mentioned in three and only three individual pharmacists included. **Conclusions and Future Directions:** Limited available data indicates some PRPs have implicit or explicit policies which discourage or prohibit use of the most effective forms of MOUD, buprenorphine and methadone. This is notably inconsistent with current clinical guidelines. However, recent data regarding PRP policies related to MOUD is lacking, as is data pertaining to pharmacists and nurses. Future research could include a survey of PRPs to directly assess their policies related to MOUD.

Societal Burden Associated With Schizophrenia Relapse Among US Veterans

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Type: Original Research. **Background:** Schizophrenia relapse is associated with poor clinical, economic and humanistic outcomes, leading to increased societal burden. On average, patients with schizophrenia relapse 9 times over 5.5 years. Data assessing societal burden of schizophrenia relapse is limited. **Objective:** This study quantified the incremental societal burden of schizophrenia relapse among US veterans in the Veterans Health Administration (VHA). **Methods:** Using VHA data from January, 2013 to September, 2019, veterans with schizophrenia, identified by having ≥2 diagnoses of ICD-9 295.xx, ICD-10 F20.x, F21, or F25.x during the study period, were included. The relapse cohort comprised veterans with ≥1 relapse (a schizophrenia-related hospitalization or emergency room visit within the 12-month pre-index), and the non-relapse cohort comprised veterans not meeting this criterion. The earliest schizophrenia diagnosis during January, 2014 to Sepetember, 2019 defined the index date for both cohorts. A third cohort, the non-schizophrenia cohort, comprised veterans without schizophrenia during the entire study period (index date was randomly assigned replicating the index year distribution of the relapse cohort). The relapse cohort was propensity score-matched 1:1 to the non-relapse and non-schizophrenia cohorts, respectively, on baseline demographic characteristics. Societal burden was compared between the matched cohorts based on the prevalence of unemployment, divorce, homelessness, incarceration, and premature death. Standardized mean difference (SMD) > 0.1 was used to compare outcomes between cohorts. **Results:** Each cohort included 16,862 veterans (median age 58-59 years, 92% male, 57% white). Substance abuse (67% vs 44% vs 30%) and comorbid mental health disorders (42% vs 24% vs 15%) were more prevalent in the relapse cohort compared to the non-relapse and non-schizophrenia cohorts (all SMD > 0.1). A higher proportion of the relapse cohort had unemployment (75% vs 71% vs 45%), divorce (36% vs 34% vs 30%), homelessness (39% vs 24% vs 9%), incarceration (0.6% vs 0.4% vs 0.1%), and pre-mature death (death before 80 years of age; 23% vs 17% vs 19%) compared to non-relapse and non-schizophrenia cohorts (all SMD > 0.1, except for pre-mature death). **Conclusion:** Schizophrenia was associated with significant societal burden among veterans, especially in those with relapse. Preventing relapse and supporting social determinants of health, such as employment and housing, may improve societal and clinical outcomes in veterans with schizophrenia.

Specialty Pharmacist Management and Monitoring of Prescription Cannabidiol

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Type: Original Research. **Purpose:** Prescription cannabidiol (CBD) has demonstrated effectiveness in reducing treatment-resistant epilepsy in Dravet, Lennox Gaustaut, and Tuberous Sclerosis Syndromes as adjunct therapy with other anti-epileptic drugs (AEDs). Cannabidiol drug-drug interactions are common due to its adverse effect profile and pharmacokinetic properties. Pharmacists play an important role in evaluating patients prior to CBD initiation and providing education and monitoring post-initiation. This study aimed to describe the number and type of actions performed by a neurology specialty pharmacist at CBD initiation. **Methods:** This was a single-center, retrospective cohort study of both pediatric and adult (≥ 18 years) patients prescribed CBD through the center's neurology department from January 1, 2019 through April 30, 2020. Patients were excluded if they participated in a clinical trial, received medication external to the center's specialty pharmacy, or the center's specialty pharmacy did not complete treatment access requirements. Specialty pharmacist actions included evaluating the patient for appropriateness of CBD therapy, securing insurance coverage and/or financial assistance, providing medication education, and screening for potential drug interactions at start of CBD therapy. Data were collected from electronic health records. Descriptive statistics were used to summarize the data;

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categorical variables are presented as frequencies and percentages, and continuous variables as medians and interquartile ranges (IQR). **Results:** There were 160 prescriptions for CBD, of which 24 were excluded (clinical trial: 2, external medication fulfillment: 18, external access pathway: 4). Most patients were pediatric (68%), white (85%), and half were male (50%). The most common indication was Lennox Gaustaut Syndrome (86%). Insurance approval was secured on initial request for 92% (n = 119) of those patients requiring prior authorization (n = 129). Drug interaction management was required in 80% of patients, including those for pharmacokinetic (20%), pharmacodynamic (38%), or both (41%) types of interactions. Clobazam (46%) and other benzodiazepines (43%) were the most common interacting drug(s). Of the 236 interactions managed, most (89%) required counseling with no change in medication, 9% required discontinuation of the interacting drug, and 3% required a dose change for the interacting drug. **Conclusions:** Neurology specialty pharmacists play an important role in assisting with prescription CBD access and evaluating and mitigating drug-drug interactions.

Stress and Substance Use Among Doctor of Pharmacy Students in a College of Pharmacy

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Type: Original Research. **Background:** Doctor of pharmacy students report high rates of stress, anxiety, and poor quality of life and these can severely impact academic success. Stress may lead to other poor lifestyle habits including decreases in exercise and sleep, poor nutrition, as well as use abusing substances including alcohol, nicotine, and prescription stimulants. The primary objective of this study was to evaluate doctor of pharmacy students perceived stress and substance use. A secondary objective was to assess sleep habits, nutrition, activity, and ability to cope with stress. **Methods:** Doctor of pharmacy students in years P1-P3 were invited to participate in this IRB-approved, anonymous, web-based study. The survey includes demographic questions, the Perceived Stress Scale (PSS-10), along with additional questions to assess substance use and lifestyle habits. Students were included if they were enrolled in the P1-P3 years of the doctor of pharmacy program in the fall 2019 semester. IBM SPSS version 24 was used to run One-Way ANOVAs with Tukey HSD post hoc tests used to determine significant differences between groups. **Results:** The survey was sent to 371 students and the response rate was 38% (N = 141). Results indicated that 81.2% of P2 students reported stress very often, compared to 58.8% of P1 and 68.75% of P3 students ($P > .05$). Among P2 students, 80% reported 0-1 day and 20% reported 2-4 days per week of moderate aerobic exercise per week. Additionally, 90% of P2 and 58.8% of P1 students reported 0-1 days per week of 20 minutes of vigorous exercise per week ($P = .039$). The P2 class reported higher frequency of anger for something that is out of their control than the P3 class ($P < .04$). The P2 class eats 3 meals per day less frequently than the P3 class ($P = .023$). The P2 students also report less sleep and more alcohol use than other students. **Conclusions:** Stress is common among all doctor of pharmacy students, but the P2 class reports more stress commonly. The P2 class also reports less exercise and sleep, and poor eating habits. These results will be used to develop programming for students to help reduce stress and anxiety.

Suicide Prevention Training "Boosters" for Pharmacists: Evaluation With SAVE Training

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Type: Original Research. **Purpose:** Pharmacists have been shown to interact with patients at risk of suicide. Suicide prevention training has been successfully adapted to pharmacy education. The objectives of the study were (1) to tie suicide prevention to pharmacists' roles in monitoring adverse effects through a Jeopardy game of medications labeled for suicide risk; (2) to encourage use of a 24/7 Crisis Line as a referral resource; and (3) to train pharmacy students in S.A.V.E. gatekeeper training through: Recognizing signs of suicide (S), Asking about suicide (A), Validating feelings (V) and Expediting treatment (E). **Methods:** During on-line instruction at a pharmacy school on August 31, 2020 and September 9, 2020, a suicide prevention training program that incorporated S.A.V.E. was conducted via Zoom. This included two videos of a student pharmacist interacting with patients expressing warning signs of suicide. A pharmacist-specific suicide conversation role-play using Zoom break-out rooms was utilized to practice implementing S.A.V.E. criteria. To reinforce the pharmacist's role in suicide prevention through monitoring of adverse effects, a Jeopardy game about medications labelled for suicide risk ended the training. Pre-post forced choice responses

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were analyzed with paired t-tests and McNemar's test using Excel and STATA. Two independent raters coded qualitative data and resolved conflicts in discussion with a third. **Results:** Survey data from 78 second-year pharmacy students were collected. After the training, 28% of students implemented all components of S.A.V.E, compared to zero students prior to training. The training resulted in a 54% increase in the number of students reporting that they would refer a patient with warning signs of suicide to a 24/7 crisis line ($P < .001$). Students' pre-post identification of drug classes with suicide warnings improved from a mean of 2.8 (SD 1.03) to 3.7 (SD 0.56) ($P < .001$). Prior to training, when faced with a video example of a patient in distress, only 1 student (1.2%) asked if the patient was considering suicide. After training, an additional 42 students (53.8%) asked about suicide ($P < .001$). **Conclusion:** A brief suicide prevention training program utilizing components of S.A.V.E. showed improvement in knowledge and confidence about how to interact with patients that are exhibiting suicidal ideation warning signs.

Telepsychiatry for Assessing and Managing Tardive Dyskinesia: Expert Insights From a Cross-Disciplinary Virtual Treatment Panel

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Type: Original Research. **Background:** Virtual medical visits in psychiatry are becoming increasingly useful and will likely continue beyond the current societal circumstances. Assessing tardive dyskinesia (TD), a persistent and potentially disabling movement disorder associated with antipsychotics, is difficult in-person and even more challenging in virtual settings. **Methods:** Insights were solicited from 6 neurologists, 3 psychiatrists, and 3 psychiatric nurse practitioners to understand how to assess for TD within a telepsychiatry visit. These experts participated in individual semi-structured interviews and a virtual roundtable to discuss how TD is diagnosed and treated in real-world settings. **Results:** The panel agreed that telepsychiatry offers benefits and opportunities to both patients (easier access) and clinicians (soliciting partner/caregiver feedback on symptoms and quality of life, ability to assess patients in their own environments). However, the panel also agreed virtual visits cannot completely replace in-person visits. Given the challenges of differentiating TD from other drug-induced movement disorders, most new patients may initially require an in-person evaluation. For follow-up, all patients should have yearly in-office visit if possible. The panel agreed that video is preferable and often necessary; telephone visits alone are not sufficient to accurately assess TD. Key challenges for telepsychiatry include technology issues (inadequate technology), time constraints (more time needed for virtual assessments), absence of a standardized approach, and difficulty observing the patient's whole body for a comprehensive assessment of abnormal movements. For pre-appointment preparation, suggested best practices include ensuring that patients have adequate technology. During the appointment, medical history and clinical review could be conducted similarly to in-person visits. For overall assessment of movements, patients can be instructed to walk around with someone else holding the smart phone or computer with a camera. For more specific assessments, clinicians can demonstrate the type of movement that they would like the patient to try. If movements are unclear, a follow-up in-person visit may be required. **Conclusion:** Telepsychiatry allows clinicians to ask patients and caregivers about bothersome movements and how these movements affect functional ability and quality of life. As members of treatment teams, pharmacists can support telepsychiatry by educating clinicians about FDA-approved TD medications (eg, valbenazine) that improve patient outcomes.

The COVID-19 Pandemic's Differential Impact on the Stress Levels of Faculty Versus Administrators of US Pharmacy Schools

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Type: Original Research. **Purpose:** The COVID-19 pandemic has caused unprecedented changes to the delivery of pharmacy education, and likely distress to pharmacy faculty and administrators. However, little is known about the extent of stress, anxiety and depression caused by the pandemic on faculty and administrators. This study compared the impact of the pandemic on stress, anxiety, and depressive symptoms of pharmacy school faculty and administrators. **Methods:** A web-based survey was administered to US pharmacy school faculty and administrators from August 11 to 31, 2020. The survey assessed the impact of the pandemic on mental health using validated questionnaires: Perceived Stress Scale (PSS), Generalized Anxiety Disorder-7 (GAD-7), and Patient Health Questionnaire-2 (PHQ-2, to assess depressive symptoms). The survey also used the Grit-S scale to assess resilience. Composite scores were compared between faculty and administrators using Mann-Whitney U tests with Bonferroni corrections. The proportion of faculty and administrators were compared across sub-categories using χ^2 tests. A multiple linear

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regression analysis was conducted to evaluate whether scores on the anxiety, depression and resilience scales affected participants' stress levels. **Results:** A total of 1,068 individuals participated in the survey (17.3% response rate), 960 (199 administrators, 761 faculty) of which completed all questionnaires. The proportion of faculty who had high stress, severe anxiety, and depressive symptoms was significantly greater than administrators (10.5% vs 6%, 7.4% vs 2.5%, and 13.7% vs 7.5%, respectively; $\chi^2 > 5.46$, $P < .03$). Median scores of PSS, GAD-7, and PHQ-2 were significantly higher, while Grit-S scores were significantly lower, in faculty as compared to administrators (19 vs 15, 5 vs 4, 1 vs 0, and 3.75 vs 3.87, respectively, U > 57,403, $P < .007$). Outcomes from the multiple linear regression analysis indicated that stress scores were positively affected by the GAD-7 and PHQ-2 scores, and negatively affected by the Grit-S score and age. **Conclusions and Future Directions:** Pharmacy faculty had greater symptoms of pandemic-related stress, anxiety and depression and lower resilience than administrators. Because higher Grit-S scores were associated with lower stress scores, targeted interventions that improve resilience may help alleviate pandemic-related stress in faculty members.

The Effects of Amantadine on Individuals With Dementia-Related Behaviors

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Type: Original Research. **Purpose:** The treatment of dementia-related disorders, especially the neuropsychiatric symptoms are challenging and unsuccessful, therefore there is a continued need to identify medications to help manage these symptoms. The purpose of this study is to record the effects of amantadine on dementia-related behaviors such as wandering, aggression, agitation, and perseveration. **Methods:** The Institutional review board approved this uncontrolled, retrospective chart review. Men and women aged 40 to 89 years admitted to inpatient psychiatry at an academic medical center between January 1, 2012 and December 30, 2018 that were prescribed amantadine for dementia-related behaviors were included. Prisoners, pregnant women, and patients taking amantadine for Parkinson's related movements were excluded. Medical records were reviewed at time of admission, throughout the hospital stay, and at time of discharge. Dementia-related behaviors such as wandering, aggression, agitation, and perseveration were evaluated to determine if the behaviors improved, stayed the same, or worsened after the receipt of amantadine. Side effects secondary to amantadine such as orthostatic hypotension, syncope, diarrhea, and dizziness were also recorded. Other medications that were started throughout the hospital stay were also recorded. The primary outcome evaluated change in dementia-related behaviors such as: aggression, agitation, perseveration, and wandering at time of admission, throughout hospital stay, and time of discharge following administration of amantadine. Secondary outcomes characterized side effects and evaluated the different outcomes amantadine may have on different type of dementia-related behaviors. **Results:** Seventeen patients met inclusion criteria. Improvement was recorded for aggression (94%), agitation (94%), and wandering (71%) when patients were treated with amantadine during an inpatient hospital stay. Patients experiencing perseveration (n = 5) were rated as improved (40%), no change (40%), and one patient outcome could not be determined. Patients with frontotemporal dementia were more likely to respond. Side effects were rare, only 3 patients (17.6%) reported side effects with only one patient discontinuing the medication due to dystonia. One patient experienced orthostatic hypotension which may or may not be due to amantadine. One patient experienced diarrhea due to amantadine. **Conclusions:** Most patients responded well to amantadine with minimal side effects, increasing possible options for managing dementia-related behaviors.

The Impact of Pharmacy Students' Understanding of Psychiatry on Personal Growth and Patient Treatment

Kevin Doan[1]; Leah Shabo[2]; Ericka Crouse, PharmD[1]

[1] *Virginia Commonwealth University, Richmond, VA;* [2] *University of Virginia, Charlottesville, VA*

Type: Original Research. **Purpose:** Psychiatry modules in pharmacy education have the potential to address mental health stigma and may help future pharmacists in discussing mental health concerns, alter willingness to engage persons with mental illness (MI), to better help this patient population. This research aimed to compare the effectiveness of a psychiatry module on pharmacy candidates' own personal growth with regards to MI, and the ability to address MI with patient interactions. **Methods:** Forty-six participants completed a 22-item, anonymous questionnaire. Pre-test and post-test data were collected to assess their perceived impact of coursework on patient treatment and self-reflection from their own mental health and treatment. The survey also assessed doctor of pharmacy candidates' changes in comfort level of treating patients with MI, referring family or friends for mental health counseling, and personal willingness to obtain counseling with regards to mental health. **Results:** There were significant differences in pre- and post-test mean scores in participants' personal willingness to speak with a provider regarding

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personal mental health (3.58 vs 4.09, $P = .007$), candidates who personally sought counseling (0.41 vs 0.19, $P = .031$), and comfort level counseling patients with MI (2.29 vs 3.82, $P < .001$) and comfort level in discussing mental health concerns with patients (2.97 vs 3.9, $P < .001$), respectively. There was no significant difference in inquiring about personal assistance with mental health concerns (0.365 vs 0.243, $P = .236$) and involvement in extracurricular activities within pharmacy school (3.634 vs 3.561, $P = .809$). **Conclusion:** A psychiatry module in pharmacy education may positively impact mental health stigma and the ability of doctor of pharmacy candidates to openly discuss MI as well improve counseling for patients needing psychotropic medications.

The Impact of Pharmacy-Driven Physician Naloxone Training on an Inpatient Psychiatric Unit

Farah Khorassani, PharmD, BCPP[1,2]; Gemma Espejo, MD[2,3]

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Type: Original Research. **Background:** Naloxone is an opioid receptor antagonist administered intranasally, intramuscularly, or intravenously during an opioid overdose and reverses respiratory depression. Naloxone prescription to patients who misuse opioids is prudent to ensure access to a life-saving medication during overdose. Physicians have reported a general lack of knowledge and decreased comfort as barriers to prescription. The purpose of this study was to evaluate the impact of pharmacist-driven naloxone training of resident physicians on discharge prescribing from an inpatient psychiatric unit. **Methods:** First and second year physician psychiatry residents (N = 21) were educated on naloxone administration and trained to counsel patients on intranasal naloxone use during an overdose. A 10-question assessment was designed and administered immediately pre-and post-training to assess resident knowledge of and comfort with naloxone prescribing. Respondents were asked to rate 10 statements on a scale from 1 to 5, with 1 corresponding to "strongly disagree" and 5 corresponding to "strongly agree." The primary objective was to evaluate the impact of training on prescriber knowledge and attitudes regarding naloxone prescribing using the designed questionnaire. The secondary objective was to assess the difference in naloxone prescribing pre-and post-training implementation. Descriptive statistics and Student *t* test were conducted to assess for statistical significance. **Results:** Mean scores for all survey questions except for two increased significantly ($P < 0.05$) after naloxone training. Approximately 52% of resident physicians felt knowledgeable and confident identifying patients to benefit from naloxone upon discharge prior to naloxone training compared to 95% after training. Only 10% of residents felt comfortable counseling patients on and administering naloxone during an overdose pre-training compared to 100% after training. Thirty-seven patients were discharged and counseled with naloxone kits on the inpatient psychiatry unit during the study period compared to none prior to training implementation. **Conclusion:** Pharmacist-driven naloxone training significantly increased physician knowledge and comfort prescribing naloxone. This change in knowledge and comfort was correlated with an increase in naloxone prescriptions upon discharge on an inpatient psychiatric unit. Consideration should be given to implementing and expanding such training programs to residents on other services.

Trends in Absence Time and Payments Due to Long- and Short-Term Disability and Workers' Compensation for Employees With Multiple Sclerosis in the United States

Richard A. Brook, MS, MBA[1,2,3]; Nathan L. Kleinman, PhD[4]; Ian A. Beren, MS[4]

[1] *Better Health Worldwide, Newfoundland, NJ;* [2] *The National Payor Roundtable, Glastonbury, CT;* [3] *National Association of Specialty Pharmacy, Washington, DC;* [4] *WorkPartners, LLC, Loveland, CO*

Type: Original Research. **Purpose:** United States (US) employee-benefits include Workers' Compensation (WC) for work-related injuries/illnesses, short- and long-term disability (STD and LTD, respectively) for non-work-related injuries/illnesses. These STD/LTD/WC absences can have significant impacts on business performance. Employers are intensifying efforts to manage these benefits and make connections with worker health. Research often inappropriately uses constant dollars and fixed salary-replacement percentages to estimate absence costs across benefits and diseases. This research compares all-cause STD/LTD/WC utilization and explores changes from baseline for employees with multiple sclerosis (MS). **Methods:** Employees with medical-claims for MS were retrospectively identified in a commercial Research Reference Database from January 1, 2001 to December 31, 2019. Each year the analysis focused on the prevalence of headaches/migraines and by absence-benefit, the percent of eligible-employees utilizing the benefit, mean leave-length (days), and median payments as a percent of salary (MedianPayment). Disability/WC payments included lump-sum distributions and potentially extended beyond the year initiated. Workplace accidents were paid under the WC benefit. The WC-claims without absence from work (medical-only) were excluded. Sick leave claims may be taken for any reason

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and were excluded. All employees' absences were aggregated based on initiation-year. For each benefit, average leave-length and MedianPayment were compared with baseline (2001). **Results:** During the study period MS prevalence averaged 0.2%. At baseline: 12.1% filed STD-claims, 1.4% LTD-claims, and 1.2% WC-claims. Mean STD-claims lasted 51.8days and paid 71% of salary (median); LTD-claims lasted 219.8 days and paid 7.2% of salary; WC-claims lasted 105 days and paid 172.8% of salary. From 2002-2019: for STD, 10.7%-20.5% of eligible-employees filed claims lasting 63.8%-129.6% of baseline days (BDs) and 57.3%-135.6% of MedianPayment; for LTD 1.3%-9.2% filed claims lasting 61.2%-1386.3% of BDs and 129.2%-810.2% of MedianPayment; For WC 0.0%-1.0% filed claims lasting 17.1%-1128.6% of BDs and 1.6%-239.5% of MedianPayment. MedianPayment was highest in 2004 (STD), 2017 (LTD), and 2008 (WC). Claims lengths were longest in 2018 (STD), 2005(LTD) and 2010 (WC). **Conclusions:** Management of multiple sclerosis is a growing concern for employers. Their employees with MS used a different mix of absence benefits over time with varying durations and payments. Using a constant cost over time for all benefits is not accurate or appropriate.

Understanding the Impact of COVID-19 on Schizophrenia Population Health Management: A Mixed-Methods Study of Population Health Decision Makers

Marlon Graf, PhD[1]; Dee Lin, PharmD, MS[2]; Meaghan Roach, MPH[1]; Priti Pednekar, PhD[1]; Carmela Benson, MS, MSHP[2]; Jacquelyn W. Chou, MPP, MPL[1]; Jalpa A. Doshi, PhD[3]

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Type: Original Research. **Background:** The coronavirus disease 2019 (COVID-19) pandemic has brought many challenges to managing chronic diseases, including limited opportunities for in-person visits or active follow-up for those who are difficult to reach. Patients with schizophrenia often struggle with medication adherence and may benefit from targeted patient outreach and case management. Understanding how population health decision makers (PHDMs) have addressed these challenges during the COVID-19 pandemic is critical to ensuring continued quality treatment and support for these patients. **Objective:** To understand how the COVID-19 pandemic has affected schizophrenia population health management (SPHM). **Methods:** This double-blinded study was conducted in two phases: in-depth interviews February 7, 2020 to May 4, 2020 with PHDMs involved in formulary or coverage decisions for payers, health systems, or behavioral health centers to understand general SPHM challenges and strategies, and a follow-on survey September 30, 2020 to October 17, 2020 to expand on interview findings and assess the impact of the COVID-19 pandemic on current practices. **Results:** Eighteen of the 19 PHDMs who participated in the initial interview phase also completed the survey phase ($n = 14$ medical directors; $n = 4$ pharmacy directors). Participants represented $>$ 104 million covered lives across Medicare (mean: (17.1%), Medicaid (29.1%), Commercial (49.8%) and the Veterans Health Administration (1.8%). Participants noted COVID-19 worsened all identified SPHM challenges, with patient unemployment (mean: 2.00 on a 1-5 scale, $1 =$ 'much worse' and $5 =$ 'much better') and decreased access to psychiatric care (2.12) most negatively affected. The PHDMs noted COVID-19 has positively impacted telehealth programs (mean: 4.06 on a 1-5 scale, $1 =$ 'negatively impacted' and $5 =$ 'positively impacted') and use of long-acting injectable antipsychotics (LAIs, 3.17), while negatively impacting other programs, including active medical outreach (2.50), non-medical services (2.67), and care coordination programs (2.72). Twenty-nine percent of participants indicated their organization's utilization management policies for LAIs changed due to COVID-19, including increased approvals and less oversight. PHDMs described increased demand for services such as case management and home visits. **Conclusions:** The COVID-19 pandemic has made SPHM more difficult, including exacerbating healthcare access issues and negatively affecting social determinants of health. Future research should assess how SPHM practices, including access to LAIs and telehealth, ought to evolve to address these challenges.

Use of Prescription Cannabidiol for the Management of Seizure Disorders at an Integrated Care Center

Kayla Johnson, PharmD, BCPS, BCPP[1]; Holly Dial, PharmD Candidate[2]; Wendi Owens, CPhT[1]; Josh DeClercq, MS[3]; Leena Choi, PhD[3]; Autumn Zuckerman, PharmD, CSP[1]; Nisha B. Shah, PharmD[1]

[1] Vanderbilt Specialty Pharmacy, Vanderbilt University Medical Center, Nashville, TN; [2] Lipscomb University College of Pharmacy, Nashville, TN; [3] Department of Biostatistics, Vanderbilt University Medical Center, Nashville, TN

Type: Original Research. **Purpose:** Prescription cannabidiol (CBD) is Food and Drug Administration approved for the management of patients one year or older with Dravet, Lennox Gaustaut, or Tuberous Sclerosis Syndromes. Real-world data describing CBD use is needed to better understand post-approval use of CBD. This study aimed to describe patient characteristics and medication use patterns in patients prescribed CBD within an integrated care center. **Methods:** This was a

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single-center, retrospective cohort study of both pediatric and adult patients prescribed CBD through the center's neurology department from January 1, 2019 through April 30, 2020. Patients were excluded if they participated in a clinical trial, received medication external to the center's specialty pharmacy, or the center's specialty pharmacy did not complete treatment access requirements. Data were collected from electronic health records. Descriptive statistics were used to summarize the data; categorical variables are presented as frequencies and percentages, and continuous variables as medians and interquartile ranges (IQR). **Results:** Of 160 patients prescribed CBD, 24 were excluded (clinical trial: 2, external medication fulfillment: 18, external access pathway: 4). Of the remaining 136 patients, median age was 10 years (IQR 5, 14) in pediatrics (n = 92, 68%) and 28 (IQR 21, 44) in adults (n = 44, 32%). In both pediatric and adult populations, approximately half were male (53% and 43%, respectively) and most were white (84% and 86%, respectively). Pediatric patients primarily used Medicaid (73%) while about half of adult patients had Medicare (46%). The most common indication was Lennox Gaustaut Syndrome in both pediatric and adult patients (89% and 80%, respectively). The median number of prior antiepileptic drugs (AEDs) was 7 (IQR 5, 11), ranging from 2 to 21. A median of 3 (IQR 2, 4) other AEDs were continued concurrently with CBD, most commonly levetiracetam (47%) and clobazam (46%). Non-oral administration was used in 17% of patients (G-tube: 15%, other: 2%). Sixty-eight patients (50%) previously failed at least one non-pharmacological therapy. **Conclusions:** A real-world cohort of patients prescribed CBD revealed often lengthy and complex pharmacologic and non-pharmacologic pathways to CBD prescription and continued concurrent AED therapy.

Encore Presentation Abstracts

A Combination of Olanzapine and Samidorphan in Adults With Schizophrenia and Bipolar I Disorder: Overview of Clinical Data

Leslie Citrome, MD, MPH[1]; Christine Graham, PhD[2]; Adam Simmons, MPH[2]; Ying Jiang, PhD[2]; Mark S. Todtenkopf, PhD[2]; Bernard L. Silverman, MD[2]; Lauren DiPetrillo, PhD[2]; Hannah Cummings, PhD[2]; Lei Sun, PhD[2]; David McDonnell, MD[3]

[1] New York Medical College, Valhalla, NY; [2] Alkermes, Inc, Waltham, MA; [3] Alkermes Pharma Ireland Limited, Dublin, Ireland

Type: Encore Presentation. **Previously Presented:** Psych 2020 (Virtual), NEI 2020 (Virtual)

A Survey of Health Care Professionals: Is a New Nomenclature Needed for Atypical Antipsychotics?

Greg Mattingly, MD[1]; Tina Matthews-Hayes, DNP(c), CRNP, FNP-BC, PMHNP-BC[2]; Stephen Stahl, MD[3]; Mehul D. Patel, PharmD[4]; Ken Kramer, PhD[4]; Kristie Wallace, PharmD[4]

[1] Washington University, St Louis, MO; [2] Western PA Behavioral Health Resources, Grindstone, PA; [3] University of California, Riverside, CA; [4] AbbVie, Madison, NJ

Type: Encore Presentation. **Previously Presented:** Neuroscience Education Institute Virtual Poster Library

Assessment of a Comprehensive Naloxone Education Program's Impact on Community Member Knowledge and Attitudes on a College Campus

Bennett Doughty, PharmD, BCPS, BCPP[1,2]; Sarah Young, PhD, LMSW[1]; William Eggleston, PharmD, DABAT[1,3]

[1] Binghamton University, Binghamton, NY; [2] Guthrie Robert Packer Hospital, Sayre, PA; [3] SUNY Upstate Medical University, Syracuse, NY

Type: Encore Presentation. **Previously Presented:** Published as follows: Doughty, B., Young, S., Eggleston, W. Assessment of a comprehensive naloxone education program's impact on community member knowledge and attitudes on a college campus. Journal of American College Health. 2020.

Cardiometabolic Safety of Lumateperone (ITI-007): Post Hoc Analyses of Short-Term Randomized Trials and an Open-Label Long-Term Study in Schizophrenia

John B. Edwards, MD[1]; Suresh Durgam, MD[1]; Robert E. Davis, PhD[1]; Richard Chen, PhD[1]; Sharon Mates, PhD[1]; Christoph U. Correll, MD[2,3,4]

[1] Intra-Cellular Therapies, Inc, New York, NY; [2] The Zucker Hillside Hospital, Northwell Health, Glen Oaks, NY; [3] Zucker School of Medicine at Hofstra/Northwell, Hempstead, NY; [4] Charité Universitätsmedizin Berlin, Berlin, Germany

Type: Encore Presentation. **Previously Presented:** 2020 Psych Congress virtual meeting

Comparative Bioavailability of Amphetamine Extended-Release Oral Suspension and Extended-Release Mixed Amphetamine Salts

Antonio Pardo, MD[1]; Mohammed Bouhajib, MSc[2]; Eman Rafla, MD[1]; Thomas R. King, MS, MPH[1]; Judith C. Kando, PharmD, BCPP[1]

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[1] Tris Pharma, Inc, Monmouth Junction, NJ; [2] Pharma Medica Research Inc, Mississauga, Ontario, CA

Type: Encore Presentation. **Previously Presented:** 2020 US Psych Congress

Development, Implementation, and Evaluation of a Clinical Tool Kit for the Care of Patients Receiving Clozapine in Acute Psychiatry

Katelyn Halpape, BSP, ACPR, PharmD, BCPP[1]; Tamara Mihic, BSc (Pharm), ACPR, PharmD[2]; Kiana Rahnama, BSc[2,3]; Alberto Almeida, MPH, BA (Hons)[4]; Joseph Puyat, PhD, MSc, MA (Psych)[5]; Michelle Carter, RN, MSN, BSN, BSc[2]; Joan Ng, BSc (Pharm), ACPR, PharmD[6]; Colleen Borrahlo, RPN, BScPN, BA[6]; Natalia Betancourt[2,3]

[1] College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; [2] St Paul's Hospital, Providence Health Care, Vancouver, British Columbia, Canada; [3] Faculty of Pharmaceutical Sciences, University of British Columbia, Vancouver, British Columbia, Canada; [4] Mental Health Program, Providence Health Care, Vancouver, British Columbia, Canada; [5] Centre for Health Evaluation and Outcomes Measurement Systems (CHEOS), School of Population and Public Health, University of British Columbia, Vancouver, British Columbia, Canada; [6] Vancouver General Hospital, Vancouver Coastal Health, Vancouver, British Columbia, Canada

Type: Encore Presentation. **Previously Presented:** Abstract has been submitted to "Together: Canada's Hospital Pharmacy Conference" which will take place on March 20-27, 2021

Effect of a Subcutaneous Weekly and Monthly Buprenorphine (CAM2038) Extended-Release Dose on Opioid Use Disorder (OUD) Treatment Outcomes

Michael P. Frost, MD[1]; Genie Bailey, MD[2,3]; Fredrik Tiberg, PhD[4]; Peter Hjelmström, MD[4]; Natalie Budilovsky-Kelley, PharmD[5]

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Type: Encore Presentation. **Previously Presented:** American Society of Addiction Medicine (ASAM) 2020 Annual Conference (virtual)

Efficacy and Tolerability of KarXT (Xanomeline/Trospium) in a Phase 2 Placebo-Controlled Trial in Schizophrenia

Stephen R. Saklad, PharmD, BCPP[1]; Peter J. Weiden, MD[2]; Colin Sauder, PhD[2]; Sarah Kavanagh, MPH[3]; Stephen Brannan, MD[2]

[1] The University of Texas at Austin, College of Pharmacy, Pharmacotherapy Division, San Antonio, TX; [2] Karuna Therapeutics, Boston, MA; [3] Kavanagh Statistical Consulting, Apex, NC

Type: Encore Presentation. **Previously Presented:** EMERGENT-1; NCT03697252; data previously presented as posters at 2020 ASCP & ACNP meetings

Efficacy of Lumateperone (ITI-007) in Depression Symptoms Associated With Schizophrenia

Ameen Saleem, MPharm[1]; Robert E. Davis, PhD[1]; Suresh Durgam, MD[1]; Susan G. Kozauer, MD[1]; Jason Huo, PhD[1]; Sharon Mates, PhD[1]; Roger S. McIntyre, MD[2]

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Type: Encore Presentation. **Previously Presented:** 2020 American College of Neuropsychopharmacology virtual meeting

Evaluation of Once-Daily Opicapone 50 mg in Patients With Parkinson's Disease and Motor Fluctuations: Pooled Efficacy and Safety Analyses of Two Randomized, Double-Blind, Placebo-Controlled Studies (BIPARK-1 and BIPARK-2)

Robert A. Hauser, MD[1]; Mark F. Lew, MD[2]; Daniel Kremens, MD, JD[3]; Werner Poewe, MD[4]; Olivier Rascol, MD, PhD[5]; Andrew J. Lees, MD[6]; Joaquim J. Ferreira, MD, PHD[7]; Kurt Olson, MS[8]; Khodayar Farahmand, PharmD[8]; Dawn Vanderhoef, PhD[8]; Chirag Shah, PharmD[8]; José-Francisco Rocha, BSc[9]; Patrício Soares-da-Silva, MD, PhD[9,10]; Grace S. Liang, MD[8]

[1] University of South Florida, Tampa, FL; [2] University of Southern California, Los Angeles, CA; [3] Thomas Jefferson University, Philadelphia, PA; [4] Medical University of Innsbruck, Innsbruck, Austria; [5] Toulouse University Hospital, Toulouse, France; [6] University College London, Reta Lila Weston Institute, London, United Kingdom; [7] Faculdade de Medicina, Universidade de Lisboa, Lisbon, Portugal; [8] Neurocrine Biosciences, Inc, San Diego, CA; [9] BIAL-Portela & Ca SA, Sao Mamede do Coronado, Portugal; [10] University Porto, Porto, Portugal

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

Healthcare Resource Utilization and Costs in Patients With Bipolar Disorder Treated With Lurasidone or Cariprazine: A Retrospective Analysis of Insurance Claims Data

Huan Huang[1]; Luke Schmerold[2]; Carole Dembek[1]; Qi Fan[1]; Christopher Dieyi[2]; G. Rhys Williams[1]

[1] Sunovion Pharmaceuticals Inc, Marlborough, MA; [2] STATinMED Research, Plano, TX

Type: Encore Presentation. **Previously Presented:** Academy of Managed Care Pharmacy

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Long-Term Antipsychotic Efficacy of Olanzapine and Samidorphan Combination in Patients With Schizophrenia: Pooled Analyses From Phase 3 Studies

René Kahn, MD, PhD[1]; Christine Graham, PhD[2]; Ying Jiang, PhD[2]; Lauren DiPetrillo, PhD[2]; Vasudev Bhupathi, MSc[2]; Sergey Yagoda, PhD[2]; David McDonnell, MD[3]

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Type: Encore Presentation. **Previously Presented:** American Society of Clinical Psychopharmacology 2020 (Virtual)

Long-Term Safety of Olanzapine and Samidorphan Combination in Patients With Schizophrenia: Pooled Analyses From Phase 2 and 3 Studies

Vasudev Bhupathi, MSc[1]; Bei Yu, MD, PhD[1]; Christine Graham, PhD[1]; Lauren DiPetrillo, PhD[1]; Jiani Yin, PhD[1]; Asli Memisoglu, ScD[1]; David McDonnell, MD[2]

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Type: Encore Presentation. **Previously Presented:** American Society of Clinical Psychopharmacology 2020 (Virtual)

Long-Term Weight and Metabolic Effects of Olanzapine and Samidorphan Combination in Patients With Schizophrenia: Pooled Analyses From Phase 3 Studies

John W. Newcomer, MD[1,2]; Ying Jiang, PhD[3]; Lauren DiPetrillo, PhD[3]; Sergey Yagoda, PhD[3]; Bei Yu, MD, PhD[3]; Vasudev Bhupathi, MSc[3]; David McDonnell, MD[4]; Christine Graham, PhD[3]

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Type: Encore Presentation. **Previously Presented:** American Society of Clinical Psychopharmacology 2020 (Virtual)

Lumateperone (ITI-007) in the Treatment of Bipolar Depression: Results From a Randomized Clinical Trial

Bradford W. Loo, PharmD[1]; Suresh Durgam, MD[1]; Robert E. Davis, PhD[1]; Susan G. Kozauer, MD[1]; Jason Huo, PhD[1]; Sharon Mates, PhD[1]; Joseph R. Calabrese, MD[2,3]

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Type: Encore Presentation. **Previously Presented:** 2020 American College of Neuropsychopharmacology virtual meeting

Randomized, Double-Blind, Placebo-Controlled, Fixed-Dose, Parallel Group Study to Evaluate the Efficacy and Safety of the Amphetamine Extended-Release Tablet (AMPH ER TAB) in Adults With Attention-Deficit/Hyperactivity Disorder

Andrew J. Cutler, MD[1,2]; Antonio Pardo, MD[3]; Thomas R. King, MS, MPH[3]; Eman Rafla, MD[3]; Stephanie Duhoux[3]; Judith C. Kando, PharmD, BCPP[3]

[1] Neuroscience Education Institute, Lakewood Ranch, FL; [2] Department of Psychiatry, SUNY Upstate Medical University, Syracuse, NY; [3] Clinical and Medical Affairs, Tris Pharma, Inc, Monmouth Junction, NJ

Type: Encore Presentation. **Previously Presented:** 2021 APSARD Meeting

Real-World Adherence to Tetrabenazine or Deutetrabenazine Among Patients With Huntington's Disease

Sam Leo, PharmD[1]; Rajeev Ayyagari, PhD[2]; Viviana Garcia-Horton, PhD[3]; Su Zhang, PhD[2]; Jessica Alexander, PhD[1]; Daniel O. Claassen, MD, MS[4]

[1] Teva Pharmaceuticals, West Chester, PA; [2] Analysis Group, Inc, Boston, MA; [3] Analysis Group, Inc, New York, NY; [4] Vanderbilt University Medical Center, Nashville, TN

Type: Encore Presentation. **Previously Presented:** Submitted to American Academy of Neurology 73rd Annual Meeting, April 17-23, 2021; Academy of Managed Care Pharmacy 2021 Congress, April 13-16, 2021

The Impact of Atypical Antipsychotic Nomenclature on Patients With Bipolar Disorder: Results of a Nationwide Patient Survey

Tina Matthews-Hayes, DNP(c), CRNP, FNP-BC, PMHNP-BC[1]; Greg Mattingly, MD[2]; Stephen Stahl, MD[3]; Mehul D. Patel, PharmD[4]; Ken Kramer, PhD[4]; Tara Piccolo, PharmD, BCPS[4]

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Type: Encore Presentation. **Previously Presented:** Neuroscience Education Institute Virtual Poster Library

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Using Item 8 of the Abnormal Involuntary Movement Scale (AIMS) to Assess Improvement in Patients With Tardive Dyskinesia

Leslie Citrome, MD[1]; Leslie Lundt, MD[2]; Chirag Shah, PharmD[2]; Tara Carmack, MS[2]

[1] New York Medical College, Valhalla, NY; [2] Neurocrine Biosciences, Inc, San Diego, CA

Type: Encore Presentation. **Previously Presented:** Psych Congress; September 10-13, 2020; Virtual Meeting and Neuroscience Education Institute; November 5-8, 2020; Virtual Meeting

Virtual Burnout: The Impact of Virtual Learning During the COVID-19 Pandemic on Perceived Stress Among Minority Pharmacy Students in an Urban Setting

Aminah Taylor, PharmD Candidate; Divita Singh, PharmD, BCPS

College of Pharmacy, Howard University, Washington, DC

Type: Encore Presentation. **Previously Presented:** American Pharmacists Association (APhA) 2021 Virtual Annual Meeting & Exposition

Work in Progress Abstracts

A Comparison of Erenumab Versus Botulinum Among Veterans With Chronic Migraines in the Setting of COVID-19

Christine Hagerman, PharmD; Patti Yager-Stone, PharmD, BCPS; Eileen Wilbur, MPH, RPh

VA Portland Health Care System, Portland, OR

Type: Work in Progress. **Background:** Chronic migraines are a common neurological disease in the United States that can affect social and occupational functioning. Both onabotulinumtoxinA and erenumab can reduce migraine frequency by 50%. In the setting of COVID-19, many veterans who were previously stable on onabotulinumtoxinA (BoNT) were transitioned to erenumab therapy given clinic constrictions. The purpose of this quality improvement project is to assess changes in migraine outcomes, cost, and adherence with erenumab therapy in veterans who were previously stable on BoNT. **Objectives:** (1) Evaluate the changes in migraine frequency, migraine severity, and adherence before and 6-months after erenumab initiation. (2) Assess the number of emergency room admissions related to migraines since transitioning from BoNT to erenumab. (3) Identify differences in cost within the Veterans Affairs system between erenumab and BoNT therapy over 6-months of treatment. **Methods:** This project is a retrospective chart review of veteran patients with chronic migraines. Charts that were reviewed were identified as patients stable on BoNT therapy and transitioned to erenumab therapy in March 2020 due to clinic limitations related to COVID-19. Charts were included in the final analysis if the patients had received at least 3-months of erenumab therapy with one follow up visit by Neurology. Charts were excluded from review if the patients transitioned to erenumab before March 1, 2020 or after June 30, 2020, those who transitioned due to BoNT treatment failure, those with a Latex allergy, and/or death. Patient records were reviewed to identify indicators of poor migraine prevention in comparison to baseline characteristics. Primary endpoints included changes in monthly migraine days (MMD), migraine severity, and adherence before and after erenumab initiation. Secondary endpoints included emergency room admissions related to migraines since transitioning to erenumab and differences in cost within the Veterans Affairs system between erenumab and BoNT therapy. This project was submitted to the local Research Office for approval as a quality assessment/quality improvement project. **Outcomes:** Data for this project is still undergoing evaluation, and trends noted during analysis may be used to modify local clinical practices as needed.

A Comparison of Prazosin and Topiramate for the Treatment of Alcohol Use Disorder in Veterans With PTSD

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Type: Work in Progress. **Background:** Alcohol use disorder (AUD) affects millions of Americans. Treatment of alcohol use disorder can be complicated by other comorbid psychiatric conditions like post-traumatic stress disorder (PTSD). Symptoms of PTSD can also lead to increased substance abuse and alcohol consumption, and further complicate treatment. Available data that observe the use of medications to treat substance use disorders may have low applicability by excluding patients with comorbid psychiatric conditions like PTSD. Few studies have evaluated the use of topiramate or prazosin for the treatment of both PTSD and AUD. The purpose of this study is to add to existing evidence, and evaluate the efficacy of topiramate and prazosin for AUD in PTSD. **Objectives:** The objective of this study is to assess treatment outcomes in veterans with PTSD and determine which medication intervention, topiramate or prazosin, significantly improves alcohol use disorder outcomes. The primary outcome is change in standard drinks per week. Secondary outcomes include alcohol cravings, change in

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drinking days per week, incidence of relapse, alcohol related hospital admissions, change in PTSD symptoms measured by the PTSD Checklist (PCL), blood ethanol, incidence of hypotension, and medication side effects. **Methods:** This study will consist of veteran outpatients with AUD and PTSD that are currently or were previously treated with prazosin or topiramate from September 1, 2015 to September 30, 2020. We will evaluate outcomes relating to alcohol use disorder and PTSD. **Outcomes:** We will report outcomes relating to alcohol use disorder, PTSD, demographic characteristics, and medication side effects.

A Retrospective Study Evaluating the Role of Atomoxetine in Improving Outcomes in Patients With Attention Hyperactivity Disorder and Comorbid Substance Use Disorder

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VA North Texas Health Care System, Dallas, TX

Type: Work in Progress. **Background:** There are higher rates of alcohol and substance use disorders (SUD) in adults with attention hyperactivity disorder (ADHD) as compared to adults without ADHD. Various theories have been proposed to explain the reason adults with ADHD are more likely to have a concomitant SUD. One rationale proposes substance use disorders may be a result of increased impulsivity and potential behavioral problems associated with ADHD. This increased propensity for comorbid ADHD and SUD may also increase the risk for polysubstance abuse, drug diversion and other psychiatric conditions such as anxiety, depression, and PTSD. Current first line treatment for ADHD includes stimulant medications such as amphetamines or methylphenidate. However, many clinicians are reluctant to prescribe stimulants to patients with SUD due to the potential for abuse, diversion, and potential adverse treatment outcomes. This study will provide information regarding treatment outcomes for ADHD and SUD in adults receiving treatment with atomoxetine (a nonstimulant medication) and other stimulant medications. **Objective:** The primary objective of this study is to compare the efficacy of atomoxetine to stimulant medications in improving outcomes in patients with concurrent ADHD and SUD. **Methods:** This study will consist of patients with concurrent ADHD and SUD receiving treatment with atomoxetine or a stimulant medication. Demographic variables, current psychotropic medications, comorbid disorders, dosing regimen, history of residential SUD treatment and hospitalizations for SUD related complications will be collected. ADHD outcomes will be evaluated using subjective patient responses collected via chart review in the computerized patient record system. SUD outcomes will be evaluated through urine drug screens, time to relapse, and duration of sobriety. **Outcomes:** The primary outcome will evaluate atomoxetine compared to other stimulant ADHD medications in improving outcomes in patients with ADHD and SUD. Secondary outcomes will assess treatment retention, tolerability, safety, functional status (completion of school, job, etc) and time to relapse.

A Retrospective Study of Pharmacist versus Psychiatrist-Led Medication Management in an Outpatient Setting

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Jesse Brown VA Medical Center, Chicago, IL

Type: Work in Progress. **Background:** Mental health care needs are increasing due to a rising number of patients seeking treatment. This has led to a recognized psychiatrist shortage in practice. At Jesse Brown Veterans Affairs Medical Center (JBVAMC), a mental health pharmacist joined the Outpatient Mental Health Clinic (OP MHC) in September 2016. A new role was created to increase access to care, in which the pharmacist provided medication management to patients diagnosed with a mental health disorder in lieu of a psychiatrist. Therefore, this study will analyze if a significant difference exists in pharmacist versus psychiatrist-led medication management for multiple patient outcomes. **Objectives:** Investigate if a significant difference exists in the (1) number of subtherapeutic psychotropic medication trials; (2) number of psychotropic agents prescribed; (3) number of non-evidenced based, off-label psychotropic agents; (4) medication possession ratio; (5) rate of emergency department visits and hospital admissions due to a psychiatric and/or substance use condition; (6) guideline-driven laboratory monitoring; and (7) ratio of clinic appointments attended with pharmacist versus psychiatrist-led medication management. **Methods:** In this retrospective chart review, outpatients who were engaged in mental health care with a psychiatrist or pharmacist for medication management at JBVAMC between January 1, 2017 to January 1, 2020 were reviewed through an 18-month study period with the latest enrollment date of July 1, 2018. Patients in the psychiatrist-managed group were randomly matched to the pharmacist-managed group based on diagnosis. This study assessed the primary composite endpoint of hospital admissions and emergency department visits due to a psychiatric and/or substance use condition. **Outcomes:** In addition to the primary outcome mentioned above, the following data will be reported: emergency department visits due to psychiatric and/or substance use conditions, hospital admissions due to psychiatric and/or substance use conditions, composite time to first hospital admission or emergency department

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visits due to psychiatric and/or substance use conditions, ratio of clinic appointments attended, number of psychotropic agents prescribed, number of subtherapeutic psychotropic medication trials, number of non-evidenced based, off-label psychotropic agents, medication possession ratio, and pertinent maintenance laboratory monitoring.

Adverse Effects of Combination Antipsychotic Therapy in a Forensic Patient Population

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Type: Work in Progress. **Background:** Globally, schizophrenia is one of the top 15 leading causes of disability. Due to high disease burden, appropriate treatment regimens are necessary. Current guidelines suggest reservation of combination antipsychotic therapy as a fourth or fifth-line option. Previous studies have found an increase in adverse effects correlated with higher doses of combination therapy as well as reduced predicted survival rate. However, there is limited prior evidence evaluating changes in lipid profiles, complete blood counts (CBC), and hemoglobin A1c (HgbA1c) values specifically in forensics patients prescribed combination antipsychotic therapy. **Objectives:** (1) Compare rates of adverse drug reactions (ADRs) and changes in Abnormal Involuntary Movement Scales (AIMS) scores in patients before and after initiation of combination antipsychotics. (2) Compare rates of medication use for extrapyramidal symptoms (EPS), hyperlipidemia, or diabetes, changes in laboratory data including lipid profiles, HgbA1c, CBC, change in body mass index (BMI), and compare frequency of ADRs for each combination regimen. **Methods:** This retrospective chart review will include patients 18 years of age or older prescribed two or more scheduled oral or intramuscular antipsychotics at two state forensics facilities between August 31, 2015 and September 1, 2020. Prior to starting two antipsychotics, patients must have outcome data available during the monotherapy period and must be on combination therapy for at least 6 months or until discharge. The following data will be obtained from each site: ADRs will be recorded and classified by severity (mild, moderate, and severe), AIMS scores will be obtained from paper charts and electronic records, and laboratory data will be obtained from Quanum[SM] and Boyce and Bynum[SM]. All data will be compared before and after the start of combination antipsychotic therapy. **Outcomes:** Primary outcomes include number and severity of ADRs as well as difference in documented AIMS scores before and after combination therapy. Secondary outcomes include the number of medications started for EPS, hyperlipidemia, or diabetes, changes in BMI status, and changes in laboratory data before and after combination therapy. Additionally, the number of ADRs for each combination therapy regimen will be evaluated.

Alcohol Use Disorder Pharmacotherapy Education for Veterans Hospitalized for Acute Withdrawal Management

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Providence VA Medical Center, Providence, RI

Type: Work in Progress. **Background:** Alcohol is the third leading cause of preventable death in the United States. More than 40% of veterans will screen positive for alcohol use disorder (AUD) in their lifetime. Excessive alcohol use often leads to acute medical care utilization, including hospital readmissions. In 2018, our medical center had 388 admissions for alcohol-related diagnoses and 132 (34%) were 30-day readmissions. Thirty-day readmissions are an economic burden and commonly used as a quality of care indicator. Several medications have proven safe and effective for the treatment of AUD. Pharmacists are well-equipped to educate patients on available options and make evidence-based treatment decisions. The goal of this service is to increase patient awareness and access to medications for AUD in order to improve patient care and readmission rates. **Objectives:** Describe (1) the patient population treated; (2) the interventions made; and (3) the impact on patient care. **Methods:** For this service, eligible patients will be identified through an admission diagnosis that is alcohol-related, a collaborative addiction recovery services (CARS) consult, and direct provider referral. A PGY2 Psychiatric Pharmacy Resident or Clinical Pharmacy Specialist will complete comprehensive chart review prior to meeting with the patient and discussing appropriate pharmacotherapy options for AUD. Shared decision-making will be utilized and pharmacotherapy will be started prior to discharge if the patient is interested. This service will be conducted in conjunction with other CARS providers to facilitate coordination of care for pharmacologic and non-pharmacologic treatment upon discharge. Chart review will be utilized to follow-up on patient care outcomes post-discharge. **Outcomes:** Demographic and baseline substance use disorder information will be presented to describe the population treated. The quantity and types of interventions made as well as available patient outcomes, including continuation of pharmacotherapy and 30-day readmissions, will be

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reported. A summary of lessons learned will be included to support implementation of similar services in other facilities or areas of practice.

Alcohol Use Education and Alcohol Use Disorder Pharmacotherapy Management in Primary Care

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William S. Middleton VA, Madison, WI

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 the Madison Veterans Affairs Hospital. Most of these veterans are established with primary care where increased screening for AUD and improving education for veterans and providers may lead to better patient outcomes. **Purpose:** Given the prominence of AUD in this setting, the goal of this project is to expand screening, education, and pharmacotherapy treatment within primary care. **Methodology:** Providers and clinical pharmacy specialists (CPS), in primary care initially attended a presentation to learn more about AUD, the alcohol use disorders identification test (AUDIT-C), brief alcohol interventions, and the referral process for higher levels of care. Then, new AUD services were implemented. A high-risk drinking class was made where veterans could learn about AUD, pharmacotherapy, and drinking reduction strategies. Additionally, primary care CPS identified veterans with heavy drinking behaviors by screening with a condensed version of the AUDIT-C. Eligible veterans underwent a brief alcohol intervention and were directed to either the drinking class or a mental health CPS. Here, pharmacotherapy could be initiated, or AUD psychotherapy referrals could be placed. An addiction medicine fellow also called veterans with heavy drinking behaviors for AUD interventions. **Outcomes:** Interventions tracked included percentage of veterans with an active AUD diagnosis whom had a provider intervention for AUD, CPS interventions made for AUD, number of AUD pharmacotherapy starts and referrals to higher levels of care, and AUDIT-C scores for veterans managed by CPS and the addiction medicine fellow. This project is a work in progress and data will continually be collected on the interventions mentioned.

All in Our Heads? Incidence of Asymptomatic Bacteriuria Treatment in Patients With Psychiatric Disorders at an Academic Medical Center

Gkeemia Gibson, PharmD, BCPS, BCPP[1]; Rebecca James, BS, PharmD/MSHP Candidate[2]; Jackie Brogie, PharmD Candidate[3]; Jeremy Johnson, BS, PharmD Candidate[3]
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Type: Work in Progress. **Background:** The purpose of this study is to determine the incidence of and approach to managing asymptomatic bacteriuria treatment (ASB) in patients with psychiatric disorders at an academic medical center. Studies indicate 20-80% of ASB episodes are inappropriately treated with antibiotics. Per the 2019 Infectious Disease Society of America (IDSA) Clinical Practice Guidelines for the Management of ASB, positive urinalysis and urine cultures alone may not warrant antibiotic treatment. Urinary tract infections are among the most common infections reported in non-catheterized psychiatric patients. Routine urinalysis is often performed upon admission, alerting providers to ASB and invoking potential treatment against guideline recommendations often due to false beliefs that patients with psychiatric disorders may lack the ability to identify symptoms. Results will be utilized to decrease antibiotic resistance and improve clinical decision making, provider education, and patient care. **Objectives:** To determine the incidence of patients with psychiatric disorders who receive antibiotics for ASB. **Methods:** The institutional review board approved this retrospective chart review including 200 inpatient adult patients with psychiatric disorders meeting criteria for ASB from January 1, 2014 to January 1, 2020. Patients were enrolled if they were $\geq$ 18-years-old, admitted to a behavioral health unit, had a documented pre-existing psychiatric disorder per ICD 9/10 code, had a urinalysis performed, and met the criteria for ASB per the 2019 IDSA ASB Guidelines. Patients with symptomatic bacteriuria, pregnancy at time of admission, urologic procedures within the past 3 months, receiving antibiotics for another indication, history of kidney transplant, receiving chemotherapy, or only seen via psychiatry consult were excluded. Results will initially be analyzed using descriptive statistics. Inferential statistics will be conducted as follows: comparison between groups will be analyzed via χ^2 tests for proportions, and Student *t* tests or ANOVA procedures for continuous variables. Additionally, regression analyses will identify independent outcome predictors. **Outcomes:** The incidence of ASB treatment in inpatient psychiatric disorders is under assessment. Results will provide guidance for clinical decision making and hospital protocol. The number and percent of participants treated with antibiotic therapy for asymptomatic bacteriuria will be reported. Prescribing patterns among psychiatric practitioners will be analyzed.

Analysis of Pharmacy Student's and Professional's Perception of Efficacy and

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Risk of Psychotropic Medications Through Estimated Number-Needed-to-Treat and Number-Needed-to-Harm

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Type: Work in Progress. **Background:** In order to make clinical decisions and accurately educate patients to be involved in the treatment decision process, healthcare providers must be able to succinctly summarize and accurately estimate the efficacy and potential harm for medications. One way that these two elements can be analyzed is through predicted number-needed-to-treat (NNT) and number-needed-to-harm values (NNH). NNT represents the number of individuals who must be given a medication in order to achieve one desired outcome. NNH represents a similar concept but with adverse outcomes. Students and professionals may be aware of benefits and harms of medication but may not accurately interpret their magnitude or rates. **Objective:** To assess pharmacy student and pharmacy faculty (both PharmD and PhD) estimation of benefits and risks of psychotropic medications via their predicted NNT and NNH values. **Design and Methods:** Surveys will be sent to third-year (P_3) and advanced practice pharmacy experience APPE (P_4) PharmD students, faculty members holding a PharmD, and faculty members holding a PhD who instruct in pharmacology and associated courses. Participants will be given a brief review of NNT and NNH concepts and then asked to estimate these values for specific uses of psychotropic medications and specific adverse drug reactions for these drugs. Meta analyses and other published literature calculating these values will be used to compare participant responses. **Results:** Surveys will be administered and completed by March 1, 2021.

Analysis of Trends in Anxiety in Professional Pharmacy Students; a Follow-Up Study: Evaluating the Relationship Between Anxiety and Caffeine Intake, Hours of Sleep, and Perceived Loneliness in Professional Pharmacy Students

Alyssa Elicone, PharmD Candidate 2022[1]; Neha Nadkarni, PharmD Candidate 2022[1]; Ingrid Chou, PharmD Candidate 2022[1]; Ranya Moustafa, PharmD Candidate 2022[1]; Jocelyn Tsai, PharmD Candidate 2023[1]; Megan Maroney, PharmD, BCPP[1,2]

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Type: Work in Progress. **Background:** Anxiety is a common feeling reported by professional healthcare students around the country. Persistent anxiety can impact a student's academic performance, social well-being, mental status, and overall health. A study conducted at St John's University College of Pharmacy showed that using the Zung Self-Anxiety scale, more than half of the pharmacy students in their professional years met the criteria for clinically significant anxiety. These findings led to our development of the initial study, performed last school year. Our original study results showed that students who reported feeling lonelier during an average week had higher Generalized Anxiety Disorder 7-item scale (GAD-7) scores, indicating a linear relationship between loneliness and anxiety severity. Higher GAD-7 scores were also associated with greater caffeine intake and fewer hours of sleep. Based on these findings, we hope to further expand on this study to research the correlation and relationship between anxiety and these variables. **Objectives:** (1) Understand the relationship between anxiety in this student population with respect to perceived loneliness, caffeine intake, and decreased sleep. (2) Identify perceived sources of anxiety in this population. (3) Provide insight to initiate new methods to mitigate anxiety in this population. **Methods:** A novel survey will be used to collect demographic and lifestyle variables. The GAD-7 will be given concurrently to assess participants' anxiety severity. The novel survey will be administered online using Qualtrics. Data will be analyzed using Excel. For objective (1) descriptive statistics will be used to report anxiety severity related to demographic and lifestyle variables. For objective (2) n and % of students reported to identify specific variables as top contributors to their anxiety will be analyzed. For objective (3), lifestyle and demographic variables identified as being the most commonly associated with higher levels of anxiety for the total population will be used to propose potential mitigation strategies. **Outcomes:** Each response from the novel survey will be corresponded to the student's reported GAD-7 score in order to draw conclusions about levels of anxiety and variables of interest including sleep, caffeine use, and perceived loneliness.

Analyzing the Effect of Art Therapy Interventions and Wellness Programs on Graduate Pharmacy Students' Mental Health

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Type: Work in Progress. **Background:** Healthcare professionals are burdened with high rates of mental health concerns. Healthcare students, including pharmacy, face mental health challenges and high levels of perceived stress during their training. As a result of COVID-19 and the effect of the global pandemic, there is a critical need

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to address mental health concerns and increased stress. Limited research has demonstrated that low-cost interventions such as exercise classes and encouraging emails help enhance a culture of well-being. Furthermore, resilience and wellness efforts have been successfully integrated using hybrid platforms, including in-person and online modalities. Given the nature of the COVID-19 pandemic, there is an added challenge of students being unable to participate in in-person activities, which have been the backbone of many resilience and wellness initiatives. Despite stronger efforts to support student resilience and wellness, there is a paucity of literature regarding the implementation of hybrid resilience and wellness efforts to support students' mental health and well-being. **Objectives:** (1) Describe the effect of a hybrid wellness and resilience program on stress and mental health parameters among pharmacy students. (2) Evaluate which aspects of the aforementioned campaign are most effective for use in improving stress and mental health outcomes. **Methods:** Pharmacy students at a small private institution will be able to participate in various in-person and online resilience and wellness initiatives. Online modalities will include periodic email encouragements and a social media campaign focused on resilience and wellness strategies. A specific in-person intervention offered will be an art therapy event. Attendees will be led through an art session intended to relieve stress by someone with experience in art therapy. The program will be available to all first-, second-, and third-year pharmacy students, and those students who participate will be invited to complete pre- and post-surveys based on the validated Perceived Stress Scale with additional demographic and program-specific questions. Data analysis, descriptive statistics and frequencies, will be run through IBM SPSS 27. **Outcomes:** We will report the demographic information of participants and analyze the impact of the hybrid initiatives based on the pre- and post-surveys.

Anticholinergic Use and Antipsychotic Initiation in Dementia: An Evaluation of Prescribing at a Veterans Affairs Medical Center

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Type: Work in Progress. **Background:** Dementia is a progressive, neurodegenerative disorder characterized by decline in cognitive function. Although there is no cure, one modifiable risk factor that could be linked are medications. Per the Beers Criteria, medications with strong anticholinergic activity should be avoided in those 65 years old or older. Anticholinergic agents can affect cognition and potentially worsen decline. Behavioral and psychological symptoms can present in 50-90% of those with dementia. There are multiple studies that investigated anticholinergic use in those with dementia, as well antipsychotic use in this patient population. However, there are no studies evaluating anticholinergic use and possible influence on antipsychotic initiation in those with dementia. **Objectives:** The purpose of this study is to evaluate if anticholinergic medication use influences antipsychotic prescribing in dementia. **Methods:** The electronic medical record will be used to identify patients within the Columbia VA Healthcare System meeting inclusion criteria. Subjects will be included if they are enrolled in the Columbia VA Health Care System and diagnosed with dementia between April 1, 2000 to April 1, 2010. Exclusion criteria includes those with schizophrenia or bipolar related disorders, depressive disorders, Parkinson's disease, restless legs syndrome, traumatic brain injury, human immunodeficiency virus, Huntington's disease, Lewy body disease, substance use disorders (except tobacco and marijuana use disorder), use of antipsychotic use on or prior to index date, first antipsychotic use after hospice care initiated, or use of carbidopa/levodopa, benzodiazepines, dopamine agonists, or stimulants. The date of dementia diagnosis will be the index date. The end of evaluation period will be 10 years from index date, or death, whichever is first. **Outcomes:** The primary outcome will be to assess the average daily anticholinergic exposure to veterans diagnosed with dementia up to a 10-year period and relative risk of antipsychotic prescribing per anticholinergic exposure score category. Time to antipsychotic prescribing and time to death from index date, as well as acetylcholinesterase inhibitor or memantine prescription at time of antipsychotic prescribing will also be investigated.

Assessing Adherence and Persistence to Long-Acting Injectable Antipsychotics Initiated in the Inpatient Setting

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Type: Work in Progress. **Background:** Continuous treatment with antipsychotic medications is associated with positive outcomes in patients with schizophrenia and bipolar disorder. Long-acting injectable antipsychotics (LAI-A) may be initiated in the inpatient setting following an acute episode. Adherence and persistence to LAI-A therapy can pose unique challenges due to patient- (eg, demographic characteristics), medication- (eg, agent, dose, frequency), and service-related (eg, insurance status, administration logistics) factors. Current knowl-

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edge of adherence and persistence rates and related factors is primarily based on insurance claims data, leaving a critical gap in understanding site-specific vulnerabilities and opportunities for the use of LAI-As following initiation at a behavioral health hospital (BHH). **Objectives:** (1) Examine the rate and factors associated with primary adherence to LAI-A therapy initiated during a psychiatric hospitalization at 30-days post-discharge. (2) Examine the rate and factors associated with secondary adherence and persistence to LAI-A therapy initiated during a psychiatric hospitalization at 1-year post-discharge. **Methods:** Charts will be examined for patients $\geq$ 18 years of age with an encounter at the study site between January 1, 2012 and December 31, 2019 during which a LAI-A agent was initiated and prescribed upon discharge. Primary adherence is defined as receipt of the first scheduled dose of the LAI-A post-discharge, while secondary adherence is achieving a proportion of days covered (PDC) $>$ 0.80 in the 1-year follow-up period. Persistence is defined as experiencing no gaps in therapy of 60 days or greater during the follow-up period. To assess differences in characteristics between cohorts experiencing primary adherence and primary non-adherence, Pearson's χ^2 test will be used to compare categorical variables and independent-samples Student *t* test will be used to compare continuous variables. A multivariate logistic regression model will be used to examine patient-, medication-, and service-related factors associated with secondary adherence and persistence rates to LAI-A therapy. **Outcomes:** We will report the rate and factors associated with primary adherence, secondary adherence, and persistence to LAI-A therapy initiated during a psychiatric hospitalization. The findings will serve as a foundation for the future implementation of rational and targeted strategies to improve LAI-A use.

Assessing the Clinical Outcomes Surrounding Deep Brain Stimulation in the Treatment of Refractory Obsessive-Compulsive Disorder: A Case-Cohort Study

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Type: Work in Progress. **Background:** In the search for effective treatments for refractive obsessive compulsive disorder (OCD,) outcomes status post deep brain stimulation (DBS) have been reported minimally within medical literature. This treatment of last resort may be potentially curative for a debilitating mental illness with significant functional impairment. This study describes the treatment outcomes of five refractory OCD patients after placement of DBS with that of a matched, control group. **Objectives:** (1) Quantify the clinical response associated with DBS treatment for refractory OCD. (2) Outline the incorporation of pharmacotherapy before and after DBS treatment **Methods:** This retrospective, single-center case cohort study will review the electronic medical records of five subjects treated with DBS for refractory OCD at a tertiary care, academic medical center and compare them to a similar refractory cohort treated without the use of DBS. Case and control subjects will be matched for age, sex, years since diagnosis, number of medication class trials, and additional factors in order to produce a comparable cohort. Inclusion criteria is defined as those that (a) are at least eighteen years of age; (b) assigned a primary diagnosis of OCD per ICD-10 classification; and (c) received DBS treatment for refractory OCD. Exclusion criteria includes comorbid psychotic and/or substance use disorders, unstable neurological or coagulation disorder(s), and eating disorder diagnosis. The primary endpoint is the change in the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) over time. Secondary endpoints will include: change in Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Rating Scale (HAM-D) scores, duration of DBS treatment, quantity of psychotropic medication classes prescribed per subject at any time point, duration of medication trial before discontinuation or augmentation, and average dosages per agent. Records will be reviewed 2 years prior to DBS initiation to 2 years post-DBS initiation or until study period end point. SPS software will be used for data analysis. For all data types, descriptive analyses will be used as well as multivariate analysis to adjust for confounding factors. **Outcomes:** Upon analysis of the subsequent data, the relative efficacy of DBS treatment for refractory OCD will be accessed and the best approach to DBS treatment suggested.

Assessing the Need for Gender Diverse Education Amongst Practicing Community Pharmacists

Madilyn Eberle, PharmD Student[1]; Madison Modany, PharmD Student[1]; Amanda Huntsman, PharmD Student[1]; Jasmine Gonzalvo, PharmD, BC-ADM, CDCES, FADCES[1,2]

[1] *Purdue University College of Pharmacy, West Lafayette, IN;* [2] *Eskenazi Health, Indianapolis, IN*

Type: Work in Progress. **Purpose:** Gender diverse people represent a marginalized population who routinely encounter challenges obtaining adequate healthcare. For the purpose of this study, gender diversity is described as gender identities that demonstrate a diversity of expression beyond the female or male binary framework, including transgender, transsexual, and gender nonconforming persons. The profession of pharmacy is uniquely positioned to provide members of the gender diverse

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community with equitable healthcare experiences. Currently, pharmacists may feel unprepared to provide care to these patients. This state-specific needs assessment explores: (1) the frequency of community pharmacists in Indiana who have received formal training in providing gender diverse care to the transgender, transsexual, and gender nonconforming community; (2) interest in such training programs; and (3) preferred delivery format for such training programs. **Methods:** This study received approval through Purdue University's IRB and involved recruitment and training of Purdue University students across various colleges for administration of a telephone-based survey targeted towards community pharmacists practicing across the state of Indiana. The telephone-based survey was adapted from previously published research. A list of 2 independent and 5 major chain pharmacies was generated and randomized prior to data collection. Survey questions assessed demographics, prior participation in gender diverse training programs, future interest in training, and preferred delivery format of said programs. Each pharmacist was offered a $5 gift card as an incentive for survey completion. **Results:** A total of 300 community pharmacists participated in the telephone based survey with 117 (39%) reporting previous engagement in some form of gender diverse training program(s). Of respondents, 75% indicated they were interested in participating in a training program to learn basic gender diverse care terms related to health care and appropriate pharmacotherapy regimens. Pharmacists ranked their preferred delivery of format of such training in the following order: Web-based, live webinar, and a live classroom-based course. **Conclusion:** Currently, there is a lack of knowledge, engagement, and training surrounding gender diverse care. Pharmacy schools and employers have a responsibility to develop curricula and training to support and optimize care for gender diverse individuals.

Assessing the Prevalence of Drugs Listed in American Geriatric Society Beers Criteria for Potentially Inappropriate Medication Use in Non-Critically Ill Hospitalized Geriatric Patients

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Type: Work in Progress. **Background:** The American Geriatric Society Beers Criteria (AGS Beers Criteria) for Potentially Inappropriate Medication (PIM) Use in Older Adults are a list of medications that are best avoided in the elderly population in most circumstances. AGS Beers Criteria also lists medications to avoid in older adults with certain conditions, drugs to be used with caution, drug-drug interactions and drug dosage adjustments based on kidney function. AGS Beers Criteria has been updated every 3 years since 2012, with the most recent update in 2019. The goal of AGS Beers Criteria is to improve the quality of care of older adults by reducing their exposure to PIMs that carry increased risk without the potential for increased benefit as compared to alternative treatment options. The criteria are intended to be used in adults aged 65 years and older in ambulatory, acute and institutionalized settings, except in palliative care and hospice settings. AGS Beers Criteria aids healthcare providers in improving medication selection and reducing adverse drug events if it is used as a tool to evaluate quality of care and drug use in the geriatric population. **Objective:** To assess the prevalence of drugs listed in American Geriatric Society Beers Criteria for Potentially Inappropriate Medication Use in non-critically ill hospitalized geriatric patients. **Methods:** This is a single-center retrospective study. All non-critically ill geriatric patients ($\geq$ 65-years-old) admitted in the year 2020 will be included. Hospice and palliative care patients will be excluded. Patients' medication administration records are being reviewed from Cerner, an electronic medical record. PIMs will be documented according to drug, drug-disease or drug-syndrome interaction, drug-drug interactions, drug-kidney function relationship. PIMs will not be included in the analysis if they were effectively controlling a disease for which there is no recommended treatment for geriatric patients. PIMs will also not be included in data analysis if being used for treatment of acute ailment. For example, using diphenhydramine to treat pruritis secondary to rash. **Outcomes:** The prevalence of PIMs used in the acute care setting will be reported using descriptive statistics.

Assessment of Anticholinergic Polypharmacy in the Elderly at a Community Psychiatric Hospital

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Type: Work in Progress. **Background:** Elderly patients with multiple comorbidities are likely prescribed multiple anticholinergic medications. Anticholinergic medications block acetylcholine from binding to the neuronal cholinergic receptors in the central and peripheral nervous systems, therefore blocking the activation of muscles in the heart, gut, and exocrine glands. Anticholinergic medications can cause severe adverse effects in the elderly including sedation, tachycardia, and delirium. The Anticholinergic Cognitive Burden (ACB) Scale can be used to determine a patient's anticholinergic burden. **Objec-**

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tives: (1) Evaluate the impact of prescriber education on anticholinergic prescribing by measuring the change in patients' ACB scores upon admission and discharge before and after the pharmacy in-service. (2) Identify anticholinergic medication related adverse effects experienced by patients during the hospitalization. **Methods:** This is a single-center study at a community psychiatric hospital. A retrospective chart review from January 1, 2020 to July 31, 2020 was conducted to collect the ACB scores on admission and discharge before the prescribers' education. An in-service to the prescribers on anticholinergic medications was presented on November 19, 2020. A post in-service chart review from December 1, 2020 to March 31, 2021 will be conducted to evaluate the impact of the prescribers' education on the ACB scores. Data to be collected includes: patient's age, gender, diagnosis, comorbidities, ACB score, adverse drug reactions, medications and doses prescribed. All patient specific information will be de-identified and maintained electronically in password protected files. Hospital electronic health record will be used to identify patients who are greater than the age of 65 and prescribed medications with anticholinergic properties, such as antidepressants, antipsychotics, and antihistamines. Descriptive statistics will be used in assessing the collected information. **Outcomes:** We will report the percent change in the ACB scores between pre and post in-service. Safety outcomes that will be reported include the number of patients with an increase in ACB score during the hospital stay, along with the number of patients who experience an anticholinergic related adverse effect. The result from this study will be shared with the prescribers to support appropriate pharmacotherapy for the elderly patients.

Assessment of Hepatitis C Treatment Sustained Virologic Response in Veterans With Substance Use and Prevalence of Reinfection

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Type: Work in Progress. **Background:** Hepatitis C virus (HCV) is associated with significant morbidity and mortality. Therapeutic guidelines provide lab monitoring recommendations to ensure continued remission after successful treatment. This study aims to assess the appropriateness of guideline-recommended follow-up for patients treated for HCV with concomitant substance use disorders. Additionally, this study will assess HCV reinfection rates in this population, determine associated risk factors, and identify gaps in follow-up care. **Objectives:** (1) Evaluate completion rates of guideline-recommended HCV ribonucleic acid (RNA) lab obtained 11-13 months after HCV treatment completion with patients followed by hepatology and gastroenterology clinic providers versus Patient Aligned Care Team (PACT) clinic providers. (2) Analyze causes for missed or delayed follow-up HCV RNA tests. (3) Identify protective factors against HCV reinfection, including substance use treatment and social work support. **Methods:** This retrospective, chart review will assess patients who completed interferon-free HCV treatment in the Hepatitis C Pharmacy Clinic from August 17, 2013 to August 17, 2017. Data collected includes demographic information, substance use disorder(s), HCV genotype(s), HCV treatment course, HCV RNA tests post-treatment, high-risk behaviors for HCV infection, drug toxicology results, designated follow-up clinic, and support by social work and/or the Substance Use Disorder Recovery Program. Rates of appropriate, guideline-based follow-up monitoring will be reported as the primary outcome using descriptive statistics. Secondary outcomes will be assessed using multivariable logistic regression to identify association with delayed follow-up and reinfection rates. Thus far, 107 of 468 patients have been evaluated. Preliminary data shows 88.3% ($n = 91$) of patients did not receive an HCV RNA lab within 11-13 months following HCV treatment completion, and 58% ($n = 60$) did not receive any HCV RNA labs within 24 months post-treatment. Of the 82 patients who followed with hepatology and gastroenterology providers, 14.6% ($n = 12$) had the lab drawn appropriately while none of the patients who followed with primary care had timely lab draws. **Outcomes:** Final data collection, analysis and results will be presented at the CPNP Annual Meeting. Knowledge learned from this study will be used to identify and improve gaps in care for patients with HCV and concomitant substance use disorders.

Assessment of Monitoring for Orthostatic Hypotension in Adults 60 Years and Older Being Treated With Select Antipsychotics at an Academic Medical Center

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Type: Work in Progress. **Background:** Sudden, large drops in blood pressure after changing position (known as orthostatic hypotension or "OH") can lead to fainting and possible injury, especially in elderly patients. Risperidone, quetiapine, and clozapine are common antipsychotics with clinically significant risk for inducing OH. Aripiprazole is a common antipsychotic that lacks this high OH risk, thus serving as a comparator for risperidone, quetiapine, and clozapine. Older adults can be more prone to falls while taking antipsychotics having high OH risk. Elderly

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patients taking such antipsychotics should be monitored regularly for OH, to help minimize their fall risk. This study will assess the trends for OH monitoring in patients 60 years and older being treated with these select antipsychotics at an inpatient psychiatry unit in Richmond, Virginia. **Objectives:** (1) Evaluate whether patients 60 years and older treated with risperidone, quetiapine, clozapine, or aripiprazole are being monitored for OH in an inpatient psychiatry unit. (2) Evaluate whether patients 60 years and older on select antipsychotics who are not being monitored for OH are experiencing falls. (3) Evaluate whether patients who experience OH with select antipsychotics are receiving hypertensive agents or having their antipsychotic dose lowered and/or discontinued. **Methods:** We are conducting a retrospective medical record review of patients admitted to an inpatient psychiatry unit between October 1, 2018 to September 30, 2020, with target enrollment of 100. Patients 60 years or older, admitted for fourteen days or less, and prescribed either risperidone, quetiapine, clozapine, or aripiprazole during their stay will be included. Demographic information, medication information (hypotensive medications, antipsychotic and indication, and dosing trends), and monitoring information (reported dizziness, assessment and/or treatment of OH, and fall risk details) will be collected. REDCap online software will be used to securely capture information, and descriptive statistics will be used to compare treatment groups. **Outcomes:** By April 18, 2021, we will report the number of elderly patients assessed for OH while being treated with select antipsychotics and any fall-related outcomes. Data provided by this pilot study is intended to be used to inform future interventions that psychiatric pharmacists could make to increase awareness of these higher risk patients.

Association Between Therapeutic Outcomes of Antidepressants (SSRI) and Pharmacogenetics in Patients With Neurodevelopmental Disorders

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Type: Work in Progress. **Background:** One of the aspirations of pharmacogenetics is to improve drug safety through early identification of inherited drug metabolism phenotypes. Patients with neurodevelopmental disorders (NDDs) have been observed to experience higher rates of adverse drug events as compared to the general population, indicating that this patient group may benefit significantly from the use of pharmacogenetics to guide medication therapy. The Clinical Pharmacogenetics Implementation Consortium (CPIC) has developed guidelines for dosing citalopram, escitalopram, and sertraline based on CYP2C19 metabolizing enzyme phenotype. However, the potential impact of applying these guidelines in patients with NDDs has not been demonstrated. Therefore, the goal of this study is to identify associations between adverse drug events and CYP2C19 phenotype in patients with an NDD diagnosis also using citalopram, sertraline, or escitalopram in an outpatient setting. **Objective:** To compare the occurrence of reported adverse drug events caused by the antidepressants of interest to the CYP2C19 metabolizing phenotype in patients with an NDD. **Methods:** The study will be designed as a retrospective chart review of patients in a large medical center who have available pharmacogenetic data. This study will include male and female patients of all ethnicities who are 18 years or older and have been prescribed citalopram, escitalopram, or sertraline, and have been diagnosed with an NDD. Subjects will be divided into metabolizing phenotype groups, namely, poor, normal, intermediate, rapid, and ultra-rapid metabolizer. These categories will be determined based on available genotype data that includes variants within the following star alleles: CYP2C19*2, CYP2C19*3, CYP2C19*17. Adverse event frequencies will be compared across phenotypes using a χ^2 test. Logistic regression will be used to determine the likelihood of other factors, such as drug-drug interactions and phenotype, to impact the development of antidepressant-induced side effect. **Outcomes:** The results of this study will demonstrate if there is a potential advantage of using pharmacogenetics to guide medication therapy in this population. Overall, the results obtained from this project will contribute to the strides being made in the adoption of personalized medicine.

Attitudes and Perceptions About the Use of Long-Acting Injectable Antipsychotics Among Behavioral Health Providers

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Type: Work in Progress. **Background:** Long acting injectable antipsychotic (LAI-A) medications are effective for the treatment of multiple behavioral health (BH) diagnoses. Yet, there appears to be underuse of LAI-As in the BH population. This may be due to persistent stigma and/or negative perceptions about the use of LAI-As among providers, which could vary based on individual factors such as years of experience, practice setting, or geographic location. Understanding how stakeholders perceive the use of LAI-As and how individual factors may impact these perceptions can elucidate reasons for

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underuse and provide new avenues to increase appropriate use. **Objectives:** (1) Survey BH providers regarding their perceptions about the use of LAI-As in the BH population. (2) Analyze responses for differences based on individual factors. **Methods:** The main study sites are two large community behavioral health hospitals in the Midwestern and Southeastern United States (US). An electronic survey was developed and actively distributed to BH stakeholders, including prescribers (MD, DO, PA, NP) and non-prescribers (PharmD, RN, LCSW) at the study sites. A link will also be disseminated via a national psychiatric pharmacist organization in order to solicit voluntary participation from across the US. Responses will be recorded anonymously and participants will be required to provide electronic consent before participating. Surveys for all groups will ask targeted questions regarding attitudes and perceptions about current use of and barriers to utilization of LAI-As. Individual factors (age, gender, geographic location, practice type, practice experience, practice setting) will also be collected. Independent Student *t* tests and ANOVA linear regression analysis will be used to assess for interactions between survey responses and individual factors. **Outcomes:** Survey results will be collected and analyzed to describe how BH providers perceive the use of LAI-As in their patients. These outcomes can be used to identify potential causes of LAI-A underuse and inform strategies for addressing it.

Cataloguing the Impact of Psychiatric Pharmacist Through Literature

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Type: Work in Progress. **Background:** An abundance of evidence exists regarding pharmacist practices and their impact on patient care in psychiatric and neurologic settings. Review articles published in the Mental Health Clinician (MHC) in 2015 and 2020 highlight the value of psychiatric pharmacists in improving medication-related outcomes. Pharmacists practicing across a wide variety of health care settings with a focus on central nervous system (CNS) medication management significantly improved patient-level outcomes, such as medication adherence, disease control, and avoidance of hospitalization. However, it can be valuable to identify any new published literature to add to the litany of current available outcomes data on a continuous basis. **Objectives:** The purpose of this project is to identify, review, and evaluate primary literature that highlights the value of psychiatric pharmacists as part of the health care team in improving medication-related outcomes published from April 1, 2019 to December 31, 2020 in PubMed. **Methods:** A systematic search of literature published from April 1, 2019 to December 31, 2020 will be conducted using PubMed due to its linear and systematic search process. Publications describing patient-level outcome results associated with pharmacist provision of care in psychiatric/neurologic setting and/or in relation to CNS medications will be included. The search excludes articles published in a language other than English; pain conditions without psychiatric comorbidity; lacking an active interventional role by a pharmacist; only describing training exercises, simulations, or changes in perceptions/attitudes; limited to economic evaluations, commentary, or feasibility; review articles; or only reporting numbers or types of pharmacist interventions without associated patient-level outcomes. **Outcomes:** We will report on literature describing patient-level outcome results associated with pharmacist provision of care in psychiatric/neurologic setting and/or in relation to the CNS published from April 1, 2019 to December 31, 2020 along with a summary of study design and outcomes as an update to the 2020 MHC impact paper.

Clinical Pharmacist Outreach to Improve Continuation Phase Depression Management in Adults Within a Safety Net Institution

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Type: Work in Progress. **Background:** Ambulatory care pharmacists in primary care settings have demonstrated improved outcomes and access to care for many chronic conditions in the outpatient setting, but the primary care pharmacist's role in managing mental health conditions is less defined and varies greatly across different health systems. This study aims to identify if a pharmacist intervention improves adherence to antidepressants via telephonic outreach and care coordination. By improving adherence to antidepressants, these patients have the potential to experience improved mental health and fewer episodes of depression. The results of this study could further define clinical pharmacists' role in depression. This could also result in patients' improved access to holistic care for chronic conditions as well as mental health conditions. **Objectives:** This study's primary outcome is the percent of patients who pick up the antidepressant within 30 days of intervention compared between the patients who successfully received the intervention versus those who did not. Secondary outcomes include the mean

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time to medication pick up after intervention compared between the two groups, barriers identified that prevent medication adherence, and the mean duration of the telephonic intervention. **Methods:** This will be a prospective, non-randomized controlled trial within several of the institution's primary care clinics. A list of patients who meet the inclusion criteria will be generated from claims data. A manual chart review will be completed for each patient to verify eligibility. During the telephonic intervention, the clinical pharmacist will obtain verbal patient consent, discuss adherence, identify barriers to adherence and formulate patient specific recommendations to improve adherence. **Patients:** Patients included in this study must be 18- to 64-years-old, receive care at this institution, be enrolled in this institution's Medicaid plan and be prescribed an antidepressant. Patients will be included if they do not meet Healthcare Effectiveness Data and Information Set (HEDIS) criteria for adherence with an antidepressant prescription proportion of days covered $<$ 0.8 over 180 days of therapy. Patients will be excluded if they are in hospice, pregnant, incarcerated, decline the intervention consent, or if the antidepressant is being taken for solely for an indication other than depression.

Clinician Perception of Initiating Buprenorphine for Patients With Opioid Use Disorder Following Virtual Simulation Experiences

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Type: Work in Progress. **Background:** Buprenorphine remains a highly underutilized treatment for opioid use disorder (OUD) despite strong safety and efficacy data. A recently published Journal of the American Medical Association (JAMA) research letter reported that 49.1% of approximately 56,000 X-waivered clinicians in a nationwide data set did not write any buprenorphine prescriptions over a 22-month period. This statistic highlights a clear gap between obtaining an X-waiver and initiating buprenorphine in clinical practice. X-waivered clinicians are often hesitant to initiate buprenorphine due to a lack of hands-on education and reliance on real-world experience. A stimulation training offers a unique opportunity to bridge the identified gap by providing a standardized educational curriculum in a controlled learning environment. Additionally, a simulation allows for participants to obtain feedback to improve and reinforce patient care skills. **Objectives:** The objective of this study is to evaluate clinician comfort with initiating buprenorphine for OUD after completing two virtual simulated patient visit experiences. **Methods:** All clinicians who have completed X-waiver training, independent of their ability to legally obtain an X-waiver (eg, clinical pharmacists), are eligible to participate. The first simulation emulates a buprenorphine home induction via a phone appointment and the second a more complex clinic induction via a video appointment. Each simulation is followed by a debriefing session with a subject matter expert who provides feedback on pre-determined objectives, including the ability to assess opioid withdrawal symptoms using validated scales, initiate treatment with buprenorphine, and develop a follow-up treatment plan. A questionnaire is distributed to participants immediately following the simulations, and Likert-Scale questions are utilized to evaluate outcomes. **Outcomes:** The primary outcome is clinician-reported likelihood of offering treatment with buprenorphine for a patient with OUD following completion of the simulation. Secondary outcomes include clinician-reported change in comfort with providing education about buprenorphine, assessing opioid withdrawal symptoms, initiating buprenorphine, and developing a treatment plan.

Comparison of Antipsychotic Prescribing Practices Following Failure of Antipsychotic Monotherapy in the Acute Care Setting

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Type: Work in Progress. **Background:** In acute phase schizophrenia, recommended treatment is use of antipsychotic monotherapy. However, only 50% of first-episode schizophrenia patients will achieve at least a 50% reduction in symptoms and nearly 20% of patients will not achieve a reduction of at least 20%. In relapsing chronic disease, this response decreases further leading to high rates of antipsychotic failure. Multiple strategies are utilized in practice following failure of antipsychotic monotherapy, including switching to an alternative antipsychotic, use of higher than usual doses, or augmentation with an additional antipsychotic. There is a lack of high-quality evidence to guide which treatment strategy should be utilized in acute phase schizophrenia following the failure of antipsychotic monotherapy. **Objectives:** (1) Describe local antipsychotic prescribing practices on the acute psychiatry unit following failure of antipsychotic monotherapy. (2) Compare practices to determine if any strategy results in a significantly shorter time to discharge. **Methods:** This study will include patients admitted to an acute psychiatry unit of a Veteran's Affairs Hospital with a diagnosis of schizophrenia or schizoaffective disorder between January 1, 2018 and December 31, 2019 requiring a change in antipsychotic therapy due treatment failure of antipsychotic monotherapy. Treatment failure will be defined as

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requiring alternative treatment due to ineffectiveness of current therapy for any reason excluding adverse reactions or non-compliance. Demographic variables (age, sex, race), primary discharge diagnosis, and length of stay will be collected. Information on antipsychotic regimen will also be collected including antipsychotic on admission (drug, dose, instructions), antipsychotic on discharge (drug, dose, instructions), time to intervention, and reason for original antipsychotic discontinuation or change. **Outcomes:** Descriptive statistics will be utilized to report the number and percent of participants transitioned from original monotherapy to each of the following categories: (1) alternate agent prescribed; (2) dosing increased to above recommended dose; and (3) dual antipsychotic therapy initiated. The primary outcome will be time to discharge following intervention as a proxy for time to clinical stabilization. Will also report demographic characteristics, length of stay, 30-day readmission rates, number of previous antipsychotic trials, time to intervention, and total antipsychotic burden per chlorpromazine equivalents at discharge.

Comparison of Clozapine Dosing and Tolerability in Patients With and Without Concurrent Divalproex Sodium

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Type: Work in Progress. **Background:** Clozapine is an effective antipsychotic for the treatment of schizophrenia and schizoaffective disorder. However, its place in therapy is as a third-line option due to its risk of serious adverse events compared to other antipsychotics. Limited publications suggest patients require higher doses of clozapine with concurrent valproic acid (VPA). Conflicting studies and clinical experience suggest that VPA actually increases the incidence of clozapine adverse effects, requiring a decrease in daily clozapine dose. This retrospective analysis will study how VPA affects dosing and tolerability of clozapine by comparing the mean clozapine dose and incidence of adverse events due to clozapine in adult patients admitted to an inpatient psychiatry unit between August 7, 2010 to August 7, 2020 on clozapine monotherapy compared to patients on clozapine with adjunctive VPA. **Objectives:** (1) Compare the mean dose of clozapine in a monotherapy treatment group to a dual therapy treatment group. (2) Compare the incidence of adverse drug effects and clozapine discontinuation rates. (3) Compare mean clozapine, norclozapine, and VPA serum levels. **Methods:** Data from inpatient psychiatry admissions between August 7, 2010 to August 7, 2020 with a clozapine order will be pulled. Exclusion criteria include patients $<$ 18 years old, pregnant patients, and patients admitted from prison. All subsequent patient admissions beyond their first admission within the study period will be excluded. Demographic variables and background data including concurrent psychotropic home medications or medications that are CYP 1A2/3A4 inhibitors or inducers will be collected. Clozapine dosing, drug serum levels and the incidence of tachycardia, orthostatic hypotension, sialorrhea, constipation, neutropenia, and seizures throughout the admission will be recorded. All data will be analyzed using SPSS. Mean dosing and serum levels will be analyzed using Student *t* test and the incidence of adverse effects will be compared using χ^2 tests. **Outcomes:** Mean doses of clozapine and mean serum levels of clozapine and norclozapine will be analyzed in the monotherapy treatment group and dual therapy treatment group with VPA. The incidence of adverse effects and discontinuation rates in the treatment group and dual therapy treatment group will be reported.

Comparison of Healthcare Utilization Rates Among Patients With a Stimulant Use Disorder or Opioid Use Disorder in a Veteran Population

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Type: Work in Progress. **Background:** Stimulant use disorder (StUD) is on the rise in the United States (US). In 2018, over 5 million people in the US age 12 or older used cocaine within the previous year and 1.9 million over age 12 tried methamphetamine in the past year. The detrimental impact of stimulant use on the nation in some way parallels that of opioid use through familial discord, increased healthcare costs, heightened crime, and premature deaths. However, unlike the opioid crisis which has been deemed a public health emergency, similar efforts have not focused on stimulant use. Notably, there are 3 FDA approved pharmacotherapy options for opioid use disorder (OUD) and none approved for StUD indicating a potentially underserved substance use population. We hypothesize that overall health care utilization will be greater in the OUD population due to increased provider awareness and Veterans Health Administration (VHA) driven campaigns to provide treatment for OUD. **Objectives:** (1) Compare rates of healthcare utilization between patients with StUD and OUD. (2) Assess healthcare utilization between patients with StUD and OUD patients receiving medication-assisted treatment (MAT). **Methods:** This will be a retrospective data analysis of the electronic health record at a VA Health Care System. Health care utilization will be assessed by reviewing number of hospital admissions, emergency department visits, primary care visits, and outpatient mental health visits. Estimations of overall health care utilization will be made by tallying the total number of health care encounters for each patient. A sub-analysis will be conducted for

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comparison of health care utilization among OUD patients on MAT versus StUD patients using a similar procedure. Interval and ratio data will be analyzed using means and standard deviation. A Student *t* test or Mann-Whitney *U* test will be used to detect differences in means. Chi-squared tests will be used to detect differences in categorical data. For all tests, alpha will be set at 0.05. **Outcomes:** We will report the total number of health care encounters for OUD patients and StUD patients to assess overall healthcare engagement of each group.

Consumer Perception, Knowledge, and Uses of Cannabidiol

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Type: Work in Progress. **Background:** Recent legalization of cannabidiol (CBD) across the United States, in varying degree, has made CBD easily accessible to consumers for complementary and medical purposes. However, there is a paucity of scientific evidence on the health benefits of CBD. The Agriculture Improvement Act of 2018 allowed the production and marketing of hemp, leading to CBD shops across the country selling CBD in various formulations such as tablets, oils, lotions, and shampoos. Many shops have been found to market CBD for specific medical purposes not approved by the FDA, such as anxiety and pain disorders. In the literature, two studies have gathered consumer perception and attitudes on cannabis products, specifically CBD, using survey-based questionnaires. Our study aims to build on the aforementioned studies in obtaining consumer perceptions of CBD products utilizing a national survey-based questionnaire. Additionally, our study will survey where consumers obtain drug information on CBD. **Objectives:** (1) Obtain consumer perception, knowledge, and uses of CBD. (2) Attain and define resources consumers utilize to look up information about CBD. **Methods:** A goal of at least 2,000 respondents will be recruited through an anonymous, nationwide, online survey administered through Qualtrics in the United States. Eligibility of the respondents include being at least 18 years of age, can read and understand English, and can access the survey questions using an electronic device. The survey will consist of four sections: (1) demographics and personal factors; (2) efficacy, indications, and safety of CBD use; (3) use of resources to look up CBD information; and (4) perception of CBD (5-point Likert scale questions). The survey responses will be reported using descriptive statistics (means, standard deviations, percentages) along with median/interquartile range for the Likert portion. **Outcomes:** We will report survey responses on consumer perception of uses and safety of CBD products and sub-analyses will be conducted based on age range and other factors.

Continuation and Improvement of a Personality Disorder Treatment Protocol at a Veterans Affairs Medical Center

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Type: Work in Progress. **Background:** Personality disorders are characterized by personality traits that are inflexible and maladaptive, causing significant distress in emotion, cognition, interpersonal relationships, and impulse control. The suicide risk is also three times higher in personality disorders as compared to the general population. Starting with the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), psychiatry has been trying to get away from clustering the personality disorders, however, the nomenclature still exists in psychiatry lexicon and treatment guidelines. Thus, personality disorders were traditionally split into three clusters: A, B, and C. Cluster B personality disorders traditionally included antisocial, borderline, histrionic, and narcissistic. Patients diagnosed with a Cluster B personality disorder tend to portray themselves as dramatic, emotional, and/or erratic. Of the Cluster B personality disorders, there are specific guidelines for treatment of borderline personality disorder, but no guidelines exist for the other three. Regardless, no medication is approved by the Food and Drug Administration for treatment of any of the ten personality disorders, and there is no evidence to support polypharmacy either. Pharmacotherapy may be used in order to target specific symptoms, as many patients diagnosed with personality disorders may experience emotional dysregulation or anxiety. In regards to suicidality, pharmacotherapy should not be assumed to be the treatment of choice. Comprehensive treatment plans should be utilized, including both pharmacotherapy and psychotherapy. **Objectives:** (1) Improve and expand the previous borderline personality disorders protocol to provide guidance on treatment of patients with all personality disorders who present to the inpatient psychiatry unit. (2) Improve patient education on personality disorder traits and treatment. (3) Increase utilization of the personality disorders protocol. **Methods:** Interdisciplinary discussion will be utilized to provide feedback for areas of improvement within the existing protocol and patient education materials to encompass traits of various personality disorders. Further discussion will be conducted with the nursing staff for development of education resources. **Outcomes:** We will report on patient satisfaction in regards to education on personality disorder traits

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and treatment, as well as the expected uptake in utilization of the protocol by providers on the inpatient psychiatric unit.

Deprescribing in Older Adults During Inpatient Psychiatric Hospitalization: Impact of Pharmacist Intervention and Interprofessional Collaboration

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Type: Work in Progress. **Background:** Polypharmacy has been linked to several poor outcomes in geriatric patients, including increased skilled nursing facility placement, hospitalization, adverse drug events, morbidity, and mortality. While numerous studies have explored medication burden and deprescribing in older adults within the community settings, data in the inpatient psychiatric setting has been limited. Our retrospective review of 151 patients $\geq$ 65-years-old discharged from an inpatient geriatric psychiatry unit from January 2019 to June 2019 discovered consistent increases in medication burden across various diagnoses and age subgroups. This prospective study seeks to assess whether pharmacist intervention and interprofessional collaboration can reduce medication burden in patients 65 years or older admitted to an inpatient psychiatric hospital. **Objectives:** (1) Develop process for pharmacist intervention to reduce medication burden and promote continuation of reduced medication regimen complexity throughout transitions of care. (2) Summarize medication optimization interventions and patient and provider acceptance. (3) Examine the impact of a pharmacist-led collaborative intervention on medication burden in older adults hospitalized for psychiatric care. **Methods:** Medication burden will be compared for patients $\geq$ 65 years admitted and discharged from an inpatient geriatric psychiatry unit from September 2020 through February 2021. Demographic variables, diagnoses, and medication lists from admission and discharge will be extracted from the Electronic Health Record. Geriatric psychiatry clinical pharmacists will conduct structured medication reviews and collaborate with prescribers to deprescribe and optimize medication regimens. Pharmacist medication and transition of care interventions will be documented by drug and intervention type. Prescriber acceptance rates and changes in medication burden (number of total medications, scheduled medications, as needed medications, scheduled doses per day, and scheduled administration frequencies) will be analyzed. **Outcomes:** The primary outcome of the prospective study will be the change in overall medication burden from admission to discharge. The secondary outcome will be the change in medication burden for the three most commonly initiated medications while inpatient: vitamins, laxatives, and atypical antipsychotics. Preliminary prospective results (n = 57) indicate a reduction in overall medication burden.

Description of Psychiatric Pharmacist-Led Interventions Post Hospital Discharge Within an Integrated Health System

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Type: Work in Progress. **Background:** Transition of care (TOC) has been shown to be associated with increased likelihood of adverse events and drug related problems (DRP). Pharmacist involvement in this transition has been found to identify DRP and improve outcomes. **Objectives:** (1) Characterize post-psychiatric hospital discharge patients most likely to benefit from psychiatric pharmacist chart review for possible DRP. (2) Identify most common DRP. (3) Describe the type and percent of recommendations implemented by providers. (4) Formulate suggestions to further optimize psychiatric pharmacist-led interventions. **Methods:** Retrospective chart review of patients discharged from an inpatient psychiatric facility between January 1, 2020 through December 31, 2020. Patients were identified using an internal data analytics system called PharmDoc. Either a trainee (clinical intern and/or PGY-2 ambulatory care resident) and/or psychiatric pharmacist reviewed the electronic medical record (EMR) of each patient to collect age, number and types of possible DRP identified at time of chart review, whether a sooner med evaluation appointment was recommended, number of recommendations implemented by providers, and whether the patient was readmitted $<$ 30 days. Patients were assigned to the following age groups: child/adolescent ($<$ 18 years), adult (18-64 years), and older adult (65 years and older). The following DRP were assessed: indication-unnecessary treatment, indication-untreated condition, effectiveness-not effective, effectiveness-dose too low, safety-adverse drug event, safety-dose too high/side effects, nonadherence, and prescription issues. **Outcomes:** We will report overall percent intervention rate, percent intervention rate per age group, ratio of DRP versus no DRP per age group, rank most to least common DRP, percent sooner medication evaluation appointment recommended, and percent recommendations implemented across provider types. We will also review cases associated with $<$ 30-days readmissions or low percent recommendations implemented to inform possible workflow adjustments.

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Developing and Establishing Psychiatric and Behavioral Health Ambulatory Clinical Pharmacy Services Within a Large Heath System

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Type: Work in Progress. **Background:** Opportunities for pharmacist collaboration within the ambulatory care setting continue to expand. There is a need to implement ambulatory clinical pharmacy services in behavioral health clinics to optimize care provided to patients in this setting. Collaborative Drug Therapy Management (CDTM) agreements can be used to compliment the work of providers by allowing pharmacists to assess patients independently and make medication adjustments based on protocols and procedures outlined within the agreement. **Objectives:** Evaluate the success and impact of expanding ambulatory clinical pharmacy services within behavioral health clinics through implementation of a CDTM agreement. **Methods:** A gap analysis will be completed to determine the most opportune settings for ambulatory clinical pharmacy services to be established. Educational materials will be presented and distributed to providers within two of the hospital-based behavioral health clinics within the health system to demonstrate available pharmacy services and outline contents of an approved behavioral health CDTM. Aspects such as space, scheduling, billing, pharmacy learner education experiences, and documentation within the electronic medical record need to be organized. The clinical pharmacist will participate in co-visits with providers and lead medication groups to establish rapport, and will complete credentialing with providers in order to begin practicing with the CDTM. Once credentialed, the pharmacist will be able to lead individual visits with patients and start, discontinue, and adjust medications to manage behavioral health conditions and medication side effects as outlined in the agreement. **Outcomes:** The primary outcome of this project is to assess the expansion of pharmacy services through quantification of pharmacy referrals placed and visits completed after initiation of services in July 1, 2020, including independent visits, medication education groups, as well as co-visits with providers. Secondary outcome measures will assess improved clinical outcomes with the implementation of pharmacy services and optimization of transitions of care, such as completed medication reconciliations and consistency of metabolic monitoring on patients prescribed antipsychotics.

Development and Implementation of a Long-Acting Injectable Procedure at a Veterans Affairs Medical Center

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Type: Work in Progress. **Background:** Long-acting injectable (LAI) medications allow for the slow release of the medication into the body through a single injection and negate the need for daily oral medication administration. LAI medications have been developed for various disease states including disorders involving psychosis, bipolar disorder, depression, substance use disorders, and pain management. Benefits of LAI medications include prevention of non-adherence and relapse, simplification of medication regimens, and reduction of medication burden. Due to the need for LAI medications to be administered by a healthcare professional, coordination of care can be a potential barrier to the patient receiving the injection. Missed and incorrect doses, missing documentation, and general incorrect timing of injections all are errors that can happen from gaps in care. These gaps may set the patient up for failure by potentially delaying psychiatric care. A standard operating procedure for LAI medications utilized by all personnel involved in patient care is imperative to ensure optimal care. Standardized ordering and documentation may enhance transitions of care between providers and prevent medication errors. **Objectives:** (1) Develop a site-specific standard operating procedure to ensure timely and safe administration and documentation of LAI medications. (2) Reduce medication errors or missed doses. **Methods:** The investigators will review protocols from outside facilities, treatment guidelines, journal articles, and other primary literature to compare best practices for LAI medication procedures. Interdisciplinary discussion among patient safety officer, psychiatry, nursing, and pharmacy staff will supplement the literature. Clinical judgement as well as information gathered in previous medication use evaluation and Root Cause Analysis reports will be utilized to determine treatment protocol. Investigators will present the proposed protocol to the Pharmacy and Therapeutics committee for approval prior to implementation. Staff involved in LAI medication processes within the Veterans Affairs Medical Center will be educated on respective changes. **Outcomes:** We will report on frequency of medication errors and missed doses as well as rates of correct documentation post implementation of the proposed standard operating procedure and use surveys to determine staff satisfaction post implementation.

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Dialectical Behavior Therapy's Impact on Psycho-Polypharmacy Minimization in Veterans With Borderline Personality Disorder

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Type: Work in Progress. **Background:** According to the 2001 American Psychiatric Association guidelines for the treatment of borderline personality disorder (BPD), medications such as selective serotonin reuptake inhibitors, mood stabilizers, and antipsychotics may be utilized to help control specific behavioral dimension symptoms such as affective dysregulation, impulsive-behavioral dyscontrol, and cognitive-perceptual difficulties. Conversely, the National Institute for Health and Care Excellence guidelines for the recognition and management of BPD generally discourages the use of psychopharmacology to treat behavioral symptoms in this patient population. Both guidelines, however, recommend dialectical behavior therapy (DBT) as first-line therapy for patients with BPD. Numerous studies have shown promising outcomes in patients with BPD who actively participate in DBT, however no studies were found that specifically explore whether DBT may minimize psycho-polypharmacy in this patient population. The benefit of such an investigation may include identifying areas of improvement for patients with BPD, including, but not limited to, reducing medication overuse/overdose and decreasing the risk of adverse drug events. **Objective:** To evaluate whether a correlation exists between participation in DBT and minimization of psycho-polypharmacy in Valley Coastal Bend (VCB) veterans diagnosed with BPD. **Methods:** Potential participants from four specialty clinics (Corpus Christi, Harlingen, McAllen, and Laredo) within VCB will be identified by searching the electronic medical record (EMR) system using ICD-10 codes specific to BPD and unspecified personality disorder. Encounters between January 1, 2019 and December 31, 2019 will be included and evaluated. Veteran EMRs will be reviewed for participation in DBT (individual and/or group sessions), with total length of time and number of sessions documented. Veterans with BPD who did not participate in DBT will serve as the comparator group. The number of psychiatric medications and their corresponding drug classes at the beginning and conclusion of the study period will be recorded. Age, gender, geographic region, and concurrent psychiatric diagnoses for each veteran will also be analyzed. **Outcomes:** We will report the number of psychiatric medications at the beginning and conclusion of the study period, as a function of the number and percentage of veterans with BPD who participated in DBT versus those who did not.

Do Buprenorphine Doses and Ratios Matter in Medication Assisted Treatment (MAT) Retention?

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Type: Work in Progress. **Background:** Medication assisted treatment (MAT) utilizes medications such as buprenorphine/naloxone (BUP/NLX) in conjunction with behavioral therapies to treat opioid use disorder (OUD). Use of MAT has been shown to improve OUD treatment program retention, decrease illicit opiate use, and reduce morbidity and mortality. Several factors for improving MAT retention and relapse rates have been identified including higher total doses of buprenorphine (BUP) and lack of concomitant psychiatric comorbidities. Routine urine drug screens (UDS) are a recommended component of all MAT programs. This aids in patient recovery and assesses for adherence to BUP/NLX via measurement of excreted BUP and its metabolite, norbuprenorphine (NBP). In response to the COVID-19 pandemic, some MAT clinics have implemented changes to their BUP induction and monitoring protocols which has significantly reduced in-person follow-up and consequently the collection of routine UDS. This study will evaluate whether BUP doses and urinary concentrations/ratios of BUP and NBP are correlated with treatment adherence and/or rates of illicit drug use and explore the impact of COVID-19 on treatment adherence among patients enrolled in a local MAT clinic. **Objectives:** (1) Identify whether total daily BUP doses affects treatment adherence and illicit drug use. (2) Assess whether variability between UDS levels of BUP, NBP, and their ratios are correlated with MAT adherence and illicit drug use. (3) Evaluate the potential impact of COVID-19 on MAT adherence. **Methods:** A retrospective chart review will be conducted on all patients at least 18-years-old enrolled in a local MAT program from August 1, 2017 to February 28, 2021 with goal enrollment of at least 150 patients. Demographic variables, total daily BUP dose, treatment adherence (via prescription fill history), concomitant psychiatric diagnoses and medications, OUD background (duration, preferred opioid of abuse), and UDS results will be collected. Participants will be divided into two groups based on the total daily dose of BUP being received ($<$ 16 mg vs $\geq$ 16 mg). Collected data will be further divided into pre- and post-COVID-19 cohorts. **Outcomes:** Treatment adherence ($\geq$ 80% of BUP/NLX prescriptions obtained during the duration of MAT enrollment) and illicit substance use (incidence of positive UDS for drugs of abuse) will be reported.

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Effect of Prescriber Education on Off-Label Quetiapine Use in Veterans Diagnosed With PTSD

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Type: Work in Progress. **Background:** Quetiapine is an atypical antipsychotic that has FDA approval to treat a variety of mental health conditions. However, quetiapine is known to cause many serious side effects, including metabolic syndrome which can increase the likelihood of one experiencing an Atherosclerotic Cardiovascular Disease (ASCVD) event. Quetiapine is often used as off-label therapy for Post-traumatic stress disorder (PTSD). PTSD is a trauma-related disorder that effects many people, both veterans and non-veterans. Studies have shown that those diagnosed with PTSD have a greater chance of having metabolic syndrome as well as experiencing an ASCVD event. This study's purpose was to educate prescribers about the risks associated with quetiapine use in PTSD patients with hopes of reducing the amount of off-label quetiapine prescriptions given to this patient population. Data will be gathered from October 14, 2020 to January 14, 2021. **Objectives:** (1) Decrease the amount of off-label quetiapine prescriptions are written for veterans with PTSD. (2) Determine how quickly prescribers are using quetiapine for given indication as well as number of ASCVD risk factors patient had before prescribing quetiapine. **Methods:** Obtained list of patients that fit inclusion/exclusion criteria using Strategic Analytics for Improvement and Learning (SAIL) data. A formal presentation was then given to all prescribers detailing the risks associated with quetiapine use and how those diagnosed with PTSD are at an even higher risk of experiencing serious complications from quetiapine use. Preform chart reviews on patients to determine indication of quetiapine as well as presence of risk factors for ASCVD. Then, three months later I will pull the patient list using the same SAIL metric and compare it to the original list to determine if there is any difference in the amount of veterans with PTSD are being prescribed quetiapine. **Outcomes:** I will determine if the amount of quetiapine prescriptions in veterans has decreased 3 months after giving the presentation to the prescribers detailing the risks associated with quetiapine use. Will also report the average number of pre-existing conditions and previous medication trials for indication that quetiapine is used for.

Effectiveness Analysis of Olanzapine Compared to Other Antipsychotics for the Treatment of First-Episode Psychosis

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Type: Work in Progress. **Background:** Nearly 100,000 adolescents and young adults in the United States experience first-episode psychosis (FEP) each year. With a peak onset occurring between 15-25 years of age, psychotic disorders can disrupt a young person's development and initiate a trajectory of accumulating disability. An abundance of clinical data supports the value of early intervention following the diagnosis of FEP. This study will provide important data regarding the comparative efficacy between olanzapine and other antipsychotics for the treatment of FEP, as well as the costs associated with FEP management. **Objectives:** (1) Evaluate the efficacy of olanzapine compared to other antipsychotics for the treatment of FEP. (2) Evaluate costs associated with FEP management. **Methods:** The electronic medical record (EMR) will identify treatment-naïve patients 18 years of age and older over a 2-year period who were admitted to the inpatient psychiatric hospital with a diagnosis of FEP, prescribed an antipsychotic medication, and attended outpatient appointments within the hospital enterprise post-discharge for at least one year. Progress notes within the EMR upon initial admission and readmissions to the inpatient psychiatric hospital and follow-up outpatient appointments will be utilized to evaluate the effectiveness via provider and patient report of olanzapine compared to other antipsychotic treatment for FEP. To evaluate the costs associated with FEP treatment, a review of published pharmacoeconomic literature will be used to assess the unit costs of initial admissions, readmissions, treatment emergent adverse events, and outpatient provider and therapy appointments. **Outcomes:** The number and percentage of patients who had a more favorable response to olanzapine compared to other antipsychotics for FEP by analyzing the total treatment emergent adverse effects, patient-reported tolerability, and readmission rates will be reported. The comparative financial burden between olanzapine and other antipsychotics used for FEP will also be reported by analyzing the costs associated with FEP management.

Effects of Early Engagement With Opioid Treatment Programs on Successful Transitions of Care

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Medical University of South Carolina, Charleston, SC

Type: Work in Progress. **Background:** The current state of the national opioid crisis has uncovered a complex set of issues across the continuum of care. Transitions of care are a well-known point of weakness within the U.S. healthcare

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system but are especially problematic when involving patients on medication assisted therapy (MAT) for opioid use disorder (OUD). An apparent gap exists within the bridge between inpatient management of OUD and outpatient MAT providers. This project will seek to engage key outpatient treatment programs (OTP) to identify and remedy communication barriers. The project will subsequently collect OTP engagement and OUD outcomes of enrolled patients. As such, it will serve as a quality improvement project that aims to strengthen the continuum of care between the inpatient and outpatient setting. **Objectives:** (1) Assess rate of successful engagement at the OTP, defined as patient reporting to the OTP for intake appointment. (2) Assess patient retention in treatment at 30, 60 and 90 days. (3) Assess frequency of patient emergency department visits related to opioid overdose. **Methods:** First, guidance documents for inpatient providers and joint medical release of information documents to allow reciprocal communication between inpatient referring providers and OTPs will be developed, and the process of care within the inpatient setting will be adapted to facilitate transition of care to OTPs. Subsequently, patients initiated on buprenorphine or methadone for OUD will be identified prospectively and enrolled if: (1) under the care of the inpatient psychiatry consult liaison service or admitted to an adult inpatient psychiatric unit; (2) have planned follow-up at participating OTPs; and (3) have signed the joint medical release of information documents. Quality measures will be assessed and updated along with guidance documentation on transitions of care for these patients. Data collection points will include age, gender, psychiatric and medical comorbidities, and insurance status. The project will initially span over the course of a year, but quality improvement metrics may continually be reviewed and updated. Future directions may include further improvement to process of care to successfully expand closer collaboration with other MAT providers in the community. **Results:** Research still in progress.

Eliminating Medications Through Patient Ownership of End Results (EMPOWER): A Reduction of Potentially Inappropriate Benzodiazepine Use in High-Risk Patients

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Type: Work in Progress. **Purpose:** Benzodiazepine use in the veteran population, although declining, remains an area of improvement for the VA health system. One potential opportunity for reducing potentially inappropriate prescribing is focused on patient education and encouragement to be involved in their medication decisions. Eliminating Medications Through Patient Ownership of End Results (EMPOWER) has shown previous success in the VA system as well as non-VA healthcare settings. The object of this project is to follow previous EMPOWER projects in providing educational material to high risk patients and measuring total reduction in benzodiazepine prescribing by comparison of lorazepam milligram equivalent. **Methods:** The total number of actionable veterans will be identified using the Psychotropic Drug Safety Initiative Dashboard (PDSI) which includes those that are currently prescribed a benzodiazepine and an opioid, those over 65 and prescribed a benzodiazepine, those with a Substance Use Disorder on their active problem list and prescribed a benzodiazepine, and those with Post-Traumatic Stress Disorder on their active problem list that are prescribed a benzodiazepine. Veterans are excluded from the dashboard if the benzodiazepine is a short-term use medication for procedural purposes or if the veteran is on hospice. The number of included veterans will be restricted to those with appointments within the next three months from the date of the data pull due to the nature of the project. The current prescribed benzodiazepines will be converted to lorazepam milligram equivalence (LME) for later comparison of total reduction. The veterans that are identified using this dashboard will be mailed a pre-approved educational flyer that contains information about drug safety and encourages them to speak with their prescriber about their medications. The prescribers will be provided a copy of this flyer and notified that it is being mailed to their patients. After three months the same actionable patients will be re-analyzed for change in LME as well as total number decrease of high-risk veterans from the initial data pull. **Results:** In process. **Conclusion:** In process.

Evaluating Pharmacotherapy Augmentation and Progression for the Treatment of Severe Obsessive-Compulsive Disorder

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Type: Work in Progress. **Background:** Obsessive-compulsive disorder (OCD) is marked by an exceptionally high rate of treatment resistance. Patients are often left trialing several medications within multiple drug classes with little to no response causing heterogeneity in prescribing patterns. There is a paucity of data supporting prudent pharmacotherapy decision-making for those with a low quality of life and severe functional impairment from OCD. This analysis investigates the selection, dosing, duration, and clinical response of pharmacotherapy in order to portray a thorough overview of treatment

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options. **Objectives:** (1) Identify the prescribing patterns of treating severe OCD. (2) Quantify the impact that dose, duration, drug class, and augmentation have on clinical outcomes associated with severe OCD. **Methods:** This retrospective, single-center cohort study will review electronic medical records of up to one hundred subjects diagnosed with severe OCD at a tertiary care, academic medical center. Inclusion criteria is defined as those that (a) are at least eighteen years of age, (b) assigned a primary diagnosis of OCD per ICD-10 classification, and (c) a documented score greater than 23 on the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) prior to initiation of a medication prescribed for OCD. Exclusion criteria includes comorbid psychotic and/or substance use disorders, unstable neurological or coagulation disorder(s), and eating disorder diagnosis. The primary endpoint is quantity of psychotropic medication classes prescribed per subject at any time point. Secondary endpoints include duration of medication trial before discontinuation or augmentation, frequency of switching between drug classes, change in Y-BOCS score over time, average and maximum dosages per agent, and class of medications prescribed. Records will be reviewed over a 5-year time frame from medication initiation to year 5 or until study period end point. SPS software will be used for data analysis. For continuous and categorical variables, the Mann-Whitney *U* Test and χ^2 Test/Fisher's Exact Test will be used respectively. Descriptive and multivariate analyses will be used to adjust for confounding factors of demographic data. **Outcomes:** Results will be interpreted to support the development of a pharmacotherapy treatment algorithm for severe OCD. Relative effectiveness of pharmacotherapy will be assessed and the best approach to treatment suggested.

Evaluating Psychotropic Medication Use in Pregnant Veterans With a Mental Illness

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Type: Work in Progress. **Background:** Pregnancy is associated with several physical and emotional changes and approximately 15% of pregnant women are diagnosed with a psychiatric illness. Untreated psychiatric illnesses can pose a risk to both the mother and developing fetus; therefore, risks and benefits of psychotropic use during pregnancy should be weighed. Many women choose to discontinue or reduce their medication during pregnancy, increasing risk of symptom relapse, and there is little known about which drugs are efficacious during pregnancy. Given the uniqueness of pregnancy and the veteran population, this study aims to determine trends in psychotropic use during pregnancy, symptom relapse, and adherence in this population. **Objectives:** The primary objective of this study is to evaluate symptom relapse in pregnant veterans who discontinued psychotropic medication compared to those who continued treatment. The secondary objectives aim to evaluate changes at each trimester and postpartum including: relapse rates, change in medication use, and adherence rates. **Methods:** The VA Computerized Patient Record System (CPRS) will be utilized to generate reports to identify female veterans with positive pregnancy tests and active psychotropic prescriptions at time of positive test. Patients meeting inclusion criteria from January 1, 2010 to December 31, 2020 will be included. Patients will be followed from 180 days prior to first positive pregnancy test to 180 days postpartum. Retrospective chart reviews of each patient will be conducted to evaluate for: symptom relapse, changes in psychotropic medication during each trimester and postpartum, and medication adherence. Adherence will be evaluated by calculating the proportion of days covered (PDC) during each trimester and postpartum based on CPRS medication fill history. Adherence will be assessed at each trimester based on an average of 90 days per trimester and 180 days postpartum. Patients that have $>$ 80% of days covered will be considered adherent. **Outcomes:** We will report: the total relapse rate of pregnant veterans overall, at each trimester, and postpartum; the percentage of veterans who discontinued medication, continued therapy without change, required dose adjustments, required an additional psychotropic medication, or switched medication; and the percent adherence at each trimester and postpartum.

Evaluating the Efficacy and Safety of Switching From Onabotulinum Toxin Type A to Erenumab-Aooe During COVID-19

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Type: Work in Progress. **Background:** Chronic migraine affects approximately 15% of United States adults. Both onabotulinum toxin A and erenumab-aooe are approved as injectable treatment options for migraine prophylaxis, however, only erenumab-aooe may be self-administered at home. There are no head-to-head trials between the two medications, but both have shown superiority over placebo. Due to the COVID-19 pandemic, efforts were implemented to minimize the risk of transmission between patients and healthcare professionals by reducing face-to-face contact while continuing to provide care. Given these restrictions, a plan was developed for neurologists to switch patients who were treated with onabotulinum toxin A for migraine prophylaxis to erenumab-aooe to allow at-home treatment. This protocol allowed patients to switch back to onabotulinum toxin A

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or remain on erenumab-aooe when face-to-face appointments resumed. **Objectives:** The primary outcome of this study is to compare the average number of headaches per month between onabotulinum toxin A and erenumab-aooe. As a secondary outcome, average number of headaches per month will also be compared in patients who continued erenumab-aooe versus those who chose to switch back to onabotulinum toxin A. An additional secondary outcome will compare average severity of headache between the two medication groups. Adverse effects will be evaluated as a safety endpoint. **Methods:** This study is a retrospective chart review. Patients with diagnosis of chronic migraine who received at least 3 months of onabotulinum toxin A before switching to erenumab-aooe between January 1, 2020 and November 1, 2020 will be identified through electronic medical record. Each patient will serve as their own control. The average number of headaches per month at 3 months will be collected and compared between treatment with onabotulinum toxin A and treatment with erenumab-aooe. Data will be analyzed using paired Student *t* test, Wilcoxon Signed Rank Test, and McNemar's test. **Outcomes:** We will report average number of headaches per month and average severity of headaches between patients who received onabotulinum toxin A and erenumab-aooe. We will also compare the number of headaches per month between patients who continued with erenumab-aooe versus those who switch back to onabotulinum toxin A.

Evaluating the Impact of a Prior Authorization Drug Request (PADR) Consult on Appropriate Initiation of Benzodiazepines Amongst Primary Care Providers

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Type: Work in Progress. **Background:** Benzodiazepines are commonly prescribed for the short-term treatment of anxiety disorders and insomnia. Although these medications can be effective for symptomatic relief, there are significant risks with their use such as adverse events and the development of substance use disorders (SUD). It is important to minimize inappropriate prescribing of these medications, especially in high-risk populations. The majority of benzodiazepine prescriptions often come from primary care providers, thus making it an important setting where interventions can be made. This project will determine if implementation of a prior authorization drug request (PADR) will lead to reductions in benzodiazepine prescribing, especially in high-risk populations. **Objectives:** (1) Determine if implementation of a PADR for benzodiazepine initiation in the primary care setting leads to reductions in overall benzodiazepine prescribing. (2) Determine if implementation of a PADR leads to reductions in benzodiazepine prescribing among high-risk populations. **Methods:** A list of patients newly initiated on a benzodiazepine from April 1, 2020 to March 31, 2021 will be obtained and a retrospective chart review of these patients will be completed using the Computerized Patient Record System (CPRS). Data to be collected include patient age, name and dose of benzodiazepine, specialty of prescriber, diagnosis of post-traumatic stress disorder (PTSD) or SUD, and concomitant opioid prescription. Additional data includes the number of PADR consults completed after implementation (October 1, 2020 to March 31, 2021), the number of PADR consults not approved, and the reasons for PADR disapproval. Data will also be collected from the Veterans Health Administration (VHA) Psychotropic Drug Safety Initiative (PDSI) dashboards. Data will be analyzed using descriptive statistics. **Outcomes:** Upon completion of the project, the overall number of new benzodiazepine prescriptions as well as the number of new benzodiazepine prescriptions in high-risk populations in the 6 months prior to and after implementation of the PADR will be reported. Additional outcomes include the number of PADR consults completed, the number of PADR consults not approved and reasons for disapproval, and the number of patients on benzodiazepines with PTSD, SUD, age 65 and older, or on concomitant opioids prior to and after implementation of the PADR.

Evaluating the Impact of a Substance Use Disorder Clinical Pharmacy Specialist on Access to Care in a Mental Health Outpatient Treatment Program

Rebecca Wynn, PharmD; June Griffith, PharmD, BCGP, BCPP

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Type: Work in Progress. **Background:** Despite evidence supporting the use of medication-assisted treatment (MAT) for the management of substance use disorders (SUDs), the medications used in MAT remain underutilized due to delayed access to care associated with extended appointment wait times, among other treatment barriers. The integration of a SUD clinical pharmacy specialist (CPS) into a mental health outpatient treatment program to manage alcohol use disorder (AUD) and/or opioid use disorder (OUD) may serve to improve access to care and increase MAT utilization at our facility. **Objectives:** (1) Evaluate the impact of SUD CPS integration on access to care in a mental health outpatient treatment program. (2) Assess clinical outcomes of AUD and/or OUD in patients treated by the SUD CPS. **Methods:** This is a retrospective, electronic chart review of all patients with a current

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diagnosis of AUD and/or OUD who were managed by the SUD CPS between January 1, 2020 through December 31, 2020. Data collection will include baseline demographics, drug regimens, clinic appointment dates, duration of therapy, and urine drug screen (UDS) results. Average wait time for a SUD CPS appointment and facility MAT utilization rates will be used to evaluate access to care. Wait time will be calculated as the difference between the number of days from the appointment request date to the scheduled appointment date. Descriptive statistics will be used to analyze the data. **Outcomes:** Primary outcomes to evaluate access to care include the average wait time for CPS clinic appointment as compared to psychiatrists' clinics and facility MAT utilization rates pre- and 6 months post- SUD CPS integration. Secondary outcomes include the percentage of positive buprenorphine UDS results, the percentage of negative opioid UDS results, and 3- and 6-month treatment retention rates.

Evaluating the Impact of Clinical Pharmacy Specialist in the Treatment of Alcohol Use Disorder

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Type: Work in Progress. **Background:** Alcohol use disorder (AUD) is one of most common health conditions in veterans. It continues to be an economic and global burden and is a major contributor for numerous health complications, disability, and mortality. Despite available evidence on the benefits of pharmacological treatment for AUD, medication management for AUD continues to be widely underutilized. This quality improvement project will integrate pharmacist education and collaboration to assist in medication management for this patient population. This study will improve medication accessibility for patients with AUD who are not appropriately managed with or receiving optimized pharmacological treatment. **Objectives:** (1) Increase utilization of the clinical pharmacist specialist (CPS) and PGY2 psychiatric resident for AUD management. (2) Educate providers on Alcohol Use Disorders Identification Test (AUDIT-C), AUD treatment options, and referral to CPS. (3) Evaluate clinical outcomes of patients with AUD that are managed by the CPS/PGY2. **Methods:** Preexisting national AUD dashboards (computerized system that generates reports of key performance measures) were used to create a list of veterans with a diagnosis of AUD. This data was then used to further identify patients that met the inclusion criteria (veterans with AUD diagnosis and not on pharmacological treatment, AUDIT-C score ≥ 4, and veterans due for an AUDIT-C). Patients with AUD in remission plus AUDIT-C ≤ 3 for at least 1 year, no longer enrolled at the facility, and not eligible for care at the facility were excluded. The CPS and PGY2 resident use this list to perform chart review, provide patient specific AUD recommendations, and recruit veterans for AUD management in the pharmacist-ran substance use clinic. To assess the impact of clinical pharmacist involvement in AUD management, a variety of elements will be measured retrospectively with chart review and prospectively after pharmacist intervention on a quarterly basis. **Outcomes:** We anticipate a change in AUDIT-C and the total number of patients receiving pharmacological treatment for AUD, an improvement in referrals for mental health and/or addiction, and improvement in the total number of veterans followed by the PGY2 resident and CPS before and after clinical interventions.

Evaluating the Safety and Efficacy of Reducing Clozapine Blood Test Monitoring in Veterans Stable on Clozapine Therapy

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Type: Work in Progress. **Background:** Clozapine is currently the most effective antipsychotic for treatment-resistant schizophrenia; however, its use is limited by the requirement for frequent hematologic monitoring. A recent meta-analysis found that the incidence of severe neutropenia significantly declines after one year of clozapine treatment. Furthermore, there is limited literature supporting vigilant monthly monitoring after one year to reduce the risk of agranulocytosis. This project will evaluate the safety and efficacy of clozapine therapy in veterans who have been stable on clozapine for at least one year and who are compliant to standard blood test monitoring, per the National Clozapine Coordinating Center (NCCC) guidance. The results will potentially support the development of a local standard operating procedure to extend clozapine blood test monitoring in the context of the COVID-19 pandemic. **Objective:** To evaluate the incidence of clozapine-induced neutropenia and exacerbations of psychosis in veterans on stable clozapine therapy who are compliant to standard monthly blood test monitoring. **Methods:** This quality assurance/quality improvement (QA/QI) project will be a retrospective chart review of veterans who have been stable on clozapine therapy, as defined by continuous clozapine treatment for longer than one year. The review period will include clozapine patients from October 1, 2010 to October 1, 2019. Only veterans who have been compliant to the NCCC standard complete blood count (CBC) monitoring will be included for review. Veterans who underwent chemotherapy or radiation therapy or received concurrent treatment with a biological agent or immunosuppressant will be excluded. **Outcomes:** The following

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data will be reported per patient: the number of neutropenic events, as defined by an absolute neutrophil count (ANC) $<$ 1500/μl in the standard population or ANC $<$ 1000/μl in the benign ethnic neutropenia population, the number of inpatient psychiatric hospitalizations, the number of clozapine dose adjustments, and the number of times a supportive care medication was initiated to treat clozapine-induced adverse events.

Evaluation of Atypical Long-Acting Injectable Antipsychotics for Substance-Induced Psychosis in a Veteran Population

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Type: Work in Progress. **Background:** Intoxication and withdrawal from substances such as alcohol, cannabis, hallucinogens, inhalants, sedatives, hypnotics, anxiolytics, and stimulants have been implicated in substance-induced psychotic disorder (SIPD). SIPD is associated with functional deterioration, imprisonment, and rehospitalization. Studies show that up to 46% of patients with SIPD develop a permanent psychotic disorder, depending on the causative substance. Small randomized controlled trials and case studies demonstrate that antipsychotics are efficacious in treating inhalant-, methamphetamine-, and alcohol-induced psychosis. A retrospective study demonstrated that patients with cannabis-induced psychosis maintained on long-acting injectable antipsychotics (LAIA) had less frequent rehospitalizations than patients on oral antipsychotics. Although there is literature to support the use of LAIAs for SIPD, to our knowledge there are no studies comparing the atypical LAIAs risperidone intramuscular extended release suspension, aripiprazole monohydrate, and monthly paliperidone palmitate. **Objectives:** The primary objective is to determine if readmission rates differ between atypical LAIAs in veterans being treated for SIPD. The secondary objectives are to determine if there is a difference in subsequent diagnosis of a psychotic disorder, total days of LAIA treatment, missed doses, time to first readmission, and adverse effects between atypical LAIAs. **Methods:** A retrospective chart review will be conducted on patients prescribed an atypical LAIA from June 30, 2010 to June 30, 2020. Inclusion criteria include: at least 18 years of age, admitted due to SIPD, started on an atypical LAIA with history of oral tolerability, and receive follow-up care from study institution. Exclusion criteria include: psychotic disorder other than SIPD, dementia-related cognitive impairment, antipsychotic polypharmacy, or LAIA used for bipolar disorder or depression augmentation. Student *t* tests will be used to compare continuous variables between groups while χ^2 will be used for categorical variables. Adjusted analyses will include logistic regression and linear regression respectively. **Results:** In progress.

Evaluation of Clinical Pharmacist Management Trends for Depression

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Providence Medical Group (PMG), Portland, OR

Type: Work in Progress. **Background:** The 2020 COVID-19 pandemic has led to an increase in both mental health issues and substance use. Additionally, there is a known shortage of psychiatrists in the country, with over half of all counties in the United States not having a single psychiatrist. This shortage is evident in Southern Oregon. The shortage of prescribing mental health providers presents a unique opportunity for pharmacists to work in conjunction with the primary care medical team to manage depression. There is currently evidence that supports the effectiveness of clinical pharmacists in the management of depression. Furthermore, it has been shown that patients are able to follow-up with a clinical pharmacist in the primary care setting sooner than compared with a psychiatric provider within a behavioral health clinic. This study will provide information regarding the management habits of primary care pharmacists when caring for patients with depression. **Objective:** To quantify, characterize, assess, and identify trends in Clinical Pharmacy Specialist (CPS) depression management. **Methods:** Retrospective review of patients whose depression is being managed by a clinical pharmacist from January 1, 2019 through December 31, 2020. This data will be obtained via intervention tracking tools within the medical record. A manual chart review will then be conducted assessing the number of follow-up visits performed, the number of drug switches that were implemented, the number of agents that were added, the number of dose changes applied, and the mean change in Patient Health Questionnaire (PHQ-9). Additionally, a presentation describing the collaborative practice agreement (CPA) for depression will be given to providers at Providence Medical Group primary care clinics in Southern Oregon. The goals of the presentation are to (1) increase provider awareness about the existence of the depression CPA; and (2) increase the number of referrals for depression management. Any patients referred to CPS through February 28, 2021 will be included in a prospective analysis of depression management trends. The management trends of these patients will be followed through the end of April 30, 2021 to be included in data analysis. **Outcomes:** We will report the outcomes listed in the Methods section above. We will also report on the total number of depression referrals received by CPS.

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Evaluation of Clozapine-Induced Constipation and COVID-19

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Type: Work in Progress. **Background:** Clozapine remains the only FDA approved antipsychotic for treatment-resistant schizophrenia. Constipation is a common and potentially life-threatening complication of clozapine that occurs in up to 25% of patients. Guidelines focus on mild-severe neutropenia, myocarditis, and seizures, but fail to provide guidance on how to monitor and treat clozapine-induced constipation. The FDA implemented a box warning about the risk of clozapine-induced constipation in early 2020 emphasizing the importance of bowel monitoring. In 2017, Fulton State Hospital implemented a clozapine constipation protocol to address clozapine-induced constipation to improve detection of clozapine-induced constipation. Starting in March 2020, hospital units have been placed on quarantine to minimize the spread of COVID-19. These quarantines have decreased the number of activities offered to clients and increased sedentary behaviors, potentially increasing cases of clozapine-induced constipation. **Objectives:** Determine the effect of quarantining patients on clozapine to prevent the spread of COVID-19 on the: (1) Number of physical activities offered; (2) Number of physical activities patients on clozapine participated in; (3) Frequency of as needed (PRN) medications utilized for constipation; and (4) Number of medical referrals for constipation. **Methods:** A retrospective chart review will be completed at a 400-bed inpatient forensic psychiatric facility. Clozapine treated subjects will be included if they were on the hospital's clozapine-induced constipation protocol, 10 months pre- and post-COVID-19 quarantines, from March 1, 2019 to December 31, 2020 ($n = 33$). Data will be collected using retrospective chart review and reports generated from electronic medical administration records and electronic health records. The number of physical activities offered and participated monthly, number of medical clinic consults for constipation, PRN medication use, and demographic variables (age, sex, race) will be evaluated. To assess the data collected, independent Student *t* tests will be utilized to compare pre- and post-COVID-19 constipation incidence. **Outcomes:** The number of physical activities offered, physical activities participated in, PRN medications utilized for constipation, and medical referrals for constipation after COVID-19 quarantines began will be reported.

Evaluation of Initial Prescribing of Benztropine or Diphenhydramine for Extrapyramidal Symptoms (EPS) in Patients on Antipsychotic Therapy

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Type: Work in Progress. **Background:** Despite the fact that anticholinergic agents do not cover the entire spectra of extrapyramidal symptoms (EPS) given the different pathophysiology of types of EPS, they are still empirically prescribed in patients receiving antipsychotics. Potential central anticholinergic side effects can include impaired concentration, confusion, memory impairment; potential peripheral anticholinergic side effects include xerostomia, urinary retention, constipation, and blurry vision. The risk for side effects is greater in elderly patients due to polypharmacy, pharmacodynamic or pharmacokinetic changes over time. Given the safety concerns associated with anticholinergic treatment, this quality improvement project will evaluate the initial prescribing of diphenhydramine and benztropine inpatients on antipsychotic therapy and make recommendations for future prescribing. **Objectives:** To evaluate the initial prescribing of benztropine or diphenhydramine for extrapyramidal symptoms (EPS) in patients on antipsychotic therapy. **Methods:** A retrospective review of patients prescribed benztropine or diphenhydramine for all EPS related to antipsychotics during calendar year 2019 will be conducted. Electronic patient charts will be reviewed up to the present time period. The primary outcome will look at how many anticholinergic prescriptions followed best evidence-based medicine. This includes having documentation in the electronic medical record of an initial assessment of reported EPS (either with rating scales, clinical judgement, or both) and that the anticholinergic was prescribed for an appropriate type of EPS. The secondary outcomes will look at safety and efficacy endpoints. This includes whether or not the addition of the anticholinergic agent resulted in symptom improvement, if patients experienced anticholinergic side effects, and if they happened, was the anticholinergic discontinued. Secondary outcomes will also look at if anticholinergics were continued despite discontinuation or switching of the original antipsychotic for which it was prescribed. **Outcomes:** The number of prescriptions that have or have not followed best evidence-based medicine will be reported, along with the specific areas where the best evidence-based practices were not followed. There will also be a report on what specific interventions can be taken to help improve evidence-based treatment of EPS.

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Evaluation of Outcomes in the Emergency Department Following Implementation of a Rating Scale and Order Set for Acute Agitation

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Type: Work in Progress. **Background:** Up to 1.7 million emergency department (ED) visits in the United States involve an agitated patient each year. Agitation can be associated with medical conditions and progress to aggression, which may cause injuries to patients and staff. Rapid, effective action is required to minimize these risks and is often done with physical restraints and chemical sedatives. However, this can cause serious adverse events for patients. To minimize harm, the use of validated scales is recommended to detect early signs of agitation to intervene before the need for sedatives and restraints. A scale of agitated behaviors, Cincinnati Agitated Behaviors Scale (CABS), and an order set based on CABS scores, the Emergency Department Agitated Patient (EDAP) order set, were developed and implemented in the EDs of an academic health system. **Objectives:** The study will retrospectively examine the impact of the scale and medications from the order set and aims to evaluate the following: if the use of medications from the EDAP order set improved outcomes through reduction of the CABS score and by decreasing the need for parenteral medications for agitation, assess the rate of adverse events related to parenteral interventions for agitated behaviors, and evaluate if the implementation of the EDAP order set affected the number of restraint episodes and/or time in restraints. Conducting this study is important as there have been no similar studies performed in the emergency department setting. **Methods:** A report was generated of nonpregnant patients at least 18 years old admitted to the ED between May 1, 2019 and December 1, 2020 with a documented CABS score, and included CABS scores and medications administered. Additional information to evaluate adverse events, including dystonic reactions, respiratory depression, falls, and QTc prolongation, is included or a chart review will be conducted. Data on number of restraint episodes and time in restraints was retrieved separately. **Outcomes:** We will report the amount of patients that received parenteral medications and subsequently experienced adverse events, achieved 50% reduced CABS score upon reassessment, and analyze whether the change in number and time in restraints was significantly different after implementation of the EDAP order set.

Evaluation of Patients With a Diagnosis of Opiate Use Disorder Without Medication Assisted Therapy

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Miami Veterans Affairs Healthcare System, Miami, FL

Type: Work in Progress. **Background:** The Psychotropic Drug Safety Initiative (PDSI) was designed by the Veteran's Health Administration (VHA) to ensure appropriate and safe prescribing of psychotropic medications. Within the PDSI program is the Substance Use Disorder initiative. The goal of the current Substance Use Disorder initiative, SUD16, is to increase the number of patients with a diagnosis of opioid use disorder (OUD) receiving evidence-based medication assisted therapy (MAT). The purpose of this project is to evaluate patients within the Miami VA Healthcare System identified in the SUD16 initiative for MAT. **Objective:** To increase the number of patients diagnosed with OUD receiving evidence-based MAT within the Miami Veterans Affairs Healthcare System. **Methods:** All Miami VA patients (outpatients and inpatients) active on the SUD16 dashboard between December 2020 to January 2021 will be reviewed to identify eligible OUD patients not receiving MAT. A retrospective chart review will be performed using the Computerized Patient Record System (CPRS) to verify the accuracy of their OUD diagnosis and document non-VA prescribed MAT. Providers will be contacted to recommend offering MAT to eligible patients, and each patient review will be documented within the SUD16 dashboard.

Evaluation of Pharmacogenomic Testing Utility on Restraint Use and Polypharmacy in a Forensic Psychiatric Hospital

Mikaela J. Anderson, PharmD, MBA; Mark Mierzwa, PharmD, BCPP; Lehua K. Kay, PharmD, BCPP; Sabrina Allen, PharmD, BCPS, BCPP; Dalia Bowling, PharmD, BCPS, BCPP

Hawaii State Hospital / PharMerica, Kaneohe, HI

Type: Work in Progress. **Background:** Pharmacogenomic testing has become an increasingly valuable tool to create individualized medication regimens in the treatment of mental illness. In the forensic psychiatric population, the utility of pharmacogenomic testing is largely unknown. This population is often treatment resistant with greater disease severity and increased mortality risk, potentially increasing the value of personalized pharmacotherapy. Pharmacist-led pharmacogenomic testing was implemented at Hawaii State Hospital (HSH), a forensic psychiatric institution, in January 2020 to guide clinical decisions and optimize medication regimens. Since its implementation, the impact of pharmacogenomics on positive outcomes,

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such as reduction in physical restraint use and polypharmacy, has not been examined. This study aims to examine the relationship of pharmacogenomics to physical restraint use, polypharmacy, and changes in psychotropic medication regimens. **Objectives:** (1) Evaluate changes in percentage of polypharmacy, use of as-needed (PRN) psychotropic medications, and use of physical restraints, before and after pharmacogenomic testing. (2) Evaluate incidence and type of changes in scheduled psychotropic medications after pharmacogenomic testing. **Methods:** A retrospective chart review will be conducted in patients who received a pharmacogenomic test at HSH between January 1, 2020 and January 1, 2021. Charts will be reviewed to evaluate changes in scheduled psychotropic medication regimens. These changes are defined as any initiation, discontinuation, or dose change of scheduled psychotropic medications within 90 days after pharmacogenomic results are received. Charts will also be evaluated to determine percentage of polypharmacy, quantity of psychotropic PRN medication administrations, and number of physical restraint events per month. Each category will be compared 90 days prior to receipt of the pharmacogenomic test results to 90 days following for respective patients. PRN use and restraint use will be reported as increased, decreased, or no change. **Outcomes:** Incidence and type of changes in scheduled psychotropic medications will be analyzed and reported. Changes in physical restraint use, PRN psychotropic medication use, as well as percentage of polypharmacy, will also be analyzed and reported.

Evaluation of Safety in Veterans Maintained on Clozapine With Nonstandard Absolute Neutrophil Count (ANC) Monitoring during the Coronavirus (COVID-19) Pandemic

Sarah Mayer, PharmD; Courtney Newby, PharmD, BCPP

VA Eastern Colorado Healthcare System, Aurora, CO

Type: Work in Progress. **Background:** Clozapine is an effective antipsychotic used for treatment resistant schizophrenia and schizophrenia characterized by persistent suicidal ideation. Despite its unique and vital role in therapy, clozapine has stringent monitoring parameters given the potentially life-threatening risk of agranulocytosis. As part of the clozapine risk evaluation and mitigation strategy (REMS) program, patients must undergo absolute neutrophil count (ANC) blood draws as follows: once weekly during the first six months, biweekly for the second six months, and monthly after one year of treatment. Notably, the incidence of developing severe neutropenia decreases to $<$ 1% after one year of treatment and evidence shows minimal benefit in rigorous monitoring after this period. On March 17, 2020 the Veteran Affairs (VA) Healthcare System initiated a nationwide clozapine override process secondary to the COVID-19 outbreak in efforts to support the stay at home order and to reduce physical contact. This override process allows prescribing and dispensing of clozapine based on risk versus benefit without a timely ANC blood draw. **Objective:** The objective of this study is to determine the impact of atypical clozapine monitoring on safety outcomes during the COVID-19 pandemic within a VA Healthcare System. This study serves as an internal look at the override process to determine if clozapine can be administered safely with monitoring that deviates from standard recommendations in the clozapine prescribing information. **Methods:** A retrospective chart review of approximately 50 veterans maintained on clozapine (for at least one year) during the COVID-19 pandemic with one or more laboratory overrides that resulted in nonstandard clozapine monitoring. Data will be collected from March 17, 2020 to January 1, 2021. **Outcomes:** The primary outcome is the incidence (%) of mild, moderate, or severe neutropenia with atypical clozapine monitoring. Secondary outcomes include the average length of time between lab draws, total number of overrides, and a description of any clozapine related hospitalizations. **Originality/Significance:** This will be the first analysis of how the override process is being utilized within our facility. Evaluating the incidence of neutropenia during the COVID-19 override process may have implications in supporting future extended laboratory monitoring.

Evaluation of the Appropriateness of Benzodiazepine (BZD) Prescribing

Anh Tuyet Bui, PharmD; Carmela Jean, PharmD, BCPP; Janeen Crawford, PharmD, BCPP; Michele McCue, PharmD, BCPP

Miami VAHS, Miami, FL

Type: Work in Progress. **Background:** Benzodiazepines (BZD) are widely used and effective for both anxiety and insomnia, however long term use can lead to dependence and withdrawal symptoms upon discontinuation. Benzodiazepines can impair cognition, mobility, and increase fall risk in the elderly. Benzodiazepines are a relative contraindication in the treatment of Post-traumatic stress disorder (PTSD) and are contraindicated in patients with substance use disorder. The Veteran Affairs Healthcare System monitors the appropriateness of BZD prescribing by using the Psychotropic Drug Safety Initiative (PDSI) dashboard. The purpose of this project is to reduce the risks associated with BZD by utilizing the PDSI dashboard to identify and discontinue inappropriate BZD prescriptions. **Methods:** The PDSI dashboard is reviewed to identify patients prescribed benzodiazepines who are either above 65 years of age, have a PTSD diagnosis, a history of substance use disorder, concomitant use of

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opioids, or those patients without Prescription Drug Monitoring Program (PDMP) checks. Prescribers and patients are contacted for consideration of dose reduction or discontinuation of benzodiazepines. Patient's demographics, medication indication, refill history, and PDMP query history are reviewed in the Computerized Patient Review System. After identifying actionable patients, prescribers are contacted with a specific action plan. Reviews and actions are documented in the PDSI dashboard. **Results:** For patients prescribed BZD prescriptions without notes documenting PDMP checks within the past 365 days, providers were emailed and given instructions to consult the PDMP database prior to BZD prescribing. All contacted providers were receptive. The majority (70%) of BZD were prescribed by Mental Health Service and only 14% were from Primary Care. The most common BZD indications in reviewed actionable patients were anxiety, sleep, muscle spasm, and chemotherapy-induced nausea. Clonazepam was the most commonly prescribed BZD, followed by alprazolam, lorazepam, temazepam, diazepam, and lastly chlordiazepoxide. This is a work in progress and data is still being collected.

Evaluation of the Relationship Between Opioids and Suicidality Among Veterans

Jaclyn Kawsky, PharmD, BCPP; Natalie Domis, PharmD, BCPS; Peter Warren, PhD

Columbia VA Health Care System, Columbia, SC

Type: Work in Progress. **Background:** There is limited evidence to support the efficacy of long-term opioids for chronic pain, but there has been substantial documentation regarding the risks associated with these medications, such as respiratory depression and overdose. Concern also exists regarding the potential correlation between suicide attempts and opioid use. Overall, there is limited data looking at the association between opioid discontinuation and suicidal ideations or suicide attempts. The purpose of this study is to add to current available literature regarding opioid discontinuation and suicidal ideations and attempts, by examining veterans started on medication assisted treatment. **Objectives:** The primary outcome will be a comparison of rate of suicidal ideation and behaviors for 1 year among study groups (ie, continued on opioids, after treatment discontinuation, after transition to buprenorphine/naloxone, and after transition to oral naltrexone or long-acting injection naltrexone). Secondary outcomes will include a comparison of measures relating to suicidality (eg, positive suicidal ideation, Veterans Crisis Line notes, inpatient hospitalizations, and emergency room visits), all-cause mortality, demographic and psychosocial data, days supply of buprenorphine/naloxone, naloxone rescue kits dispensed, and those flagged high risk for suicide. **Methods:** The Institutional Review Board approved this single center, retrospective study. The electronic medical record system will identify adults who were prescribed opioids for at least 90 consecutive days, and those who were continued on opioids, versus those who were discontinued, versus those who were transitioned to alternative therapies. Individuals with a cancer diagnosis or hospice admission will be excluded. Data on demographics, comorbid diagnoses, naloxone rescue kit dispensing, high risk for suicide status, concomitant benzodiazepines prescriptions, suicidal ideation, suicidal intent, suicidal plan, hospitalizations, hospital readmissions, emergency room visits, Veterans Crisis Line Notes, Suicide Behavior Event Report notes, Suicide Behavior and Overdose Report notes, and deaths will be collected. **Outcomes:** We will evaluate measures of suicidality for those continued on long-term opioids versus those who were discontinued or transitioned to medication assisted treatment.

Evaluation of Treatment Outcomes of Conversion to Aripiprazole Lauroxil From Aripiprazole Monohydrate

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[1] VA Northeast Ohio Healthcare System, Cleveland, OH; [2] Case Western Reserve University, Cleveland, OH

Type: Work in Progress. **Background:** While clinical trials suggest that conversion from oral aripiprazole to aripiprazole lauroxil is adequate, there is currently minimal evidence to guide conversion from aripiprazole monohydrate to aripiprazole lauroxil. At our institution, treatment failure has been noted anecdotally upon transition to aripiprazole lauroxil from aripiprazole monohydrate. On August 26, 2019, this institution implemented an automatic therapeutic conversion from aripiprazole monohydrate to aripiprazole lauroxil based on approximate oral aripiprazole equivalents. The purposes of this study are to evaluate treatment outcomes from the automatic therapeutic conversion and to determine if there is a relationship between treatment failure and oral aripiprazole equivalents in patients initiated on aripiprazole lauroxil. **Objectives:** (1) Evaluate the rate of treatment failure in patients converted from aripiprazole monohydrate to aripiprazole lauroxil; (2) determine treatment failure rates based on oral aripiprazole equivalents; and (3) evaluate the specific reason for treatment failure with aripiprazole lauroxil. **Methods:** This is a retrospective chart review including patients converted from aripiprazole monohydrate to aripiprazole lauroxil during the automatic therapeutic conversion in August 2019 at this institution. Patients will be followed for six months post-

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initiation. Oral aripiprazole equivalents will be defined as $\geq$ 20 mg daily or $<$ 20 mg daily. Treatment failure will be defined as (1) psychiatric hospital admission for worsening and/or re-emergence of symptoms related to psychiatric diagnoses; (2) attempted or completed suicide; (3) increase in dose; (4) addition of another antipsychotic or oral aripiprazole; (5) aripiprazole lauroxil discontinuation; and (6) non-adherence as defined by the need for overlap with oral therapy or reloading with aripiprazole lauroxil 675 mg. Univariate statistics will be utilized to assess frequency of treatment failure and obtain basic numbers and percentages for the primary outcome. Chi-square analyses will be utilized to determine the percent differences for the secondary outcomes. The project is exempt by local IRB. **Outcomes:** We will report the rate of all-cause treatment failure in patients converted to aripiprazole lauroxil. Additionally, we will report the specific reasons for treatment failure, and report if there is a relationship between treatment failure and oral aripiprazole equivalents.

Evaluation of Z-Drug Use in Adult Patients at a Federally Qualified Health Center

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Type: Work in Progress. **Background:** According to the American College of Physicians, approximately 6 to 10% of adults meet diagnostic criteria for insomnia with women and older adults more likely to be affected. Due to a lack of comparative studies, there is little guidance on treatment selection. Several classes of medications are recommended to treat insomnia including the nonbenzodiazepine, benzodiazepine receptor agonist hypnotics (z-drugs) zolpidem, eszopiclone, and zaleplon. These drugs carry significant safety risks of next day cognitive and psychomotor impairment and include a Black Box Warning for complex sleep behaviors that can cause serious injury or death. Older adults and women may be at an increased risk of adverse effects due to reduced drug clearance. The 2019 American Geriatrics Society Beer's Criteria cautions that z-drugs should be avoided in adults 65 years and older due to an increased risk of delirium, falls and fractures, motor vehicle crashes and hospitalizations. The 2019 update includes the recommendation to avoid combining 3 or more CNS depressants in all older adults and to especially avoid combining benzodiazepines and z-drugs. Due to the increased risk of next day impairment described in post-marketing data, the FDA reduced the maximum dose of zolpidem in women to 5 mg of immediate-release formulation and reduced the maximum dose of eszopiclone for people 65 years or older to 2 mg. There are no updated FDA recommendations for zaleplon dosing. **Objectives:** (1) Describe the rate of z-drug prescribing in adult and older adult patients at a federally qualified health center (FQHC). (2) Describe the rate of z-drug prescribing above FDA recommended maximum doses. **Methods:** Adult outpatients prescribed z-drugs (zolpidem, zaleplon, eszopiclone) from in-clinic providers between the dates January 1, 2020 and December 31, 2020 will be identified through retrospective chart review. **Outcomes:** Population demographics and dosing information will be reported using descriptive statistics.

Expanding Access to Clozapine in a Veterans Affairs Community Based Outpatient Clinic (VA CBOC) Setting

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Type: Work in Progress. **Background:** Schizophrenia is a chronic and debilitating mental illness that affects over 20 million people worldwide and associated with 20% decreased in life expectancy when compared to the general population. Clozapine demonstrated more effectiveness than all other antipsychotics in a meta-analysis of 212 studies with 43,049 participants published in 2013, with literature to support longer time to discontinuation of therapy and reduction of suicidal behavior in patients with schizophrenia. Clozapine is recommended by National VA guidelines for treatment resistance schizophrenia after failure of 2 or more antipsychotics. However, due to rare but severe risk of neutropenia, the use of clozapine is restricted to a clozapine Risk Evaluation and Mitigation Strategy program, with the need for close lab monitoring and reliable access to clozapine. These safety and procedural concerns have limited its access in the Veterans Affairs Community Based Outpatient Clinic (VA CBOC) settings and these facilities currently do not offer clozapine management. This study is designed to implement a protocol to address current barriers to clozapine access in a large VA CBOC setting with over 20,000 patients and provide updated educational resources to CBOC providers regarding clozapine, with the goal to improve access for the treatment resistant schizophrenia population. **Objective:** Identify and address barriers to clozapine use to improve access to clozapine in a CBOC setting. **Methods:** Barriers to clozapine prescribing at a CBOC will be identified. A multidisciplinary coordinated protocol will be developed to outline the process of clozapine prescribing, monitoring and dispensing for prescribers to utilize specifically in the CBOC setting. Education regarding clozapine and the new procedure will be provided to prescribers at a CBOC. A pre-test and post-test will be utilized to evaluate CBOC provider's willing-

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ness to implement clozapine therapy under the new protocol. **Outcomes:** The number of clozapine prescribers willing to accept transfer of clozapine patients with protocol implementation and education will be assessed. Additionally, we will report the number of patients that transfer clozapine management to the CBOC within 60 days of protocol initiation.

Exploring Community Pharmacists' Attitudes of Deregulating and Dispensing Methadone in Community Pharmacies

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Type: Work in Progress. **Background:** Increasing treatment accessibility to address the United States (US) opioid epidemic has been challenging. While medications for opioid use disorder (OUD) treatment such as buprenorphine can be dispensed at community pharmacies, across the US, dispensing of methadone for the treatment of OUD can only take place under the supervision of a Drug Enforcement Agency certified practitioner in an Opioid Treatment Program (OTP). Community pharmacies across the US are underutilized in the nation's efforts to increase access to methadone for OUD treatment and could be leveraged to increase access to this evidence-based medication when paired with changes in regulatory provisions. Our study intends to explore the pharmacists' perspective on dispensing methadone in community pharmacies. If regulations were to change in the US and permit methadone dispensing for OUD, it is our hypothesis that community pharmacists may encounter challenges in their individual practices. The attitudes of community pharmacists relating to dispensing methadone should be captured to better understand their willingness or hesitations towards engaging in the behavior of dispensing methadone for OUD treatment. **Objectives:** (1) Explore community pharmacists' attitudes and beliefs regarding dispensing methadone for OUD treatment in community pharmacies. (2) Capture the community pharmacist perspective of how dispensing methadone would affect their practice. **Methods:** Participants will be recruited through a College of Pharmacy's community pharmacy preceptor database containing 182 actively practicing community pharmacists. This cross-sectional survey will be distributed weekly for 4 weeks. The survey instrument contains demographic questions and questions exploring attitudes and perceptions towards dispensing methadone for OUD treatment. Topic areas to be explored through this survey include education and comfort level, perceptions of regulatory oversight and diversion, time constraints, stigma and behavioral intention beliefs as they pertain to dispensing methadone for OUD treatment. **Outcomes:** The results of this study will capture community pharmacists' attitudes and beliefs about dispensing methadone for OUD treatment and identify perceived challenges that may hinder implementation of this service in the community pharmacy practice setting.

Factors Associated With Treatment Response in Lamotrigine Prophylaxis in Patients With Bipolar Disorder

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Type: Work in Progress. **Background:** Bipolar disorder (BD) is a debilitating psychiatric disorder that can significantly impair one's social and occupational function if inadequately treated. While lithium is perhaps the most well-studied medication in the treatment of BD, lamotrigine is an alternative mood stabilizer that has shown to be well-tolerated and effective for bipolar depression and prevention of mania. However, because lamotrigine has not been shown to be effective towards reducing acute symptoms of mania or hypomania and requires a slower titration due to risk of skin rash, Stevens-Johnson syndrome, and toxic epidermal necrolysis, lamotrigine may be underutilized in comparison to lithium. Understanding clinical predictors in patients who respond well to lamotrigine and reasons for its discontinuation will help with clinical decision making and potentially reduce time towards finding and optimizing pharmacologic treatment. **Objectives:** (1) Identify variables associated with lamotrigine response. (2) Assess reasons for lamotrigine discontinuation. **Methods:** This retrospective chart review study includes veterans aged 18 years or older with a diagnosis of BD who received a lamotrigine prescription between October 1, 2017 and July 1, 2019. Patients are excluded from the study if they have any of the following comorbid psychiatric diagnoses: major depressive disorder, schizophrenia, or schizoaffective disorder. Patients with an active prescription for lamotrigine, consistently used for at least 6 weeks, and chart documentation of symptom reduction are categorized as responders. The reasons for lamotrigine discontinuation are collected in non-responders. Predictor covariates that are examined include demographic (age, gender, race) and clinical information (comorbid psychiatric diagnoses; disease severity based on past hospitalizations; mood state [depressed, manic, or hypomanic]; BD subtype [I, II, or unspecified]; presence of psychotic symptoms; substance

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use history; and concurrent use of antidepressants, mood stabilizers, benzodiazepines, or antipsychotics) at initiation of lamotrigine. Logistic regression analysis will be used to examine the association of covariates with lamotrigine response. **Outcomes:** This study could help determine clinical predictors associated with treatment response in lamotrigine use. Results may help guide our treatment approach, specifically with lamotrigine's place in BD therapy, and determine which patient populations may benefit most from its use.

Impact of a Pharmacist Driven Diabetes Monitoring Service in an Acute Psychiatric County Facility

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Type: Work in Progress. **Background:** Long-term treatment with antipsychotics is associated with metabolic side effects. This is a clinical concern because of the already greater risk of cardiovascular disease (CVD) mortality in individuals with psychiatric disorders. Therefore, various guidelines recommend that patients taking second generation antipsychotics (SGAs) should receive appropriate baseline screening and ongoing monitoring. However, monitoring and managing diabetes is particularly challenging for people with comorbid mental illnesses, even in inpatient psychiatric facilities. This study will investigate the impact of a recently implemented Pharmacist Driven Service in an Acute Psychiatric County Facility on appropriateness of diabetes monitoring and management in compliance with guideline recommendations. **Objectives:** (1) Assess the impact of a newly implemented pharmacist driven diabetes monitoring service (PDDMS) on appropriateness of diabetes monitoring in at-risk patients in accordance with the American Diabetes Association (ADA)-American Psychiatric Association (APA) and American Association of Clinical Endocrinologists (AACE) guideline recommendations. (2) Identify the major types of diabetes monitoring related interventions made in accordance with guideline recommendations. **Methods:** This study will include patients $\geq$ 18-years-old who were admitted at our Acute Psychiatric County Facility for $\geq$ 24 hours between October 1, 2019 to June 30, 2020 and were on a scheduled order of a first- or second-generation antipsychotic. Following the initiation of this pharmacist driven service this past February 2020, data will be looked at retrospectively to assess the impact of this service on the number of times at-risk patients were appropriately monitored and managed for diabetes in compliance with guideline recommendations during their admission. Appropriateness of monitoring and management will be based on six main criteria derived from guideline recommendations, all of which must be met to be classified as having been monitored/managed appropriately. Types of diabetes-related interventions made through this service and whether these were accepted will also be collected. **Outcomes:** We will report the number of times at-risk patients were appropriately monitored for diabetes in compliance with ADA-APA and AACE guidelines during their admission. Secondary outcomes will include the number and type of diabetes monitoring interventions made in compliance with guidelines after implementation of a PDDMS.

Impact of a Pharmacist-Led Telemental Health Transitions of Care Clinic on Psychotropic Medication Adherence

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VA Tennessee Valley Healthcare System, Nashville, TN

Type: Work in Progress. **Background:** Non-adherence to newly initiated psychotropic medications following discharge increases risk for adverse outcomes. A pharmacist-led telemental health transitions of care (TOC) clinic was established in November 2019. A pilot study conducted from November 1, 2019 through January 8, 2020 found statistically and clinically significant improvements in 90-day antidepressant adherence and 14-day post discharge mental health follow-up comparing clinic patients ($N = 7$) to a historical control. To increase clinic utilization, inclusion criteria was broadened to include newly started or restarted oral antidepressants, mood stabilizers, antipsychotics, and medications for alcohol use disorder. This study aims to collect updated outcomes data to highlight psychiatric pharmacists' involvement in transitions of care. **Objectives:** The primary objective of this study will be to determine the impact of a post-discharge telemental health TOC 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. Subgroup analysis will determine medication adherence rates based on class of psychotropic medication. **Methods:** This single center, multi-site, retrospective cohort study will evaluate patients enrolled in the VA Video Connect (VVC) mental health (MH) TOC clinic starting November 1, 2019. A historical cohort of patients, prior to the initiation of the VVC MH TOC clinic, will be used for comparison of outcomes. Baseline characteristics (age, gender, race, psychiatric diagnosis), psychotropic medication informa-

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tion (dosing, instructions, day supply, class), time to clinic follow-up, time to MH follow-up, and refill history will be collected by data pull and manual chart review. Categorical data will be analyzed by 1-tailed Fisher exact test and continuous data by Student *t* tests. A medication possession ratio will be calculated for each patient to determine adherence rates. **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. Outcomes will be compared to previous pilot study data to determine the impact of clinic changes since implementation.

Impact of a Resident-Driven Wellness Committee on Resident-Perceived Wellness, Burnout, and Resilience

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UNC Medical Center, Chapel Hill, NC

Type: Work in Progress. **Background:** Several risk factors contribute to burnout and poor wellbeing amongst pharmacy residents including deadline demands, extensive working hours, and financial insecurity, amongst others. Importantly, efforts to prevent burnout are imperative given the high levels of perceived stress, depression, hostility, and dysphoria experienced by pharmacy residents and reported within existing literature. One supported strategy in mitigating these risks includes implementation of program-level strategies to promote wellbeing. Hence, a resident-led wellness committee was developed to promote wellbeing and resilience within an established pharmacy residency program. Unlike most other committees available to pharmacy residents, this wellness committee is unique in that its inception and programing is guided completely by and for residents. The importance of this committee is made even more evident given the numerous implications of the current coronavirus disease-19 (COVID-19) pandemic on personal wellbeing. **Objective:** To evaluate the impact of a resident-led wellness committee on resident-perceived wellness, burnout, and resiliency **Methods:** Current pharmacy residents at an academic medical center will be invited to participate in this IRB-exempt study. Recruitment of subjects will occur via email invitation. A 41-item Qualtrics survey will be distributed to subjects at baseline, 2 months, and 4 months and will include demographics, the Resident & Fellow Wellbeing Index (RWBI), the Brief Resilience Scale (BRS), and investigator-designed questions. These survey contents will be used to assess 3 domains (ie, burnout, resiliency, and wellness) and the impact of participation with the resident-led wellness committee on those domains. Descriptive statistics (eg, mean, median, range, standard deviation) and percent incidence will be used to characterize continuous data for each individual scale while percent incidence will be used to report ordinal data. Associations between involvement with the wellness committee and impact on each of these domains will be assessed using Spearman's correlation test. **Outcomes:** The findings from this study will be used to guide quality assurance and improvement of the resident-led wellness committee and will be shared with current residents and program leadership. Ultimately, these results may guide future development of similar resident-led wellness committees that fit the unique needs of other residency programs.

Impact of a Virtual Mental Health First Aid Elective Course on Stigma in Students of a Three-Year Doctor of Pharmacy Program

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Type: Work in Progress. **Background:** While pharmacy students have increased rates of anxiety and depression, few students report discussing mental health challenges with their peers due to fears of judgment. Mental Health First Aid (MHFA) is a National Council for Behavioral Health (NCBH) certification program that trains individuals how to recognize and respond to mental health crises. MHFA has demonstrated a reduction of stigmatizing beliefs and improvement in skills confidence among this student population, though information is sparse on students enrolled in accelerated 3-year Doctor of Pharmacy (PharmD) programs. Furthermore, NCBH gradually rolled out an entirely virtual curriculum (MHFA 2.0) in 2020 that may not be fully comparable to in-person instruction. This study will assess the impact of an elective course including MHFA 2.0 on mental health stigma in first-year students of an accelerated PharmD program. **Objectives:** (1) Change in the Opening Minds Stigma Scale for Health Care Providers (OMS-HC-15) score before and after elective course completion. (2) Qualitative reflections on mental health stigma following a patient panel and small group discussion. (3) Evaluate effect of demographic variables on OMS-HC-15 scores and qualitative reflections. **Methods:** The virtual elective course will occur from January 7, 2021 to March 10, 2021, and be co-taught by a psychiatric pharmacist and psychiatrist of the institution's pharmacy and medical schools, respectively. Up to 20 enrolled first-year PharmD students will complete MHFA 2.0 that entails 2 hours of independent prework and 5.5 hours of live instruction. They will also

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attend a panel of individuals living with psychiatric diagnoses through the National Alliance on Mental Illness (NAMI) "In Our Own Voice" Program and participate in small group discussions facilitated by the institution's Student Behavioral Health clinicians. Descriptive statistics will be performed for all data points, with pre/post OMS-HC-15 scores analyzed using the Wilcoxon signed-rank test. **Outcomes:** We will report the change in OMS-HC-15 score following completion of the elective course, as well as demographics, qualitative reflections, and course evaluations from enrolled students.

Impact of COVID-19 Pandemic on Health Care Utilization and Overall Stability of Patients With Schizophrenia/Schizoaffective Disorder

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Type: Work in Progress. **Background:** The South Texas Veterans Health Care System (STVHCS), like many health systems across the world, has adapted to provide mental health care to patients during the COVID-19 pandemic through the use of telehealth. The available evidence suggests that telehealth strategies are feasible and well accepted alternatives to face-to-face interventions among patients with schizophrenia, though the data is limited. However, challenges may still exist in reaching this population via telehealth and it is thought that patients with schizophrenia may be disproportionally affected by potential implications of the pandemic as well. **Objective:** The objective of the present study is to investigate the impact of the COVID-19 pandemic and the rapid implementation of telehealth at STVHCS on healthcare utilization and antipsychotic adherence for patients with schizophrenia and schizoaffective disorders. This information will be utilized to improve the delivery of psychiatric care to this high-risk population. **Methods:** Retrospective manual chart review will be completed in order to assess psychiatric care and stability of patients with schizophrenia or schizoaffective disorder during the 6-month time period immediately prior to the COVID-19 pandemic (index date March 23, 2020) and the initial 6 months of the pandemic. Patients will be included if they had at least one healthcare encounter with a schizophrenia or schizoaffective disorder diagnosis, at least one fill of an antipsychotic during the study period, and at least two outpatient mental health visits between the dates of September 22, 2019 and March 22, 2020. Information regarding the delivery of psychiatric services, hospitalizations, and emergency utilization will be obtained from the medical record and antipsychotic adherence (proportion of days covered $>$ 0.8) will be calculated from pharmacy refill history. Patient characteristics including demographics, mental health and non-mental health comorbidities, and psychotropic medications will also be collected. **Outcomes:** Primary outcomes to be reported include frequency, type, and modality of mental health outpatient appointments, number of emergency department visits and hospitalizations, and proportion of patients adherent to antipsychotics. Healthcare utilization and antipsychotic adherence in the 6 months prior to the start of the COVID-19 pandemic will be compared to the time period 6 months after.

Impact of CYP2C19 Metabolizing Phenotypes on the Treatment of Anxiety and Depression With Sertraline, Escitalopram, or Citalopram

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Type: Work in Progress. **Background:** Genetic variations in drug-metabolizing cytochrome P450 (CYP450) enzymes have been found to lead to interindividual differences in antidepressant therapy outcomes. One of the most important CYP450 enzymes in the metabolism of antidepressant medications is the highly polymorphic CYP2C19. Patients may exhibit poor, intermediate, normal, rapid, or ultrarapid metabolism based on genotypic variations of allele functionality. CYP2C19 plays an important role metabolizing three of our first-line anxiety and depression treatments: sertraline, escitalopram, and citalopram. Despite the availability of dosing guidelines from the Clinical Pharmacogenetics Implementation Consortium for these medications based on CYP2C19 phenotype, clinical application of pharmacogenetics is not standard practice. This study aims to provide new data assessing the potential impact of genetic testing prior to antidepressant treatment in a large cohort of patients with depression and/or anxiety. **Objectives:** (1) Determine the impact of CYP2C19 phenotype on the efficacy of anxiety or depression treatment. (2) Establish the effects of CYP2C19 phenotype on the frequency of adverse drug events. **Methods:** This study is a retrospective chart review that included patients from a single large academic medical center. Inclusion criteria are as follows: at least 18-years-old, diagnosis of anxiety or depression, available genetic data, and outpatient use of sertraline, escitalopram, or citalopram for at least a three-month trial between June 1, 2012 and June 11, 2019. Eligible patients will be stratified by CYP2C19 metabolizer phenotype (poor, intermediate, normal, rapid, and ultrarapid). For objective (1), a χ^2 test will be used to describe medication switch rates between metabolizing phenotype groups. For objective (2), we will compare incidence rates of adverse

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drug events by metabolizing phenotype also using χ^2 tests. **Outcomes:** We will report the number and percentage of patients who switched medications by CYP2C19 phenotype and analyze the relationship between CYP2C19 metabolizer status and medication ineffectiveness and/or reported intolerance. We anticipate that these results will highlight the importance of pharmacogenomic testing prior to antidepressant prescribing to help providers optimize a patient's antidepressant therapy and reduce potential adverse effects.

Impact of Implementation of Stimulant Medication Order Menu on Psychostimulant Prescribing

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Type: Work in Progress. **Background:** According to the US Department of Veterans Affairs (VA) Academic Detailing Stimulant Dashboard, as of November 2020, nationally, more than 20% of veterans prescribed stimulant medications also had a history of or current substance use disorder. There is limited guidance on appropriate treatment of attention deficit-hyperactivity disorder/attention deficit disorder (ADHD/ADD) with co-occurring substance use disorders. The 2017 VA Academic Detailing Clinician's Guide on Prescription Stimulants specifies that in patients with an active alcohol or drug use disorder (SUD), atomoxetine is recommended first-line, and extended release methylphenidate or lisdexamfetamine as second-line, unless the risk of stimulant abuse is high, then bupropion is recommended. A Stimulant Medication Order Menu was implemented within the Electronic Medical Record at a VA Health Care System and includes the Academic Detailing stimulant prescribing recommendations as well as the durations of actions associated with each stimulant medication formulation to assist with medication selection. **Objectives:** Following implementation of a Stimulant Medication Order Menu: (1) Determine the percentage of new start long-acting or abuse-deterrent stimulant formulations in patients with a substance use disorder; and (2) Determine the percentage of patients with a history of a substance use disorder previously maintained on an immediate-release stimulant formulation and converted to a long-acting or abuse-deterrent formulation. **Methods:** This is a retrospective, quality improvement project evaluating the impact of implementation of a Stimulant Medication Order Menu on stimulant prescribing practices, especially among high-risk populations (ie, patients with history of SUD). All patients who receive a stimulant medication (amphetamine- or methylphenidate-based) between January 13, 2021 and March 13, 2021 and are identified as having a substance use disorder via the VA Academic Detailing Stimulant Dashboard will be included. Patients receiving modafinil will be excluded. Data that will be evaluated includes: prescription type (new start vs continuation), substance use disorder history, specific stimulant medication prescribed, and prescriber service. Data will be evaluated to identify areas where additional education and pharmacist interventions can be implemented to help improve patient safety and outcomes.

Impact of Long-Acting Injectable Antipsychotic Administration During Psychiatric Admission Versus Deferral to Outpatient Care

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Type: Work in Progress. **Background:** Long-acting injectable antipsychotics (LAIAs) can improve adherence in specific patients with mental health conditions when compared to oral antipsychotics. LAIAs may be initiated in the inpatient or outpatient setting. Inpatient LAIA initiation is limited by cost and therefore often deferred to outpatient care. Manufacturers of specific second-generation LAIAs have developed inpatient free trial programs to facilitate inpatient LAIA initiation. To date, minimal research has assessed the relationship between LAIA initiation setting and patient outcomes. **Objectives:** The primary objective of this study is to evaluate the impact of administering second-generation LAIAs during inpatient admission versus deferring to outpatient care on patient outcomes. A secondary objective is to determine potential barriers to successful LAIA treatment initiation. **Methods:** A retrospective chart review will be performed on all adults admitted to an inpatient psychiatric hospital from September 1, 2019 to December 31, 2020 with LAIA treatment initiation either during admission or planned immediately following discharge. Eligible adults admitted to a psychiatry treatment unit from December 1, 2020 to May 31, 2021 with LAIA initiation during their admission will be recruited for study enrollment. Primary efficacy endpoints include receipt of first maintenance injection within the appropriate dosing interval, per LAIA package insert, and 30-day psychiatry readmission rate. Endpoints will be compared between those who received a LAIA during admission (inpatient cohort) and those whom a LAIA was planned to be given closely following discharge (deferral cohort). Chi-square, Fisher's exact and Mann-Whitney U tests will be used to compare the proportion of patients receiving their first maintenance injection within

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the appropriate interval, length of stay, and 30, 60, and 90-day psychiatry readmission between cohorts. Potential barriers to treatment follow-up and success will be identified. **Outcomes:** A total of 50 adults have met inclusion criteria and will be included within the deferral cohort for study analysis. Screening for study eligibility and enrollment within the inpatient cohort remains ongoing and will conclude in May. The 90-day readmission data collection and study analysis will subsequently be completed.

Impact of Non-Traditional Versus Traditional Initiation Dosing Schedule of Paliperidone Palmitate on Readmission and Safety

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Type: Work in Progress. **Background:** Long-acting injectable antipsychotics (LAIAs) were created to combat high rates of treatment nonadherence seen in schizophrenia. Paliperidone palmitate, a second-generation LAIA, requires two injections upon initiation. Per labeled use, the first injection is considered as day 1 of the initiation regimen and is followed by a second injection that is administered between days 4-12. Due to the fast-paced nature of the inpatient setting, however, the second injection may be given earlier than recommended. This study will be the first to investigate the clinical and safety outcomes associated with differences in administering the second paliperidone injection earlier than labeled recommendations. **Objectives:** (1) Evaluate the impact of the early administration of the second injection of paliperidone palmitate on readmission rates, hospital length of stay, and time until next admission. (2) Evaluate the impact on 6-month readmission and tolerability/ safety. **Methods:** This retrospective chart review will include patients administered the paliperidone palmitate initiation regimen (234 mg followed by 156 mg) while admitted in a behavioral health inpatient treatment facility (ITF) between January 1, 2016 to August 3, 2020. Patients will be excluded if they are under 18 years old, previously administered paliperidone palmitate in the past 12 months, received a study medication less than 30 days before the study end date, discharged after more than 30 days from regimen completion, or discharged to a state hospital. Demographic variables, administration location, number of days between injections, number of readmissions within 30 days and 6 months post-regimen completion, number of days until next admission, length of stay, reported adverse events, number of previous antipsychotic trials, oral overlap with risperidone or paliperidone prior to initiation and after discharge, urine drug screen (UDS) at admission, and discharge diagnosis will be recorded. **Outcomes:** We will report differences in the number of readmissions to an ITF within 30 days of regimen completion, number of days until next admission, and length of stay during hospitalization of injectable administration. Secondary outcomes will include differences in the number of readmissions to an ITF within 6 months and the percent of patients who experience adverse events post-injection.

Impact of Pharmacist Interventions Related to the Safety of Long-Term Corticosteroid Use in Myasthenia Gravis Patients

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Type: Work in Progress. **Background:** Corticosteroids are supported as a first-line treatment option for patients with myasthenia gravis. However, long-term use of such agents can lead to several adverse effects, including elevated blood glucose, weight gain, hypertension, increased infection rates, and decreased bone mineral density. Pharmacists can play an important role in mitigating these adverse effects by recommending appropriate preventative measures for these patients. **Objectives:** The aim of this study is to evaluate the impact of a clinical pharmacist in a myasthenia gravis clinic on side effect management in patients who are prescribed long-term corticosteroid therapy, and therefore have a higher risk of osteoporosis and fractures. **Methods:** This single-center retrospective cohort study enrolled patients with a diagnosis of myasthenia gravis taking prednisone for more than 3 months and who presented to the University of North Carolina Neurology clinic between May 1, 2019 to June 30, 2020. Patients seen by a physician alone between May 1, 2019 to November 31, 2019 were considered the pre-intervention group, while patients seen by both a physician and pharmacist between December 1, 2019 to June 30, 2020 were considered the post-intervention group. The electronic medical record for each patient was used to collect age, sex, race, weight, dose and duration of prednisone therapy, whether or not the patient was taking preventative supplements (calcium and vitamin D) or osteoporosis medications, and record of a DEXA scan in the previous two years. Additionally, any interventions made during the visit (ie, prescription for preventative therapies or referrals for a DEXA scan) were recorded. Quantitative analysis using a fisher's exact test will be used to determine the primary outcomes while

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descriptive statistics will be used to compare secondary outcomes. **Outcomes:** Primary outcomes include (1) the difference in the number of preventative supplement discrepancies between the two groups and (2) the difference in the number of patients referred for a DEXA scan between the two groups. Secondary outcomes include average dose and duration of prednisone, dose of calcium and vitamin D supplementation (if taking), and the number of patients on osteoporosis medications.

Impact of SARS-CoV-2 on Mental Health Education and the Adaptation to a Virtual Setting

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Type: Work in Progress. **Background:** On August 7, 2009 the College of Pharmacy at Nova Southeastern University became the first collegiate chapter to belong to the National organization: the College of Psychiatric and Neurologic Pharmacists (CPNP). Since then, students have become more aware of the stigma surrounding mental health and have geared their efforts towards bringing awareness to the rest of the community. Efforts to educate students and the community were previously conducted exclusively through in-person activities and events. Due to the severity of SARS-CoV-2, previous events had to be reconstructed and made to adapt to a virtual platform. Our goals include providing education and fighting the stigma surrounding mental health by exploring virtual methods while ensuring the safety of our students and community. **Objectives:** (1) Identify the ways in which the SARS-CoV-2 pandemic has affected CPNP student membership retention. (2) Reflect on past events held both virtually and in-person to identify the best modalities for future events. **Methods:** Due to the pandemic, our chapter had to adapt to the virtual setting. We accomplished this by utilizing a virtual meeting platform which was easily accessible to all students and professionals. Through the use of social media and email, we were able to promote any and all events. One positive effect the pandemic has created is the increase in utilization of virtual platforms, allowing speakers from across the country to present remotely. The chapter also hosted a Mental Health First Aid Training, a mandatory in-person training, which followed strict COVID-19 health guidelines and provided insight and instruction on how to approach persons in mental distress. **Significance:** Due to the uncertainty of the pandemic or future crises, it's important to analyze the impact of hosting almost exclusively remote events. By determining the effects on attendance and membership, future events can be planned to better educate and grow our chapter. Additionally, by integrating virtual events into the student chapter repertoire, the reach of mental illness education can be further extended.

Implementation and Evaluation of the Short-Term Impact of a Pharmacist-Led Mental Health Clinic at a Health Care for the Homeless Clinic

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Type: Work in Progress. **Background:** The Health Care for the Homeless (HCH) clinic provides primary care and pharmacy services for the homeless population of Casper, Wyoming. This population has a high prevalence of mental health disorders, and many rely on psychiatric medication regimens to be successful in managing both their mental illness and their life circumstances. The benefit of integrating a psychiatric pharmacist into an ambulatory care setting has been demonstrated, namely in Veterans Affairs populations. HCH also caters to a vulnerable population, but currently provides mental health care by only primary care providers. In an effort to improve outcomes for patients with mental illness, a pharmacist-led pharmacotherapy clinic focused on psychiatric care will allow eligible patients to receive medication assessment and patient education. The purpose of this study is to expand and improve the care of patients with psychiatric conditions and create a sustainable mental health clinic for the underserved. **Objectives:** Impact of pharmacist involvement in this new mental health clinic service will be determined based on (1) identification of psychiatric drug-related problems and (2) resolution status of psychiatric drug-related problems after clinical intervention. **Methods:** Patients eligible for this service will be referred from HCH primary care practitioners. Pre-determined referral criteria include patients being 18-years or older, being currently or having been previously prescribed medications for a psychiatric condition, having an active psychiatric condition, and being able to attend clinic. Patients cannot have their mental health managed by an outside provider or be deemed too severe for mental health care through HCH, which includes regimens with greater than two antipsychotics or either questionable or undiagnosed psychiatric conditions. During visits, the pharmacist will collaborate with the patient's provider to identify and resolve drug-related problems through patient education, modification of medication regimen in accordance with a collaborative practice agreement, and the development of self-efficacy strategies with the patient. To evaluate study objectives, drug-related problems will be classified based on severity and type, and resolution status will be classified based on intervention type, time to resolution, and relevant

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changes in clinical status. **Results:** Results to be determined. **Conclusion:** Conclusion to be determined.

Implementation of a Long-Acting Injectable Antipsychotic Clinic at a Veterans Affairs Medical Center

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Type: Work in Progress. **Background:** The use of long-acting injectable antipsychotics (LAIAs) is associated with increased medication adherence and reduced relapse rates in patients with mental health disorders. However, LAIAs require frequent monitoring and may contribute to metabolic and movement disturbances. The psychiatric pharmacist is trained to monitor LAIAs. At this medical center, 38 veterans are prescribed an LAIA. Of these, 7 (18.4%) are overdue for metabolic labs and 25 (65.8%) are overdue for Abnormal Involuntary Movement Scale (AIMS) and waist circumference assessments. **Objectives:** The objectives of this project are to define the role of a clinical pharmacist in a LAIA clinic, educate the interdisciplinary team on expectations of the clinic and collaborative care, and increase the number of patients with up-to-date metabolic monitoring, AIMS, waist circumferences, and vital signs. **Methods:** An initial chart review was conducted in September 2020 to determine the total number of veterans receiving an LAIA, adherence rates, and assess monitoring compliance per institutional policy. A proposal outlining the purpose, methods, and timeline of introducing a pharmacist-led LAIA outpatient clinic was presented by the lead investigator and approved by the Pharmacy and Therapeutics Committee. A meeting will be held among stakeholders (prescribers, nurses, and intensive case-management social worker) to identify individual roles, plan to overcome possible barriers, and outline clinic goals as an interdisciplinary team. Mental Health providers will then be educated on LAIA criteria for use, an evidence-based monitoring protocol, and referral procedure via electronic consult placement for the clinic. The intervention period will be 4 months, during which the goal is to increase the following by at least 20%: Metabolic laboratory monitoring, AIMS Screenings, waist circumference assessments, and vital signs. The number of patients followed, pharmacist interventions, and adherence rates to LAIAs will be measured by a retrospective chart review and descriptive statistics will be utilized to report these results. **Outcomes:** The goals of this project are to establish a psychiatric pharmacist-led LAIA clinic, streamline the monitoring and ordering process for LAIAs, and improve to improve treatment outcomes and decrease adverse effects for patients receiving LAIAs.

Implementation of a Medication-Assisted Treatment (MAT) Program Within an Inpatient Psychiatric Hospital

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Type: Work in Progress. **Background:** Medication-assisted treatment (MAT) is the use of medications in combination with behavioral therapies for treatment of opioid use disorders, which has been shown to successfully treat substance use disorders and help sustain recovery. Buprenorphine/naloxone is an FDA-approved product to treat opioid use disorder by suppressing cravings while lowering the potential for misuse and increasing safety in overdose. This is achieved through both partial agonist effects of buprenorphine, which causes a ceiling effect, and co-utilization of naloxone. Although MAT has been shown to improve morbidity and mortality in patients with opioid use disorder, it is underutilized overall, and often employed primarily within the outpatient setting. This requires the patient to complete the induction phase outside of a controlled environment while being susceptible to misuse secondary to cravings. Initiating MAT and completing induction inpatient in a controlled environment can increase success once discharged outpatient. **Objectives:** The primary objective of this study is to implement a MAT program in an inpatient setting and identify barriers to implementation. A key secondary objective is to determine preliminary efficacy measures for program success. **Methods:** A policy was created for the identification of patients with opioid use disorder who were deemed appropriate for MAT using buprenorphine formulations. This includes protocols for induction and stabilization while inpatient, and the prescribing of buprenorphine upon discharge to bridge until the patient's first contact with an outpatient clinic. As the processes are implemented, protocols will be altered to address potential barriers that arise. Target implementation date is March 1, 2021. **Outcomes:** Outcome measures for this study will be subjective in nature. Successful implementation of the MAT program will be measured via provider acceptance as well as successful resolution of barriers. Preliminary patient enrollment numbers will also be determined to assist in establishing program efficacy measures. These outcomes will allow us to predict future success of this program and benefits to starting MAT while inpatient.

Implementation of a Pharmacist as the Sole Prescriber in a Primary Care Mental Health

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Integration Clinic at a Federal Health Care Center

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Type: Work in Progress. **Background:** Many Veterans Health Administration (VHA) facilities have integrated the mental health clinical pharmacy specialist (MH CPS) into the primary care mental health integration clinic (PCMHI) model. The MH CPS can play an impactful role, working alongside psychology, social work, and primary care/nursing to deliver patient-centered comprehensive medication management (CMM) to Veterans with mild to moderate mental health and substance use disorders in the primary care setting. Open access to care is an essential aspect of this model especially during times of high provider turnover and staff shortages to reduce unnecessary use of emergency services, ameliorate use of gap coverage clinics and improve continuity of care. Given a critical need due to a loss of a prescriber in our PCMHI team, we implemented a MH CPS into the team. This investigation will further explore the impact of the MH CPS collaboration as the sole prescriber in PCMHI and help justify need for future service expansion and coverage. **Objectives:** The primary objective of this study is to evaluate and characterize the number and type of encounters completed after implementation of a mental health pharmacist within PCMHI as the sole prescriber. Secondary objectives include assessment of interventions made, disease states managed, and patient disposition. **Methods:** This is a retrospective chart review looking at the number of encounters completed within a five-month period (February 4, 2020 to June 6, 2020) after the implementation of a mental health pharmacist within a PCMHI clinic at the Captain James A. Lovell Federal Health Care Center. The following data will be collected: age, gender, disease state encountered, interventions made, patient disposition (ie, refer back to primary care, continue to follow-up with MH CPS, or referral to specialty mental health services) and number of follow-ups. Descriptive statistics (eg, counts, percentages and measures of central tendency) will be used to analyze and summarize the data collected. **Results:** Results to be presented.

Implementation of a Pharmacist-Led Intervention for the Treatment of Alcohol Use Disorder

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Type: Work in Progress. **Background:** An estimated 6.4% of all veterans suffer from alcohol use disorder (AUD) and nearly one-third of veterans will develop AUD at some point in their lifetime. Although clear guideline recommendations for pharmacotherapy exist, only 13% of veterans with a diagnosis of AUD receive these treatments nationally. Barriers to care include low patient demand for treatment, limited provider familiarity with guidelines and treatments for AUD, and stigma surrounding AUD treatment. Utilizing clinical pharmacists to assist in medication management (MM) can support providers and improve patient engagement in treatment. The purpose of this project is to implement a focused pharmacotherapy intervention for veterans with AUD, and to elucidate acceptance rates of veterans as well as provider perceptions of AUD MM by pharmacists. **Objectives:** (1) Quantify veteran acceptance rate of clinical pharmacist referral for MM of AUD. (2) Evaluate provider perceptions of clinical pharmacist MM of AUD. **Methods:** An intervention overview will be presented at primary care (PC) clinic staff meetings and surveys assessing perceptions of clinical pharmacist MM for AUD will be distributed to PC providers. Veterans in PC clinics at the Milwaukee VA with a diagnosis of AUD not receiving naltrexone, acamprosate, or disulfiram will be identified through population health screening. Recommendations for referral will be made to PC providers of patients not already engaged in MM. Patients already engaged in MM will be offered AUD treatment by clinical pharmacists directly. Patient information including sex, race, age, previous AUD medication trials, AUDIT-C and PACS scores, and current alcohol use will be collected through retrospective chart review and direct patient interview. Objective (1) will be assessed with descriptive statistics analyzing veteran acceptance rate. Objective (2) will be evaluated through descriptive statistics and qualitative evaluation of provider feedback regarding perceived utility of, and intention to utilize, MM for AUD. **Outcomes:** The percent of patients accepting referral to MM will be reported. A pre- and post-implementation evaluation of provider confidence, comfort, and willingness to refer patients for clinical pharmacist MM will also be presented.

Implementation of a Psychiatric Pharmacist in the Emergency Department

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Type: Work in Progress. **Background:** According to a 2007 Agency for Healthcare Research and Quality report, almost 12 million emergency department (ED) visits were related to a mental health and/or substance abuse condition comprising 12.5% of all ED visits in the US. Increased focus on optimizing ED psychiatric care is warranted, given the scale of visits related to mental health. This quality improvement project focused on embedding a mental health clinical pharmacy specialist (MH CPS) into the interdisciplinary ED psychiatric team to optimize and expedite psychiatric and substance abuse care. **Objectives:** (1) Evaluate pharmacist interventions and (2) related cost-savings after implementing a psychiatric pharmacist service in the ED. **Methods:** A post-graduate year 2 (PGY-2) psychiatric pharmacy resident, under the supervision of a MH CPS, will be embedded into the ED psychiatric team from November 23, 2020 to January 29, 2021. The PGY-2 will work with the ED psychiatric team and other ED providers. The PGY-2 will either self-refer patients after identifying a role for medication management or be referred to by members of the team. The services during the implementation period will include medication reconciliation, alcohol and opioid withdrawal management, coordination of care focused on medication-assisted therapy (MAT), and opioid overdose education and naloxone prescribing. An alcohol and opioid withdrawal management algorithm for nursing and provider utilization will be created and posted throughout the ED. This will identify evidence-based labs and medication management to consider. The goal of this algorithm will be to improve the obtainment of clinically necessary labs and to reduce the potential for error in ordering inappropriate medications, to allow for more timely medication administration, and to provide a smooth transition for patients that will be admitted or discharged. **Outcomes:** We will report the number of PGY-2 encounters in the ED, medication reconciliations completed, presumed avoided against-medical advice discharges related to an alcohol or opioid withdrawal visit, pharmacist-directed coordination events for medication assisted therapy and/or substance use disorder treatment services, patients offered a naloxone kit and prescriptions ordered, pharmacist interventions completed, and lastly, clinical recommendations provided to the psychiatric team. We will also analyze audience satisfaction with the provided alcohol and opioid algorithm.

Implementation of Depression Screenings at a University-Affiliated Community Pharmacy With COVID-19 Procedure

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Type: Work in Progress. **Background:** The quality of mental health further declined in the United States due to the COVID-19 pandemic. Suicidal ideation among adults, the number of people seeking help with their depression, and the number of people with moderate to severe symptoms of depression increased throughout 2020 with rates higher than prior to COVID-19. Due to their accessibility, pharmacists play a crucial role in connecting patients to the mental healthcare system. After Mental Health First Aid (MHFA) training, pharmacists and student pharmacists can improve mental illness identification, guide patients toward mental health resources, and help patients experiencing a mental health crisis. Mental health screenings can be incorporated into existing telehealth contacts provided pharmacy staff are appropriately trained and community resources are available for referrals. **Objectives:** Demonstrate that (1) The public accepts using the community pharmacy-based Patient Health Questionnaire (PHQ) -2 and -9 for hierarchical depression screening. (2) Pharmacy-based screening effectively identifies clinically significant depression. (3) MHFA-trained pharmacists and student-pharmacists are effective in providing referrals for mental health treatment and resources. **Methods:** MHFA-trained pharmacists and student-pharmacists, the pharmacist in charge, and a Board Certified Psychiatric Pharmacist faculty member reviewed Forty Acres Pharmacy's workflow and telehealth resources to implement a mental health screening process at The University of Texas at Austin. Extensive discussions were held with existing University Health Services and Counseling and Mental Health Center to ensure a coordinated and unified message, avoid service duplication, and refer to off-campus services when appropriate. The screening includes a hierarchical PHQ-2/PHQ-9, given through the customized HIPAA-protected online portal. Positive screens will be followed by a pharmacist's telephone/video interview with the patient to refer to a mental health or crisis service provider as needed. Results of screenings and contacts will be documented and flagged for follow-up to determine referral outcome. **Outcomes:** (1) Description of the process followed to develop the depression screening program and coordinate with existing services. (2) Number of patients asked to participate and number of completed screenings. (3) Rate of pharmacist interview outcomes for no services, on-campus, off-campus, and crisis services. (4) Follow-up results to determine referral outcome.

Improvements in the Inpatient to Outpatient Transitions of Care Process for Patients Prescribed Clozapine

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Type: Work in Progress. **Background:** Clozapine is the only antipsychotic approved by the United States (US) Food and Drug Administration for treatment-resistant schizophrenia. Despite showing superior efficacy compared to other antipsychotics in treatment-resistant schizophrenia, clozapine is often under-prescribed in the US. Clozapine utilization has many barriers including the need for close follow-up, significant potential adverse effects, frequent laboratory monitoring required by the Risk Evaluation and Mitigation Strategy (REMS) Program, and lack of familiarity with the process among prescribers and community-based pharmacists. Some patients prescribed clozapine during inpatient hospitalization do not receive adequate continuity of care while transitioning to the outpatient setting. **Objectives:** The primary objective of this project is to evaluate gaps in care and identify barriers for patients discharged on clozapine in order to develop and implement a process to address barriers and standardize approach at a psychiatric hospital affiliated with a large academic medical center. Secondary objectives include evaluating pharmacist and prescriber satisfaction and comfort level with the clozapine transitions of care process and describing patients that were managed by pharmacists under a Collaborative Drug Therapy Management (CDTM) protocol. **Methods:** This quality improvement project began with focus groups and a pre-survey to psychiatric attendings, psychiatric medical residents, psychiatric pharmacists, and hospital-affiliated retail pharmacists. The survey addressed barriers to clozapine treatment and potential improvements. Based on the survey results, education and workflow changes were implemented, and a CDTM protocol was developed. The workflow changes and CDTM allow the inpatient psychiatric pharmacists to have close discharge follow-up and education with patients, order clozapine refills and complete blood count with differential, as well as initiate and manage medications for clozapine-associated constipation or sialorrhea. **Outcomes:** The pre-intervention survey included 57 participants. The post-intervention survey and data analysis are planned for March 1, 2021, after the implementation of the CDTM protocol and education to the providers and pharmacists. We will report on the difference in satisfaction and comfort with the process by comparing the pre- and post-survey results. The utilization and satisfaction of the CDTM will be analyzed through chart review and the post-survey.

Improving Acute Alcohol Withdrawal Syndrome Management in a Community Based Hospital

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Type: Work in Progress. **Background:** In the management of acute alcohol withdrawal syndrome (AWS), benzodiazepines (BZDs) are considered the medications of choice, with dose and frequency determined by symptom severity. The ideal method of predicting and assessing alcohol withdrawal severity, as well as identifying the need for medication, is the Clinical Institute Withdrawal Assessment for Alcohol Revised (CIWA-Ar). Appropriate management of AWS is not only a best practice for patient care, but it can reduce the risk of BZD misuse, improve time to symptom resolution, and enhance both patient and staff safety during resolution of AWS. The purpose of this study is to assess a hospital's baseline in managing AWS and identify areas for improvement in patient care. **Objectives:** (1) Evaluate the hospital's baseline in medication management of AWS and identify areas for improvement. (2) Assess the impact of AWS management on patient and staff safety. **Methods:** The study site is a 469-bed community hospital. A retrospective analysis will take place from September 1, 2019 to August 31, 2020 to establish baseline trends for the management of AWS. To meet inclusion criteria, patients have to be admitted as inpatients, be at least 18 years-of-age, and have a documented history of alcohol use or clinical concern for alcohol withdrawal, with a target enrollment of 100 patients. Data collection will be conducted via chart reviews. We will analyze patients with a documented clinical concern for AWS who were evaluated using AUDIT, those having an AUDIT score warranting an order for CIWA-Ar monitoring with a corresponding order, and appropriate CIWA-Ar monitoring frequency as defined by current policy recommendations. We will also evaluate safety parameters including falls, sitter requirements, and the use of physical restraints. **Outcomes:** Our retrospective analysis will quantitatively assess the hospital's current practice of medication management, as well as patient and staff safety, regarding AWS. Following the anticipated interventions resulting from these findings, we expect to see an increase in CIWA-Ar monitoring and more appropriate BZD utilization, as well as improved safety parameters.

Influence of Chronobiotic-Dosed Melatonin on Key Outcomes During Major Cognitive Disorder-Related Geriatric Admissions

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Type: Work in Progress. **Background:** Melatonin has many physiological roles including the regulation of circadian rhythm. Several studies have demonstrated that older adults with Alzheimer's disease have lower levels of melatonin compared to age-related controls, which possibly contributes to a higher disease burden. There is minimal literature available studying the effects of chronobiotic-dosed melatonin on neuropsychiatric symptoms associated with major cognitive disorders. **Objectives:** (1) Assess the safety and efficacy of chronobiotic-dosed melatonin on neuropsychiatric symptoms associated with major cognitive disorders **Methods:** This will be a quasi-experimental study at a 100-bed acute care psychiatric hospital. Melatonin will be administered as a 1mg dose at 18:00 daily. Patients will be included in the study if they are over the age of 65 and have a diagnosis of a major cognitive disorder. Patients will be excluded from the study if the diagnosis of a major cognitive disorder is unknown on admission. Data points to be collected include age, gender, length of stay, underlying condition at time of admission, medication history at time of admission, mini mental state examination (MMSE) scores, number of as-needed medications administered, medication administration record (MAR) compliance, medication adverse effects, meal consumption, time spent sleeping, patient sitter requirements, use of physical restraints and assaults on medical staff. For objective (1), safety and efficacy will be reported as the reduction of as-needed medications to treat neuropsychiatric symptoms compared to retrospective controls who did not receive melatonin supplementation. The primary outcome will be assessed using a Student *t* test with 95% confidence intervals. Secondary outcomes include changes in total sleep time, daytime-nighttime sleep ratios, percentage of meal consumption, medication compliance, hospital length of stay, medication adverse effects, standing benzodiazepine and antipsychotic requirements, MMSE scores, and reductions in patient-sitters, use of physical restraints, and assaults on hospital staff. **Outcomes:** The number of as-needed medications to treat neuropsychiatric symptoms in major cognitive disorders will be reported for patients who received chronobiotic-dosed melatonin compared to retrospective controls who did not receive melatonin supplementation. Other secondary outcomes will be compared to further determine the role of chronobiotic-dosed melatonin in major cognitive disorders.

Initiation of a Benzodiazepine Tapering Clinic for Veterans With Opioid and Alcohol Use Disorders

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Type: Work in Progress. **Background:** When used for anxiety and sleep, benzodiazepines (BZDs) are indicated for short-term use only. The use of other sedative agents like opioids and alcohol can amplify the adverse effects of BZDs putting patients at substantial risk for fatal drug overdose. BZD use in the substance use disorder (SUD) population has been selected as a Veterans Affairs (VA) Psychotropic Drug Safety Initiative (PDSI) measure as it has been associated with fatal drug overdoses. A previous study done within the veteran population demonstrated that nearly half of 1185 fatal drug overdoses occurred in veterans prescribed both BZDs and opioids. The risk of death in this study increased with increasing dose of BZD. **Objectives:** (1) Reduce BZD use among veterans with comorbid opioid use disorder (OUD) and/or alcohol use disorder (AUD) to limit exposure to side effects associated with BZD use and reduce fatal overdoses and (2) Assess the effectiveness of a pharmacist-run BZD tapering clinic for patients with OUD and/or AUD on concomitant BZDs. **Methods:** Patients prescribed BZDs diagnosed with OUD and/or AUD will be identified through the VA's PDSI dashboard. Prescribers of BZDs for targeted patients will be contacted for patient referral to the BZD tapering clinic. The BZD tapering clinic will then contact referred patients and schedule clinic appointments for patients who express interest. During clinic appointments patients' BZD regimens will be tapered down, while monitoring for withdrawal symptoms. Exclusion criteria includes hospice patients and patients receiving less than a six-day supply of BZDs. The following patient demographics will be collected for referred patients: age, sex, diagnoses, renal and hepatic function tests. The following treatment related information will be collected: progress notes related to SUD diagnosis and prescribed regimen of BZD. After patients receive treatment in the BZD tapering clinic, data will be analyzed using descriptive statistics to assess for changes in BZD use. **Outcomes:** Number of patients assessed in the pharmacist-run clinic and mean changes in BZD doses after clinic encounters will be reported.

Initiation of Antipsychotic Treatment for Amphetamine Induced Psychosis and Its Impact on Length of Stay

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Type: Work in Progress. **Background:** Approximately 1.9 million people used methamphetamine in 2018, per the National Survey on Drug Use and Health. One risk of using amphetamines is amphetamine-induced psychosis (AIP). Symptoms of AIP include hallucinations, delusions, and

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agitation. There are currently no FDA-approved pharmacotherapies for AIP and there are insufficient data to provide evidence-based guidelines for medications in AIP. Psychosis from amphetamines may resolve with abstinence. However, antipsychotics are commonly used for symptoms of AIP, with aripiprazole, haloperidol, quetiapine, olanzapine, and risperidone being the most commonly cited in the literature. We aim to investigate if antipsychotics are beneficial in AIP. We will compare patients who receive antipsychotics to those who do not. We will determine if time to initiation of antipsychotics improves patients' course of symptoms. We will use length of stay (LOS) as a surrogate for improvement of AIP. **Objectives:** (1) Compare LOS for patients with AIP treated with antipsychotics versus untreated. (2) Determine antipsychotic prescribed, mean dose, number of as needed doses and time to initiation. (3) Evaluate readmissions – 30-day, 90-day, and 1-year psychiatric readmissions; urine drug screen (UDS) positive for amphetamines on readmission; and reason for readmissions. (4) Evaluate psychiatric emergency department (ED) visits within 30 days, 90 days, and 1 year. **Methods:** Participants will be identified via retrospective chart review from an academic medical center. An online collection tool, RedCap©, will be used to store and report patient data. Inclusion criteria are patients diagnosed with AIP between January 1, 2017 to September 30, 2020 admitted to inpatient psychiatry service with a UDS positive for amphetamines, and 18 years-of -age or older. Exclusion criteria include patients already taking an antipsychotic, active prescriptions for amphetamine salts, or patients in the ED for more than 48-hours prior to intake. Statistical tests used will be Kruskal-Wallis for LOS comparison, as well as χ^2 and binomial logistic regression for analysis of AIP development. **Outcomes:** We will evaluate whether initiation of an antipsychotic will impact LOS compared to patients who were not. We hypothesize antipsychotic treatment will decrease LOS by at least one day.

Institution of an Acute Agitation Order Set at a Veterans Affairs Medical Center

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Type: Work in Progress. **Background:** Appropriate management of acute agitation in the inpatient setting can increase the safety of patients and staff alike. Research has examined the comparative efficacy of various treatments for acute agitation including anxiolytics, antipsychotics, and mood stabilizers. In 2019, Gerson and colleagues published guidelines for emergency management of acute agitation in the emergency department detailing treatment options and goals of therapy. The current ordering process for medication for acute agitation involves individually selecting medications and typing in instructions for use. The institution of a manipulatable agitation order set could optimize medication selection and ensure order clarity. **Objective:** To determine the impact that the implementation of an acute agitation order set will have on provider satisfaction. **Methods:** Using feedback solicited from stakeholders, an acute agitation order set for use on the acute inpatient psychiatric unit will be created. This order set will be reviewed by the institution's Pharmacy and Therapeutics Committee and made available for providers to use. This order set will include as needed antipsychotics, anxiolytics, and adjunct medications that will prepopulate with order comment including how frequently they should be given and maximum daily doses. Order comments will also include which medications should be given together and which medications should be given before others. A survey will be distributed before and after order set implementation to assess provider satisfaction. **Outcomes:** We will report on any changes in the provider completed satisfaction surveys before and after the implementation of the acute agitation order set.

Integration of Mental Health Clinical Pharmacy Specialists to Limit Access to Lethal Means in Veterans Identified as High Risk for Suicide

Patrick Key, PharmD; Lacey J. Miller, PharmD, BCPP
Ralph H. Johnson Veterans Affairs Medical Center, Charleston, SC

Type: Work in Progress. **Background:** Per the 2019 National Veteran Suicide Prevention Annual Report, there was a 47.1% increase in the number of suicide deaths in the U.S. adult population, including a 6.3% increase of suicide deaths in the veteran population between 2005 and 2018. As part of a comprehensive plan to reduce suicide risk, the Ralph H. Johnson VA has implemented lethal means restriction guidance recommending no greater than 30-day supplies of medications prescribed to veterans identified to be at high risk for suicide. Initial review of guidance compliance identified an opportunity for process improvement. The integration of a mental health clinical pharmacy specialist (MH CPS) in the follow-up care of high-risk flag (HRF) patients may improve the quantitative rate that means restriction is followed as well as minimize suicide risk by providing a qualitative review of medication regimens. **Objectives:** The primary objective is to evaluate the impact a MH CPS has on medication quantity restriction in veterans identified to be at high risk for suicide. Secondary objectives include analyzing lethal medication interventions that are accepted by the prescriber and interventions implemented by the MH CPS, including medication reconciliation, safety planning, opioid education and/or naloxone kit distribution and

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issuance of medication disposal envelopes, medication organizers and gun locks. **Methods:** This is a prospective, quality improvement project aiming to integrate a MH CPS in the follow-up care of HRF veterans. Participants included are veterans who have a new or reactivated HRF placed within the project period. Patients will be identified by health record notification and by review of the HRF dashboard. The MH CPS will contact the veteran via telephone within seven days of flag placement and will enter a note into the health record recommending restriction of medications to a 30-day supply and identifying prescribed medications that provide a high risk of fatality in the setting of overdose. A descriptive evaluation of additional MH CPS interventions will be reported. **Outcomes:** The impact of MH CPS integration into the follow-up care of HRF veterans will be assessed and additional interventions will be evaluated.

Longitudinal Assessment of Pharmacy Student Attitudes Towards Mental Illness

Jessica Dillon; Kristin Waters, PharmD, BCPS, BCPP
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Type: Work in Progress. **Background:** Mental health stigma in providers is one of the greatest barriers in effective care in patients with psychiatric illness. When patients detect stigma, they may have lower levels of self-esteem and lower medication adherence. When training healthcare providers, specifically pharmacists, it is important to assess the effectiveness of training at reducing stigma levels. Previous studies have shown that didactic teaching does not significantly decrease stigma in pharmacy students. However, other studies have shown that students who participated in psychiatric rotations have less stigma surrounding mental health following the rotation. Currently there are no studies that assess the same students' stigma following both didactic teaching and clinical rotation teaching. **Objectives:** The objective of this study is to assess the degree of mental health stigma among pharmacy students in a longitudinal fashion and identify the degree to which different teaching modalities impact stigma in the same individual student. **Methods:** Pharmacy students will take a survey up to four times during their time in pharmacy school to assess how their stigma levels towards mental health change due to different types of teaching. The survey will include demographic questions, the validated Open Minds for Healthcare Providers (15 statements students must rank from strongly disagree to strongly agree), and two questions created by researchers which are more specific to pharmacy students instead of healthcare providers in general. In the first phase of the trial, students will complete the survey pre- and post-didactic teaching of a psychiatric module class. In the second phase, students will take the same survey pre- and post-clinical rotations in psychiatric pharmacy and internal medicine. **Outcomes:** Change in stigma levels from baseline in each student following different modes of teaching will be reported. Data will be reviewed in an effort to potentially modify pharmacy schools' curriculum to better lower mental health stigma levels in pharmacy students.

Olanzapine or Clozapine With Valproic Acid Treatment in Patients With Severe Mental Illness (SMI) and the Risk of COVID-19 Infection at a State Psychiatric Hospital: A Retrospective Case Control Study

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Type: Work in Progress. **Background:** Multiple studies have shown that antipsychotic agents, especially the Second-Generation Antipsychotics (SGAs), are associated with an increased risk for pneumonia and hospitalization. A recent study published in the British Journal of Psychiatry concluded that clozapine is associated with an increased risk of COVID-19 infection due to well-known side effects, including neutropenia and agranulocytosis (Govind et al. Br J Psychiatry. 2020;27:1-7.). Another recent study concluded that patients receiving valproic acid had increased risk of respiratory infection, possibly due to possible side effects of leukopenia and neutropenia (Landen et al. Int J Bipolar Disord. 2021;9(1):4.). **Objective:** The objective of this study is to examine whether patients with severe mental illness (SMI) who are currently on either olanzapine or clozapine and valproic acid are at a greater risk of contracting COVID-19 compared to patients who are currently on other antipsychotic agents and no valproic acid. **Methods:** This retrospective cohort study at a state psychiatric hospital included patients 18-years-old or older who were found positive for SARS-COV-2 by use of a real-time reverse transcription polymerase chain reaction (RT-PCR) test approved by the United States Food and Drug Administration (FDA) for emergency use authorization after routine nasopharyngeal swab done for all patients at the institution. Data were obtained for all patients tested for COVID-19 from April 1, 2020 to September 15, 2020. De-identified electronic health record (EHR) data for demographic, psychiatric and medical comorbidity, laboratory values, and medication data within 3 months before the date of their first COVID-19 positive result and 1 month after the date of their second COVID-19 negative result were recorded. The primary endpoint was the number of patients who contracted COVID-19 while currently receiving either olanzapine or clozapine and valproic acid compared to the number of patients who were currently on other antipsychotic agents and no valproic acid. The secondary outcome was the duration

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of recovery in the two groups. The data will be analyzed using Student *t* test. **Outcomes:** Data analyses and results are pending. **Conclusions:** Conclusions and clinical implications are pending.

Opioid Overdose Responder Training: Expanding Undergraduate Student Understanding and Awareness of Naloxone Use

Madison Modany, PharmD Student[1]; Madilyn Eberle, PharmD Student[1]; Amanda Huntsman, PharmD Student[1]; Carol Ott, PharmD, BCPP, CDCES, FADCES[1,2]

[1] Purdue College of Pharmacy, West Lafayette, IN; [2] Eskenazi Health, Indianapolis, IN

Type: Work in Progress. **Background:** Misuse of prescription drugs has been recognized as a growing concern across college campuses throughout the country. Research clearly demonstrates the positive correlation between community access to naloxone and overdose education initiatives and a decrease in deaths related to opioid overdose. Therefore, increasing availability of these educational resources as well as naloxone itself, become necessary components in the effort to reduce opioid-related overdose deaths in hopes of ultimately ending the opioid epidemic. **Objectives:** The objective of this study is to assess undergraduate student knowledge, comfort and preparation for administering naloxone prior to and following virtual naloxone training sessions. **Methods:** This study was approved by the IRB at Purdue University and a grant of $15,110 was provided via the university's Student Fee Advisory Board grant. This funding was used to obtain 300 doses of naloxone to be distributed to training participants at no cost following completion of the course. Virtual naloxone training was advertised to undergraduate Purdue University students across campus. Training sessions are facilitated by pharmacy student(s) members of the College of Psychiatric and Neurologic Pharmacists (CPNP) Purdue chapter who have been trained in naloxone administration. Training session participants are provided the opportunity to voluntarily participate in the pre- and post-training research surveys independent of the training session. Qualtrics surveys are used to collect de-identified survey data which will be analyzed to assess changes in participants' knowledge and comfort level. Survey questions will assess acquired knowledge, individual confidence regarding naloxone use and perceived value of the training. Descriptive statistics will be used to detail demographic information and a paired t-test will be used to evaluate change in pre- to post-survey responses. **Outcomes:** This study will provide undergraduate students with information regarding the signs of an opioid overdose, steps to be taken prior to administration of naloxone, and ultimately, proper administration. Due to the scope of the opioid crisis, the US Surgeon General recommends possessing adequate knowledge regarding proper use of naloxone and having it within reach. Therefore, access to naloxone for students in a variety of settings is recommended.

Outcomes of Buprenorphine/Naloxone Assisted Treatment in Veterans With Opioid Use Disorder

Caitlin Burton, PharmD; Bo Hyung Song, PharmD, BCPP

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Type: Work in Progress. **Background:** In 2018, over 10 million people in the United States misused prescription opioids and 2 million people were reported to have an opioid use disorder (OUD). Opioid abuse, overdose, and dependence contribute to a large economic burden in the United States; in 2013 it was estimated that $78.5 billion dollars was spent, however, other estimates state this cost is around $504 billion dollars. Previously published studies primarily compared the difference in outcomes from pharmacotherapy for OUD. However, outcomes from combined pharmacotherapy and psychotherapy interventions have not been often assessed. Behavioral treatment can be recommended with pharmacologic treatment to provide assistance for cravings and reduce the risk for relapses. With the addition of psychotherapy interventions, some studies have shown improvement in adherence and retention. However, other studies have reported no difference in outcomes. Due to these results, present guidelines do not make recommendations for or against psychotherapy treatment in addition to pharmacotherapy for OUD. **Objectives:** The primary objective of this study is to compare opioid use, measured by percentage of negative urine drug screens, in patients enrolled in medication assisted therapy (MAT) versus those on pharmacologic treatment alone. Secondary objectives will include treatment adherence/retention, relapse rates, time to relapse, reported side effects, incidence of overdoses, reported cravings, and positive urine drug screens for non-opiate substances. **Methods:** This study is a retrospective cohort design that will include patients aged 18- to 89-years-of- age with a diagnosis of OUD or opioid dependence. Patients included in this study will be those who received a prescription for buprenorphine/naloxone from specific providers in an outpatient mental health clinic from April 1, 2011 to April 30, 2019. Patients will be excluded from the study if they failed to attend the initial clinic visit, received no doses of buprenorphine/naloxone, or if they are pregnant. **Outcomes:** Data collection and analyses will be completed by April 2021. Study outcomes and conclusions will be reported at the

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College of Psychiatric and Neurologic Pharmacists 2021 Virtual Annual Meeting.

Outcomes of Opioid and Benzodiazepine Co-Prescribing After a Prior Authorization Consult Implementation

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New Mexico VA Health Care System (NMVAHCS), Albuquerque, NM

Type: Work in Progress. **Background:** Opioid-related overdose deaths have increased substantially over the past two decades. Benzodiazepines are the second most common prescription class implicated in pharmaceutical overdose deaths. Although these two medication classes are dangerous when taken independently, their concurrent use is associated with a three-fold increase in the risk of opioid-related overdose. Due to this risk, many national health agencies have released warnings regarding their concomitant use. The New Mexico VA Health Care System (NMVAHCS) also recognized the need to avoid combination therapy and resolved to curtail co-prescribing of opioids and benzodiazepines through implementation of a Prior Authorization (PA) consult implemented on January 1, 2017. **Objectives:** The primary objective of this project was to determine the change in rate of co-prescribing of opioids and benzodiazepines after PA consult implementation. Additionally, pharmacologic alternatives, trialed in place of concurrent opioid and benzodiazepine therapy, were evaluated, including recommendations made by clinical pharmacy specialists. **Methods:** A retrospective chart review for quality improvement purposes was conducted and observed data from all outpatient clinics within the NMVAHCS. Pharmacy PA consults submitted by providers for co-prescribing opioids and benzodiazepines between January 1, 2017 - December 31, 2017 were reviewed. The NMVAHCS electronic medical record was examined for medical history, progress notes, consults related to co-prescribing of opioids and benzodiazepines, and demographics. Prescribing rate was extracted from a national VA dashboard. Patients were included if they had a consult for concurrent opioid and benzodiazepine therapy. Exclusion criteria included the use of combination therapy prior to January 1, 2017, hospitalized patients, patients with cancer, patients receiving hospice/end-of-life care, and patients receiving combination therapy for 14 days or less. **Outcomes:** By implementation of this PA consult, a lower rate of co-prescribing opioids and benzodiazepines is expected. The results of this study will identify the effectiveness of this PA consult and evaluate alternative prescribing patterns in place of combination therapy.

Perceptions and Efficacy of Brexanolone for the Treatment of Postpartum Depression: A Mixed Methods Analysis

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Type: Work in Progress. **Background:** Brexanolone (BRX) has demonstrated short-term efficacy for the treatment of postpartum depression (PPD). PPD is linked to infanticide and maternal suicide, and current treatment often fails to adequately control depressive symptoms. BRX is an aqueous form of the steroid allopregnanolone and is thought to improve depressive symptoms after childbirth by modulating neuronal excitability through positive allosteric modulation of the GABA type-A receptor. As 40% of women experience their first episode of depression during the postpartum period, and untreated PPD increases the risk of depression 6-fold later in life, investigating the utilization of BRX is warranted. **Objective:** The purpose of the proposed research is to further understand the experience of women who have received BRX for the treatment of PPD and to determine its effectiveness beyond 30 days. **Methods:** This project was funded by the College of Psychiatric and Neurologic Pharmacists (CPNP) Foundation Defining the Future Research Grant. In this study, we will conduct semi-structured interviews modeled after the Theory of Planned Behavior (TPB) to assess women's perceptions of treatment for PPD with BRX. The TPB assesses behavioral beliefs, perceived behavioral control, and subjective norms, and is often used to predict intention-to-perform health-related behaviors. Semi-structured interviews will be recorded and transcribed in order to conduct thematic analysis using NVIVO© software. Further, we will conduct a retrospective chart review to assess for a change in depressive symptoms based on ratings documented in the electronic health record. Demographic data will also be collected, including obstetric history, time until BRX administration after birth, ethnicity, race, history of psychiatric illness, whether or not concurrent treatment with an antidepressant was received, and family history of PPD. Approximately ten patients will be included in this review. **Outcomes:** Through semi-structured interviews, we hope to generate rich qualitative data that informs the design of a quantitative instrument to further assess intention to utilize BRX for the treatment of PPD. The primary outcome measure for our retrospective review will be a change in the Edinburgh Postnatal Depression Scale (EDPS) before, during, and after infusion with BRX.

Persistency and Outcomes of Pharmacist-Led Screening, Brief Intervention, and

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Referral to Treatment for Heavy Drinking in a VA Ambulatory Care Clinic

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Type: Work in Progress. **Background:** The National Institute on Alcohol Abuse and Alcoholism defines alcohol use disorder (AUD) as a chronic, relapsing condition associated with impaired ability to control alcohol use. Veterans are at increased risk of AUD as demonstrated by the 2016 National Health and Resilience in Veterans Study, which estimated that more than 40% of US veterans meet criteria for AUD at some point in their lifetime compared to 5.8% of the general population. Heavy drinking, defined by the Centers for Disease Control as consumption of 8 or more drinks per week for women and 15 or more drinks per week for men, is a strong indicator of current or future development of AUD. Both heavy drinking and AUD are associated with increased morbidity, mortality, and healthcare costs related to physical and psychiatric illnesses. Unfortunately, only an estimated 7.9% of adults with AUD ever receive treatment. Based on the treatment disparity, the United States Preventative Services Task Force recommended standardized screening and brief interventions for all patients endorsing heavy drinking. This project builds upon a prior intervention to improve rates of screening within a single pharmacist-run patient-aligned care team (PACT) clinic. **Objectives:** The purposes of this study are to optimize identification and treatment of individuals in primary care who exhibit hazardous drinking patterns via PACT pharmacist-led screening, brief intervention, and referral to treatment (SBIRT) for heavy alcohol use, and to improve the longevity of the intervention based on self-reported workload capture. **Methods:** Five PACT pharmacists were trained to use the SBIRT model to identify and refer patients endorsing heavy drinking to appropriate levels of treatment. A standardized screening tool was implemented to capture the results of their assessments and the participating pharmacists were asked to record screening and intervention(s) as part of their standard workload capture. Descriptive statistics were used to quantify the effects of the intervention. Data were collected between September 1, 2020 to March 31, 2021. **Outcomes:** Outcomes of the intervention will be recorded as number of screenings and referrals to treatment made by pharmacists. Persistency of the screening and referral activities among the participating pharmacists will also be recorded.

Pharmacist Attitudes Towards Transgender Patients

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University of Cincinnati, Cincinnati, OH

Type: Work in Progress. **Background:** Transgender patients face numerous health disparities, including a paucity of research on their unique needs, as well as a higher incidence of certain mental health disorders, including substance abuse and suicidality. Understanding and addressing healthcare provider prejudices can be a powerful tool in combating health disparities. While research exists on health care providers and their level of comfort with their transgender patients, research focusing specifically on pharmacist attitudes is lacking. Since pharmacists are amongst the most accessible healthcare professionals, identifying trends in their attitudes towards their transgender patients could be an important step in addressing the health disparities that transgender people face. **Objectives:** (1) Obtain descriptive statistics on the sex and gender beliefs, level of provider comfort, and level of gender inclusive employer support amongst pharmacists. (2) Identify potential correlation between demographic factors of pharmacists and their attitudes towards their transgender patients. **Methods:** Participants will be recruited from the IQVIA© database through email. Potential participants will receive an email survey. This survey contains Likert-type items designed to assess sex and gender beliefs, provider confidence in treating transgender patients, and level of employer support for gender-inclusive care. The survey also gathers demographic information, including pharmacist age, gender, areas of practice experience, and geographical region. For objective (1), descriptive statistics will be used to evaluate degree of gender-inclusiveness of pharmacist attitudes. For objective (2), regression models will be used to examine potential relationships between pharmacist demographic factors and attitudes towards transgender patients. **Outcomes:** We will report on the gender-inclusiveness of pharmacist attitudes towards transgender patients, based on their responses to each area of the survey. We will also analyze any associations between pharmacist demographic factors and their responses to the survey.

Pharmacist Provision of Education and Recommendations for Medications for Alcohol Use Disorder (MAUD) on an Inpatient Medical Unit

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Type: Work in Progress. **Background:** Alcohol use disorder (AUD) is common among veterans and compared to those without AUD, veterans with AUD are at a higher risk for all-cause mortality. According to the Veterans Affairs/ Department of Defense guidelines for the Management of Substance Use Disorders, treatment with one of the following pharmacotherapies is strongly recommended: acamprosate, disulfiram, naltrexone (oral or injection), or topiramate. However, medications for AUD (MAUD) are underutilized for treatment. In one study, only 9.3% of patients with a diagnosis of alcohol dependence received MAUD. Patients seen by primary medical doctors were less likely to receive MAUD compared to those seen by psychiatrists. Veterans may avoid seeking treatment due to perceived stigma of AUD. Veterans with AUD may be identified through screening in the outpatient setting. However, because alcohol withdrawal can be fatal and may require inpatient medical supervision, the inpatient setting offers clinicians the opportunity to initiate patients admitted for alcohol withdrawal management on MAUD. **Objectives:** To increase utilization of MAUD through pharmacist-led medication education and recommendations on an inpatient medical unit. **Methods:** The census for medical units at Battle Creek Veterans Administration Medical Center will be reviewed daily, Monday through Friday, to identify veterans admitted for alcohol withdrawal. The psychiatric pharmacy resident will interview patients to gather information about alcohol use history and provide education on available options for MAUD. If the veteran is agreeable, a recommendation for MAUD will be made to the attending physician and follow-up for medication monitoring will be arranged. The attending physician will be responsible for ordering medication during inpatient admission and for discharge. **Outcomes:** Descriptive data collected will include number of patients identified, number of patients educated, number of recommendations made, number of recommendations accepted, percent of patients that attend the post-discharge follow-up appointment, percent of patients on MAUD at 3 months post-discharge, and percent of patients readmitted for alcohol detoxification.

Pharmacist Versus Non-Pharmacist Management on Antidepressant Adherence Rates and Associated Outcomes Among Veterans With Depressive Disorders

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Type: Work in Progress. **Background:** Depression is as common among the veteran population as the general public, and affects more than 17 million people nationwide. Despite great efforts to expand treatment for depressive disorders, rates of depression remain high, and are associated with significant morbidity and mortality. Various factors, including medication adherence, play a critical role in overall patient-outcomes. Primary care is commonly the first healthcare setting that addresses depression for patients, particularly among those with comorbid health conditions. Integration of mental health care, including mental health clinical pharmacy specialists (CPS), into the primary care setting is one strategy that can help identify and treat patients with depressive disorders early. Primary Care Mental Health Integration (PCMHI), a model of integrating behavioral health specialists into primary care clinic setting within the Veterans Affairs Healthcare System, has been shown to improve access to high quality care and improve individual clinical and functional outcomes. **Objectives:** The primary objective of this study is to assess the difference in medication adherence rates among patients with depressive disorders managed by mental health CPS compared to non-pharmacist providers within the primary care clinic setting at South Texas Veterans Health Care System (STVHCS). Additional objectives will be to assess mental health outcomes, and characterize antidepressant prescribing in this patient population. **Methods:** This is a retrospective cohort study evaluating patients with depressive disorders who received mental health care by primary care provider or PCMHI pharmacist at the STVHCS. Using the Veterans Affair's Computerized Patient Record System, demographic, medication adherence, and mental health outcomes data will be characterized. The primary endpoint will be mean adherence rate between patients managed by pharmacists compared to non-pharmacist providers; secondary endpoints will include proportion of patients with greater than 80% adherence between groups, mental health outcomes defined as change in PHQ-9 scores, proportion of patients lost to follow up, and escalation to care to higher level of care. **Outcomes:** Outcomes assessments are ongoing. Evaluation of adherence rates and additional aforementioned health factors amongst this patient cohort will be reported in future presentation, to include both descriptive and inferential statistics (alpha level set to 0.05).

Pharmacist-Managed Cardiovascular Risk Reduction Outcomes in Individuals Experiencing Serious Mental Illness and Diabetes Compared to Other Provider-Managed Primary Care

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Type: Work in Progress. **Background:** Cardiometabolic disease, including diabetes mellitus, hypertension, dyslipidemia, and obesity, affects many individuals with diagnoses of serious mental illnesses (SMI). Patients with SMI have numerous cardiometabolic risk factors including medication side effects, healthcare barriers, genetic predispositions, and tobacco/substance use. These risks contribute to the 2-fold higher prevalence of type 2 diabetes and 15 to 20 year reduction in life expectancy for individuals with SMI diagnoses. Clinical pharmacy services have demonstrated positive cardiovascular risk reduction (CVRR) outcomes; however, pharmacist-managed CVRR in individuals with SMI diagnoses is not well-studied. These few studies merely describe pharmacy services but do not use a comparator group receiving standard primary care services. **Objective:** To compare CVRR and diabetes management in patients with a diagnosis of SMI and diabetes mellitus who receive clinical pharmacy CVRR services in addition to standard primary care versus those who only receive standard primary care services. **Methods:** This is a retrospective cohort study involving chart review of patient encounters from October 31, 2016 to October 31, 2020 using the electronic medical record of a public health and hospital system in Indianapolis, Indiana. Included patients will be $\geq$ 18 years old with a diagnosis of SMI (ie, schizophrenia spectrum disorders, bipolar disorder, major depressive disorder, post-traumatic stress disorder, obsessive compulsive disorder, or borderline personality disorder), a diagnosis of diabetes mellitus (Hemoglobin A1c $\geq$ 6.5%), and patients with $\geq$ 2 primary care encounters and $\geq$ 2 Hemoglobin A1c values during the study period. Clinical outcomes will be analyzed using linear mixed models and descriptive statistics and compared between patients receiving clinical pharmacy CVRR services and those receiving only standard primary care services from physicians or advanced practice providers. **Outcomes:** Demographic variables, diagnoses (SMI diagnosis, hypertension, dyslipidemia, substance-use disorders, tobacco-use), and baseline clinical data points (Hemoglobin A1c, weight, body mass index (BMI), use of antipsychotics and specific agents, 10-year ASCVD risk score) will be collected. The primary outcome is change in Hemoglobin A1c measured longitudinally over the study period. Secondary outcomes include (1) the number of times diabetes treatment is initiated or intensified, including the specific agent/class and the type of clinician, (2) emergency department visits and hospitalizations attributed to hyperglycemia, and (3) changes in BMI and weight.

Pharmacists Knowledge and Attitudes Regarding Cannabidiol Uses, Risks, and Adverse Events

Trisha McHugh, PharmD Candidate 2021[1]; J. Michael McGuire, PharmD, BCPP[1]; Brittany Melton, PharmD, PhD[2]; Karen Moeller, PharmD, BCPP[2]

[1] Belmont University College of Pharmacy, Nashville, TN; [2] University of Kansas Medical Center, Kansas City, KS

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 pharmacists adequately prepared to counsel patients about CBD, especially within the community setting? There is only one indication for CBD, but 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 pharmacists are aware of CBD's various indications, adverse drug reactions, and risks. This study seeks to assess knowledge and attitudes of community pharmacists towards CBD. **Objective:** To determine the current attitudes and understandings of cannabidiol (CBD) products with community pharmacists and how these particular views may impact their practice and recommendations to patients. **Methods:** The study design involves an anonymous survey sent out to current community pharmacists throughout the United States. The survey will be posted on various social media platforms asking for community pharmacists to participate. The survey will assess pharmacist's knowledge of FDA-approved uses of CBD oil, current attitudes towards its use, and how this translates to their practice. SPSS® will be used for statistical analysis to help determine differences in answers between types of community pharmacies and regions in the US. The study has been approved by the IRB for Belmont University and the University of Kansas. **Outcomes:** We will report demographic variables, knowledge and attitudes of the respondents concerning CBD in their community settings.

Pharmacists' Impact on Optimization of Benzodiazepine Use and Polypharmacy at Oregon State Hospital

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[1] Oregon State Hospital, Salem, OR; [2] Oregon State University, College of Pharmacy, Corvallis, OR

Type: Work in Progress. **Background:** Oregon State Hospital (OSH) is a 650-bed psychiatric hospital that provides care for treatment-resistant forensic patients. Benzodiazepines are essential medications used to treat anxiety, acute agitation, seizure, and alcohol withdrawal. Benzodiazepines are used frequently at OSH due to the severity and complexity of the patient population. In September 2020, the United States Food and Drug

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Administration (FDA) issued an updated boxed warning for the benzodiazepine medication class to address the risk of addiction, physical dependence, abuse, withdrawal reactions, overdose, and death. Risk is compounded with high doses of benzodiazepines or in combination with other medicines, such as opioids (tramadol most widely used at OSH), or other CNS depressants (Center for Drug Evaluation and Research. "FDA Expands Boxed Warning to Improve Safe Use of Benzodiazepine Drug." US Food and Drug Administration. October 2, 2020.). **Objectives:** (1) Evaluate general benzodiazepine use and in combination with opioids or tramadol in a state psychiatric hospital to then provide recommendations to improve overall use through reduction in total daily dose, tapering, or to deprescribe safely. (2) Measure the acceptance rate of pharmacist recommendations. **Methods:** Benzodiazepine utilization and polypharmacy with concomitant use of opioids or tramadol were evaluated by reviewing all current orders at OSH on November 5, 2020. The total daily dose (TDD) of benzodiazepine was calculated for each patient based on lorazepam equivalents. Patients were categorized into 7 groups based on their TDD or combined use of benzodiazepine with opioids and tramadol: $>$ 8 mg, 6-8 mg, 4-6 mg, 2-3 mg, 1-2 mg, 0-1 mg, or combined users respectively. The patients with a TDD above 6 mg and combined users were included and reviewed for this study. Through the cooperation of the Pharmacy and Therapeutic (P&T) Committee, recommendations were made to providers for appropriate prescribing of benzodiazepines along with concomitant use with opioids and tramadol to comply with FDA warnings. **Outcomes:** All accepted recommendations will be recorded and compared to initial audit data to determine the pharmacist impact on optimizing benzodiazepine use in a state psychiatric hospital.

Pharmacists' Impact on Psychotropic Use in a Veterans Affairs Community Living Center

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Type: Work in Progress. **Background:** There is a vast population of elderly patients, including those in long-term care facilities, who are prescribed unnecessary psychotropics. This patient population is already prone to reduced cognitive function and the addition of psychotropics can be detrimental. In the Community Living Center (CLC), an on-site long-term care unit at the Veterans Affairs Loma Linda Healthcare System (VALLHS), many veterans are on psychotropics and there has been interprofessional geropsychiatric rounds on patients within the secured neighborhood in the CLC. Pharmacists officially joined these rounds in January 2020. This sparked a pursuit to see the impact pharmacists made on psychotropic prescribing in the CLC. **Objectives:** The primary outcome of this retrospective chart review is to evaluate pharmacists' impact on psychotropic use in veterans in the CLC. The secondary outcome is to assess a correlation between psychotropic use and fall rates. **Methods:** This retrospective cohort study will review veterans at the CLC at VALLHS who were initiated on a psychotropic medication for at least 14 days at any point during their CLC stay from November 28, 2017 - December 1, 2020. As needed and scheduled psychotropic use within the secured neighborhood in the CLC during the study period will be assessed. Demographic data will be analyzed descriptively. Statistics that will be used to analyze non-demographic data include a one-sample t-test, paired t-test, sign test, χ^2 test, the Wilcoxon Signed-Rank test, and the Mann-Whitney U test. *P*-value will be set at $<$ .05 for statistical significance. **Outcomes:** We will report the outcome pharmacists' impact on psychotropic rounds based on as needed and scheduled psychotropic use within the secured neighborhood in the CLC. We will also analyze the impact of psychotropic use and fall rates.

Prazosin Versus Clonidine for Treatment of Posttraumatic Stress Disorder Associated Nightmares

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Type: Work in Progress. **Background:** Posttraumatic stress disorder (PTSD) is a disabling psychiatric condition presenting frequently in military personnel and veterans. Recurrent, distressing dreams related to the trauma are one of the characteristic symptoms of PTSD and can lead to decreased physiological and psychological functioning as a result of disrupted sleep. Anti-adrenergic medications such as prazosin and clonidine have been widely used for treatment of PTSD-associated nightmares. However, the data supporting the use of these agents are limited and conflicting. Furthermore, no trial to our knowledge has evaluated statistical difference in efficacy between prazosin and clonidine in an outpatient setting. **Objective:** We compared the effectiveness of prazosin and clonidine in patients with PTSD-related nightmares as measured by discontinuation rate. **Methods:** We conducted a retrospective study in patients with a first-time outpatient prescription of prazosin or clonidine at eight veterans affairs medical centers. Patients were included if they were at least 18-years-of-age, diagnosed with PTSD, and had a first-time outpatient prescription of prazosin or clonidine between October 1, 2016 to September 30, 2017 from a mental health clinic. Patients with a comorbid diagnosis of schizophrenia, bipolar disorder, or opioid use disorder, or who had a concurrent mirtazapine prescrip-

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tion were excluded. We collected demographic variables (age, gender, race), psychiatric diagnoses, and medication utilization data (dose, schedule, quantity, dispense date). We used descriptive analysis to report demographic data, the Mann-Whitney U test for continuous data, and the χ^2 test for categorical data. **Outcomes:** The primary outcome was rate of discontinuation, defined as a treatment gap of $\geq$ 90 days, and was measured at 6 and 24 months after index date. Discontinuation rate served as a surrogate endpoint, indicating that the medication was either inefficacious or intolerable. Secondary outcomes included medication possession ratio (MPR) and prescription status at 6 and 24 months after index date. MPR was calculated by the sum of days' supply of medication divided by the number of days between the first and last medication fill and the days' supply from the last fill.

Psychiatric Drug-Nutrient Interactions of Vitamin D: A Retrospective Study

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Type: Work in Progress. **Background:** Vitamin D is an essential micronutrient which undergoes cytochrome P450 (CYP)-mediated metabolism. 1,25(OH)2D3 (calcitriol) is the active form of vitamin D3 which is known to regulate calcium concentrations, the immune system, and parathyroid hormone levels. Calcitriol is hepatically inactivated through hydroxylation reactions which is catalyzed by CYP3A4 enzyme. There are limited data regarding interactions between vitamin D and psychiatric drugs (ie, antidepressants, antipsychotics, anticonvulsants). Psychiatric drugs can either induce or inhibit hepatic CYP3A4 functions, leading to possible altered levels of calcitriol. We hypothesize that patients on psychiatric medications will have altered vitamin D levels due to plausible drug-nutrient interactions. **Objectives:** (1) In silico simulation of CYP-related interactions between psychiatric medications and vitamin D. (2) Evaluate retrospective vitamin D levels in patients on psychiatric medications. **Methods:** A systematic analyses of existing literature of psychiatric drugs were carried out to identify the first-line and second-line drugs. In silico Drug-Drug Interaction (DDI) predictions were performed at steady state simulation using DDI module of the GastroPlus software (Simulations Plus, Lancaster, CA). Subsequently, the enzyme kinetics properties of different psychiatric medications were used to predict their interaction with calcitriol in humans through DDI module. Medical records will be reviewed from March 1, 2020 to June 1, 2021. The inclusion criteria consist of adults $\geq$ 18-years-old, prescribed at least one psychiatric drug and continued for at least three months, and with at least two vitamin D levels measured. **Outcomes:** GastroPlus steady-state DDI simulation was conducted with calcitriol against ten psychiatric medications. We used Physiologically based pharmacokinetic (PBPK) modeling of a 30-year-old male for the DDI simulation. Calcitriol had a CYP3A4 fraction metabolized (fm) of 100%. We verified CYP3A4 in vitro Ki and EC50 values from literature. DDI simulation with calcitriol yielded an CYP induction interaction with carbamazepine (strong) and phenytoin (moderate). In addition, DDI simulation with calcitriol had CYP inhibition with bupropion (weak) and nefazodone (moderate). Fluoxetine, fluvoxamine, haloperidol, olanzapine, risperidone, and sertraline did not have an interaction with calcitriol. The simulation data will be used to retrospectively analyze patient vitamin D and psychiatric drug interactions to understand the risk ratios.

Publication Rates of PGY-2 Psychiatric Pharmacy Residency Projects and Perceived Barriers/Value to Publication

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Type: Work in Progress. **Background:** Publication rates of PGY-1 pharmacy residency projects is estimated to be only 10-15%. Evaluation of PGY-2 residency project publication rates is limited to one study in Critical Care Pharmacy. There are no studies describing PGY-2 Psychiatric Pharmacy residency project publication rates. **Objective:** Determine publication rates of PGY-2 Psychiatric Pharmacy residency projects based on poster abstracts presented at the annual meeting of the College of Psychiatric and Neurologic Pharmacists (CPNP). Secondary objectives include a characterization of published residency projects and identification of PGY-2 Psychiatric Pharmacy residency program directors (RPDs) perceived value and barriers to the publication process. **Methods:** This retrospective cohort study will be conducted utilizing the poster abstracts presented by PGY-2 Psychiatric Pharmacy Residents from annual meetings of CPNP from 2002 to 2018. Abstracts from every other year will be included in the analysis. Successful publication will be determined using the following sequential steps: (1) primary author's last name and first initial, 2) primary author's last name, first initial and three to five keys words from the project title using three online databases including PubMed, Ovid MEDLINE, and Google Scholar.

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If there are no results with the primary author, the same strategy will be performed for all co-authors until the list is exhausted. If a publication is found, additional data will be collected to characterize the publication. Characteristics and trends associated with publication of the residency project will be evaluated including study type, study design, direction of interest, direction of inquiry, presence of results in abstract, institution type and location, publication year, time to publication, journal description, author(s) description, citations in the literature, and project funding. Additionally, a prospective cross-sectional anonymous survey distributed to PGY-2 Psychiatric Pharmacy RPDs will be conducted to determine perceived barriers and value to publication of the residency project. **Outcomes:** We will report the percentage of abstracts submitted to CPNP that were published in the literature from 2002 to 2018, characteristics and trends associated with these publications, and results of an RPD survey identifying beliefs regarding the value and barriers of the publication process for PGY-2 Psychiatric Pharmacy residency projects.

Quantifying Anticholinergic Burden and Assessing Its Relationship With Cognitive Function in Women With and Without Schizophrenia

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Type: Work in Progress. **Background:** Cognitive dysfunction is one of the core features of schizophrenia. Antipsychotics do not target or treat cognitive impairment, and most have high anticholinergic activity that can further worsen cognition. Anticholinergic burden is defined as the cumulative effects of multiple anticholinergic medications and can be quantified using rating scales, such as the Anticholinergic Drug Scale (ADS). Antipsychotics are also notorious for causing extrapyramidal symptoms, which are commonly treated with medications that may add to anticholinergic burden. Studies have shown that the higher the burden, the higher the risk for cognitive and functional impairment, including dementia. **Objective:** To determine if higher anticholinergic burden is associated with more cognitive impairment in women with schizophrenia compared to women without schizophrenia. **Methods:** This was a single-site cross sectional study that recruited women with schizophrenia ($n = 27$) and female healthy controls ($n = 20$). Subjects who have a diagnosis of schizophrenia or schizoaffective disorder were included in the experimental group, while those who have no diagnosis of a psychotic or mood disorder were included in the control group. Baseline demographics such as age, race, and education level were collected, as well as current medications. The participants completed a one-time assessment of the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) and the Hopkins Verbal Learning test-revised (HVLT-R). The RBANS and HVLT-R were administered by a trained clinician during the patient's one-time clinic visit to measure cognition. The primary endpoints include the ADS score, which will be calculated using the reported medications to quantify anticholinergic burden and its impact on cognitive outcomes. For statistical analyses, T-test will be used for continuous data, χ^2 for nominal data, and a P value of less than .05 will be statistically significant. Pearson's correlation coefficient will also be used to assess the strength of the association between anticholinergic burden and cognition. **Outcomes:** We will report the relationship between anticholinergic burden and cognition measures in women with schizophrenia and healthy control women to determine if higher anticholinergic burden is associated with poorer cognitive functioning in this patient population.

Racial Demographics of Patients Who Received More Than One Dose of One-Time As-Needed Injectable Antipsychotics

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Type: Work in Progress. **Background:** First-generation antipsychotics, such as fluphenazine, are administered to patients in an emergency department (ED) when they present as agitated, aggressive, or violent. When using this type of antipsychotic, it puts patients at higher risk for some forms of extrapyramidal symptoms (EPS) (movement side effects), including dystonic reactions. These effects are more frequent in different demographics due to racial disparities in diagnosing and prescribing medications. Black males are more often treated with a high-potency first-generation antipsychotic rather than other forms of treatment. With this study, patterns of prescribing and administration will be identified among patients of different demographics who have received these antipsychotics. **Objectives:** (1) Collect data on demographics for adult patients in the medical and psychiatric ED that received more than one dose of one-time as-needed injectable antipsychotics, (2) Identify the pattern of use of highly potent short-acting injectable antipsychotics in the population being studied, and (3) Identify factors and patient characteristics that may contribute to injectable antipsychotic administration in the emergency setting. **Methods:** This study will be conducted as a retrospective chart review of patients in the ED at a hospital between the months of January 1, 2019 to June

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30, 2019. The criteria of the patients being analyzed include that the patients were an adult in the ED, including psychiatric ED, at the time of receiving more than one dose of a one-time as-needed injectable antipsychotic. The information reported (age, race, gender, height, diagnosis at time of ED visit, adverse effects, length of stay, time of day and day of week of the emergency visit) will be reviewed to identify any repeating patterns pertaining to a common group of individuals. **Outcomes:** Completing the analysis will help determine which demographics are targeted more with multiple injections of one-time injectable antipsychotics in an emergency setting and develop a new standard of care.

Readmission Rates for Methamphetamine-Positive Patients Receiving Long-Acting Injectable Antipsychotics (LAIAs)

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Type: Work in Progress. **Background:** Methamphetamine (MA) is a highly addictive substance associated with serious health consequences and high rates of co-occurring mental illness. Various pharmacological agents, namely oral antipsychotics risperidone and aripiprazole, have been explored for management of MA-intoxication; however, no approved treatment options are available. Compared to oral antipsychotics, long-acting injectable antipsychotics (LAIAs) are associated with better prognosis due to increased medication adherence and are recommended in patients with risk factors for non-adherence, such as comorbid substance use. The purpose of this study was to determine whether treatment of patients with MA-substance use disorder with paliperidone palmitate (PP) will have decreased 30-day readmission rates compared to patients receiving aripiprazole lauroxil (AL). **Objectives:** (1) Compare 30-day readmission rates in MA-positive patients on PP or AL. (2) Evaluate time to readmission in PP and AL, and (3) Evaluate frequency of MA-negative urine toxicology (UTox) results in patients readmitted within 30 days. **Methods:** A retrospective study approach identified orders for PP and AL from July 1, 2016 to November 1, 2020. Patients aged 18-65 years with a MA-positive UTox (obtained $\leq$ 96 hours) or a recent history of MA-use and documented receipt of at least one dose of PP or AL on the medication administration record (MAR) were included. Patients were excluded if UTox was not collected (or $>$ 96 hours) and no recent history of MA-use, if LAIA administration was not documented on MAR, or if pregnant or lactating. Demographic variables (age, gender, ethnicity), history of MA-use, psychiatric diagnoses, LAIA administration, and encounter history will be collected. Demographic characteristics will be summarized by standard descriptive statistics, and baseline differences will be evaluated using inferential statistics. The primary objective will be measured using regression models to examine whether PP or AL is associated with decreased 30-day readmission. **Outcomes:** This study will report the number and percent of MA-positive patients readmitted within 30 days, the overall time to readmission, and the number and percent of MA-negative UTox results at readmission and compare the results between PP and AL groups.

Readmission Rates of Patients Discharged From Adult Psychiatric Facilities Prescribed a Second Generation Long-Acting Injectable Antipsychotic Compared to the Oral Formulation

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Type: Work in Progress. **Background:** A recent meta-analysis concluded almost half of patients with severe mental illness may be non-adherent with their psychotropic medications. Outcomes associated with medication non-adherence in this population include worsening of symptoms, increased rates of hospitalization, and decreased response to future treatments. Long-acting injectable antipsychotics (LAIAs) are used to help promote medication adherence. Researchers have reported mixed evidence whether LAIAs are superior to oral antipsychotics in reducing hospital readmission rates despite their purported benefit in this outcome. Direct care and treatment (DCT) is a set of adult psychiatric hospitals including a 371 bed forensics facility, a 175 bed acute facility, and six 16-bed community based hospitals, totaling 692 bed capacity. Due to their high cost, LAIAs prescribed within the adult psychiatric facilities require formulary approval prior to initiation. This retrospective review will determine whether prescribing LAIAs versus oral antipsychotics for appropriate indications decrease readmission rates in a psychiatric hospital system. **Objectives:** (1) Determine the difference of one-year readmission rates for patients with schizophrenia, schizoaffective or bipolar disorder who were discharged on a LAIA versus its oral formulation. (2) Evaluate reason for readmission (non-adherence, illicit substance use, medication change) for those patients who were readmitted within one year of discharge. **Methods:** A retrospective review of inpatients within DCT who were discharged between January 1, 2019 to December 31, 2019 determined whether patients were readmitted within one year of their discharge date. Adult patients were included if

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they were prescribed a second generation LAIA (aripiprazole monohydrate, aripiprazole lauroxil, paliperidone palmitate, risperidone microspheres) or the oral formulation (aripiprazole, paliperidone, risperidone), if they were discharged from inpatient facilities in 2019, and if they had a diagnosis of schizophrenia, schizoaffective disorder or bipolar disorder. Subgroup analysis will be completed to determine differences in readmission rates based on psychiatric diagnosis and reason for readmission. **Outcomes:** The authors will report the number and percent of patients readmitted within one year of discharge and analyze whether there is a difference based on diagnoses, concomitant psychotropic medications, reason for readmission, medication formulation, and previous psychiatric hospitalizations.

Relationship of Frequency of Lithium Administration on Time in Therapeutic Range and Treatment Effectiveness

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Type: Work in Progress. **Background:** Lithium is an antimanic agent that is a gold standard medication for the treatment of bipolar disorder. It has a boxed warning per the Food and Drug Administration regarding monitoring of levels, as it is a narrow therapeutic index medication. Lithium is available in both immediate release (IR) and sustained action (SA) preparations with the main pharmacokinetic difference being time to peak serum concentrations. The SA preparation has been shown to have reduced fluctuations in serum concentrations than multiple daily doses of the IR preparation. The prescribing information for both lithium formulations recommends divided dosing; however, in clinical practice once-daily dosing is frequently utilized to improve adherence. This study will assist in determining the optimal dosing frequency of lithium IR and lithium SA. **Objectives:** (1) Evaluate the percentage of lithium levels within therapeutic range of patients who are prescribed lithium at varying frequencies. (2) Compare the presence of adverse effects of lithium based on administration frequency and formulation, and (3) Compare the number of treatment failures in patients receiving lithium once versus two or more times daily **Methods:** This is a non-interventional, retrospective chart review evaluating the percentage of lithium levels within therapeutic range of patients who are prescribed lithium at varying frequencies. Patients will be enrolled if they have an outpatient prescription for lithium carbonate or lithium carbonate SA documented in the electronic medical record between January 1, 2016 to December 31, 2019. Patients whom only have documented lithium levels within two months of initiating therapy will be excluded. For objective (1) the number and percentage of lithium levels within therapeutic range will be reported. For objective (2) the percentage of patients whom have documented adverse effects will be reported. For objective (3) the number of treatment failures, defined as treatment discontinuation or hospital admission for psychiatric stabilization, will be reported. **Outcomes:** We will report the number and percentage of patients who have lithium levels within therapeutic range, documented adverse effects, and treatment discontinuation or hospital admission for psychiatric stabilization.

Response and Adverse Effects of Intranasal Esketamine on a Patient Cohort in a Hospital Outpatient Clinic: A Descriptive Study

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Type: Work in Progress. **Background:** Antidepressant (AD) medications are recommended as first-line treatment for the management of mild to severe depression, along with psychotherapy. Patients with no positive therapeutic response even after trying two or more AD medications are considered to have treatment-resistant depression (TRD). Ketamine is one agent that has received attention as a potential fast-acting and effective treatment for patients with major depressive disorder (MDD). The S-ketamine enantiomer has a higher affinity for the N-Methyl-D-aspartate (NMDA) receptor, and is thought to produce fewer significant psychotomimetic effects, drowsiness, lethargy, or cognitive impairment than the R-ketamine enantiomer. Intranasal (IN) S-ketamine (or esketamine) is Food and Drug Administration (FDA) approved, in conjunction with an oral antidepressant, for the treatment of TRD in adults, as well as depressive symptoms in adults with MDD with acute suicidal ideation or behavior. This medication may help to provide a unique treatment option for patients with TRD. **Objectives:** (1) Identify the number of patients who achieved a response ($\geq$50% reduction from baseline in Montgomery-Asberg Depression Rating Scale (MADRS) total score) within four weeks of treatment. (2) Identify the number of patients who achieved remission (MADRS score 12 or less) within four weeks of treatment. (3) Describe adverse effects (blood pressure increases requiring treatment, dissociation, dizziness, nausea, vomiting) of patients receiving treatment. **Methods:** This retrospective analysis will include the identification of treatment response or remission of patients receiving IN esketamine and a description of adverse effects experienced. Data to be

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collected include gender, age, race, diagnosis, psychotropic medications, time in treatment, blood pressure, side effects, and MADRS scores. Data for this study will be collected on all esketamine patients who completed at least the induction phase (four weeks of treatment) from June 1, 2019 to October 31, 2020 at a hospital-based, pharmacist-managed esketamine clinic. Descriptive statistics will be utilized to quantify treatment response and remission as well as to report adverse effects, demographic and baseline characteristics of the study enrollees. **Outcomes:** The number and percentage of participants who achieved remission or response will be reported as a function of MADRS scores. Adverse effects will be reported using descriptive statistics.

Role of Impaired Glucose Metabolism in Treatment Outcomes for Patients With Bipolar Disorder

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Type: Work in Progress. **Background:** Compared to the general population, rates of type II diabetes are three times higher in patients with bipolar affective disorder (BPAD). For patients with BPAD, previous research identified impaired glucose metabolism as a contributor to disease chronicity, poorer treatment response, cognitive impairment, and hippocampal and cortical atrophy. The results of this study will be used to determine if impaired glucose metabolism is related to increased healthcare utilization for patients with BPAD. **Objectives:** (1) Compare emergency department utilization related to exacerbations of BPAD between patients with and without impaired glucose metabolism. (2) Compare hospital readmissions related to exacerbations of BPAD between patients with and without impaired glucose metabolism, and (3) Characterize patients with increased healthcare utilization for the treatment of BPAD. **Methods:** A retrospective, observational, single-center cohort study will be performed to evaluate adult patients with BPAD discharged from an inpatient psychiatric hospital between June 1, 2014 to July 31, 2019 (estimated 1,200 patients). Demographic information, laboratory results, and hospital and emergency department encounter data will be collected from the electronic medical record. Descriptive statistics, χ^2, and Wilcoxon rank sum tests will be used to summarize patient characteristics and study objectives in those with and without impaired glucose metabolism. For objectives (1) and (2), incidence and proportion of annual emergency department visits and hospital admissions for the treatment of BPAD for patients with diabetes, prediabetes, or no diabetes will be reported. For objective (3), multivariable regression will be performed to evaluate factors associated with increased healthcare utilization. **Outcomes:** Healthcare utilization for exacerbations of BPAD as a function of diabetes status will be reported. Additionally, patient characteristics found to increase the odds of emergency department visits or hospital admissions related to BPAD will be described.

Stimulant Prescribing Management at a Large Outpatient Facility

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Type: Work in Progress. **Background:** Rates of attention-deficit/hyperactivity disorder (ADHD) in the veteran population have more than doubled in the past decade. The number of veterans diagnosed with ADHD went from 6,500 veterans in 2009 to 30,000 veterans in 2016 for a total of more than 96,000 new cases. The amount of new cases in a relatively small-time frame requires psychiatric professionals to screen and evaluate veterans with ADHD in a systematic fashion to properly diagnose and treat this disorder. Once an accurate diagnosis is made that qualifies an individual for stimulant therapy, a Clinical Pharmacist Specialist (CPS) who is trained in psychiatric care will be able to provide medication management, order lab tests, and conduct prescription drug monitoring program (PDMP) checks as clinically appropriate to decrease the responsibility placed on psychiatric providers. **Objectives:** (1) Evaluate the number of veterans prescribed stimulant medications for newly and/or accurately diagnosed ADHD versus those who do not meet diagnostic criteria. (2) Assess lab monitoring (yearly urine drug screens [UDS] and PDMP checks) to ensure appropriate use and patient safety. (3) Utilize clinical judgement to alter therapy based on objective aforementioned data and subjective patient information. **Methods:** All data will be collected from the VA's Computerized Record System (CPRS). Consults placed to the outpatient stimulant clinic will initially be assessed by a psychiatrist in order to (1) newly diagnose a patient with ADHD or (2) evaluate a patient with a historical ADHD diagnosis who was previously or currently on stimulant therapy to verify this diagnosis. From there, care will be forwarded to the CPS who will conduct regularly scheduled interviews with the patient to guide medication management (dose changes, assessing for drug-drug interactions, mitigating side effects or intolerances, ordering needed laboratory tests, and conducting PDMP checks). **Results:** We will report the number of veterans diagnosed with ADHD versus the number of veterans who were not diagnosed upon initial physician evaluation, as well as the number of veterans with UDS positive only for their prescribed stimulant medication and

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Colorado PDMP checks resulting in a fill history of their regularly known prescribed medications versus those who do not.

Survey of Non-Controlled Medication Misuse Patterns

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Type: Work in Progress. **Background:** At a large academic medical center with Psychiatry Services, patients often present after misusing medications. The abuse potential of opiates and other controlled substances is well known, however, reports of non-controlled medication misuse deserves further attention. While several studies have investigated patterns, motivations, and biochemical mechanisms underlying the abuse potential of non-controlled medications, there remains a gap in the literature surrounding the clinical significance of non-controlled medication misuse. The aim of this study is to provide data on this topic from the perspective of both the prescriber and patient at a single-center institution. **Objectives:** The primary objectives of this project are to identify prescriber perceptions of non-controlled medication misuse and evaluate patient reported patterns of misuse through survey responses. Secondary outcomes are to determine at-risk patient populations based on admitting diagnosis and co-morbid conditions and to provide education on safe prescribing of medications at risk for misuse. **Methods:** Surveys developed for patients include questions that assess type, extent, frequency, and rationale for misusing non-controlled medications while prescriber surveys include questions assessing their perceptions of misuse and prescribing habits of medications at higher risk for misuse. Adult patients admitted to psychiatry and prescribers working in psychiatry or on a general medicine service during the study timeframe are invited to participate. Surveys will be collected anonymously from November 1, 2020 to March 31, 2021. Baseline demographics will be analyzed through descriptive statistics and differences in patient and prescriber variables will be analyzed with a multivariable regression. **Outcomes:** As of December 23, 2020, 50 patient surveys and 22 prescriber surveys were collected. Patients are predominantly male with an average age of 40. Prescribers are predominantly residency trained with an average 11 years of experience. Surveys will be ongoing through the end of March and analysis completed in April. We will report on the rate of non-controlled medication misuse amongst patients and the most commonly reported non-controlled medications based on prescriber perceptions of misuse. Following the completion of the study, our research findings will be disseminated to prescribers to provide education.

The Impact of Early Initiation of Clozapine in Veterans With Psychotic Disorders on Hospitalization, Psychiatric Hospitalization, and Mortality Rate

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Type: Work in Progress. **Background:** Approximately 30% of patients with schizophrenia do not respond, or only partially respond, to standard antipsychotic treatment. This is commonly termed treatment-resistant schizophrenia (TRS), which is defined as the persistence of symptoms despite an adequate trial of at least two antipsychotics. Clozapine is a second-generation antipsychotic (SGA) agent used in the management of treatment-resistant schizophrenia, having shown significant efficacy advantages over other first- and second-generation antipsychotics. However, the use of clozapine for TRS continues to be underutilized, and there is often a long delay to clozapine initiation in clinical practice. This study assessed whether the timing of clozapine initiation in the management of treatment-resistant psychotic disorders influenced selected health service utilization measures. **Objectives:** Compare the following outcomes in patients with early versus delayed initiation of clozapine for the management of a treatment-resistant psychotic disorder: (1) the rate of psychiatric or all-cause hospitalization, (2) mortality rate, (3) time to first hospitalization, (4) hospital length of stay (LOS), and (5) time to clozapine discontinuation. **Methods:** We conducted a retrospective cohort study of patients with psychotic disorders who were initiated on clozapine between January 1, 2000 to September 30, 2018. Exclusion criteria included receipt of non-VA care, discontinuation of clozapine within three months of initial prescription, and incomplete medical record availability in the first two years after clozapine initiation. Patients were categorized into early ($\leq$ 3) versus delayed ($>$ 3) initiation groups by the number of years from diagnosis of treatment-resistant psychotic disorder to clozapine initiation. Data were extracted from our Computerized Medical Record System (CPRS). Treatment groups were compared with respect to demographics, select clinical features, and health service utilization. Demographic information was collected at the time of clozapine initiation. Measures of health service utilization, including the rate of psychiatric or all-cause hospitalization, time to the first hospitalization, LOS, and clozapine discontinuation were tabulated for the 2-year period after clozapine was initiated. Inferential statistics were performed to detect differences between the early and

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delayed treatment groups. **Results:** Work in Progress **Conclusion:** Work in Progress

The Impact of Selective Serotonin Reuptake Inhibitors (SSRIs) on Patient Violence and Aggression: A Retrospective Analysis

Carolyn O'Donnell, PharmD[1,2]; Tammie Lee Demler, PharmD, MBA, BCGP, BCPP[1,2,3]; Eileen Trigoboff, PMHCNS-BC, DNS, DABFN[3]

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Type: Work in Progress. **Background:** Violence associated with selective serotonin reuptake inhibitor (SSRIs) use has been a recognized adverse reaction since the FDA issued a public health advisory in 2003 regarding SSRI medications with increased risk of suicidality. In 2004, the FDA followed this advisory with a boxed warning for all antidepressants for children and adolescents, which was expanded in 2007 to include adults up to 24-years-old. The increased risk of suicidality is believed to occur due to an activating effect when the patient is initiating therapy. Recent evidence has suggested an increased risk in adults older than 24 years in suicidality and violence towards others for up to twelve weeks after the SSRI is discontinued. Due to concerns of these adverse events, patients may decline or resist antidepressant therapy and prescribers may be hesitant to prescribe antidepressants, leading to a greater risk of suicide in patients not appropriately treated for depression. **Objectives:** The objective of this study is to evaluate if the use of SSRIs increases the incidence of agitation and aggressive behavior in an inpatient psychiatric population. **Methods:** Using a retrospective analysis of patients at a state inpatient psychiatric facility between January 1, 2013 to December 31, 2020, we identified 65 adults who had taken at least one SSRI during their inpatient stay. Subjects serve as their own control over an equivalent time period without an SSRI to function as a self-comparator. We will analyze the number of psychiatric emergencies, restraints and seclusions, as needed (PRN) and emergency medications taken for agitation, anxiety, paranoia, psychosis, or depression, and nicotine used as evidence of a possible stress-response that may have led to aggression. Statistical significance for each of the measures will be determined by a P-value $< .05$. **Outcomes:** We will identify the impact of SSRIs on aggression and violence by comparing the timeframes with and without an SSRI and the number of psychiatric emergencies, restraints and seclusions, PRN medication use, STAT medication use, and nicotine use in each respective period. The IRB approved and data analysis will be completed by February 28, 2021.

The Impact of Social Restrictions During COVID-19 on the Use of As-Needed/One-Time (PRN/OT) Psychotropic Medications in an Inpatient State Psychiatric Hospital

Amanda L. Palmieri[1]; Jose A. Rey, PharmD, BCPP[1,2]

[1] Nova Southeastern University, Fort Lauderdale, FL; [2] South Florida State Hospital, Pembroke Pines, FL

Type: Work in Progress. **Background:** Social interactions are necessary for psychological and physical health and well-being in the human population. There is a known connection between social relationships and cognitive development throughout adolescence and adulthood. Social isolation is known to be a key trigger for mental illness. Forced quarantines and nationwide lockdowns due to a pandemic have the ability to cause acute panic, anxiety, paranoia, and depression in many accustomed to social interaction. **Objectives:** To illustrate that social restrictions due to the COVID-19 pandemic have had a negative psychosocial impact on inpatients of our psychiatric hospital leading to a higher number of aggressive/psychotic outbreaks in the units requiring an increase in the administration of as-needed/one-time (PRN/OT) psychotropic medications. **Methods:** This single centered, retrospective analysis will analyze trends in the number of PRN/OT psychotropic medications administered 6 months before the hospital placed COVID-19 restrictions on visitors and 6 months after these restrictions took place to see if there is an increased use of PRN/OT psychotropics due to the possibility of negative psychosocial impacts. We will analyze two groups: Patients who received documented visitors in the 6-month period before lockdown, and patients who have never received documented visitors in the 6-month period before lockdown. **Outcomes:** We will report the percentage of PRN/OT psychotropic medications administered 6 months prior to hospital visitor restrictions and 6 months after in the two subgroups of patients.

The Systematic Analysis of Psychiatric Outcomes in Patients Converted From 1-Month to 3-Month Paliperidone Palmitate Long-Acting Injections

Laura Louie, PharmD; Karrie Squires, PharmD, BCPS, BCPP

North Florida/South Georgia Veteran's Health System, Gainesville, FL

Type: Work in Progress. **Background:** Paliperidone palmitate 3-month formulation (PP3M) provides a sustained release long-acting injectable (LAI) atypical antipsychotic option for patients who have tolerated at least four effective doses of the shorter-acting 1-month formulation (PP1M) of this medication. Benefits of this longer-acting formulation include improved adherence,

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lower rates of relapse, and reductions in hospitalizations when used as directed. Improvements in the aforementioned outcomes may lead to an ultimate decrease in economic burden and increased cost-effectiveness per month per patient when switched to LAIs. **Objective:** To assess psychiatric outcomes including adherence to LAI, adverse effects, rates of relapse, and hospitalizations in patients who were initiated on paliperidone palmitate 3-month formulations within the North Florida/South Georgia Veteran's Health System. **Methods:** Patients who received at least four doses of PP1M prior to initiation of PP3M and at least one dose of PP3M between January 12, 2020 to January 12, 2021 were included in the analysis. Variables collected by chart review included name, age, race, PP3M initiation date, indication, reason for conversion, injection dates and doses given, number of missed doses, psychiatric hospitalizations post-conversion, reported efficacy, adverse drug reactions, concurrent anti-psychotic medications, and if patients belonged to either assisted living facilities (ALFs) or Mental Health Intensive Case Management (MHICM) Clinics. Doses will be considered 'missed/late' if not administered within 2 weeks of scheduled administration. Patients are considered non-adherent if a subsequent dose was administered within greater than four months since previous dose. **Outcomes:** We will report the number and percentages of subjects with worsened/improved adherence, hospitalizations, and efficacy in patients converted from PP1M to PP3M as a function of demographic characteristics, MHICM/ALF enrollment, dual anti-psychotic treatment, and indication for conversion to PP3M.

Transitioning From Oral Aripiprazole to Depot Injection: Clinical Questions Answered

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Type: Work in Progress. **Background:** Antipsychotics are used for a wide variety of mental health conditions. Many of these antipsychotics are available as a long acting injection (LAI) that allow for dosing in intervals spanning anywhere from 2 weeks to 3 months. It is critical to establish tolerability with oral agents prior to initiation of LAI therapy to minimize risk of inducing adverse reactions that may persist throughout the duration of the injection. The duration of oral aripiprazole trial prior to transitioning to the LAI is not well established, whereas other LAIs of the same medication class have well-defined guidance. Current gaps in the literature raise concern for compromised patient safety and may contribute to decreased efficacy, increased adverse effects, and increased health care spending. **Objectives:** The primary objective of this study is to assess if the safety and tolerability of aripiprazole is adequately being established prior to transitioning to aripiprazole monohydrate, a long acting injectable (LAI) formulation. This study will also evaluate the efficacy of aripiprazole LAI, dose and duration of oral therapy prior to LAI initiation, and completion of 14-day oral overlap. **Methods:** The study will be a retrospective, observational analysis of veterans age 18 and older initiated on aripiprazole LAI from January 1, 2016 to June 30, 2020. An electronic chart review will be employed to analyze rates of adverse effects, incidence of therapeutic failure, and duration of oral aripiprazole prior to initiation of LAI. Baseline data including age, sex, race, DSM-5 diagnoses, indication for use, and comorbid medical conditions will also be collected. Descriptive statistics will be used for baseline characteristics, adverse events, time to variable, and hospital admissions. **Outcomes:** We will report on significant trends discovered through evaluation of collected data to include duration of oral aripiprazole therapy preceding LAI administration as well as any pertinent correlation to treatment outcomes and adverse drug reactions. The implications of this study may provide evidence for the establishment of standard operating procedures for the initiation of aripiprazole with the ultimate goal of transitioning to its LAI formulation.

Trends in the Prescribing Patterns of Long-Acting Injectable Antipsychotics Within a Psychiatric Community Health System

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Type: Work in Progress. **Background:** Long acting injectable antipsychotics (LAIAs) are routinely utilized in therapy regimens to increase medication compliance in behavioral health populations. The selection of a LAIAs first-generation antipsychotic (FGA) or second-generation antipsychotic (SGA) may depend on numerous patient factors. In regards to dosing strategies of LAIAs, there are concise dosing strategies included in the package inserts of SGAs; however, the strategies vary for FGAs. Identifying variations in LAIAs prescribing can improve and optimize health outcomes and patient safety. **Objectives:** The primary objective is to evaluate the variations in prescribing patterns of FGAs and SGAs LAIAs and oral overlap strategies among physicians. Secondary objectives include determining whether patient demographics, socioeconomic status, length of hospital stay, and readmission rates among FGAs and SGAs are associated with a chosen LAIA regimen. **Methods:** This study has been approved by a community hospital's Institutional Review Board. Patients will be included in the study if they are older than 18-years-of-age and prescribed a LAIAs between August 1, 2015 and August 1, 2020 by a

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psychiatric specialty provider practicing within the health system. The LAIAs included in the study are the first-generation haloperidol decanoate and fluphenazine decanoate, and the second-generation paliperidone palmitate monthly and aripiprazole monohydrate. Patients not prescribed one of the above LAIAs will be excluded. Patient demographics, psychiatric diagnosis, living status, admission floor, legal commitments, LAIA dose, oral bridging therapy strategy, previous antipsychotic trials, adverse drug reactions, length of stay, and 90-day readmission rates will be collected. For the primary objective, the number of variations in dosing strategies will be reported. For secondary objectives, regression models will identify patient factors associated with choice of first or second-generation LAIAs. **Outcomes:** This study will describe the varying dosing strategies of first and second-generation LAIAs, as well as trends that may predict choice of LAIA.

Use of Vitamin C, Vitamin D, Zinc, and Melatonin as Synergistic Adjuvant Therapy in Patients With COVID-19 Infection at a Psychiatric Hospital: A Retrospective Study

Huy Pham, PharmD, CPh; Jose Rey, PharmD, MS, BCPP

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Type: Work in Progress. **Purpose:** Recent studies have shown that patients with vitamin D deficiency are at increased risk for COVID-19 infection. Both vitamin C and Zinc are essential for immune-cell function and have been used experimentally with some success in patients with COVID-19 infection. Although melatonin is commonly used for insomnia, studies have shown that it can be used as adjuvant therapy for COVID-19 due to its anti-inflammatory effect. The objective of this study is to examine whether this supplemental combination is associated with decreased duration of illness of COVID-19 infection in patients with comorbid psychiatric disorders. **Method:** This retrospective cohort study at a state psychiatric hospital included patients 18-years or older who were found positive for SARS-COV-2 by use of a real-time reverse transcription polymerase chain reaction (RT-PCR) test approved by the FDA for EUA after routine nasopharyngeal swab done for all patients at the institution. Data were obtained for all patients tested for COVID-19 from April 1, 2020 to September 15, 2020. De-identified EHR data for demographic, psychiatric and medical comorbidity, laboratory values, and medication data within 2 months before the date of their first COVID-19 positive result and 1 month after the date of their second COVID-19 negative result were recorded. Of the 81 patients in three separate psychiatric units tested positive for COVID-19, patients in one unit received the cocktail of vitamin C 500mg twice daily, vitamin D3 5,000 Units daily, Zinc chelated 50mg twice daily, and melatonin 3mg daily and patients in the other two units may receive one component of the cocktails due to different psychiatrists' decisions on the most effective way to treat COVID-19 infection. The primary endpoint was the average duration of COVID-19 illness in patients receiving the supplemental cocktail compared to the patients who did not. The secondary outcome was the average change in Brief Psychiatric Rating Score 1-month post recovery in the two groups. The data will be analyzed using Survival Analysis (Time-to event analysis) statistics. **Outcomes:** Data analyses and results are pending. **Conclusions:** Conclusions and clinical implications are pending.

Utilizing MHFA-Trained Student Pharmacists to Conduct Depression Screenings

Argelia Goodner, PharmD; Suzanne Harris, PharmD, BCPP; Raisa El-Kurdi, PharmD, CPP; Miranda Haislip; Alexis Shook, BA; Macary Marciniak, PharmD, BCACP, BCPS, FAPhA

University of North Carolina Eshelman School of Pharmacy, Chapel Hill, NC

Type: Work in Progress. **Previously Presented:** Anticipated: APhA 2021 Virtual Annual Meeting and Exposition, March 12 to 15, 2021. **Background:** During the COVID-19 pandemic, access to mental health resources has become increasingly important as many Americans are experiencing new or worsening depressive symptoms during a shortage of mental health providers. The United States Preventative Services Task Force found depression screening improves accurate identification of depression in adult patients with negligible to zero harm. Prior studies demonstrate depression screenings, such as the Patient Health Questionnaire-9 (PHQ-9), in community pharmacies are viable; however, research is lacking surrounding student pharmacists' ability to conduct such screenings. **Objectives:** Utilize Mental Health First Aid (MHFA)-trained final-year student pharmacists to conduct depression screenings using the PHQ-9 in community-based pharmacy settings. **Methods:** This prospective study will be conducted at community-based pharmacies that serve as experiential training sites for student pharmacists who already completed MHFA training, which is focused on identifying, understanding, and responding to mental health issues and crises. Participation is voluntary. Following training by the research team, student pharmacists, under preceptor supervision, will lead depression screening implementation at the assigned experiential site. A convenience sample of patients age 18-years or older presenting to the pharmacy for any vaccination will be invited for screening. The MHFA-trained student pharmacists will administer and score the PHQ-9 and provide mental health resources and/or referral to a provider using a tiered approach. Data collected will

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include patient demographics, depression screening score, provided recommendations, and patient and student pharmacist perceptions to assess the usefulness of screening and student self-efficacy and preparedness to conduct screenings, respectively. Data will be de-identified for analysis and evaluation will be completed using descriptive statistics. **Outcomes:** This project aims to demonstrate the capability and willingness of MHFA-trained student pharmacists to conduct depression screenings in community-based settings with the goal of improving care for patients, including referring those in need of additional resources. Additionally, this experience may provide an opportunity for students to become more confident in addressing mental health concerns.

Innovative Practices Abstracts

A Pharmacist-Developed Algorithm to Improve UTI Antibiotic Appropriateness at an Inpatient Psychiatric Hospital

Andrew Williams, PharmD, BCPP, BCGP[1,2,3,4,5,6]; Mohammad Adam Hamad, PharmD[7]; Niyati Butala, PharmD BCPP[1]; Jamie Kneebusch, PharmD, BCPS[1,3]

[1] Riverside University Health System Medical Center, Moreno Valley, CA; [2] University of California Riverside School of Medicine, Riverside, CA; [3] University of the Pacific Thomas J. Long School of Pharmacy, Stockton, CA; [4] University of Southern California School of Pharmacy, Los Angeles, CA; [5] Loma Linda University School of Pharmacy, Loma Linda, CA; [6] Keck Graduate Institute School of Pharmacy, Claremont, CA; [7] University of California San Francisco Medical Center, San Francisco, CA

Type: Innovative Practices. **Background:** Urinary tract infections (UTI) are one of the most common indications for antibiotic use. Patients with acute psychosis, schizophrenia, and other psychiatric disorders have a greater risk of UTI. Appropriate antibiotic use is important to reduce morbidity, adverse drug reactions, and the risk of selecting for drug-resistant organisms. While there is little guidance on how to best manage antibiotic therapy in psychiatric hospitals, studies show including a pharmacist on antimicrobial stewardship improves cure rates, antimicrobial agent selection, and dose appropriateness. This study took place in a stand-alone psychiatric campus, with a pharmacy department staffed solely by psychiatric pharmacists. **Description of Innovative Service:** A UTI treatment algorithm was developed in collaboration between psychiatric pharmacy and infectious disease team in an effort to assist internal medicine and psychiatric providers at the psychiatric campus. The algorithm was created to model after outpatient management of UTI, given the lack of intravenous drugs available at this particular campus. The algorithm was presented at various medicine department meetings and approved by the system wide Pharmacy and Therapeutics Committee. The algorithm is divided by type of infection and provides key symptoms to assess in patients and first-, second-, and third-line treatment options. Education conducted by psychiatric pharmacists. Psychiatric pharmacists track all admitted patients receiving antibiotic therapy and assess appropriateness of medication for appropriate empiric selection, culture-sensitivity match, and patient adherence to regimen. Monitoring also includes interviewing patients to assist in detecting and tracking UTI symptoms. **Impact on Patient Care:** Six months following the implication of this algorithm and proactive intervention, antibiotic appropriateness improved from 33% appropriate to 69% appropriate, a greater than two-fold improvement. In particular, there was an increase in patients receiving culture-driven therapy, a decrease in non-indicated antibiotics, and increase in completion of appropriate regimen doses and durations. **Conclusion:** Psychiatric pharmacists contribute to improved management of UTI in patients with mental illness at an inpatient psychiatric hospital.

Addition of a Clinical Pharmacy Specialist to an Inpatient Addiction Triage Team and Related Medication Outcomes

Kimberly Ehrhard, PharmD; Michelle Colvard, PharmD, BCPP

VA Tennessee Valley Healthcare System, Nashville, TN

Type: Innovative Practices. **Background:** At VA Tennessee Valley Healthcare System (TVHS), an inpatient addiction triage team is available via consult for patients with substance use disorders to provide recommendations for appropriate level of addiction care, education, and initiation of medication treatment for opioid use disorder (MOUD) and alcohol use disorder (MAUD), as indicated. Previously, this team had involvement of addiction therapists and clinical psychologists, however, a prescriber was not imbedded as a core team member to assist with needs related to MOUD/MAUD. A clinical pharmacy specialist (CPS) joined the team in August 2018 to serve as the primary medication prescriber. The goal of this review is to evaluate the impact of this innovative practice on related medication outcomes. **Objectives:** The primary objective is to evaluate the impact of adding a CPS to an inpatient addiction triage team on MOUD/MAUD initiation and retention rates for patients with alcohol use disorder and/or opioid use disorder. Secondary objectives include impact on emergency department visit rates and readmission rates, opioid education and naloxone distribution (OEND) interventions, and characterization of additional pharmacist interventions. **Methods:** This single center, retrospective review of Veterans admitted to acute medicine or surgical floors at TVHS (Nashville campus) will compare a 12-month period before and after the addition of a CPS to the inpatient addiction triage team from August 1, 2018 to August 1, 2020. Patients were included if identified through proactive dashboard iden-

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tification for signs of active substance use (alcohol and/or opioid) by the team CPS or an addiction consult was placed by the primary team during admission for active signs of substance use. Patients will be excluded from primary outcome analysis if consulted for substance use not including alcohol and/or opioid use, were unable to be interviewed during inpatient stay due to acute illness or altered mental status, or requiring palliative/hospice care **Outcomes:** Primary and secondary outcomes for this review will include comparison of MAUD/MOUD initiation rates, 1- and 3-month combined MOUD/MAUD retention rates, 1- and 3-month emergency department visit rates, and 1- and 3-month hospital readmission rates before and after the addition of a CPS to the inpatient addiction triage team.

Adjusting Long Acting Injectable Antipsychotic Regimens to Reduce Patient and Clinician Risk During the COVID-19 Pandemic

Hannah Rabon, PharmD, BCPS
W. G. (Bill) Hefner VA Medical Center, Salisbury, NC

Type: Innovative Practices. **Background:** Patients requiring antipsychotic treatment often demonstrate reduced adherence to medications, with non-adherence rates reaching 75%. As low adherence can reduce treatment success, patients are often prescribed long acting injectable antipsychotics (LAIAs) rather than oral medications. Patients prescribed LAIAs are usually required to visit a clinic to receive their injection. During the COVID-19 pandemic, clinicians and patients became concerned that regular clinic visits would increase the risk of spreading COVID-19. To reduce this risk, the psychiatric clinical pharmacist implemented a plan to review and adjust LAIA regimens to reduce visit frequency while maintaining patient stability. **Description of Innovative Service:** The interdisciplinary mental health team determined which patients were appropriate to switch to an oral medication or a LAIA with a longer dosing interval. The pharmacist contacted each eligible patient to provide education, obtain patient approval, and implement the plan. During follow up, patients were switched back to their previous regimen if they showed signs of instability. **Impact on Patient Care:** Out of 33 patients prescribed LAIAs, fourteen patients either declined a regimen change or were determined to be ineligible to make a change. Ten patients were switched to an oral formulation. Nine patients receiving a LAIA with a four-week dosing interval were switched to an agent with a 12-week dosing interval. Approximately eight months after implementation of this initiative, the only patients requiring their previous regimen to be restarted were three patients who had been switched to oral medication. No patients had documentation of a positive COVID-19 test. **Conclusion:** During the COVID-19 pandemic, in-person clinic visits for LAIA administration pose a risk to patients and providers. Changing to oral formulations or to a LAIA with a longer dosing interval could reduce this risk. Since the beginning of the pandemic, there has been little published data on the safety and efficacy of this approach. The low rate of patients restarting their previous regimens in this group demonstrates that adjusting regimens can be efficacious and safe when providers carefully consider each patient's suitability.

Antipsychotic Use at a Skilled Nursing Facility

Victoria Hunt, PharmD Candidate[1]; Annmarie Vallomthail, PharmD Candidate[1]; Misha T. Watts, PharmD[1,2]
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Type: Innovative Practices. **Background:** Skilled nursing facilities (SNF) are mandated to follow regulations set by the Centers for Medicare and Medicaid Services (CMS) to manage psychotropic medications properly. Pharmacists perform the Medication Regimen Review (MRR) by reviewing patients' medical records to document irregularities and identify clinically significant risks and/or actual or potential adverse events. Geriatric patients have a higher incidence of psychiatric conditions due to physiologic changes and social constraints. They are exposed to many healthcare providers and medications, thus blurring the line between medications and their indications and could increase the likelihood of adverse effects. Pharmacists have the opportunity to ensure proper medication use and documentation of indications in this setting. **Description of Service:** The review of patients' medication profiles took place in a SNF located within a health system from January 1, 2019 to June 30, 2020. The documenting pharmacist was dually employed as a faculty member in the college of pharmacy and as the pharmacist responsible for the MMR. Consulting services identified drug, indication, dose, and route on all medications, with a focus on psychotropics. This review focused on the prescribing and documentation patterns of antipsychotic medications to justify the implementation of a mandatory field for indication during order entry. **Impact on Patient Care:** During this time period, the pharmacist performed consulting services for 154 patients. From the total number of patients, 22% of patients had an order for an antipsychotic medication. Of the patients with antipsychotic orders, 85.3% did not have a documented FDA-approved indication before clarification by the pharmacist. Of the 154 patients, 11% had a clear diagnosis of dementia, and of those with dementia, 23.5% had an antipsychotic prescribed. **Conclusion:** Pharmacists who perform the MMR encounter many opportunities to clarify the proper use of psychotropics and FDA approved

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diagnoses documentation. A majority of the time spent investigating is exhausted on contacting prescribers for clarification. Implementation of a mandatory field for drug indication during order entry shows the potential to improve patient care by ensuring proper drug utilization of antipsychotics and decreased adverse events.

Collaborative Advocacy Between Student CPNP and APhA-ASP Chapters for MFHA Inclusion Across All PharmD Curricula

Lara Nasser; Richard Silvia, PharmD, BCPP
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Type: Innovative Practices. **Background:** Many healthcare programs in the United States have incorporated Mental Health First Aid (MFHA) to encourage future practitioners to identify, understand, and respond to signs of mental illnesses and substance use disorders. As rates of mental illness and substance abuse in the country continue to rise, the need for health care providers to be trained to intervene in these concerns in any setting without any stigma towards these patients is crucial. Although some pharmacy schools have incorporated this program, there is currently no requirement for schools to include MHFA in the curriculum. **Description of Innovative Service:** Students from our school's College of Psychiatric and Neurologic Pharmacists (CPNP) and American Pharmacists Association's Academy of Students in Pharmacy (APhA-ASP) chapters in collaboration with the AphA-ASP chapters of two local pharmacy schools drafted a proposal to AphA-ASP's National Policy Standing Committee to amend the current resolution (2017.3 -Efforts to Reduce Mental Health Stigma) to include "encouraging the establishment of MHFA training as a pre-requisite to rotations by incorporating such training into the didactic pharmacy curriculum." Benefits, cost, and implementation plans, and impact of training were included in the proposal. Recognition of this amendment at the national level is pending approval, however, there was no opposition during national policy meetings. Once the APhA-ASP Board of Trustees approves the resolution, it becomes adopted policy of the academy, representing the collective voice of student pharmacists. **Impact on Patient Care:** The specificity of the language used in the amendment will include MFHA, which has been successfully implemented in universities, police departments, and healthcare systems across the United States. Studies show that MHFA training can reduce mental health stigma of pharmacy students, increase confidence in assisting patients living with mental illness, and improve recognition of mental disorders. This training will prepare pharmacy students to assist their colleagues and to work with their future patients as practitioners. **Conclusion:** Collaborative student organization efforts have aided conversation on a national level to encourage MFHA implementation across other schools of pharmacy. If mandated, this training will expand PharmD students' clinical skills and combat the stigma attributed to mental health and substance abuse seen among healthcare practitioners.

Evaluation of Buprenorphine for Medication Opioid Use Disorder in the Emergency Department

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Type: Innovative Practices. **Background/Rationale:** Opioid use disorder (OUD) is a nationwide public health crisis. Increasingly, patients present to the emergency department (ED) in need of opioid withdrawal management. Strategies to treat withdrawal symptoms vary, and buprenorphine, a partial opioid agonist, has emerged as a first-line agent to treat cravings and withdrawal. Studies evaluating buprenorphine for withdrawal in the ED setting have demonstrated shortened ED lengths of stay and improved continuity of care in this vulnerable population. The University of Cincinnati (UC) Health implemented a buprenorphine for OUD in the ED protocol and evaluated outcomes. **Description of Innovative Service:** The buprenorphine for OUD in the ED protocol was implemented in 2017. Patients at risk for opioid withdrawal are assessed for baseline Clinical Opiate Withdrawal Scale (COWS) score. Patients with baseline COWS score of $\geq$ 8 are treated with buprenorphine 4-8 mg. A starting dose of 8 mg is given when baseline COWS scores $\geq$ 13. The COWS scores are reassessed at 45-60 minutes and patients are re-dosed until a COWS $<$ 8 is achieved. When reassessment COWS scores are $<$ 8, the patient is discharged, if appropriate, with a naloxone prescription and buprenorphine-naloxone bridging therapy when necessary. Referrals are made for outpatient treatment. Providers can administer buprenorphine for up to 3 consecutive days while establishing outpatient treatment. **Impact on Patient Care/Institution:** From June to December 2019, we evaluated 66 patients stratified into two groups based on initial buprenorphine dose: 4 mg (n = 21); 8 mg (n = 45). Baseline COWS score were similar between groups [4 mg: 10 (IQR: 8.5-14.5); 8 mg: 12.5 (IQR: 9-16.5), P = .34]. Thirty-one patients (47%) had documented reassessment COWS; a similar mean reduction in COWS score was observed regardless of initial dose [4 mg: -7 (IQR: 2-10); 8 mg: -9 (IQR: 3.2-11.8); P = .44]. The 4 mg group demonstrated a longer ED length of stay [4.8 hours (IQR: 3.5-6.3) versus 3.9 hours (IQR: 2.3-6.9); P = .328]. Of the 66 patients evaluated, 16 (24.2%) received a naloxone

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prescription at discharge. No adverse events attributed to buprenorphine were reported. **Conclusion:** Utilization of a higher starting buprenorphine dose of 8 mg was well-tolerated and associated with a reduction in ED length of stay.

Expanding Access to Naloxone With Student Pharmacists and Academic Detailing

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Type: Innovative Practices. **Background:** Identifying and educating at-risk patients is a known barrier for pharmacists dispensing naloxone. With the rise of opioid-related deaths during the COVID-19 pandemic, there is an even greater need to address barriers and improve pharmacist knowledge on naloxone and opioid overdose education. Training student pharmacists on academic detailing (AD) principles and opioid overdose education during pharmacy school rotations is an innovative approach to overcome barriers and expand access to naloxone. **Description of Innovative Service:** The service took place at two colleges of pharmacy in South Carolina (SC) with first, second, and third year student pharmacists. Students attended two virtual training sessions hosted by academic detailers and clinical pharmacists. Session one (one hour) focused on upskilling students on AD principles, naloxone, opioid overdose education, and oriented students to the supporting print materials. Session two (two hours) focused on addressing destigmatizing language and round-robin style AD practice sessions that included both student and pharmacist feedback for each student. Prior to session two, students were required to review an example AD visit video and select readings. After the training, the student pharmacists were required to meet with their preceptor (or pharmacist at rotation site) and utilize AD principles and materials to have a conversation about naloxone and opioid overdose education. They were also asked to complete an anonymous survey. The preceptors were offered continuing education and were given the printed support materials as a continued naloxone resource. **Impact on Patient Care:** Ninety-one student pharmacists met with 86 pharmacists and 80 students completed the post-visit survey. Students indicated that as a result of the visit they believed: almost one-fourth of pharmacists would start to dispense naloxone without a prescription under the SC Overdose Prevention Act (n = 19, 24%), close to half would begin to provide opioid overdose education to patients (n = 35, 45%), and one-third would now demonstrate how to properly use naloxone (n = 26, 33%). **Conclusion:** Student pharmacist-led AD visits allow for one-on-one, meaningful conversations on naloxone and opioid overdose education to occur. These visits can lead to reduced stigma and barriers for pharmacists and promote expanded access to naloxone for patients and caregivers.

Implementation of Pharmacy Services in Achieving Optimized Compliance to IPFQR Tobacco Use Measures

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Type: Innovative Practices. **Background:** The Inpatient Psychiatric Facility Quality Reporting (IPFQR) Program is a pay-for-reporting program that can affect CMS reimbursement to psychiatric facilities. The outcomes measured in IPFQR aim to improve the quality of psychiatric care by focusing on recommended treatments and services known to get the best results for those with mental health and substance abuse conditions. Tobacco use is common in the psychiatric patient population and can lead to higher acuity of medical comorbidities and psychiatric drug interactions, thus smoking cessation is one area targeted in these measures. **Description of Innovative Service:** Pharmacist services were incorporated into psychiatric unit compliance with IPFQR tobacco use measures in two phases. In October 2017, a collaborative therapeutic procedure was approved by the institution's P&T and Medical Executive Committees. This protocol allowed inpatient pharmacists to dose and order nicotine replacement therapy (NRT) both during admission and on discharge based on the social history collected by nursing staff during patient admission. To further improve compliance to IPFQR indicators, a Best Practice Advisory (BPA) was created in the institution's electronic health record software to notify pharmacy staff when applicable patients did not receive NRT. Implemented workflow then prompted pharmacists to ensure proper procedure had been followed and NRT was available to patient as well as document patient refusal or medical contraindications to nicotine products if applicable. **Impact on Patient Care:** As of October 28, 2020, nearly all IPFQR measures related to tobacco cessation have incrementally improved within the institution's reported compliance rates with each new pharmacy workflow implementation. Offering or documented refusal of NRT during admission increased 66% (year-to-date (YTD) 2018) to 84%, patient acceptance of NRTs during admission rose increased 31% (YTD 2018) to 50%, offering or documented refusal of NRT on discharge increased 70% (YTD 2018) to 72%, and acceptance of NRT on discharge remained at 15% between comparator years. **Conclusion:** Psychiatric pharmacists have the opportunity to help inpatient facilities optimize compliance to reimbursement

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programs while also improving patient care. This workflow allowed pharmacists at this institution to further integrate into the psychiatric patient care team and remain valuable assets to improving patient outcomes.

Implementation of Therapeutic Drug Monitoring in Patients on Dual Second Generation Antipsychotics in a Correctional Setting

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Type: Innovative Practices. **Background:** To overcome poor response rates to antipsychotic therapy, clinicians often use antipsychotics at higher doses than recommended or initiate a second antipsychotic in hopes of achieving better symptom control. Evidence for enhanced efficacy with combination second generation antipsychotic (SGA) therapy is poor and may cause greater harm than standard-dose monotherapy. National regulatory bodies require providers to document appropriate justification when patients are discharged from an inpatient psychiatric setting on multiple antipsychotics. However, this type of oversight is not common in correctional settings. A strategy that may prove useful in these patients is therapeutic drug monitoring (TDM), which allows clinicians to identify the lowest effective dose, thereby preventing unnecessary adverse effects and allowing better individualization of treatment. **Description of Innovative Service:** Reports of all correctional patients prescribed more than one SGA were pulled to identify potential candidates for TDM clinic during the period of July 2020 to January 2021. Patients were excluded if one of the SGAs had been discontinued already, if there was documentation of a reasonable alternative use for dual SGAs, or if they refused labs. After enrollment, serum levels of SGAs were collected and the clinical pharmacist conducted visits with patients to assess efficacy and side effects. Basic safety lab monitoring was also collected. Using serum drug levels and the pharmacist's clinical evaluation of the patient, adjustments to the antipsychotic regimen were made. Patients were followed in TDM clinic until their release from jail or optimization of their antipsychotic regimen, at which time they were discharged from clinic to the care of their psychiatric provider. **Impact on Patient Care:** Preliminary results from TDM clinic patients indicate a high success rate of simplification to a single antipsychotic. In several cases this involved switching to clozapine, which is known to be more effective for treatment-refractory schizophrenia. This involves additional laboratory monitoring but hopefully better symptom control. Follow-up data is still being collected. **Conclusion:** TDM is an innovative way to support clinical recommendations to streamline antipsychotic regimens. Implementing this practice in settings where multiple SGAs are frequently used can assist in reducing side effect burden and improving symptoms.

Pharmacist Initiated Medication Reconciliation

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Type: Innovative Practices. **Background:** According to the World Health Organization, transitions in care are frequently associated with medication discrepancies and errors. Admission medication reconciliation is challenging in psychiatric patients since an acutely ill psychiatric patient is unlikely to provide an accurate medication history. Opportunities exist for pharmacists to obtain medication history and assist in medication reconciliation. **Description of Innovative Service:** The Medication Reconciliation Service was initiated in the fall of 2019 at a state psychiatric hospital. Patients admitted to this hospital have been in a correctional facility for several days to weeks or are admitted directly from the community. Beginning September 15, 2019, pharmacists were given electronic access to the patients' available medical records prior to admission. Once admission to the hospital was scheduled, a pharmacist would review the medical records, including medication administration records (MAR) from the correctional facility, as well as the records from the community program and document the medication history on the Medication Reconciliation Log (MRL). The medication history includes the frequency of dose refusals as well as the date of the last dose of any long-acting injections. Consultative comments such as formulary alternatives or equivalents are included. The MRL is then reviewed by the psychiatrist and filed in the medical record. **Impact on Patient Care:** A pharmacist initiated MRLs on 204 patients admitted to a state psychiatric hospital between September 15, 2019 to July 31, 2020. Review of the MAR from the facility and/or program the patient is coming from allowed adherence to be included on the MRL as this is a critical factor to consider when assessing response to pharmacotherapy. In addition, by pharmacists completing the MRL, medications not routinely stocked were ordered in anticipation of the patient's admission, such as Human Immunodeficiency Virus (HIV) medications and anticonvulsants, where a lapse in therapy would be detrimental to the care of the patient. Medication errors were discovered with critical medications such as insulin and levothyroxine. **Conclusion:** Pharmacists have an important role in the medication reconciliation process in acutely ill psychiatric

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patients. Incorporating pharmacists into the process provides a valuable service optimizing patient care.

Prospective Pilot Study on the Clinical and Financial Outcomes of Expanding Clinical Pharmacy Services at an Inpatient Behavioral Health Center

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Type: Innovative Practices. **Background:** Clinical pharmacists have a great potential to benefit patients, particularly in the field of psychiatry. It has been shown that 60% of patients with schizophrenia will discontinue medication within 90 days of initiation. A 2019 study found that antipsychotic polypharmacy occurred in over a third of patients and notes the link between polypharmacy and increased adverse effects. Numerous studies have shown the ways in which psychiatric pharmacy services can be beneficial to hospitals and to patients alike. Studies have shown that significant cost savings can be achieved by clinical pharmacy interventions, particularly interventions focused on reductions in medication administration errors, medication adjustments, adherence education, and reducing polypharmacy. **Objective:** To determine the clinical and financial benefit of expanding clinical pharmacy services at an inpatient behavioral health center. **Description of Innovative Practice:** Clinical psychiatric pharmacy services were expanded for a period of one month. All interventions were documented and assigned a financial reimbursement. Physicians, nurses, social workers, and nurse practitioners were surveyed before and after the pilot period to assess perceptions of pharmacy services. **Impact on Patient Care:** Ninety-eight interventions were attempted over the study period. Of these interventions, order clarification (22.4%), optimize formulation (20.4%) and antimicrobial stewardship (13.3%) were the most common intervention types. Eighty-nine (90.8%) of attempted interventions were accepted while 9 (9.2%) fell into either the "not accepted" or "corrected prior to contact" categories. **Conclusion:** Psychiatric pharmacy clinical interventions are largely accepted, impressions of clinical pharmacists improve as services expand, and annually, interventions showed a $188,940 combined cost avoidance and cost savings.

Vitamin D Monitoring and Supplementation in Psychiatric Inpatients During the COVID-19 Pandemic

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Type: Innovative Practices. **Background:** New data shows vitamin D deficiency increases the chance of having severe disease if infected with SARS-CoV-2. African American patients are at increased risk, as well as patients with increased body weight, those residing in nursing homes, and hospitalized patients. Psychiatric inpatients are at particular risk due to low sunlight exposure. Over 90% of patients admitted to our state psychiatric hospital come from correctional facilities, also a risk factor for vitamin D deficiency. Vitamin D has many roles in supporting the innate and adaptive immune system including antiviral mechanisms. As cases of SARS-CoV-2 infection continue to rise, monitoring vitamin D levels and supplementation is an important intervention to increase positive outcomes in high-risk psychiatric patients. **Description of Innovative Service:** Patients admitted to a 220-bed state psychiatric hospital had 25-hydroxyvitamin D (25(OH)D) levels drawn upon admission. All 25(OH)D levels were reviewed by a pharmacist and the physician was contacted to initiate vitamin D supplementation if a level returned below 30 ng/mL. A spreadsheet was developed to track vitamin D therapy, 25(OH)D baseline and follow-up levels as well as interventions. Communication was also provided recommending follow-up levels and cessation of therapy when appropriate. **Impact on Patient Care:** Treatment of vitamin D deficiency increased approximately 200% following the implementation of this service. Six months preceding the start of this service, 14 patients were treated for vitamin D deficiency with weekly ergocalciferol 50,000 international units. During the six months following implementation of this service, 41 patients were identified as vitamin D deficient and prescribed ergocalciferol. Identifying and treating vitamin D deficiency in psychiatric inpatients may reduce the severity of infection with SARS-CoV-2 in a population at high risk for deficiency. **Conclusion:** Psychiatric pharmacists play an important role in optimizing patient outcomes for patients hospitalized at psychiatric facilities during the COVID-19 pandemic. Identifying and treating vitamin D deficiency in psychiatric inpatients is especially important as this group is at high risk for deficiency which has been associated with more severe disease in SARS-CoV-2 infection.

Therapeutic Case Report Abstracts

Brand-Based Differences in Neutropenia Risk: A Case Report of Aripiprazole-Induced Neutropenia

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Type: Therapeutic Case Report. **Background:** Neutropenia, a reduction of absolute neutrophil count (ANC) to < 1500 cells/μL may be caused by non-chemotherapy agents through immune-mediated mechanisms. Patients with severe neutropenia are at increased risk of infection-related morbidity and mortality. While clozapine is most commonly associated with this side effect, all antipsychotics have reported cases of neutropenia. **Complete Patient History:** The patient is a 37-year-old African American female with bipolar disorder admitted for a manic episode with psychotic features. She had no significant medical history or contributory social history. After 5 days of treatment with aripiprazole 15mg daily, her white blood cell (WBC) and ANC declined from baseline of 9400 to 4000 cells/μL and 6900 to 1500 cells/μL, respectively. Aripiprazole was discontinued and lithium 900 mg daily was initiated to recover ANC. After 6 days without aripiprazole and 7 doses of lithium 300 mg, WBC and ANC recovered to 5500 cells/μL and 3200 cells/μL. The following day, aripiprazole 15 mg daily was restarted using an alternate generic brand given patient's continued delusions and lithium was discontinued to avoid masking of neutropenia. WBC and ANC were 5800 and 2300 cells/μL after 1 week on the alternate brand aripiprazole. During the 2.5 weeks without lithium, WBC and ANC were maintained within normal ranges of 4800-6200 and 2000-3500 cells/μL on the alternate brand aripiprazole. Lithium 900 mg daily was later restarted for better mood stabilization. The final WBC and ANC values obtained prior to patient's discharge were 4800 and 2700 cells/μL, respectively. **Review of Literature:** Only a few case reports of aripiprazole-induced neutropenia are available, and none reported re-challenging with an alternate generic brand of aripiprazole. Generic brands of the same medication can vary in inactive ingredients. Excipients and their contaminants can cause hypersensitivity reactions and intolerance. An inactive ingredient in the first generic brand may have contributed to neutropenia seen in this case. **Conclusion:** In our case report, a temporal and causal relationship was observed between neutropenia and one generic brand of aripiprazole but not with another brand. Clinicians should consider an alternate generic brand if a patient develops neutropenia during successful treatment with aripiprazole.

Burning Mouth Syndrome Responsive to Gabapentin: A Case Report

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Type: Therapeutic Case Report. **Background:** Burning mouth syndrome (BMS) is a rare, chronic, and painful condition characterized by a burning sensation in the oral mucosa usually accompanied by numbness, xerostomia, and dysgeusia. Although its etiology is unclear, it is likely multifactorial involving biological and psychological factors. **Patient History:** The patient is a 36-year-old Caucasian man with a past medical history of throat pain due to gastroesophageal reflux disease (GERD) and a history of a collapsed vocal cord, depression, polysubstance use disorder, and BMS which has been refractory to treatment with amitriptyline, citalopram, diazepam, and prednisone. Prior to admission, the patient was taking buprenorphine 8 mg sublingually (SL) twice daily (BID) for opioid use disorder and diazepam 10 mg BID for BMS, which was minimally effective. He was also purchasing alprazolam illegally. Upon admission, he was initiated on clonazepam 1 mg three times daily (TID) to prevent benzodiazepine withdrawal and gabapentin 300 mg TID for BMS. On the first day of hospitalization, buprenorphine 2 mg prn for symptoms of opioid withdrawal (of which he received one dose) and escitalopram 10 mg daily for major depressive disorder were added. Clonazepam was continued with a plan to possibly taper and the dose of gabapentin was doubled to 600 mg TID. On the second day, the dose of gabapentin was increased to 800 mg TID, one dose of buprenorphine 2 mg was given, and acetaminophen 650 mg was also given for mild body aches. The patient reported experiencing less pain associated with BMS and was interested in intensive outpatient (IOP) services. On the third day, the patient was medically stable and discharged with the following medications: escitalopram 10 mg daily, gabapentin 800 mg TID, trazodone 50 mg as needed for insomnia, and clonazepam 1 mg TID. **Review of Literature:** There is no definitive cure for BMS. A MEDLINE search yielded 25 published case reports of BMS drug therapy. Central neuromodulators, such as TCAs, SNRIs, SSRIs, benzodiazepines, and anticonvulsants, are commonly used for treatment. **Conclusion:** In our case report, gabapentin, an anticonvulsant medication, was successfully used in combination with escitalopram and clonazepam to alleviate burning mouth sensation in a patient diagnosed with depression and BMS unresponsive to multiple medications.

Olanzapine-Induced Elevated Liver Function Tests in a Patient Treated for Antidepressant-Induced Mania: A Case Report

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Type: Therapeutic Case Report. **Background:** Bupropion, an antidepressant (AD), has a reduced risk for inducing

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mood shifts compared to other ADs. Olanzapine is a second-generation antipsychotic which has a known but infrequent risk for hepatotoxicity. There are a few reported cases of clinically severe elevation in liver enzymes (LFTs) induced by olanzapine. **Patient History:** The patient is a 67-year-old male who presented with symptoms of mania eight days after switching his AD from sertraline 50 mg daily to bupropion SR 100 mg twice daily. He had a past medical history of benign prostatic hyperplasia, erectile dysfunction, insomnia, and a recent diagnosis of depression. The patient denied previous history of depression but reported taking sertraline for the treatment of premature ejaculation, which is an off-label use. Baseline labs were within normal limits with the exception of mildly elevated glucose. His baseline aspartate aminotransferase (AST) level was 20 U/L and alanine transaminase (ALT) level was 22 U/L. On admission, his AD was held and olanzapine 5 mg was initiated to treat his manic symptoms. Following six days of olanzapine treatment, his LFTs were elevated (AST = 83 U/L, ALT = 105 U/L) and peaked two days later at AST = 2024 U/L and ALT = 1508 U/L. Other causes of LFT elevation were ruled out since no other new medications were started and the patient denied use of acetaminophen. Olanzapine was subsequently discontinued and his LFTs improved the following day at AST = 602 U/L and ALT = 1054 U/L. His symptoms of mania also resolved and he was discharged on no psychotropic medications. **Review of Literature:** A literature search identified four cases of bupropion-induced mania and six cases of olanzapine-induced increased LFTs. This case will add to the limited reports regarding these adverse effects. **Conclusion:** In our case report, possible adverse drug reactions (ADRs) were observed between the initiation of bupropion and the development of manic symptoms as well as the initiation of olanzapine and elevated LFTs. The case report also focuses on the role of pharmacy in a patient with multiple ADRs from psychotropic medications and the importance of gaining collateral information and clarifying indications of prescribed medications.

Olanzapine and Gabapentin Combination Treatment for the Relief of Intractable Hiccups: A Case Report

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Type: Therapeutic Case Report. **Background:** Intractable hiccups are hiccups that last for greater than one month. Although self-limiting, the prolonged effect can decrease quality of life by interrupting eating, drinking, sleeping, and conversation. It can also lead to insomnia, mental stress, or depression. They can lead to serious adverse health effects including malnutrition, weight loss, and dehydration. The etiology of intractable hiccups is uncertain and can be due to various causes including stress, schizophrenia, malingering, cancer, Parkinson's disease, or gastroesophageal reflux disease. Certain medications can also cause hiccups, such as corticosteroids, dopamine antagonists, and benzodiazepines. **Patient History:** The patient is a 60-year-old Hispanic male presenting to inpatient psychiatry with alcohol withdrawal, depression, and attempted suicide. The patient reported being depressed for approximately three years due to intractable hiccups with choking. The etiology is unknown but per gastroenterology and neurology, the hiccups may have a possible association with pancreatic malignancy. The patient reported significant weight loss and inducing emesis multiple times a day for hiccup relief. He also reported non-adherence to prescribed baclofen and gabapentin for 4 to 5 months prior to admission. Failed medication trials of recommended pharmacotherapy for intractable hiccups included chlorpromazine, baclofen, gabapentin, and metoclopramide. Considering the patient's past medication trials and concurrent psychiatric symptoms of depression, anxiety, insomnia, and auditory and visual hallucinations, he was initiated on olanzapine 2.5 mg nightly in combination with gabapentin 600 mg four times a day. Ultimately, olanzapine was increased to 15 mg nightly and in combination with gabapentin, provided adequate relief of the patient's hiccups and improved his quality of life. **Review of Literature:** A PUBMED search yielded a systematic review containing 10 publications meeting inclusion criteria. Only baclofen, gabapentin, and metoclopramide were studied prospectively. The authors concluded that no specific recommendations can be made for treatment with the currently available evidence. Two case reports described the use of olanzapine as monotherapy or in combination with baclofen for relief of intractable hiccups. **Conclusion:** A relationship was observed between patients receiving a combination of olanzapine and gabapentin and relief of intractable hiccups. Healthcare providers should be aware of the potential benefit of utilizing this combination for intractable hiccups.

Ropinirole-Induced Amnesia and Hallucinations: A Case Report

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Type: Therapeutic Case Report. **Background:** Restless Legs Syndrome (RLS) is a nervous system disorder that causes an uncomfortable sensation in the legs and an irresistible urge to move them. Ropinirole, a dopamine agonist, is indicated for use in patients with RLS at a maximum daily dose of 4mg. Although dopamine agonists

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are efficacious for this indication, there are neurological adverse reactions to consider. **Patient History:** The patient is a 77-year-old white male with a past medical history significant for hypertension, hypothyroidism, chronic obstructive pulmonary disease, pancreatic cancer status post Whipple procedure, and spinal cord injury with spinal stimulator and morphine pump. The patient developed pain-associated RLS from the spinal cord injury and was treated with ropinirole, titrated to a dose of 4mg orally three times daily. The patient did not improve; therefore, the ropinirole was discontinued in June 2019. The patient was admitted to the hospital in September 2020 for abdominal pain and was found to have a small bowel obstruction for which he was treated with supportive care. The patient's home medications were continued based on the documented history in the electronic medical record. Ropinirole 4 mg orally three times daily was initiated on hospital day two. On hospital days two through four, the patient became increasingly disoriented and confused, was unable to recall his admission to the hospital, and experienced visual disturbances. Computed tomography scan of the head was unremarkable. After completing a medication reconciliation, the ropinirole was discontinued and the patient's memory improved within the next 24 hours of his hospital course. **Review of Literature:** A PubMed search revealed no published case reports of ropinirole-induced amnesia. However, in a randomized clinical trial, 5% of patients experienced amnesia with ropinirole versus 1% with placebo. **Conclusion:** In our case report, a sequential and causal relationship was observed between the initiation of ropinirole and amnesia in an elderly patient. Appropriate medication reconciliation must be conducted prior to starting home medications in order to confirm an appropriate indication, avoid harm, and prevent adverse reactions in the elderly population.

Seizure Secondary to Fluzone® Quadrivalent Vaccination in a Patient With Severe Mental Illness: A Case Report

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Type: Therapeutic Case Report. **Background:** It is proposed that immunizations may induce fever through release of cytokines from inflammatory cells, and therefore there may be an association with vaccines and febrile seizures (FS). In the Fluzone® Quadrivalent package insert, serious adverse events were considered possibly related to vaccination in recipients of the vaccine. Two episodes of febrile seizure occurred, one in a trivalent inactivated influenza vaccine (TIV)-1* recipient and the other in a TIV-2 recipient among children 6 months through 8 years of age. In the post-marketing section of the Food and Drug Administration-approved labeling, convulsions have been reported as well. The Institute for Vaccine Safety (IVS) has identified that administration of the influenza vaccine can cause febrile seizures in infants and young children but very rarely, and usually within 24 hours after vaccination. **Patient History:** The patient is a 72-year-old African American female with a past medical history significant for schizoaffective disorder, type 2 diabetes mellitus, and hypertension. The patient received the 2019-2020 Fluzone® Quadrivalent vaccine on September 25, 2019 and sustained a non-provoked seizure eight days later. At the time of the seizure, the patient was receiving haloperidol per institution protocol. She was admitted to a nearby general hospital to be evaluated. Her glucose was 121 mg/dL at the time of her admission. During her admission at the emergency department, she sustained a second seizure and was placed on levetiracetam, cefepime and lorazepam. She was discharged from the hospital on levetiracetam and has remained on it without another occurrence of a seizure. **Review of Literature:** A MEDLINE search showed no published case reports of seizures occurring in psychiatric patients after administration of any vaccine. There are only a few case reports of seizures occurring after immunization in adults, with most cases occurring in infants and children. **Conclusion:** In our case report, a temporal relationship was seen between the administration of the 2019-2020 Fluzone® Quadrivalent vaccine and a seizure in a patient with no known history of seizure disorder.

Topiramate-Induced Renal Calculus in a Patient With Schizoaffective Disorder: A Case Report and Review of the Literature for Drug-Induced Renal Calculi

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Type: Therapeutic Case Report. **Background:** Renal calculi are a common adverse effect of many medications across different classes. The best treatment recommendation is discontinuation of the medication followed by medical interventions to dislodge the calculi. However, psychotropic therapy is highly individualized in a psychiatric setting and discontinuing or switching medications may negatively impact the mental health of the patient. There is a need to identify pharmacologic and non-pharmacologic methods to prevent and treat renal calculi in this patient population. **Patient History:** A 27-year-old African American female with schizoaffective disorder and unspecified convulsions was admitted to the state psychiatric hospital due to suicidal statements. Her past medical history was unremarkable for co-morbidities and she stated her past psychiatric hospitalizations were due to false statements she made to avoid homelessness. Her past medications at

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a previous facility included fluphenazine, benztropine, diphenhydramine, and topiramate. A urinalysis upon admission revealed turbid urine and calcium oxalate crystals, which were indicative of renal calculus development. Her current psychotropics included fluphenazine, olanzapine, and benztropine. Topiramate was not restarted upon admission and her progress notes indicated no recent renal calculus development. If topiramate was medically necessary to continue, renal calculus prevention would be necessary. A literature search reveals an extensive amount of medication classes that can cause renal calculi, along with prevention and treatment methods. **Review of the Literature:** Many medication classes such as anticonvulsants, carbonic anhydrase inhibitors, vitamin D analogs, antigout agents, fluoroquinolone antibiotics, potassium-sparing diuretics, protease inhibitors, and antimetabolites have been shown to cause drug-induced renal calculi. Pharmacists play a critical role in recognizing these medications and recommending treatment and prevention options for calculi. Research has shown that dietary modifications and medications such as thiazide diuretics, potassium citrate, and allopurinol are effective in preventing calculus formation. Treatment options include alpha-1 antagonists and select medical procedures. **Conclusion:** Pharmacists should be aware of medications that induce calculi, as well as the prevention and treatment methods available. Proper medication reconciliation and assessment can identity sources of calculi and prevent its occurrence. Patient care and outcomes can be improved with these pharmacist-driven interventions.

Toxic Clozapine Level as First Indication of Decreased Clearance During Severe, Acute Illness: An Evaluation of Concentration-to-Dose Ratios

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Type: Therapeutic Case Report. **Background:** Clozapine levels can be influenced by many factors, including pharmacogenomic variability, medication interactions, infection and inflammation. The concentration-to-dose ratio (C/D) can be used as a measure of a medication's rate of metabolism and clearance, which is expected to increase in acute illness. **Patient History:** A 56-year-old Caucasian man with schizoaffective disorder, bipolar type was restarted on clozapine and quickly titrated to 350 mg/d with therapeutic steady state levels (clozapine 390 mcg/L, norclozapine 137 mcg/L, C/D 1.51) on hospital day (HD) 70. At this time, he was on day 4 of a 5-day levofloxacin course for chronic obstructive pulmonary disease (COPD) exacerbation. For the next month, he continued to complain of cough, but vital signs and chest x-ray remained normal. Labs were unremarkable except for occasional leukocytosis that would resolve on repeat evaluation. A routine clozapine level drawn on HD 105 resulted on day 109 and showed clozapine toxicity with C/D 5.38, although the patient was asymptomatic. No dosage changes or medication interactions were identified. STAT labs were drawn and revealed a white blood cell (WBC) count of 21600 cells/μL and absolute neutrophil count (ANC) 17755 cells/μL. He was immediately sent to the emergency room where he was diagnosed with pneumonia and admitted for treatment. While admitted to the acute care hospital, the patient continued to receive clozapine, although at a lower dose. On return to the state hospital, the clozapine dose was further lowered to 100 mg/d and then titrated to 200 mg/d based on low drug levels. The patient continues to do well on clozapine 200 mg/d with C/D averaging 1.6 (range 1.11-1.96). **Review of Literature:** A review of the literature reveals many cases of increased clozapine levels with acute infection, although this appears to be the first report of a toxic level being the first indication of severe illness. **Conclusion:** Acute infection and illness can lead to significantly increased clozapine levels and toxicity, even if symptoms of toxicity are minimal or absent. Further research is needed to elucidate the exact mechanism of the interaction and determine which patients and/or types of infection are at greatest risk.

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