

Register Now!

Interventional Psychiatry Showcase

February 20, 2024 : 12:00pm–3:30pm

UPMC Western Psychiatric Hospital Auditorium

The Interventional Psychiatry Workgroup is pleased to invite you to the inaugural **Interventional Psychiatry Showcase**, an event highlighting the cutting-edge research by Department investigators on a range of novel interventions in Psychiatry. In this first Showcase, we will focus on non-invasive brain stimulation (NIBS) techniques, and how these therapeutic interventions are being used to increase our understanding and effectively treat a range of psychiatric disorders. The Showcase offers plenty of opportunities for networking and to engage in the discussion with Department experts.

Registration. Registration is required to attend the Interventional Psychiatry Showcase. Click [here](#) to register.

For more information. Please contact Jeanie Knox at knoxjv@upmc.edu.

Program Schedule

- 12:00pm** **Lunchtime Discussion Tables** – Seating is limited, but we will do our best to accommodate your request for a seat at a Discussion Table. General lunchtime seating is available if we are unable to assign you to a Discussion Table and for all other attendees.
- 1. Practical Steps to Setting Up a TMS Study - Facilitator: Brian Coffman, PhD**
 - 2. Regulatory Processes Involving the IRB and FDA Associated with TMS Studies - Facilitator: Fabio Ferrarelli, MD, PhD**
- 1:00pm** **Welcome & Introduction - David A. Lewis, MD**
- 1:10pm** **Session 1: Non-Invasive Brain Stimulation via Induced Electric Fields, an Introduction to the Biophysics and Neurophysiology and of Transcranial Magnetic Stimulation (TMS)**
Brian Coffman, PhD
- Over the past two decades, therapeutic use of Transcranial Magnetic Stimulation (TMS) has expanded in interventional psychiatry, with FDA-approved indications for major depressive disorder (MDD) and obsessive-compulsive disorder (OCD), and potential for treatment and diagnosis of many other psychiatric disorders. TMS is performed as an outpatient procedure, typically five times a week for four to six weeks and does not require anesthesia or sedation. During TMS, brief and strong magnetic fields are generated by an electric coil that is placed on the scalp, and these magnetic fields induce focal electric currents in the brain that are strong enough to stimulate neurons. Specific brain areas can be targeted using neuroimaging guided TMS; however, target selection is limited by coil distance, among other considerations. This talk will briefly delve into these and other methodological considerations for TMS in interventional psychiatry.*
- 1:25pm** **Session 2: Theta Burst Stimulation to Frontostriatal Reward Circuitry in Young Adults with Depression**
Erika Forbes, PhD
- Depression disrupts positive and negative affect, yet traditional rTMS treatment for depression targets the cognitive regulation of negative affect only. Young adults with depression present a unique opportunity for intervention because they are early in their clinical course and at a developmental point of plasticity in reward circuitry. Based on the hypothesis that the mechanism of disrupted positive affect is altered frontostriatal reward circuit function, which occurs through over-regulation of the ventral striatum (VS) by the dorsomedial prefrontal cortex (dmPFC), we used an experimental, within-subjects approach to target dmPFC with theta burst stimulation (TBS), a condensed form of TMS. Young adults with depression underwent 1 session each of intermittent, continuous, and sham TBS in counterbalanced order, plus fMRI and mood assessment pre/post TBS. Resting functional connectivity between VS and dmPFC decreased only with continuous TBS, a technique postulated to reduce cortical activity through long-term-depression-type effects. Young people with greater functional connectivity decreases experienced greater increases in positive affect, indicating the value of targeting reward circuitry to enhance positive affect and possibly improve depression.*
- 1:40pm** **Session 3: Targeting Reward Circuitry with TBS in Bipolar Disorder: Toward a Novel Intervention for Mania**
Mary Phillips, MD, MD (CANTAB)
- This presentation focuses on how the Mood and Brain Lab's research has identified specific abnormalities in the reward neural network that are associated with predisposition to mania/ hypomania. Dr. Phillips will discuss how researchers have begun to target these neural abnormalities with TBS as a first step toward developing a new intervention to help reduce mania/ hypomania risk in individuals with bipolar disorder and in individuals at risk for future mania/ hypomania and thus bipolar disorder.*
- 1:55pm** **Discussion and Q&A - Moderator: Helmet Karim, PhD**
- 2:15pm** **Session 4: iTBS and the Schizophrenia Spectrum: Existing Evidence and Ongoing Research**
Deepak Sarpal, MD
- iTBS has emerged as an effective strategy for the delivery of TMS to treat MDD. However, its utility as a treatment option in schizophrenia spectrum disorders is an active area of research. In this talk, Dr. Sarpal will briefly review the existing literature on iTBS for schizophrenia, and will introduce more recent evidence supporting an accelerated method of iTBS delivery. He will also discuss ongoing work in the Department of Psychiatry focused on accelerated iTBS as an adjunctive treatment in clozapine treated individuals with treatment-resistant schizophrenia.*
- 2:30pm** **Session 5: TMS-assessed and TMS-modulated Prefrontal Oscillatory Abnormalities in Schizophrenia Patients**
Fabio Ferrarelli, MD, PhD
- Transcranial Magnetic Stimulation (TMS) is a technique that can be utilized to both assess and modulate the activity of neuronal circuits in healthy and psychiatric populations. Specifically, single pulse TMS with simultaneous EEG can be used to examine the neurophysiological properties of human cortical neurons, whereas repetitive TMS, including theta burst stimulation (TBS), can be employed to increase, or decrease, cortical excitability. Dr. Ferrarelli will present findings from TMS-EEG studies demonstrating reduced prefrontal oscillatory activity in patients with schizophrenia (SCZ) relative to healthy controls. He will also share preliminary data from an ongoing NIMH-funded project aiming to reverse these prefrontal deficits in SCZ patients using TBS.*
- 2:45pm** **Session 6: Experimental Manipulation of the Orbitofrontal Cortex Impacts Short-Term Markers of Human Compulsive Behavior: Developing a Synergistic Biobehavioral Approach**
Rebecca Price, PhD
- Compulsive behaviors (CBs) are core features of obsessive-compulsive disorders. CBs suggest a failure of goal-directed behavior to override habitual behaviors “stamped in” through repeated practice and short-term distress reduction. Animal models provide compelling evidence for a possible causal role of the orbitofrontal cortex (OFC) in CBs, but human studies have largely been limited by a correlational design (e.g., cross-sectional comparisons). Dr. Price will describe methods to experimentally manipulate OFC function in human patients through Theta Burst Stimulation (a form of TMS), within the behavioral context of a digital “habit override training.” The resulting impacts observed on short-term markers of CB vulnerability help us to delineate a causal translational model, serving as an initial precursor to mechanistic intervention development.*
- 3:00pm** **Discussion and Q & A Session - Moderator: Helmet Karim, PhD**
- 3:15pm** **Wrap Up and Adjourn**

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Accreditation and credit designation

In support of improving patient care, the University of Pittsburgh is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Physician (CME)

The University of Pittsburgh designates this live activity for a maximum of *3.0 AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Other health care professionals will receive a certificate of attendance confirming the number of contact hours commensurate with the extent of participation in this activity.

Faculty Disclosure:

All individuals in a position to control the content of this education activity have disclosed all financial relationships with any companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

All of the relevant financial relationships for the individuals listed below have been mitigated

Brian Coffman, PhD is a consultant for MEGIN US LLC.

David Lewis, MD receives grant/research support from Merck.

No other members of the planning committee, speakers, presenters, authors, content reviewers and/or anyone else in a position to control the content of this education activity have relevant financial relationships with any companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

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