Minnesota Psychiatric Society

2025 Spring Scientific Program – May 3, 2025

POSTER SESSION

Conference attendees are encouraged to actively participate in the poster session, interacting with presenters and other participants. Posters will be reviewed by a panel and awards will be presented at the end of the day.

Cystic Fibrosis and Mental Health: Optimizing Psychotropic Management Through Psychiatrist Integration – Author(s): *Amelia Rooks, Thomas Briese and CJ Blacker*

Abstract: *Cystic Fibrosis (CF) is the most common life-limiting, autosomal recessive disease among people of European descent. Depression rates are elevated among adolescent CF patients (18.7%), adult CF patients (27.2%), and their caregivers (32.8%). Similarly, anxiety rates are significant among adolescent CF patients (26%), adult CF patients (28.4%), and caregivers (38.4%). Global CF organizations recommend screening, diagnosis, and treatment of psychiatric conditions for patients and caregivers as standard of care. Despite this, many CF clinics do not include a mental health provider; of those that do, only ~1% have this role filled by a psychiatrist. This disparity exists despite the fact that CF influences metabolism, psychotropic effectiveness, and psychosocial risk factors. We review considerations in psychotropic management among the CF population and provide an example of a unique mental health collaborative care model with physician-led psychiatric integration..*

Association Between Neural Brain Activity Engaged During Right Amygdala Neurofeedback and Improvement in Borderline Personality Disorder (BPD) Symptom –

Author(s): ***Anvita Gandikota and Karina Quevedo***

Abstract*: Borderline Personality Disorder (BPD) is a mental health condition marked by emotional instability, distorted self-image, and dissociation. It is costly to treat and often linked to increased suicide risk, executive dysfunction, and comorbidities like substance use disorder. Current treatments are often ineffective long-term. Neurofeedback, a non-invasive therapy, enables real-time modulation of brain activity, pairing positive memories with self-images. This study explored the potential of neurofeedback in treating BPD by targeting the right amygdala, a region associated with BPD-related abnormalities. The hypothesis that increased amygdala engagement would improve symptoms was supported, showing significantly reduced emotional dysregulation, dissociation, suicide ideation, and executive dysfunction six months post-treatment. These findings suggest neurofeedback targeting the right amygdala may offer a promising long-term treatment for BPD. Future research could explore its impact on other brain regions like the hippocampus, potentially benefiting conditions such as PTSD.*

Case Report and Review of Neuropsychiatric Manifestations, Medication Safety, and Treatment Planning in Huntington's Disease –

Presenters: ***Benjamin T. Dralle, MD, Jake A. Kloeber, Brandan K. Penaluna, MD***

Abstract: *Huntington's disease (HD) is a fatal neurodegenerative disease which presents with a variety of neurologic and psychiatric symptoms, including motor, mood, and personality changes that can trigger psychiatric assessment. We describe a case involving a 54-year-old female with HD who required psychiatric evaluation for aggression and impairing motor symptoms.*

Following several months of poor oral intake, the patient was admitted to a general medical service for evaluation of severe anemia. Collateral information obtained during admission revealed worsening aggressive behaviors, such as barricading herself in a bathroom and escalating verbal threats towards caregivers, with a profound lack of insight. Psychiatric consultation revealed a clear dysexecutive syndrome with severe chorea, both of which benefitted from treatment with risperidone.

Overall, this case highlights several of the neuropsychiatric manifestations of HD, demonstrates one approach to managing HD symptoms, and provides an opportunity to review key treatment planning considerations in this incurable genetic condition.

Pharmacologic Treatment of Aggression in Youth with Autism Spectrum Disorder – **Author(s): *Christian Morfaw & Thomas Briese***

Abstract: *Psychiatrists often face challenges with finding the right medications to manage severe aggression, especially in youth with autism spectrum disorder. There are only two FDA approved medications for management of irritability (which can present as aggression) in children and adolescents with autism spectrum disorder, risperidone and aripiprazole. These two medications are often not the right fit for patients, prompting the use of off-label medications. We review the current literature examining aripiprazole and risperidone to treat aggression in children and adolescents with autism spectrum disorder. We also review the current literature examining other classes of medications that may be prescribed to target aggression in patients with autism spectrum disorder and discuss their risk-benefit profiles.*

A Comparison of Two Motor Threshold Determination Methods in Adolescents Undergoing Treatment With TMS – **Author(s): *Cicek N. Bakir, Irem Azamet, Lucero Sangster Carrasco, Karina Delaney, Michael Dib, Zhi-De Deng, Paul E. Croarkin***

Abstract: *In transcranial magnetic stimulation (TMS), motor threshold (MT) guides stimulation intensity for safety and efficacy. This study compared two MT determination methods, electromyography (EMG) and observation of movement (OM), in adolescents with major depressive disorder (MDD; N=45). EMG-based MT was defined as the minimum percent maximum stimulator output (%MSO) eliciting motor evoked potentials >50 μV in ≥5 of 10 trials in the relaxed abductor pollicis brevis (APB). OM-based MT, using a different device, was defined as the lowest standardized motor threshold (SMT) intensity eliciting visible APB movement in ≥3 of 5 trials. EMG-based MTs were converted to SMT units using a computational model. OM yielded significantly higher MT values (mean difference = 0.25 SMT; $p<0.001$). Spearman's rho between methods was 0.64 ($p<0.001$). OM may overestimate MT, potentially increasing stimulation intensity and reducing tolerability. Device differences may contribute to variability. Future studies using the same device are warranted.*

Carpe Diem: Unbound by REMS, Psychiatrists Must Prescribe More Clozapine – **Author(s): *Felicia Hansell, M.D., Jennifer Zick, M.D., Ph.D., Steve Olson, M.D.***

Abstract: *The REMS neutrophil monitoring requirements imposed burdens on persons living with psychosis, caregivers, clinicians, pharmacists, and the health care system itself that have contributed to clozapine's severe underutilization in the USA compared to other developed countries. The REMS cancellation was largely due to family and expert advocacy aimed at expanding ease of use and access to this potentially life-changing treatment option. Many more psychiatrists should be using clozapine earlier in the course of treatment--a recent large study showed that clozapine was the only oral antipsychotic that prevented relapse after a second episode of psychosis. Psychiatrists are uniquely trained to best manage the complex domains of psychopathology, the multisystem adverse effect profile and the biopsychosocial integrative care model which best addresses the needs of persons living with treatment-resistant schizophrenia-like illness. Efforts of the Minnesota Clozapine Project to educate the public and provide resources for clinicians will be presented.*

fMRI-based determination of major depressive disorder biotypes –

Author(s): ***Fyzeen Ahmad, Adhvaith Sridhar***

Abstract: *Major depressive disorder is a highly heterogeneous disorder that is incompletely understood. Consequently, there is an emergent need for personalized methods of depression management in psychiatry that considers the unique neurobiology of each patient beyond just the set of symptoms that they have. We present the article Personalized brain circuit scores identify clinically distinct biotypes in depression and anxiety published by Tozzi et. al. in Nature Medicine in 2024 as a potential method to identify depression subtypes and enhance treatment precision. 1051 patients were recruited to either a treatment-free group, a therapy group, or an escitalopram, sertraline, and venlafaxine pharmacotherapy treatment group. fMRI was used to extract the resting state functional networks for each subject prior to the identification of depression subtypes using hierarchical clustering on fMRI-identified circuits. Six depression biotypes were identified, and certain biotypes predicted differential responsivity to pharmacological antidepressant treatments.*

Predictors of Chronic Kidney Disease in Bipolar Disorder with Long-Term Lithium Therapy: An Updated Cohort Study –

Author(s): ***Idil Tarikogullari, Mete Ercis, Vanessa Pazdernik, Maria L Gonzalez Suarez, Marin Veldic, Katherine Moore, Hannah Betcher, Osama A. Abulseoud, Aysegul Ozerdem, Alfredo Cuellar-Barboza, Francisco Romo-Nava, Susan McElroy, Joanna Biernacka, Mark Frye, Balwinder Singh***

Abstract: *Lithium, the gold-standard treatment for bipolar disorder (BD), is complicated by its narrow therapeutic window and concerns about kidney dysfunction, contributing to its underutilization. In this study, we examined patients enrolled in the Mayo Clinic BD Biobank who were on long-term lithium therapy (>1 year). Cox regression models were used to estimate the risk of both patient-related and lithium-treatment-related factors for chronic kidney disease (CKD). Among 152 patients (58.6% female, median follow-up 12.1 years), 36.4% developed CKD. Older age, hypertension, diabetes mellitus, and nephrogenic diabetes insipidus (nDI) were associated with CKD. In the multivariate model, only nDI was associated with increased risk of CKD (HR=10.80, 95% CI=4.13-28.23, p<0.001). Monitoring patients with these comorbidities and managing their conditions effectively may help reduce CKD risk and progression. Further research is needed to determine if treating nDI can prevent or delay the onset of CKD.*

Trends in Adolescent Cannabis Use in Minnesota: SUD Prevention and Detection – **Author(s):** ***Ivan N. Ayala M.D., Sabrina Correa da Costa M.D. , George Realmuto M.D., Mark A. Frye, M.D.***

Abstract: *Adolescent cannabis use remains a significant public health concern in changing legalization landscapes. Minnesota data from four state and federal sources converge on a crucial narrative: While more youth report never using marijuana, those who do are disproportionately affected.*

Despite an overall decline in treatment admissions, 2022 DAANES data confirms that cannabis is the primary substance at admission for SUD treatment in 12 to 17-year-olds, a consistent trend since 1995. Likewise, 2022 TEDS data ranks Minnesota 26th in the U.S. with 68% of adolescents listing cannabis as the primary substance at admission. Although schools report strong prevention policies, from 2018 to 2022 only 15.6% of schools offered substance use assessments, potentially missing opportunities for early intervention.

These patterns highlight a mismatch between prevention efforts and clinical outcomes. These trends warrant further analysis to uncover the potential underrecognized impact of cannabis policy, a substance with well-documented effects on the developing brain.

Minnesota Direct Care and Treatment (DCT): a review of the state run behavioral healthcare system and support for the community – Author(s): *Jonathan Whear, MS3 (1); Jeremiah Atkinson, MD (1); Matthew Kruse, MD (2)*

Abstract: *The state of Minnesota has a convoluted, multilayered system for mental health and behavioral healthcare. These levels include community care, academic centers, correctional facilities, and state facilities operated by Direct Care and Treatment (DCT) services to serve some of the state's most difficult and vulnerable patients. Many providers are unfamiliar with the various programs and services DCT and thus unable to seek these services for their patients. DCT covers adult services for complex inpatient care, competency restoration, forensic services, chemical dependency, the sex offender program, and more. It also runs the child and adolescent behavioral services and intensive therapeutic homes. This poster will review these various services and the support they provide for patients needing higher intensity care.*

A Review of Behavioral and Pharmacological Treatments for Adult Trichotillomania –
Presenter(s): Pranav Kalva, Eshwar Garlapati. Author(s): *Lauren Parris Bennett and Rebecca Ryznar*

Abstract: *Trichotillomania (TTM) is a type of obsessive-compulsive disorder characterized by repetitive, compulsive hair-pulling, which often starts in childhood or adolescence. It is more common in females and frequently exists simultaneously with other psychiatric conditions like anxiety and depression. The development of effective treatments is difficult to do because the cause of TTM remains unclear. This review combines advancements made recently in therapeutic procedures for adult TTM. Cognitive Behavioral Therapy, especially Habit Reversal Training, has been shown to be effective in reducing symptoms for many individuals. Pharmacological agents such as Olanzapine, Clomipramine, and N-Acetylcysteine have shown therapeutic potential, but further research with larger, randomized controlled trials is required to confirm their efficiency. Selective Serotonin Reuptake Inhibitors (SSRIs) are commonly used, but have mixed results. Novel treatments like Naltrexone and Dronabinol have shown promise. Future research should focus on combining treatments, studying the brain, and genetic factors to enhance personalized treatment plans.*

Charlson Comorbidity Index and Length of Hospitalization in Catatonia Subtypes – Author(s): *Liliana Patarroyo-Rodriguez, M.D.,M.S., Laura Duque, M.D., Vanessa Pazdernik, M.S., Balwinder Singh, M.D.,M.S*

Abstract: *The influence of medical comorbidities on catatonia outcomes remains uncertain. We aimed to elucidate disparities in medical comorbidities, assessed by the Charlson Comorbidity Index (CCI), between catatonia subtypes.*

Our cohort included adults hospitalized at Mayo Clinic in Rochester, Minnesota, between May 1, 2001, and May 1, 2021, diagnosed with catatonia upon admission or during hospitalization.

Among the 250 hospitalized catatonic patients, 245 CCI scores were accessible. Mean age was 48.3 years, 86% of the patients were white, and 55.4% were female. Of these 76.3% were diagnosed with catatonia associated with psychiatric diagnoses (C-APD), while 23.7% were diagnosed with catatonia due to another medical condition (C-AMC). Bush-Francis Scale mean scores were 5.4 for screening items and 11.8 for severity. The mean CCI scores were similar between patients with C-APD (2.5) and C-AMC (2.9) (p=0.34). Length of hospitalization was longer for C-AMC patients (p=0.002).

Demoralization and Depression in a Patient with Metastatic Renal Cell Carcinoma: Review of Diagnostic and Treatment Considerations – Author(s): *Marissa Amerongen, Benjamin T. Dralle, MD, Vanessa M. Dang, MD, MS*

Abstract: *Demoralization is a syndrome commonly faced by cancer patients which is characterized by a persistent inability to cope, helplessness, hopelessness, and despair. In complex cases, there can be significant overlap between demoralization and depressive symptoms.*

This poster describes the case of a 73-year-old male with a history of metastatic renal cell carcinoma who was admitted with worsening respiratory status caused by multiple fungal pathogens. During discussions with the Pulmonology and Palliative Care teams, he reported low mood, passive suicidal ideation, and access to a firearm at home. Further psychiatric assessment identified symptoms consistent with both a major depressive episode and co-occurring demoralization. Treatment was initiated with sertraline, plus methylphenidate and ramelteon to target energy and sleep in the hospital environment.

The aim of this poster is to equip Minnesota psychiatrists with knowledge about the presenting symptoms of demoralization and depression, review their diagnostic overlap, and explore relevant pharmacological treatment considerations.

Socioeconomic Disparities and Substance Use Disorders in Bipolar Disorder: Insights from the Mayo Clinic Bipolar Biobank – Author(s): *Mete Ercis, Deniz Ceylan, Jorge A. Sanchez Ruiz, Dina Ali, Aysegul Ozerdem, Joanna M. Biernacka, Young J. Juhn, Chung-Ii Wi, Mark A. Frye*

Abstract: *Substance use disorders (SUDs) are more prevalent in bipolar disorder (BD) and are influenced by socioeconomic factors. We used the Housing-Based Socioeconomic Status (HOUSES) index, an individual-level measure of socioeconomic status, to examine associations with various SUDs among Mayo Clinic Bipolar Biobank participants (N=1,015, 58.4% female). After adjusting for age, sex, and education level, a lower HOUSES index was associated with higher odds of having alcohol (OR=2.3, p<0.001), nicotine (OR=2.9, p<0.001), marijuana (OR=2.0, p<0.001), cocaine (OR=2.2, p<0.001), methamphetamine (OR=5.6, p<0.001), and opioid use disorder (OR=2.0, p<0.001). Benzodiazepine use disorder was not associated with the HOUSES index (p=0.9). There was an interaction effect between sex and the HOUSES index for cocaine use disorder (p=0.047), indicating that the adverse impact of lower socioeconomic status may be less pronounced in women than in men. These findings highlight the importance of addressing socioeconomic disparities to reduce the risk of SUDs in individuals with BD.*

Validation Of a Novel Naturalistic Stimuli Set Assessing Cue Reactivity In Substance Use Disorders – Author(s): *Mira Kondepudy, Anna Zilverstand*

Abstract: *There is a lack of research in cue reactivity in substance use disorder combining emotional reactivity and drug craving, especially with naturalistic stimuli. Here, we attempt to validate a novel naturalistic stimuli paradigm that assesses arousal, emotion, and craving in people treated for opioid use disorder (OUD; N=24, F=9), alcohol use disorder (AUD; N=24, F=12), and controls (N=33, F=18). Participants rated scenes of positive, negative, neutral and opioid/alcohol movies along arousal, valence and craving scales. The arousal ratings for negative and drug movies were significantly higher than all other categories, but not between themselves (OUD: F=7.989,p<0.001; AUD: F=5.353,p<0.001). On the emotion scale, all movie categories were rated significantly different from each other in both groups (OUD: F=39.77,p<0.001; AUD: F=42.36,p<0.001). We also found that OUD/AUD participants rated opioid/alcohol movies with higher craving than the controls (OUD: m=1.188,p<0.001; AUD: m=0.98,p<0.001). Ultimately, these results confirm the validity of the stimuli paradigm.*

A Systematic Review and Network Meta-Analysis Comparing the Effectiveness of Outreach Models in Addressing Substance Use Disorders Among Homeless –
Author(s): *Mohammad Ghafouri, Terence Meyerhoefer, Jessica Gregory, Sabrina Correa da Costa, Monica Taylor-Desir, Teresa A Rummans*

Abstract: *INTRODUCTION: This systematic review and random-effects network meta-analysis compare the efficacy of outreach interventions (OI) for substance use disorders in individuals experiencing homelessness.*

METHODOLOGY: We included studies on homelessness, substance use disorders, and OI. The primary outcome was change in frequency and severity of substance use at one and two year follow-up.

RESULTS: For reducing frequency of use at one year and for the combination of reduction in frequency and severity, Community Reinforcement Approach (CRA) showed the strongest effect with a SMD of -0.28 (95% CI -0.66, 0.10), and a P-s of 0.81. Substantial heterogeneity was observed (I^2 = 76.3% and 84.7% respectively). At two-year follow-up, CRA persisted as the most effective intervention for the same outcomes with P-s of 0.80 and P-s of 0.83. Heterogeneity remained high (I^2 = 76.3% and 82.7% respectively).

CONCLUSIONS: CRA appears to be the most effective intervention at one and two year follow-up.

Footprints of Schizophrenia: the Evolutionary Roots of Mental Illness –
Author(s): *Steven Lesk MD*

Abstract: *We are in a unique evolutionary moment brought about by the recent onset of language a mere 50,000 years ago. Human like animals have been around for 6 to 7 million years. The adoption of language radically changed how we use our minds, including the processing of dopamine. Not all of us are yet on board with this radical mental transformation. Those who are least on board, "evolution's dispossessed" are the ones we call mentally ill. One could say that 50,000 years ago there was no mental illness, and 20,000 years from now there will be none as we know it since we will have waded through this adjustment period and all will be on board.*

Sports Psychiatry: What and why? – Author(s): ***Tannon Tople, MS4; and Jeremiah Atkinson, MD***

Abstract: *Sports psychiatry is a relatively new specialization focused on supporting the mental health of athletes across the entire developmental and professional performance spectrum. Athletes can have higher experiences of some types of mental illness including sleep disorders, eating disorders, and ADHD, as well as similar levels to the general population of mood disorders, anxiety, and psychosis. Extra training can be useful to understand more contextual knowledge including sports specific language and common medical or surgical conditions athletes experience. Regarding treatment, some medications may be prohibited based on the performance level and specific sport, and psychiatrists must be aware of the side effects of medications which may negatively impact performance. Finally, incorporating more of a performance mindset into the patient care can help to distinguish pathological mental illness from pressures related to performance. For those interested in learning more, the International Society for Sports Psychiatry (ISSP) has a free curriculum program.*

Medication-Induced Dystonic Reactions in Children and Adolescents: More Common Than You Think – Author(s): ***Thomas Briese, Amelia Rooks and C.J. Blacker***

Abstract: *Medication-induced dystonic reactions are most commonly associated with dopamine blockade, especially from high-potency first-generation antipsychotics and metoclopramide. However, dystonic reactions occur in many other medication classes including second-generation antipsychotics, anti-epileptic drugs and stimulants - especially in children and adolescents. These dystonic reactions are not limited to the initiation of a medication but can occur during dose taper, discontinuation, or idiosyncratically after years of dose stability. Given the various contexts, there is a gap in clinical education of child psychiatrists in knowing appropriate management. We review cases in the literature of medication-induced dystonic reactions, discuss acute treatment strategies and present considerations to the clinician as to how to think about the patient's regimen once an acute dystonic reaction has occurred.*

The Case for Pharmacogenomic Testing for Antidepressant Use – Author(s): ***Vivek Prasad, MD***

Abstract: *This is my poster presentation for the Minnesota Psychiatric Society. It focuses on the rationale for incorporating pharmacogenomic testing into the clinical practice of prescribing antidepressants. The presentation addresses the challenges in antidepressant treatment, noting that a significant proportion of patients do not respond adequately to initial antidepressant therapy and that adverse effects are a common issue.*

The poster delves into the genetic underpinnings of Major Depressive Disorder (MDD), emphasizing its complex polygenic nature, where multiple genes contribute small effects to an individual's susceptibility. It highlights specific genes and pathways of interest in MDD research, including those related to serotonin transport and reception (e.g., SLC6A4, HTR2A), the stress response system, neurotrophic factors, and other neurotransmitter systems.

A key focus of the presentation is on pharmacogenetics, the study of how genes influence an individual's response to medications. It specifically discusses genes like CYP2D6 and CYP2C19, which encode enzymes crucial for metabolizing many common antidepressants, and how variations in these genes can lead to differences in drug metabolism and response.

The poster argues that pharmacogenomic testing has the potential to personalize antidepressant treatment by guiding medication selection and dosing. The goal is to improve treatment outcomes, reduce adverse drug reactions, and enhance patient safety.

In addition, the presentation includes a discussion of the historical context of medical practice and patient safety, referencing the Libby Zion case and its impact on regulations concerning resident physician work hours. This historical inclusion serves to underscore the importance of precision and careful consideration in medical treatment, aligning with the push for pharmacogenomic testing to minimize errors in prescribing.