UBC Department of Psychiatry
Research Day
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ABSTRACTS

ORAL PRESENTATIONS

Speaker#1: Dr. Fern Jaspers-Fayer Postdoctoral Fellow "Examining the Clinical Relevance of Sleep Patterns in Pediatric OCD: A Pilot Actigraphy Study" (Faculty Sponsor: Dr. Evelyn Stewart)

Speaker#2: Nicholas Ainsworth PGY-1 Resident "Ketamine anaesthesia in ECT: A systematic review and qualitativesynthesis" (Faculty Sponsor: Dr. Fidel Vila-Rodriguez)

Speaker#3: Karen Petersen, Postdoctoral Fellow "The psychometric properties of START: Predictive validity for violence, suicide, self-harm, self-neglect, unauthorized leave, substance use, and victimization" (Faculty Sponsor: Dr. Tonia Nicholls)

Speaker#4: "Schizophrenia and the plasticity of everyday life" Dr. Bill Honer

Speaker#5:"Functional Brain Networks underlying Delusions in Schizophrenia" Dr. Todd Woodward

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Speaker#8: Kristina Gicas, Graduate student "White Matter Integrity Differentiates Neurocognitive Profiles in a Marginally Housed Sample with Multimorbid Illness" (Faculty Sponsor- Dr. Bill Honer)

Speaker#9: Gabrielle Chartier, PGY-1 Resident "A cross-sectional study on the vulnerability to depression of healthy siblings –focus on social cognition" (Faculty Sponsor- Dr Raymond Lam)

Speaker#10: **Ruiyang Ge, Postdoctoral fellow "Baseline Functional Brain Activity/Circuits Are Related to Improvements Following TMS-based Treatment for MDD"** (Faculty Sponsor- Dr. F. Vila-Rodriguez)

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NON FACULTY ORAL PRESENTATIONS ABSTRACTS

Speaker #1. Examining the Clinical Relevance of Sleep Patterns in Pediatric OCD: A Pilot Actigraphy Study

Presenter: Dr. Fern Jaspers-Fayer Postdoctoral Fellow

Authors: Dr. Fern Jaspers-Fayer

Faculty Sponsor: Dr. Evelyn Stewart

Introduction: Sleep disturbances in patients with pediatric obsessive-compulsive disorder (OCD) have not been well documented using objective measures. Subjective reports, however, suggest sleep disturbances might inform clinical management, such as the utility of cognitive behavior therapy (CBT) in a given case. Hypotheses: (1) Patients will exhibit sleep disturbances (2) An exploratory analysis will show that objective sleep variables predict CBT response.

Methods: Pilot actigraphy data is reported for two groups: 22 patients (age = 13.15, 50% male) and 21 healthy controls (age = 13.04, 43% male). After CBT, actigraphy will be collected again. Primary analyses involved independent t-tests, corrected for multiple comparisons. The exploratory hypothesis will be tested using general linear models (GLMs), with standard sleep measures (e.g. sleep efficiency) as predictors, and change in OCD severity as the outcome measure.

Results: Patients spend significantly more time in bed, but experience greater restlessness throughout the night, and thus have lower overall sleep efficiency than healthy controls.

Conclusion: Overall, pilot data indicate that sleep disturbances are objectively associated with pediatric OCD. Post-CBT actigraphy and analyses will determine if these disturbances predict CBT response.

Relevance/Implications: This study will play a role in our understanding of the clinical picture of OCD.

Clinical Relevance If sleep disturbances are common, and a useful predictor of CBT outcomes, then we will move towards developing screening protocols for these disturbances as a component of standard medical practice. Additionally, we could begin work on finding sleep interventions to augment our current management practices.

Speaker #2.	**Ketamine anaesthesia in ECT: A systematic review and qualitative synthesis**
Presenter:	Nicholas Ainsworth PGY-1 Resident
Authors:	Nicholas Ainsworth
Faculty Sponsor:	Dr. Fidel Vila-Rodriguez

Introduction: Electroconvulsive therapy (ECT) remains the most effective treatment for refractory major depression. In recent years, ketamine—long used as a second-line anaesthetic agent in the context of inadequate seizures—has been generating renewed interest based on the discovery of its rapid antidepressant effect. The literature examining the effects of ketamine on the efficacy and tolerability of ECT is rapidly expanding, but methodologically heterogeneous. This systematic review aimed to 1) characterise the current volume and maturity of research related to different types of clinical outcome; and 2) identify signals in the data deserving of further investigation.

Methods: A comprehensive search was conducted of four major biomedical databases (MEDLINE, EMBASE, CENTRAL, and PsycINFO). Papers were screened for eligibility according to the PRISMA algorithm. The principal inclusion criteria were 1) reporting of primary data in human subjects; 2) ketamine used directly as anaesthetic; and 3) at least one clinically relevant outcome reported. Data were organized according to outcome type: psychiatric, neurocognitive, electrophysiological, and anaesthetic.

 Results: Thirty-seven (37) papers met criteria for inclusion in the final synthesis. A total of 4,088 individual ECT sessions using ketamine anaesthesia were reported, via calculation of a conservative estimate. Of outcome types, neurocognitive measures were least frequently reported (9 studies). Seizure quality was consistently improved with ketamine. Of six double-blind RCTs examining psychiatric outcomes (n=215), only one showed a significant benefit of ketamine on response rate. Dissociative and deliriform side effects were generally more common in patients receiving ketamine, but this effect was mitigated by administration of a barbiturate coanesthetic. No deaths were recorded; serious adverse events were extremely rare.

Conclusions*:* Ketamine is a safe anaesthetic for ECT. There is insufficient evidence to support a role in potentiating the antidepressant effect of the procedure, notwithstanding its standalone use as a rapid antidepressant. There is a signal in the literature suggesting a neuroprotective role in ECT, but more data are needed to better characterise this effect.

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Implications/Relevance: Given ECT's continued status as the gold-standard treatment for refractory depression, ongoing refinement of the procedure is essential. Ketamine is a promising strategy for mitigating neurocognitive impairment, the most debilitating adverse effect of ECT. If future studies confirm this effect, ketamine could be considered a first-line anaesthetic for ECT.

This systematic review conclusively demonstrates ketamine's safety as an anaesthetic agent in electroconvulsive therapy, and validates its role in improving seizure quality. It calls into question whether the antidepressant effects of ketamine as a standalone therapy can be extrapolated to ECT; however, the emergence of a preliminary signal suggesting a neuroprotective effect strongly justifies further research into this area. A confirmation of this effect would have considerable implications for the role of ketamine in optimising delivery of this vital procedure.

Speaker # 3. The psychometric properties of START: Predictive validity for violence, suicide, self-harm, self-neglect, unauthorized leave, substance use, and victimization"

Presenter: Dr. Karen Petersen, Postdoctoral Fellow

Authors:

Faculty Sponsor: Dr. Tonia Nicholls

Introduction The present study tested the psychometric properties of START for the complete range of outcomes (violence, self-harm, suicide, self-neglect, victimization, substance abuse, unauthorized leave).

Method All forensic psychiatric in-patients who had an up-to-date START on file, between 2009 and 2011 were included ($N = 102$). At baseline, demographic, clinical, and contextual information was collected from patient files and used to complete a START assessment. Six months of follow-up data was collected by a researcher who was blind to the baseline START evaluations.

Results The START demonstrated strong psychometric properties, including inter-rater reliability, score dispersion and predictive validity. START vulnerability scores, strength scores and Structured Professional Judgement risk estimates were significantly predictive of most, but not all of the adverse outcomes intended to be evaluated on the measure. In addition we found evidence for the incremental validity of SPJ risk estimates over and above the actuarial addition of strength and vulnerability scores.

Conclusions and Implications The results from this study contribute to a growing body of literature demonstrating STARTs utility and validity in a variety of settings, across different

populations, for a diverse set of important patient safety outcomes, and as a measure supporting the assessment and management of risk and informing treatment planning.

Clinical Relevance This research highlights the importance of Structured Professional Judgement measures in the assessment and management of risk and informing treatment planning.

Speaker #8. White Matter Integrity Differentiates Neurocognitive Profiles in a Marginally Housed Sample with Multimorbid Illness

Presenter: Kristina Gicas Graduate student

Authors: Kristina Gicas

Faculty Sponsor: Dr. William Honer

Introduction: Marginally housed individuals constitute a socially impoverished population characterized by high rates of multimorbid illness, including polysubstance use, viral infection, and psychiatric illness. Their exposure to risk factors is associated with poor outcomes, yet little is known about brain integrity and its association with neurocognition.

 Method: We conducted a cluster analysis to re-generate three previously derived subgroups with distinct neurocognitive profiles in a large sample of socially marginalized persons (N = 299) recruited from the Downtown Eastside of Vancouver. A series of multinomial logistic regressions was conducted to examine associations between select fronto-temporal white matter tracts and neurocognitive clusters, followed by a whole-brain approach using Tract-based Spatial Statistics.

Results: Lower fractional anisotropy, with corresponding increased axial and radial diffusivity was observed in the lowest neurocognitive functioning subgroup in widespread, bilateral regions (ps = .007-.048). Subtle regionally specific patterns were also observed between subgroups.

Conclusions: Decreased white matter integrity was associated with the subgroup defined by the poorest profile of neurocognition and a higher rate of psychiatric illness.

Relevance/Implications: This is a foundational characterization of white matter integrity and serves as an important first step in understanding the nature of functional impairments in a complex and heterogeneous population.

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Potential current/future clinical relevance of this work: This is the first study to examine the association between white matter integrity and neurocognition in a socially marginalized sample. Our findings highlight white matter integrity as a potential biomarker that could be used to inform the degree and type of interventions required to optimize physical and mental health outcomes.

Speaker #9. A cross-sectional study on the vulnerability to depression of healthy siblings – focus on social cognition

Presenter: Gabrielle Chartier, PGY-1 Resident

Authors: Gabrielle Chartier, PGY-1 Resident; P.Garel, L.Booij, C.Herba

Faculty Sponsor: Dr Raymond Lam

Introduction A negative cognitive bias is reported among individuals at high risk of major depression (e.g. child of depressed mother). When present, cognitive vulnerability may predispose to major depression. Very little research has evaluated whether siblings of depressed individuals show evidence of cognitive vulnerability.

Methods 82 adolescents (28 adolescents treated for depression, 26 healthy siblings and 28 controls), aged between 12 and 20 years old, were assessed using the MASC (Movie for Assessment of Social Cognition). ANCOVA analysis was used between groups.

Results The MASC presented a significant difference between groups ($F_{1,2}$=5,45, p=0.006). Siblings differed significantly from controls (p=0.004) and presented a similar trend toward the depressed group (p= 0.089) on the MASC. No clear difference was present between depressed adolescents and the control group.

Conclusion Siblings differ significantly from the control group in regard to their interpretation of social situations. Cognitive vulnerability in siblings of youth with major depression may be an early sign of vulnerability to depression. Those findings would gain to be confirmed by longitudinal studies in a bigger population.

Potential Relevance: This research's potential relevance is first to help identify key tools to determine early vulnerability to depression– specifically in the area of social cognition. It could also increase the interest of clinicians or public health advocates toward healthy siblings as potential beneficiaries of targeted mental health promotion activities.

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Speaker #10. Baseline Functional Brain Activity/Circuits Are Related to Improvements Following TMS-based Treatment for MDD

Presenter:　　　　　　Dr. Ruiyang Ge Postdoctoral fellow

Authors:　　　　　　Ge, J. Tham, C. Northcott, Downar, Z. J. Daskalakis, A. Dipinto, R. Lam, D. Blumberger & F. Vila-Rodriguez*

Faculty Sponsor:　　　Dr. Fidel Vila-Rodriguez

Introduction: There is a pressing need to identify biomarkers that predict treatment response of major depressive disorder (MDD) to allow clinicians have better individualized treatment selection. Our aim is to investigate whether spontaneous brain-activity/functional-circuits underlie individual differences in response to successful repetitive Transcranial Magnetic Stimulation (rTMS) treatment.

Methods: Twenty treatment-refractory MDD patients underwent a 4 to 6-week course of excitatory repetitive rTMS targeted to the left dorsolateral prefrontal cortex. Before and 12 weeks after completion of rTMS, subjects received resting-state functional magnetic resonance imaging (rs-fMRI) scans and assessments of depressive symptoms. We used amplitude of low-frequency fluctuation (ALFF), regional homogeneity (ReHo) and independent component analysis (ICA), to identify functional brain signatures predictive of treatment response.

Results: Receiver operating characteristic curves revealed high performances (sensitivity > 80% and specificity > 80%) of some regions and brain circuits (e.g., insula, parahippocampus, default mode network, salience network) in discriminating responders vs. non-responders to rTMS.

Conclusion: Our data suggest that spontaneous activity and functional connectivity measures involving the insula, parahippocampus and the resting-state networks may be predictors of treatment response to rTMS.

Implications: These preliminary results demonstrate the potential of neuroimaging-based analysis in predicting the TMS-treatment improvements and have implications in guiding earlier personalized treatments for MDD.

Clinical relevance: Understanding the individualized differences between responders and non-responders is crucial to developing effectively personalized treatments. This study addresses this critical question by considering the local and global properties of the resting brain. The results will inform clinical decision-making for clinicians and patients who are considering rTMS as a treatment

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POSTERS –BASIC NEUROSCINCE AND TRANSLATION RESEARCH ABSTRACTS

1. Presynaptic alterations in corticostriatal synapses in Huntington's disease model

Caodu Buren

2. Control of Forebrain Dopamine by the Hippocampus: Relevance for Substance Abuse and Schizophrenia

David Lindenbach

3. Downregulated SNAP-25 fragmentation in schizophrenia orbitofrontal cortex: possible association with synaptic dysfunction

Alfredo Ramos-Miguel

4. Mesoscopic calcium imaging reveals the presence of modules of synchronized activity delimited by strong boundaries

Matthieu Vanni

5. Regulation of striatal neuronal NMDAR trafficking by palmitoylation: Potential role in Huntington disease

Rujun Kang

6. BDNF and homeostatic plasticity in cortical neurons from the YAC128 mouse model of Huntington disease

Amy Smith

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POSTER PRESENTATIONS-BASIC NEUROSCINCE AND TRANSLATIONAL RESEARCH

Poster #1.   **Presynaptic alterations in corticostriatal synapses in Huntington's disease model**

Presenter: Caodu Buren Graduate Student

Authors: Caodu Buren, Amy Smith-Dijak, Mandi E. Schmidt, Michael R. Hayden, Lynn A. Raymond.

Faculty Sponsor: Dr. Lynn Raymond

Abstract: Huntington's disease (HD) is an inherited neurodegenerative disorder caused by expansion of a CAG tract >35 in the huntingtin (*HTT*) gene. The disease manifests with poor movement control, cognitive decline and psychiatric disorders. Recent studies suggest that corticostriatal synaptic dysfunction precedes the motor phenotype in HD mouse models. Moreover, protein interaction studies have revealed that wildtype and mutant huntingtin interact in complexes with hundreds of different proteins, in which presynaptic proteins are prominent. Our study focused on the potential changes in presynaptic terminals of corticostriatal synapses in HD. We compared the YAC128 HD mouse model, expressing human huntingtin with 128 polyglutamine repeats on an FVB/N background, with FVB/N wild-type (WT) control mice. Using immunocytochemistry and whole-cell patch clamp in corticostraital co-cultures, we found a reduction in spontaneous release of glutamate, but an increase in Ca^{2+}-independent vesicle release, at corticostriatal synapses in YAC128 compared with FVB/N co-cultures. We also uncovered reduced expression of vGlut1 in the cortical pre-synapses, whereas in the postsynaptic striatal neurons, there was no change in GluA2 expression but miniature excitatory postsynaptic current amplitude was reduced. Taken together, these data suggest decrease of glutamate in individual vesicles. Interestingly, the number of vesicles in the presynaptic readily releasable pool remains unchanged, but vesicle replenishment is impaired in this HD model. Currently, we are assessing vesicle replenishment at corticostriatal synapses in acute brain slices from 6-month old YAC128 mice after train stimulation by patch clamp recording as well as by imaging glutamate release using the iGluSnFr fluorescent protein. Together, our studies will enhance understanding of the corticostriatal synaptic changes contributing to early circuit dysfunction in HD.

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Poster #2.	**Control of Forebrain Dopamine by the Hippocampus: Relevance for Substance Abuse and Schizophrenia**
Presenter:	David Lindenbach, Postdoctoral Fellow
Authors:	David Lindenbach
Faculty Sponsor:	**Dr.** Anthony G. Phillips and Dr. Jeremy K. Seamans,

Introduction: In large part, behaviour is motivated by dopamine released in the nucleus accumbens. Transient activation of the hippocampus causes protracted changes in accumbens dopamine release, facilitating relapse to substance abuse and recapitulating symptoms of schizophrenia. We tested the hypothesis that hippocampal glutamate release enhances dopaminergic tone by disrupting dopamine transporter function, increasing motivation to seek rewards.

Methods: The ventral hippocampus was stimulated electrically or optically using bipolar electrodes or channelrhodopsin, respectively. Release of dopamine in the nucleus accumbens was measured via microdialysis; methylphenidate was used to pharmacologically block the dopamine transporter. Changes in behavior were assessed with motion chambers and a progressive-ratio lever-pressing task for a fixed reward.

Results: Both electrical and optical stimulation of the ventral hippocampus enhanced nucleus accumbens dopamine release while methylphenidate attenuated stimulation-induced dopamine release. Electrical stimulation enhanced lever-pressing behaviour, but optical stimulation did not impact spontaneous movement.

Conclusion: Activation of the ventral hippocampus →nucleus accumbens glutamate pathway potentiates dopamine signaling via down-regulation of dopamine transporter function.

Relevance/implications: We provide evidence for a novel form of neurotransmitter release that is action potential-independent. Modulating dopamine transporter activity may be a therapeutic target for the treatment for schizophrenia and the prevention of relapse in substance abuse.

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Poster #3.   **Downregulated SNAP-25 fragmentation in schizophrenia orbitofrontal cortex: possible association with synaptic dysfunction**

Presenter: Alfredo Ramos-Miguel, Postdoctoral Fellow

Authors: Alfredo Ramos-Miguel

Faculty Sponsor: Dr. William Honer

Introduction: Enhanced SNARE complex activity, the machinery governing neurotransmitter release, was postulated to underlie the unbalanced synaptic function observed in schizophrenia brain. We investigated the existence of core SNARE protein (SNAP-25, syntaxin-1, VAMP) fragments with potential role in the schizophrenia-associated abnormalities in synaptic function.

Methods: Postmortem samples from the orbitofrontal cortex (OFC) of well-documented schizophrenia (N=35) and major depression (N=15) cases, and healthy controls (N=28), were analyzed by Western blotting and/or immunoprecipitation.

Results: SNAP-25 immunoblots (but not those of syntaxin-1 or VAMP) showed the presence of a 15-kDa N-terminal peptide recognized with 3 different antibodies. This fragment co-immunoprecipitated with syntaxin-1, suggesting its functional interaction with SNARE machinery. Compared to healthy controls and major depression cases, SNAP-25 fragment (but not full-length protein) immunodensity was reduced in schizophrenia OFC. This observation remained significant in ANCOVA controlling for demographics and other potential confounders. Finally, lower SNAP-25 fragment levels were associated with greater SNARE assembly in the same brain samples.

Conclusion: SNAP-25 cleavage may involve a novel physiological mechanism modulating SNARE activity by preventing SNAP-25-syntaxin-1 interaction. Disturbed SNAP-25 processing may contribute to the enhanced SNARE function observed in schizophrenia brain.

Implications/Relevance: Identification of drugs boosting the proteolytic activity on SNAP-25 may be a promising pharmacological strategy for schizophrenia treatment.

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Poster #4.   **4. Mesoscopic calcium imaging reveals the presence of modules of synchronized activity delimited by strong boundaries**

Presenter: Matthieu Vanni, Postdoctoral Fellow

Authors: Alfredo Ramos-Miguel

Faculty Sponsor: Dr. Tim Murphy

Introduction: Brain function arises from assembly of neurons computing similar features which could operate at very long distance. Correlations previously showed that several clusters of synchronized activity can co-exists within cortex but their limits are underexplored. Wide field calcium imaging was performed on mice to explore what rules parcellation,

Methods: Transgenic mice expressing the calcium indicator GCaMP were implanted with a chronic window covering most of the dorsal cortex. The similarity between each pair of pixel were calculated to generate seed pixel correlations as well as distance parcellation maps.

Results: Correlation maps generally revealed 3 main clusters delimitated by stable boundaries. Inside each cluster, remote islands of activity revealed the long range topography of connection between areas such as between motor and somatosensory cortex.

Conclusion and Implications/ Relevance: These results showed that within mouse cortex, several functional modules run in parallel. Interestingly, the topography and cortical area boundaries appeared to be a weak constraint for functional clustering. Taken together, this contextual parcellation of mesoscopic calcium signals represents one of the first attempts to link brain function with behavior and could open new avenues in the interpretation of brain imaging data.

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Poster #5.   **Regulation of striatal neuronal NMDAR trafficking by palmitoylation: Potential role in Huntington disease**

Presenter: Rujun Kang

Authors: Rujun Kang[1], Liang Wang[1], Shaun S. Sanders[2], Kurt Zuo[1], Michael R. Hayden[2], Lynn A. Raymond[1]

Faculty Sponsor: Dr. Lynn Raymond

N-methyl-D-aspartate receptors (NMDAR) play a critical role in excitatory synaptic signaling, and alterations in the balance of synaptic and extrasynaptic NMDARs impact neuronal survival. Recent studies show enhanced extrasynaptic GluN2B-type NMDAR activity in striatal neurons in the YAC128 mouse model of Huntington disease (HD), resulting in increased and decreased activation of cell death and survival pathways, respectively, that contribute to striatal vulnerability to degeneration in HD. Mechanism(s) of altered GluN2B trafficking remain unclear, however. Notably, the huntingtin (Htt) protein directly interacts with palmitoyl acyltransferases DHHC17 and DHHC13, also called huntingtin-interacting protein-14 (HIP14) and HIP14-like (HIP14L) and mutant Htt expression results in reduced interaction with HIP14 and HIP14L, leading to decreased palmitoylation of several synaptic proteins in YAC128 mice. Furthermore, GluN2B palmitoylation on two C-terminal cysteine clusters regulates its trafficking to surface membrane and synapses in cortical neurons. Here, we investigated whether altered GluN2B palmitoylation contributes to its accumulation at extrasynaptic sites in striatal neurons from YAC128 HD mice. We found reduced GluN2B palmitoylation in YAC128 striatum. Moreover, NMDAR containing the cluster II (but not cluster I) palmitoylation-resistant mutant GluN2B (GluN2B 5CS) showed significantly enhanced surface expression in striatal neurons in wild-type (FVB/N) corticostriatal co-cultures, mimicking the increased striatal GluN2B surface expression observed in YAC128 co-cultures. Importantly, the increased striatal surface GluN2B 5CS was restricted to extrasynaptic membranes. Furthermore, we found HIP14 and HIP14L differentially interact with and palmitoylate GluN2B on the two clusters *in vitro*. These findings suggest potential roles of HIP14 and HIP14L in altered GluN2B-NMDAR trafficking in striatal neurons of an HD mouse model.

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Poster #6. **BDNF and homeostatic plasticity in cortical neurons from the YAC128 mouse model of Huntington disease**

Presenter: Amy Smith

Authors: Amy I. Smith-Dijak[1,2] and Lynn A. Raymond[2]

Faculty Sponsor: Dr. Lynn Raymond

Huntington disease (HD) is a neurodegenerative disorder caused by a polyglutamine expansion in the huntingtin protein, producing mutant huntingtin (mHtt). This causes neurodegeneration beginning in the striatum, and produces a range of motor, cognitive and behavioural symptoms. Many pre- and postsynaptic proteins interact with mHtt, and the function of at least some of these proteins is affected by the disease-causing mutation. This includes the neurotrophin brain-derived neurotrophic factor (BDNF), the release of which in impaired in HD. One of the consequences of these changes in protein function is alterations in synaptic signaling and plasticity. Particularly affected are the cortico-striatal synapses, especially those between cortical neurons and striatal spiny projection neurons (SPNs). We set out to examine changes in synaptic scaling, a form of homeostatic plasticity in which the strength of a neuron's synapses are uniformly increased or decreased in order to keep the neuron's overall level of activity within an optimal range, in excitatory synapses onto cortical pyramidal neurons. We used patch clamp recording to measure the amplitude and frequency of miniature excitatory postsynaptic currents (mEPSCs) following 48 hours of treatment with either tetrodotoxin (TTX) or water (vehicle), in cortical pyramidal neurons from either wild-type (WT) or YAC128 mice cultured *in vitro* to DIV 21, to determine the effect of treatment with TTX on synaptic strength. The frequency of mEPSCs increased in WT cells treated with TTX relative to those treated with vehicle. The amplitude of mEPSCs in TTX-treated WT cells also tended to increase relative to that of mEPSCs in vehicle-treated WT cells. TTX treatment caused no change in either frequency or amplitude of mEPSCs in YAC128 cells. We then tested whether impaired BDNF release could be responsible for the observed deficit in YAC128 cells by adding BDNF or TrkBFc to the cell culture medium 48 hours before treatment with either TTX or vehicle. We also used immunocytochemical techniques to further assess the changes taking place in WT and YAC128 cells in response to treatment with TTX or vehicle. This will allow us to better understand the dysfunction occurring on the presynaptic side of the cortico-striatal synapse in HD and what makes this synapse particularly vulnerable to the HD mutation.

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POSTER PRESENTATIONS TRANSLATIONAL AND CLINICAL RESEARCH

Poster #1.   **rTMS Reduces Chaotic Brain Activity in Treatment Resistant Depression**

Dorian Aur

Poster #2.   **Mindfulness-Based Interventions for Postpartum Anxiety and Depressive Disorders**

Rinette Badker -Research Assistant and Ashley Clark Undergraduate Student

Poster #3.   **Nutrition Initiative: Engagement and retention of MHSUs in community developed nutrition programs**

Dr. Mandeep Bhatti, Northern Medical Program Researcher

Poster #4.   **Comparison of neuropsychological profiles in first episode bipolar I disorder patients with and without history of psychosis.**

Trisha Chakrabarty, PGY-4 Psychiatry

Poster #5.   **A Population study on the relationship between psychiatric disorders, and COPD, stroke, hypertension and diabetes.**

Gabrielle Chartier and D. Cawthorpe

Poster #6.   **The Relationship between Physical and Mental Disorders in a Pediatric Population**

Gabrielle Chartier and D. Cawthorpe

Poster #7.   **Apolipoprotein E Influences Acute Post-TBI Findings on Diffusion Tensor Imaging**

Alex Cheng Undergraduate Student

Poster #8.   **The Effect of ADHD on Child SCAT3 Baseline Assessments in Youth Hockey Athletes**

Laurel Collings Research Assistant

Poster #9.   **A collaborative investigation of predictors of relapse in major depressive disorder: CAN-BIND-1 extension study**

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Ben Dantzer

Poster #10.   **Borderline Personality Disorder and Traits in the Child & AdolescentsPsychiatric Emergency: Are they the same population**

Dr. Amanda Degenhardt, Resident Physician (PGY2)

Poster #11.   **The Methodology of Developing Interleaved Transcranial Magnetic Stimulation (TMS) with Functional Magnetic Resonance Imaging (fMRI) at UBC**

Ruiyang Gi and Adam Dipinto

Poster #12.   **Repetitive Transcranial Magnetic Stimulation (rTMS) Side Effect Characterization for Treatment Resistant Depression: Non-Inferiority rTMS Trial**

Christine Dobek MSc

Poster #13.   **Addressing the global economic impact of mental illness: The Asia Pacific Economic Cooperation (APEC) Digital Hub for Best and Innovative Practices in Mental Health Partnerships, hosted at the University of British Columbia**

Vanessa Evans Research Staff

Poster #14.   **Mindful Brain Yoga: A study of yoga for brain injury**

Delrae Fawcett Project Coordinator

Poster #15.   **Design and rationale for a functional MRI study of symptom provocation in pediatric obsessive-compulsive disorder**

Dr. Fern Jaspers-Fayer Postdoctoral Fellow

Poster #16.   **Executive functioning improvements following transcranial magnetic stimulation therapy for treatment resistant major depressive**

Vanessa Fong

Poster #17.   **Examining the High-Risk Accused designation for individuals found Not Criminally Responsible on account of Mental Disorder**

Ilvy Goossens

Poster #18.   **Staff perceptions of trauma, female forensic consumers, and current clinical practices: A focus group exploration**

Ilvy Goossens

Poster #19.   **Trajectories of body mass index change in patients with first manic episode: 3-year follow-up data**

Chen Hu, Postdoctoral Fellow

Poster #20.   **Design and rationale for a functional MRI study of symptom in pediatric obsessive-compulsive disorder**

Dr. Fern Jaspers-Fayer, Postdoctoral Fellow

Poster #21.   **Psychotic Symptom Profiles and Variability Over Time in a Cohort of Marginally Housed Adults**

Andrea Jones, MD/PhD Student

Poster #22.   **Review of Electroconvulsive Therapy Service and Treatment Delivery at a Major Academic Hospital in Vancouver**

David Lee Faculty of Medicine Undergraduate Student

Poster #23.   **Patients with treatment-resistant opioid dependence remain at increased risk of suicide during maintenance treatment.**

Amanda Lee Master's Student

Poster #24.   **Illness Perception in Patients with Treatment Resistant Depression Before and After Transcranial Magnetic Stimulation Therapy**

Adelena Leon

Poster #25.   **Prescribing Observatory for Mental Health – Fraser Health Authority: A Primer**

Dr. KaWai Leong

Poster #26.   **Disordered Eating Habits in the Vancouver Homeless Population**

Ruxin Miao Undergraduate Student

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Poster #27.   **Examining Survey Response Patterns on Childhood Trauma as an Indicator of Community Integrative Ability**

Zamina Mithani Undergraduate

Poster #28.   **Factors associated with social support among marginally housed adults in Vancouver's Downtown Eastside**

Emma Mitchell (MD candidate 2019), Frances Morin (MD candidate 2019), Arun Dhir (MD candidate 2019)

Poster #29.   **Discovering biomarkers for antidepressant response: protocol from the Canadian biomarker integration network in depression (CAN-BIND) and clinical characteristics of the first patient cohort**

Michael Ni, Tanya Poitras and Cristina Rubino

Poster #30.   **Education Is a Determinant of Paid Working among Treatment-Resistant Injection Drug Users in Maintenance Treatment with Highly Potent Opioids.**

Mohammadali Nikoo, Graduate student

Poster #31.   **An epigenetic interrogation of obsessive-compulsive disorder**

Andrew J. Perrin

Poster #32.   **The prevalence of depression and its effects on opioid-dependent injection drug users**

Abnashi Randhawa Undergraduate student

Poster #33.   **Cognitive impairment and generalized brain atrophy in homeless and vulnerably-housed individuals with traumatic brain injury**

Toby Schmitt Research Assistant

Poster #34.   **A 6 year Longitudinal Study Investigating the Predictors of**

Radhika Shankar Research Assistant

Poster #35.   **The Relation between Childhood Trauma and Later Traumatic Brain Injury Among Homeless Population**

Michael Jae Song 2017 MPH (Master's of Public Health)

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Poster #36.   **A Clinical Model to Reduce Nicotine Dependence Among Mental Health Service Users**

Sabrina Trigo Undergraduate Research Assistant

Poster #37.   **The Development of Measures of Support Beliefs and Behaviours: Understanding the Determinants of a Collaborative Stance in Carers**

Joanna Zelichowska

Poster#38.   **Responses to Clinical Vignettes: Approaches used by Carers of Adults with Eating Disorders**

Joanna Zelichowska

Poster#39.   **Executive Functioning Impairment on Daily Functioning of OCD-Affected Youth**

Juliana Negreiros

Poster #40.   **Neurocognition in OCD-Affected Youth, their Siblings, and Healthy Controls**

Juliana Negreiros

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POSTER PRESENTATIONS ABSTRACTS CLINICAL SCIENCE

Poster #1.   **rTMS Reduces Chaotic Brain Activity in Treatment Resistant Depression**

Presenter: Dorian Aur

Authors: Dorian Aur[1]; Chris Pang[1]; Adam Dipinto[1]; Christine Dobek[1]; Daniel Blumberger[2]; Jonathan Downar[2]; Zafiris J Daskalakis[2]; Joe Tham[1]; Colleen Brenner[3]; Raymond Lam[1]; Fidel Vila-Rodriguez[1]

Faculty Sponsor: Dr. Fidel Vila- Rodriguez

Introduction: EEG data analysis can provide an informative assessment of brain activity, however, reliable EEG related biomarkers of Major Depressive Disorder (MDD) and response to TMS are still missing.

Methods: Dynamic Cross-Entropy (DCE) is a novel multidimensional complexity measure that quantifies the degree of regularity of EEG signals in selected frequency bands. DCE is computed based on entropic formulations of single time series and used as a connectivity marker. To investigate changes of rsDelta and DCE, one-way ANOVA and Kruskal-Wallis nonparametric analyses of variance are followed by multiple comparisons testing.

Results: After rTMS treatment rsDelta power in the left hemisphere changes towards control levels. A statistically significant increase of DCE in remitters ($F=9.72$, $p=5.12 \ 10^{-06}$, $p_{KW}=0.006$) suggests that rTMS reduces chaotic brain activity which may compensate for lower levels of rsDelta. Specifically, the increase of DCE connectivity ($>20\%$) is more uniformly distributed in the frontal lobe areas of remitters than in non-remitters.

Conclusion relevance/implications: Since order is the foundation of communication between elements, these results suggests that the reduction of chaotic brain activity after rTMS therapy improves the communication of information which has therapeutic effects in resistant depression. Low cost personalized rTMS therapy may be delivered by targeting specific brain regions.

Potential current or future clinical relevance: A different spatial distribution of DCE in remitters than in non-remitters suggests that DCE can be considered a marker of treatment response for depression. This hidden information extracted from EEG data may help us to deliver low cost, personalized rTMS therapy by targeting specific brain regions to reduce chaotic activity.

Creating knowledge, caring for minds

Poster #2.   **Mindfulness-Based Interventions for Postpartum Anxiety and Depressive Disorders**

Presenter: Rinette Badker -Research Assistant and Ashley Clark Undergraduate Student

Authors: Rinette Badker and Ashley Clark

Faculty Sponsor: Dr. Shaila Misri

Introduction: Women experiencing moderate to severe mood and anxiety disorders in the postpartum period may not achieve complete symptom remission with pharmacotherapy. This study assessed whether adding a Mindfulness-Based Intervention (MBI) to women on pharmacotherapy experiencing residual depression and/or anxiety would result in recovery from their illness.

Methods: Mothers with postpartum depression and/or anxiety are being recruited through the Reproductive Mental Health Program, Women's and Children's Hospital, Vancouver, BC. Women either participated in an eight-week MBI (participants) or continued with treatment as usual (controls). Both groups completed measures of Major Depressive Disorder (Patient Health Questionnaire; PHQ-9), Generalized Anxiety Disorder (Generalized Anxiety Disorder 7-item; GAD-7) and Mindfulness (Mindful Attention Awareness Scale; MAAS) at three different time points: baseline, week four and week eight.

Results: There was a greater decline in depression and anxiety scores in participant group compared to controls. However, while the participants reached an asymptomatic state, the controls did not.

Conclusions: Postpartum patients with anxiety and/or depression responded to MBI as an adjunctive therapy. Depression symptoms responded relatively early compared to anxiety symptoms.

Current/Future Clinical Relevance: Given the chronic debilitating course of mood and anxiety disorders during the postpartum period, it is important to consider implementing adjunctive therapies to aim for full recovery.

Creating knowledge, caring for minds

Poster #3.   **Nutrition Initiative: Engagement and retention of MHSUs in community developed nutrition programs**

Presenter: Dr. Mandeep Bhatti, Northern Medical Program Researcher

Authors: Dr. Mandeep Bhatti[1,2], Nansi Long[4] Elaine Paetkau[5], Olivia Jebbink[5], Sabrina Trigo[6], Roseann Larstone[7], Dr. Candida Graham[1,2,3]

Faculty Sponsor: Dr. Candida Graham[1]

Introduction: Mental health service users (MHSUs) have elevated rates of cardio-metabolic disturbance. Epidemiologic evidence highlights this relationship. Targeted interventions to improve MHSUs' physical health that focus on healthier diet have been made; however, MHSUs often encounter barriers to engagement in such programs. Improved access to collaboratively developed and tailored nutrition programs are required to help engagement and continuance in such programs.

Methods: Using a grounded theory approach informed by self-determination theory and community-based participatory research, we engaged with MHSUs in an iterative process to identify, develop, implement and evaluate three priority programs related to nutrition: a peer lead community kitchen, good food box distribution to provide access to local produce and personalized dietetic advice. Preliminary evaluations were conducted to assess preferences for the programs and the attendance and retention/attrition rate for the initiative over 12 months.

Results: We report participant program attendance and pre- to post-program follow up and attrition rates across the community kitchen, good food box and dietetics programs. The dietetics showed the highest overall level of participation. Findings from participant exit interviews are also reported.

Conclusion Our data highlights nutrition program preference and the continued struggles for some MHSUs to remain engaged in such programs.

Implications/Relevance: Taken together, these results have direct clinical relevance in informing clinicians and policy makers of the types of nutritional initiatives that MHSUs want to participate in, and the continued difficulties that a significant number of MHSUs will continue to experience in trying to engage in such programs.

Creating knowledge, caring for minds

Poster #4.   **Comparison of neuropsychological profiles in first episode bipolar I disorder patients with and without history of psychosis.**

Presenter: Trisha Chakrabarty, PGY-4 Psychiatry

Authors: Trisha Chakrabarty

Faculty Sponsor: Dr Lakshmi Yatham

Current/Future clinical relevance: As cognitive deficits are correlated with functional outcomes in bipolar I disorder, early identification of those with greater cognitive dysfunction could help in the implementation of targeted interventions. This study examines whether patients with psychotic features in the first episode represent a subset of patients with poorer cognition.

Introduction: Cognitive dysfunction in bipolar I disorder (BDI) has been related to poorer functional outcomes. Previous studies have suggested that BDI patients with psychosis (BDP+) are more impaired compared to non-psychotic patients (BDP-). However, it is not known whether these differences are present early in the disease course. Here, we compare cognitive functioning between newly diagnosed BDP+ and BDP- patients.

Methods: Attention, verbal learning/memory, processing speed and executive functioning were assessed in newly diagnosed BDI patients (n=73; n=60 BDP+ and n=13 BDP-) and healthy controls (HC, n=45). Performance on cognitive measures was compared between: 1) All BDI patients vs. HC, and 2) BDP+ vs. BDP-.

Results: While BDI patients as a group performed worse than HC in all cognitive domains, direct comparison of BDP+ and BDP- patients were non-significant.

Conclusion: BDP+ and BDP- patients did not significantly differ in cognitive functioning; however, this study may have been underpowered to detect subtle differences.

Relevance/Implications: Cognitive differences between BDP+ and BDP- early in the disease course appear to be minimal. Cross-sectional studies with larger sample sizes are needed to verify these results, as well as longitudinal studies to determine whether cognitive functioning follows the same trajectory in both groups over time.

Creating knowledge, caring for minds

Poster #5. **A Population study on the relationship between psychiatric disorders, and COPD, stroke, hypertension and diabetes.**

Presenter: Gabrielle Chartier and D. Cawthorpe

Authors: Gabrielle Chartier and D. Cawthorpe

Faculty Sponsor: Dr Raymond Lam

Introduction Review of literature related to a focused search on comorbidity in relationship to the four preventable diseases identified by the World Health Organization revealed that only a small percentage of these publications (30/528) over the last five years focus on populations and tend only to consider three or less comorbid disorders simultaneously in regard to any main preventable disease class.

Methods Using an informatics approach, a dataset containing physician billing data for 764 731 individuals (46% male) individuals older than 19 years old spanning sixteen fiscal years (1994-2009) in Calgary, Alberta, was compiled permitting examination of the relationship between Physical Disorders and Mental Disorders, based on the International Classification of Diseases (ICD).
Results The Odds Ratio to develop the following disorders when a psychiatric comorbidity is present: Hypertension (3.34), Stroke (4.27), COPD (2.43) and Diabetes (2.66).

Conclusion: Psychiatric disorders present a two-to-four-fold increased risk to develop COPD, Stroke, Hypertension, Diabetes or Cancer.

Clinical Relevance: This research's potential relevance is to raise awareness regarding psychiatric comorbidities and medical diagnosis. Such finding warrants a change in our understanding of the interaction between psychiatric disorders and other preventable diseases. Mental Health Policies must be implemented with the same energy as other health policies.

Creating knowledge, caring for minds

Poster #6.	The Relationship between Physical and Mental Disorders in a Pediatric Population
Presenter:	Gabrielle Chartier and D. Cawthorpe
Authors:	Gabrielle Chartier and D. Cawthorpe
Faculty Sponsor:	Dr Raymond Lam

Introduction Few studies examine comorbidity in a pediatric population. Most focus has been on studies of specific disorders in relatively small samples. The present study extends our understanding of the relationship between mental disorder and physical disorders with a population-based study approach.

Methods Using an informatics approach, a dataset containing physician billing data for 235,968 (51% male) individuals up to 18 years old spanning sixteen fiscal years (1994-2009) in Calgary, Alberta, was compiled permitting examination of the relationship between Physical Disorders and Mental Disorders, based on the International Classification of Diseases (ICD).

Results All major classes of ICD physical disorders had odds ratios with confidence intervals above the value of 1.0, ranging from 1.08 (Perinatal Conditions in 4-6 year olds) to 4.95 (Respiratory Conditions in 0-3 year olds). Distinct major class ICD disorder patterns arise in comparing all children with adults and specific age strata for those under 19 years of age.

Conclusion This study represents the first evidence reported in a population-based data set of the effect of mental disorders on each major class of ICD diagnoses related to a physical disorder.

Clinical Relevance: This research's potential relevance is to raise awareness regarding psychiatric comorbidities and other medical diagnosis – even at an early stage, i.e. in a pediatric population. This study may help to target strategic areas for future research and investments.

Creating knowledge, caring for minds

Poster #7.   **Apolipoprotein E Influences Acute Post-TBI Findings on Diffusion Tensor Imaging**

Presenter: Alex Cheng Undergraduate Student

Authors: Alex Cheng

Faculty Sponsor: Dr. William Panenka

Background. The apolipoprotein E (ApoE) gene is known to inflence myelin integrity. The e4 isoform of ApoE (ApoE4) is also the most powerful genetic contributor to poor long term outcomes after tramuatic brain injury (TBI). Less well appreciated are the effects of ApoE on acute outcomes post TBI. Diffusion tensor imaging (DTI) is a powerful new MRI imaging modality that shows promise as a prognostic TBI biomarker.

Hypothesis. Presence of the ApoE e4 allele influences acute DTI findings after TBI, in a pattern consistent with increased axonal membrane permeability.

Methods. 74 subjects who presented with acute mild traumatic brain injury (mTBI), and 40 who presented with orthopaedic injuries (controls) to the emergency department in Tampere, Finland were recruited as part of a larger study, and underwent diffusion tensor imaging within the first 10 days after mTBI. Tract based spatial statistics were used to compare orthopaedic control and TBI groups stratified by ApoE4 status.

Result. There were no observed DTI differences between the APOE4+ and ApoE4- subjects in the orthopaedic control groups. In the TBI group there were a number of brain regions with significant ($p<0.05$) DTI differences, corresponding to a pattern of decreased membrane integrity in the ApoE4+ group.

Discussion. The ApoE4 allele influences acute post-TBI imaging findings. These differences may help explain the variability in DTI findings commonly observed in the acute phase of injury.

Creating knowledge, caring for minds

Poster #8.   **The Effect of ADHD on Child SCAT3 Baseline Assessments in Youth Hockey Athletes**

Presenter: Laurel Collings Research Assistant

Authors: Laurel Collings

Faculty Sponsor: Dr. William Panenka

Introduction: Sports-related concussions among youth athletes represent a significant public health concern, and proper identification and evaluation of severity is necessary. The effects of attention deficit hyperactivity disorder (ADHD) on concussion measures are unclear. The objectives of this study were to (i) contribute to published normative values for the Child SCAT3, (ii) assess Child SCAT3 performance differences between subjects with and without ADHD and (iii) create a database of normative values of ADHD participants for future reference.

Methods: Youth hockey athletes aged 8-12 (25 ADHD and 281 non-ADHD) were administered the Child SCAT3, consisting of a subjective symptom checklist and objective measurements of cognitive and physical components.

Results: ADHD participants were found to have both higher total symptom scores (11.76 [4.88] vs. 8.08 [5.06], *p<0.001*) and total symptom severity scores (19.84 [9.07] vs. 11.54 [8.18], *p<0.001*) for the subject symptom checklist portion of the Child SCAT3. Additionally, they had lower concentration scores *3.24 [1.09] vs 3.70 [1.09], *p=0.033*). No significant differences were seen between groups for other measures of cognitive and physical components.

Conclusion*:* When administering concussion assessment tools for both baseline and post-injury measures, it is important to understand the impact of pre-morbidities; in particular history of ADHD.

Relevance: Sports-related concussion among youth athletes are a significant public health concern, and proper identification and evaluation of severity is necessary. As ADHD is a prevalent disorder within youth populations, it is important to assess the effect of ADHD on the interpretation of Child SCAT3 concussion assessments.

Creating knowledge, caring for minds

Poster #9.   **A collaborative investigation of predictors of relapse in major depressive disorder: CAN-BIND-1 extension study**

Presenter: Ben Dantzer

Authors: Ben Dantzer

Faculty Sponsor: Dr. Raymond Lam

Introduction: Major Depressive Disorder (MDD) is a prevalent and debilitating illness with an estimated 1 in 5 people experiencing at least one major depressive episode (MDE) during their lifetime. Despite high rates of treatment response, there is an 85% risk of recurrence within 15 years of a MDE. The Canadian Biomarker Integration Network in Depression (CAN-BIND) was created in an attempt to discover various biological markers of depression and recurrence through the use of extensive clinical, molecular, and imaging assessments.

Methods: This extension study involves participants who have responded well to an antidepressant treatment from the CAN-BIND-1 study, a 16-week protocol treating patients with first-line antidepressants while gathering various clinical, molecular, and imaging assessments. The primary objective of this naturalistic extension study is to collect a broad range of clinical data from CAN-BIND-1 "responders" to monitor for relapse and evaluate the data for potential biomarkers of relapse. During in-person study visits (every 8 weeks), clinician-rated, self-rated, and vital signs will be assessed for each participant using a smart-tablet ("SitePad"). Self-rated measures (every week) and speech and voice characteristics (bi-weekly) will also be completed by participants outside of study visits using a smart-phone ("LogPad"). Physical activity and sleep parameters will also be assessed using a wrist-worn device ("ActiGraph").

Methods of Analysis & Implications: This "Wellness Monitoring" extension study will yield a wealth of data for statistical analysis that may contribute to the identification of various contributing factors of relapse or continued wellness. Potential methods of analysis include, but are not limited to: (1) Multivariate Regression Models to determine which clinical scales and total scores predict patient relapse; (2) Time-Series Correlation Analyses using ActiGraph data to explore for differences in physical activity and sleep parameters between healthy and relapsed patients to create a predictive model for relapse; and (3) Examining the rate, pitch, and intonation of patient voice patterns in relation to patient relapse or continued wellness. Identifying biomarkers of remission and relapse could allow for early clinical intervention and treatment adjustment to effectively prevent remission or relapse.

Creating knowledge, caring for minds

Poster #10.　　　　　**Borderline Personality Disorder and Traits in the Child &**
　　　　　　　　　　　　　Adolescents Psychiatric Emergency: Are they the same population

Presenter:　　　　　Dr. Amanda Degenhardt, Resident Physician (PGY2

Authors:　　　　　　Dr. Amanda Degenhardt

Faculty Sponsor:　　Dr. Ali Eslami

Introduction: Individuals with borderline personality disorder (BPD) utilize a high degree of health care resources. A diagnosis of BPD is an uncommon diagnosis in adolescents. Clinicians may initially diagnose adolescents with borderline personality traits (BPT), but oftentimes, this diagnosis does not transition to the full diagnosis of BPD. We hypothesized that the two diagnoses are descriptive of the same population of patients.

Methods: A retrospective chart review of admissions to the Child and Adolescent Psychiatric Emergency unit (CAPE) from January 2009 to December 2014 was performed. Subjects were identified using the Discharge Abstract Database for those given ICD-10 classification of Unstable Personality Disorder. Forty-three subjects were found and divided into BPT (N=22) and BPD (N=21). Every admission was evaluated for whether they met criteria for BPD and recommended interventions.

Results: There were no differences found between the two groups number of subjects, gender, average age, average length of stay, frequency of admissions, therapeutic interventions and DSM-5 BPD Criteria.

Conclusion: Though the new designation within the DSM-5, which removes the age restriction for giving the diagnosis, has not been operationalized yet, this is further evidence that there is little differentiation between those given designation of traits or the diagnosis.

Relevance/Implications: Adolescent BPD literatures suggests the benefit of psychotherapeutic interventions when presenting with ≥2 traits. Future studies using a larger population and prospective study format could evaluate either whether providing the formal diagnosis increases access to DBT; or whether re-admission rates depends on the therapeutic interventions provided (e.g. medication versus DBT).

Creating knowledge, caring for minds

Poster #11. **The Methodology of Developing Interleaved Transcranial Magnetic Stimulation (TMS) with Functional Magnetic Resonance Imaging (fMRI) at UBC**

Presenter: Ruiyang Gi and Adam Dipinto

Authors: Ruiyang Gi and Adam Dipinto

Faculty Sponsor: Dr. Fidel Vila-Rodriguez,

Introduction Transcranial Magnetic Stimulation (TMS) is a non-invasive neurostimulation tool, and in combination with fMRI, we can assess cortical excitability while monitoring intracerebral functional connectivity. Through new techniques we can apply these tools simultaneously (interleaved)

Methods Phase one aimed to implement a standardized setup for interleaved TMS/fMRI at UBC with strategic placement of: MR-compatible TMS coil, high current filter box, and TMS stimulator outside of the MR room. Custom-written software (controlled by the trigger signals from the scanner) was used for interleaving the TMS pulse with the echo planar imaging (EPI) acquisition, thus preventing the TMS pulses interfering with the EPI images.

Phase two was acquiring measurements to determine image quality. Using the fBIRN phantom, we determine if the EPI data quality was being affected by the interleaved TMS pulses by measuring with the TMS coil off, and the following stimulation intensities: 0%, 30%, and 90%.

To check for static signal dropout, the following measures were: 1) Signal to Fluctuation Noise Ratio (SFNR), 2) Signal to Noise Ratio, 3) Temporal Fluctuation Noise Images, and 4) Spatial Noise Images

Results / Conclusion Phase one was successfully completed. For phase two, the SFNR calculations showed that the EPI data's temporal stability was not affected by the stimulation. However, there was a static signal dropout observed due to the coil being inside the scanner.

Relevance/ Importance With the foundation of interleaved TMS/fMRI completed, phase three will include human testing. Interleaved TMS/fMRI will allow the unique opportunity to determine real time functional activity changes from TMS. We may gain insight into the underlining mechanism of the response to TMS treatment in clinical populations.

Poster #12.	**Repetitive Transcranial Magnetic Stimulation (rTMS) Side Effect Characterization for Treatment Resistant Depression: Non-Inferiority rTMS Trial**
Presenter:	Christine Dobek MSc
Authors:	C. Dobek, C. Northcott, J. Tham, Downar, Z. J. Daskalakis, A. Dipinto, R. Lam, D. Blumberger & F. Vila-Rodriguez
Faculty Sponsor:	Dr. Fidel Vila-Rodriguez

Introduction rTMS is a non-invasive neurostimulation treatment used for Treatment Resistant Depression (TRD). Conventional treatment takes 37 minutes, however a newer intermittent theta burst stimulation (iTBS) can administer stimulation in 3 minutes. This study compares the two methods to determine if iTBS is just as effective, and has no difference in the tolerability and safety profile.

Methods 59 TRD participants underwent 20-30 rTMS treatment sessions and were randomly selected to receive either treatment course (A or B). Daily side effect questionnaires were completed immediately post-treatment and emailed home to be completed before the next treatment. Technicians recorded side effects, adverse events, and medications.

Results Out of 1531 treatments, common side effects include headache (12.6%) and fatigue (5.55%) with majority reporting mild severity. Of 59 participants, 68% reported at least 1 incidence of headache, fatigue (51%), or sleep issues (34%). Only 3.9% of treatments required an analgesic for headache. Side effects were reported more frequently within the initial 10 treatments and were comparable between treatment conditions. Most side effects reported were self-limited and lasted < 24hrs.

Conclusion Both treatment conditions have similar side effect and adverse event reporting trajectories with Treatment A being associated with slightly higher rates of discomfort, tingling, and burning (1-2.5 points on a 9 point likert scale). No treatment-related SAE were reported during either treatment.

Relevance/ Importance: If iTBS treatment is as effective and safe as the conventional, it will drastically reduce the time for treatment, increase the capacity of rTMS clinics, and significantly reduce the cost associated with rTMS. A more cost-effective treatment option is a compelling argument to include rTMS in provincial health insurance coverage.

Creating knowledge, caring for minds

Poster #13.   **Addressing the global economic impact of mental illness: The Asia Pacific Economic Cooperation (APEC) Digital Hub for Best and Innovative Practices in Mental Health Partnerships, hosted at the University of British Columbia**

Presenter: Vanessa Evans Research Staff

Authors: Vanessa Evans

Faculty Sponsor: Dr. Raymond Lam

Introduction: The Asia-Pacific Economic Cooperation (APEC), an inter-governmental organization representing 21 member economies, nearly 3 billion people, and a majority of the world's gross domestic product (GDP), recognizes the critical role of mental health in promoting and sustaining economic prosperity. The APEC *Digital Hub for Best and Innovative Practices in Mental Health Partnerships* (the "Digital Hub"), hosted in Canada at the University of British Columbia and in collaboration with the University of Alberta and the Mood Disorders Society of Canada, will serve as the focal point for APEC's future work in mental health.

Methods and Results: The Digital Hub is a secure, collaborative web-based platform that connects APEC ministers, policy makers, industry leaders, researchers, clinicians, and patient advocates to promote innovative, multi-stakeholder partnerships capable of effecting real change in mental health policy and delivery. Currently under development at UBC, the Digital Hub addresses key APEC priorities for mental health, including: implementing best practices; promoting workplace mental wellness; meeting needs of vulnerable populations; advocacy training; and enhancing communication between policy makers and practitioners.

Conclusion and Clinical relevance/implications: The Digital Hub will serve as a regional incubator of new ideas and practices, augment existing partnerships and networks, and attract new, vital stakeholders to elevate the prioritization of mental health across the APEC region.

Creating knowledge, caring for minds

Poster #14.   **Mindful Brain Yoga: A study of yoga for brain injury**

Presenter: Delrae Fawcett Project Coordinator

Authors: Delrae Fawcett

Faculty Sponsor: Dr. William Panenka

Introduction: Care of patients with chronic symptoms after concussion is fragmented and inconsistent across care providers, and regions. In part, this is a reflection of the lack of evidence-based treatments. Group yoga stands out as a tremendous opportunity to fill this void safely, economically, and practically.

Methods: This project aims to assess the feasibility and efficacy of a yoga intervention for treating chronic post-concussion symptoms. Twenty participants who have experienced a concussion are still experiencing symptoms will undergo an 8-week yoga intervention, along with detailed clinical and cognitive phenotyping, blood work, and EEG to determine if yoga has beneficial effects on symptoms, cognition, and brain network electrical patterns.

Expected Results: We expect to see a decrease in post-concussive symptoms post intervention and expect yoga to have a positive effect on cognition and quality of life. Possible mediation effects of stress will be shown by changes in levels of salivary cortisol.

Conclusion: If the intervention is feasible and preliminary results show efficacy, this study would set the stage for a more in depth controlled trial on yoga for concussion.

Implications: Our ultimate goal is to provide an evidence based treatment option for this population that is practical and financially accessible.

Clinical Relevance: This single intervention potentially lessens the need for multiple other interventions, including individual psychotherapy, physiotherapy, and potentially pharmacotherapy. It also holds promise in reducing patient burden by curtailing the multiple visits to various health care providers.

Creating knowledge, caring for minds

Poster #15.   **Design and rationale for a functional MRI study of symptom provocation in pediatric obsessive-compulsive disorder**

Presenter: Dr. Fern Jaspers-Fayer Postdoctoral Fellow

Authors: Dr. Fern Jaspers-Fayer

Faculty Sponsor: Dr. S. Evelyn Stewart

Introduction: Obsessive-compulsive disorder (OCD) is a common and debilitating psychiatric illness characterized by intrusive thoughts. In adult patients, the neural correlates of these intrusive thoughts have been hyperactivation of the amygdala, striatum, thalamus, and orbitofrontal cortex (OFC). These neural correlates have only been found in adult OCD patients, but children also suffer from OCD. It is hypothesized that patients with childhood-onset OCD will display a similar phenotype as adults in response to OCD symptom provoking stimuli.

Methods: Over the next 12 months, pediatric OCD patients (12-18 years old, n=30) and healthy controls (n=30) will be recruited. Imaging data will be collected on a 3T MR scanner, while participants view child-tailored OCD symptom provoking stimuli. Behavioral data will be analyzed in SPSS. Brain imaging data will be analyzed in SPM8.

Results: Pediatric OCD patients will show increased amygdala, striatal, thalamic, and OFC activity in comparison to healthy controls.

Conclusion: Childhood-onset OCD patients will show the same phenotype as adult OCD patients. Future work will look at the influence of cognitive behavioural therapy (CBT) on these results.

Relevance/Implications: This is a first step towards a better understanding of the neurobiological pathways underlying the onset of childhood OCD.

Clinical Relevance: There is growing attention to potential intermediate phenotypes (or "endophenotypes") that represent genetic risk for psychiatric disorders at sites closer to gene action than clinical diagnoses. Intermediate phenotypes derived from neural correlates have been of particular interest to researchers as these biomarkers may be useful in clinical settings.

Creating knowledge, caring for minds

Poster #16.   **Executive functioning improvements following transcranial magnetic stimulation therapy for treatment resistant major depressive**

Presenter: Vanessa Fong

Authors: Vanessa Fong

Faculty Sponsor: Dr. Fidel Vila-Rodriguez

Introduction Repetitive transcranial magnetic stimulation (rTMS) has recently emerged as a promising treatment for patients with treatment resistant major depression (TRD) with response rates of 50-55% and remission rates of 30-35%. Some studies have suggested benefits of rTMS in executive function (EF), but these have not been thoroughly replicated. The present aim of this study was to assess neurocognitive changes following a course of rTMS in patients with TRD.

Methods A sample of 20 TRD and 21 healthy volunteers (HV) was assessed with a neurocognitive battery before rTMS, and 16 of the 20 TRD also at 12 weeks after completion of a rTMS course.

Results TRD patients performed worse than HV in response inhibition as measured by the Stroop-Color/Word Task ($M_{Patients}$= 50.56 vs. M_{HV}= 52.43; t= -0.53; p= 0.60). We followed up with pre- and post-treatment paired sample t-test. Results revealed significant improvements in the Stroop-Color/Word Task for TRD patients after rTMS compared to before rTMS ($M_{pre-treatment}$= 44.00 vs. $M_{post-treatment}$= 55.60; t= -30.39; p < 0.001).

Conclusion Our results show improvement of EF in patients with TRD after rTMS. Lack of statistical significance in comparison between TRD and HV may be due to lack of statistical power, or differences in sample characteristics (e.g. years of education, IQ). Neuropsychological improvements may be closely related to or may result from symptomatic remission.

Importance Examining changes occurring at a neurocognitive level may shed light on how the brain is responding to treatment and whether cognitive improvements may be related to antidepressant outcome.

Creating knowledge, caring for minds

Poster #17.   **Examining the High-Risk Accused designation for individuals found Not Criminally Responsible on account of Mental Disorder**

Presenter: Ilvy Goossens

Authors: Goossens, I., Nicholls, T. L., Seto, M., Wilson, C. M., Charette, Y., & Crocker, A. G.

Faculty Sponsor: Dr. Tonia L. Nicholls

Relevance of research: The study found a novel use for existing an existing dataset, and the results have significant clinical and educational implications for legislative decision-makers and clinicians alike. This study is also extremely timely, as in May 2016 the first B.C. HRA hearing will take place (i.e., R. v. Schoenborn).

Objective: Since 2014, some individuals found Not Criminally Responsible on account of Mental Disorder (NCRMD) can be designated 'high-risk accused' (HRA). This designation comes with significant restrictions for on forensic rehabilitation and transitioning. This study examined the relevance of the HRA designation by applying the legislative criteria retrospectively to a national sample of persons found NCRMD.
Method: The National Trajectory Project dataset of individuals found NCRMD between 2000 and 2005 ($N = 1,800$) and followed until 2008 was used to simulate the HRA criteria. Beginning with all 451 individuals who had committed a serious contact offence (the first HRA criterion), a decision algorithm was developed to operationalize the remaining legislative criteria.

Results: One in five individuals could be designated HRA. HRA were under the supervision of the Review Board for a longer period of time than the non-HRA group. Both groups did not differ from the non-HRA group in terms of criminal history, and they reoffended at similar rates.

Conclusion & Relevance: Similar to previous studies, our results suggest the HRA criteria did not identify a subgroup of persons found NCRMD who present an elevated risk of harm to others. Moreover, NCRMD-accused with severe index offences were already conservatively managed by the Review Boards.

Creating knowledge, caring for minds

Poster #18. **Staff perceptions of trauma, female forensic consumers, and current clinical practices: A focus group exploration**

Presenter: Ilvy Goossens

Authors: Goossens, I., Nicholls, T. L., Torchalla, I., Langheimer, V., Rossiter, K., Brink, J.

Faculty Sponsor: Dr. Tonia L. Nicholls

Relevance of research: To date, no Canadian study has explored victimization in forensic psychiatric patients. By addressing this issue, this study contributes to a better understanding of treatment needs of forensic patients, and will guide the introduction of a trauma-informed program of work in the British Columbia forensic psychiatric services.

Introduction: There is a growing understanding of the trauma-related needs in justice-involved populations. However, this is largely unexplored field in forensic psychiatry.

Method: With this study we aimed to gain insight into: (1) staff perceptions of the relevance and implications of trauma in the lives of female forensic patients in their care; (2) the strengths and limitations of current forensic psychiatric services (FPS) in responding to trauma needs; (3) how well-equipped forensic mental health professionals felt in treating female patients with trauma histories. We conducted three 1.5 hour focus groups with 23 mental health professionals, with an average of 4 years (*SD* = 1.3) experience with FPS.

Results indicate that: (1) Women at FPSC have unique trauma-related needs; however, trust is a key factor and is attained by client-staff matching on gender/ethnicity whenever possible. (2) Addressing trauma requires a paradigm shift, from a medical/risk model towards a trauma-informed, strengths-based, collaborative model. (3) Staff also voiced barriers to considering trauma; a fear of retraumatization, lack of resources, time constraints, and poor continuation of care.

Conclusion & Implications: There is a gender-specific trauma need in forensic services. A shift from a management to a treatment model and continued staff education may be important factors to accommodate this need.

Creating knowledge, caring for minds

Poster #19. **Trajectories of body mass index change in patients with first manic episode: 3-year follow-up data**

Presenter: Chen Hu, Postdoctoral Fellow

Authors: Hu C, Torres I, Qian H, Wong H, Lam R, Yatham LN.

Faculty Sponsor: Dr. Lakshmi N. Yatham

Objectives: Little is known about the longitudinal trajectories of body mass index (BMI) in bipolar disorder (BD). This paper aims to examine the trajectories of BMI change, and analyze the association between BMI and prospective outcomes in first-episode of mania (FEM) patients.

Methods: A cohort of 110 FEM patients receiving maintenance treatment and 57 healthy controls was assessed. Linear mixed effects model was used to examine repeated measures of BMI at the individual level. The effect of BMI as a potential predictor on time to any episode was tested by Cox proportional hazard model.

Results: Mixed model shows a fluctuating but persistent BMI increase in patients over 3 years follow-up. Moreover, increased BMI was greater among patients with initially normal BMI. No significant change trends in BMI were presented among healthy subjects and elevated-BMI patients. BMI increase during follow-up was significantly associated with a higher risk of recurrence (*HR*=1.50, *p*=0.02).

Conclusions: FEM patients presented a significantly increased BMI trajectory with greater proportion of overweight or obesity than healthy subjects. Furthermore, BMI increase may independently associate with high risk of recurrence in early course of BD.

Implications: Weight control prevention is needed in the early course of BD even for normal-BMI patients.

Potential clinical relevance of this work: Our observations that FEM patients may present a relatively higher BMI increase trajectory than healthy controls and BMI increase may predict high risk of recurrence suggest both healthcare providers and those newly diagnosed to prevent weight gain, even in the early stage of disease.

Creating knowledge, caring for minds

Poster #20.   **Design and rationale for a functional MRI study of symptom in pediatric obsessive-compulsive disorder**

Presenter: Dr. Fern Jaspers-Fayer, Postdoctoral Fellow

Authors: Dr. Fern Jaspers-Fayer

Faculty Sponsor: Dr. S. Evelyn Stewart

Introduction: Obsessive-compulsive disorder (OCD) is a common and debilitating psychiatric illness characterized by intrusive thoughts. In adult patients, the neural correlates of these intrusive thoughts have been hyperactivation of the amygdala, striatum, thalamus, and orbitofrontal cortex (OFC). These neural correlates have only been found in adult OCD patients, but children also suffer from OCD. It is hypothesized that patients with childhood-onset OCD will display a similar phenotype as adults in response to OCD symptom provoking stimuli.

Methods: Over the next 12 months, pediatric OCD patients (12-18 years old, n=30) and healthy controls (n=30) will be recruited. Imaging data will be collected on a 3T MR scanner, while participants view child-tailored OCD symptom provoking stimuli. Behavioral data will be analyzed in SPSS. Brain imaging data will be analyzed in SPM8.

Results: Pediatric OCD patients will show increased amygdala, striatal, thalamic, and OFC activity in comparison to healthy controls.

Conclusion: Childhood-onset OCD patients will show the same phenotype as adult OCD patients. Future work will look at the influence of cognitive behavioural therapy (CBT) on these results.

Relevance/Implications: This is a first step towards a better understanding of the neurobiological pathways underlying the onset of childhood OCD.

Clinical Relevance: There is growing attention to potential intermediate phenotypes (or "endophenotypes") that represent genetic risk for psychiatric disorders at sites closer to gene action than clinical diagnoses. Intermediate phenotypes derived from neural correlates have been of particular interest to researchers as these biomarkers may be useful in clinical settings.

Poster #21.   **Psychotic Symptom Profiles and Variability Over Time in a Cohort of Marginally Housed Adults**

Presenter: Andrea Jones, MD/PhD Student

Authors: Andrea A Jones, BSc1, Kristina Gicas, BSc2, Fidel Vila-Rodriguez, MD, PhD1, Olga Leonova, MD1, Verena Langheimer, MD1, Donna Lang, PhD3, Alasdair Barr,PhD4, Ric M Procyshyn, PhD1, Geoffrey N Smith, PhD1, Tari Buchanan, BSc1, G William MacEwan, MD1, William Panenka, MD1, Allen E Thornton, PhD2, William G Honer, MD1

Faculty Sponsor: Dr. William Honer

Introduction: Clinical and social characteristics and illness course may vary by symptom severity.

Methods: The Hotel Study is a longitudinal study of adults living in marginalized housing in Vancouver. Positive and Negative Syndrome Scale (PANSS) scores for five key psychotic symptoms were assessed monthly. Cluster analysis was employed to identify groups of people that shared similar symptom profiles at the time of their maximum symptom severity. Clinical characteristics at baseline and at the time of maximum symptom severity were compared between clusters.

Results: Participants (n=416) had at least two PANSS assessments. Examining the maximum severity of psychotic symptoms yielded three clusters with unique symptom profiles: Low, Intermediate, and High. Worse baseline functioning and recent cannabis or methamphetamine use predicted membership in High or Intermediate Clusters. Compared to the Intermediate Cluster, the High Cluster had worse functioning and were less likely to recently use prescribed methadone and more likely to recently use cannabis. The Intermediate Cluster transitions frequently between psychotic and non- psychotic states over one year.

Conclusion: Among adults living in marginalized housing, psychosis was prevalent and symptom presentation was variable.

Implication: Cannabis and methamphetamine use were associated with severe psychotic symptoms among adults who use multiple substances and suffer from multimorbid illness.

Clinical Relevance: Understanding the temporal links between methamphetamine, cannabis, and stressors on psychotic symptom exacerbations may inform treatment and crisis prevention.

Poster #22. **Review of Electroconvulsive Therapy Service and Treatment Delivery at a Major Academic Hospital in Vancouver**

Presenter: David Lee Faculty of Medicine Undergraduate Student

Authors: David K. Lee, Heather A. Robertson, and Raymond W. Lam

Faculty Sponsor: Dr. Raymond W. Lam

Objectives: At the University of British Columbia (UBC) Hospital, a policy change on July 12, 2012 aimed to reduce the frequency of electroconvulsive therapy (ECT) treatment from thrice weekly to twice weekly. We examined the effect of the policy change on the overall course of hospitalization at the 1E Mood Disorders Unit.

Methods: We performed a retrospective chart review of 52 patients for ECT index courses occurring between April 1, 2010 and July 12, 2014.

Results: When comparing patients before and after the policy change, there were no statistically significant changes in mean duration of hospitalization (65.86 vs. 66.00 days, p=0.989), days from admission to first ECT (19.41 vs. 15.80 days, p=0.531), mean number of days from first ECT to last (38.73 vs. 37.77 days, p=0.857), and mean number of total ECT treatments (12.46 vs. 12.07, p=0.781). CGI improvement scores at discharge were similar between the two cohorts.

Conclusions: Our results indicate that the policy change did not have a significant effect on a patient's ECT course and clinical outcomes during their hospitalization.

Relevance/Implications: Either twice weekly or thrice weekly ECT is an efficacious option for patients with mood disorders. Clinical judgement should still guide the choice of ECT administration frequency.

Potential Clinical Relevance: Current guidelines have not standardized the frequency of ECT administered; this study complements the body of evidence supporting that twice weekly ECT is as efficacious as thrice weekly ECT. It is of utmost importance to improve our current treatment delivery strategies to our most severe patient population.

Creating knowledge, caring for minds

Poster #23. **Patients with treatment-resistant opioid dependence remain at increased risk of suicide during maintenance treatment.**

Presenter: Amanda Lee Master's Student

Authors: Amanda Lee

Faculty Sponsor: Dr. Christian G. Schütz

Introduction: Suicide risk is significantly increased in individuals suffering from heroin use disorder. History of suicide attempts is known to be a strong predictor of suicidal ideations and suicide attempts. Recently HCV status and physical health have been identified as risk factors for suicidal ideations in individuals in substitution therapy.

Methods: The "Study to Assess Long Term Opioid Medication Effectiveness" SALOME is a randomized clinical trial that recruited 202 subjects with chronic (at least 5 years) opioid-dependence between 21-65 years old with at least 2 prior unsuccessful treatment attempts. SALOME compared outcomes between hydromorphone or diacetylmorphine (heroin) substitution treatment. Participant completed standard assessments (ASI, OTI, etc.) at baseline and every 3 months for 1 year.

Results: Twenty five percent of participants reported lifetime suicide attempts at baseline. Previous suicide attempts predicted suicidal ideation at all time points assessed. As opposed to reported risk factors, physical health, but not HCV status predicted suicidal ideations.

Conclusion: Suicidality remains a major concern in patients with chronic opiate dependence, even when provided with substation therapy.

Implications: Treatment participation is an opportunity to address this by implementing regular screening and interventions targeting suicide especially among those with history of suicide attempt and physical health problems.

Clinical relevance: Patients who have previously attempted suicide and report current physical health problems are still at increased risk of suicide during maintenance treatment for opioid dependence. This suggests that addiction treatment itself does not alleviate all underlying mental health conditions and future programs are required to improve long term outcomes.

Poster #24.   **Illness Perception in Patients with Treatment Resistant Depression Before and After Transcranial Magnetic Stimulation Therapy**

Presenter: Adelena Leon

Authors: Adelena Leon

Faculty Sponsor: Dr. Fidel Vila-Rodriguez

Introduction: Positive perceptions of illness have been associated with improved treatment outcomes, treatment adherence, and reduced symptom reporting. Illness perception following a course of repetitive Transcranial Magnetic Simulation (rTMS) and the relationship with depressive symptom severity in treatment resistant depression (TRD) have not been explored. We hypothesize that positive changes in illness perception will be associated with decreased depressive symptoms.

Methods: 53 TRD participants completed the Brief Illness Perception Scale (BIPQ) prior to a rTMS course (baseline), at the end of the rTMS treatment course, and/or one week post treatment. Depressive symptoms were measured using the Hamilton Rating Scale for Depression (HRSD-17), the Mongomery Asberg Depression Ratings Scale (MADRS), the 30-item Inventory of Depressive Symptoms (IDS-30), and the 16-item Quick Inventory of Depressive Symptoms (QIDS-16)

Preliminary Results: Decreases in BIPQ score imply positive changes in illness perception. Illness perception was significantly ($p < 0.0001$) more positive at the end of treatment (baseline: M=55.43, SD=6.09; end of treatment: M=41.86, SD=14.70) and significantly more positive one week post treatment ($p < 0.0001$) when compared to baseline.

Conclusion: Positive changes in illness perception may be more associated with positive outcomes in rTMS treatment of TRD. Future analysis will investigate the relationship between depressive symptoms, treatment adherence, and side effect reporting.

Relevance / Implications: Investigating patient illness perception may help indicate rTMS treatment outcome.

Creating knowledge, caring for minds

Poster #25.	**Prescribing Observatory for Mental Health – Fraser Health Authority: A Primer**
Presenter:	Dr. KaWai Leong
Authors:	KaWai Leong, Anson Koo, Jane Dumontet, Sue Corrigan, William Honer, Nigel Fisher
Faculty Sponsor:	Dr. William Honer

Background/Introduction: Over the past decades, the use of antipsychotic medications has increased significantly across all age groups in Canada. However, it is unclear how frequently practitioners use high dosing antipsychotics and combination of antipsychotics in the management of patients with mental disorders.

Objectives/Hypothesis: This quality improvement initiative aims to describe the prescription patterns of antipsychotics drugs within the Fraser Health Authority. We hypothesize that the use of high dosing and combination of antipsychotics are not uncommon within the Fraser Health Mental Health and Substance Use Program (FHMHSU).

Methods: This quality improvement initiative is undertaken in conjunction with the Prescribing Observatory for Mental Health in the United Kingdom (POMH-UK). Psychiatrists from each psychiatry unit within the FHMHSU were invited to take part of a survey for each admitted patient who was on any antipsychotic medication on the date the audit is scheduled. Main outcome measures include: dose and regimen of antipsychotic prescriptions, concurrent PRN prescriptions, main clinical reasons supporting high dose and combination of antipsychotics.

Results: Psychiatrists from eight acute care and four rehabilitation/tertiary units participated in this project. Aggregate data obtained from 365 patients is reported. "High-dose" prescription, defined as total daily dose (whether of a single antipsychotic or combination of antipsychotics) greater than 100% of the maximum recommended daily dose as per the Canadian Agency for Drugs and Technologies in Health, occurred in 21% of the cases in acute care and 28% in rehabilitation/tertiary units. The use of more than one antipsychotic occurred in 37% of cases in acute care and 48% in rehabilitation/tertiary units. Thirteen percent of acute care patients were treated with Clozapine whereas up to 58% of patients in rehabilitation/tertiary care were treated with Clozapine.

Conclusion: A sizable proportion of patients in the FHMHSU received high daily dose and combination of antipsychotics. Clozapine was more commonly prescribed in the rehabilitation/tertiary setting than in acute care.

Relevance/Implications: A long term objective of this initiative is to better understand and to improve prescribing practices of antipsychotic drugs in mental health services across different hospital centres in BC.

Creating knowledge, caring for minds

Poster #26.   **Disordered Eating Habits in the Vancouver Homeless Population**

Presenter: Ruxin Miao Undergraduate Student

Authors: Ruxin Miao

Faculty Sponsor: Dr. Michael Krausz

Introduction: Eating disorders impact a diverse array of people across Canada, but there is little information on prevalence of eating disorders in homeless individuals. In a population where mental health and food security are major concerns, it is important to examine the difference between individuals with a diagnosable eating disorder such as bulimia nervosa and individuals with similarly unhealthy eating habits that lack a psychiatric explanation.

Methods: The demographics of the population with bulimia in the BCHOHS sample were compared to the overall sample, and to frequent-binge-eating individuals. Further analyses were completed on the relative rates of mental health disorders and childhood trauma.

Results: Preliminary analysis shows that the prevalence of bulimia in the sample was 2.6%. But 36% of participants reported binge eating in the 3 months prior to assessment, and of those 68% binged at least twice a week.

Conclusions: Findings suggest that disordered eating behaviour is a significant concern. Those who have binged are likely to do so at least twice a week, but 89% of those who frequently binge are not bulimic. More research is needed to examine the causes of frequent binge eating in the homeless population and how it relates to mental health.

Relevance: This poster examines differences between homeless individuals with bulimia nervosa and those who frequently binge-eat. As distinguishing between eating disorders and disordered eating becomes more common, research on causes and outcomes of binging is needed. In this vulnerable population it could relate to housing, food security, physical and mental health.

Poster #27.   **Examining Survey Response Patterns on Childhood Trauma as an Indicator of Community Integrative Ability**

Presenter: Zamina Mithani Undergraduate

Authors: Zamina Mithani

Faculty Sponsor: **Dr. Michael Krausz**

Adverse childhood events are known to impact social functioning and interpersonal relationships. In vulnerable populations, such as homeless individuals with mental illnesses, community integration is an important factor in an individual's psychosocial wellbeing and ability to access care.

Individuals in the *At Home* study with an over-50% response rate of either "yes", "no", "do not know", or "declined" in the Adverse Childhood Events (ACE) questionnaire were grouped. Demographics of these groups were then compared, along with their scores on the Community Integration Scale (CIS).

We hypothesize that participants who primarily responded "yes" to ACE items would score lowest on the community integration scale, while those who primarily responded "no" would score highest. Furthermore, those who declined to answer or answered "do not know", are predicted to share more similarities in their demographics and community integration scores to the "yes" respondents.

Declining or answering "do not know" to events detailed in the ACE survey does not indicate that adverse events occurred. However, any similarities to individuals who experienced trauma may relate to the ambiguity underlying these responses. More research is required to understand adverse childhood events as well as determinants of low community integration and impact on care.

Future Clinical Relevance: Better evidence around community integration can inform medical professionals and community workers trying to assist mentally ill homeless individuals. In addition, understanding the profile of participants based on how they respond to questions about childhood trauma can direct how these questions are asked in future studies.

Poster #28. **Factors associated with social support among marginally housed adults in Vancouver's Downtown Eastside**

Presenter: Emma Mitchell (MD candidate 2019), Frances Morin (MD candidate 2019), Arun Dhir (MD candidate 2019)

Authors: Emma Mitchell ,Frances Morin an Arun Dhir

Faculty Sponsor: Dr. William Honer

Introduction: Social support has been linked to better mental and physical health, and access to and utilization of health care resources. Beyond the direct impact on health outcomes, social support may also encourage health-promoting behavior including treatment adherence, physical exercise, and decreased non-prescription substance use.

Methods: The Hotel Study, a prospective cohort study, follows participants (n=437) recruited from single room occupancy hotels and the Downtown Community Court in Vancouver's Downtown Eastside neighbourhood. Participants were assessed at baseline for sociodemographic, medical, psychiatric, housing, and social history. Social support was measured using the Arizona Social Support Interview Schedule (ASSIS) and the Inventory of Socially Supportive Behaviors (ISSB). Regression analysis will be employed to test the association between social support and retrospective and baseline variables.

Results/Conclusion: Results and conclusions are forthcoming.

Implications: Social support likely plays an important role in overall health, but its role in socially disadvantaged communities remains unclear. Examining variables associated with poor and strong social support, could help to identify individuals at risk or guide interventions to improve social support. This study will investigate the implications of social support as a driver for mental and physical well-being, housing status, non-prescription substance use, and access to health care services among marginalized populations.

Clinical relevance: Social support may play a role in improving the wellness of marginalized populations. Research on social support may help to develop strategies for service providers to incorporate social support into the management of these patients or to screen those at risk for the negative health outcomes associated with poor social support.

Creating knowledge, caring for minds

Poster #29.   **Discovering biomarkers for antidepressant response: protocol from the Canadian biomarker integration network in depression (CAN-BIND) and clinical characteristics of the first patient cohort**

Presenter: Michael Ni, Tanya Poitras and Cristina Rubino

Authors: Michael Ni, Tanya Poitras and Cristina Rubino

Faculty Sponsor: Dr. Raymond Lam

Introduction: Major Depressive Disorder (MDD) is among the most prevalent and disabling medical conditions worldwide. Identification of clinical and biological markers ("biomarkers") of treatment response could personalize clinical decisions and lead to better outcomes for people with MDD. The Canadian Biomarker Integration Network in Depression (CAN-BIND) was created with an aim to use an integrated approach to biomarker discovery by using extensive clinical, molecular, and imaging assessments in order to improve treatment practice. It will also create an innovative, robust platform and database for future research.

Methods: In this 16-week protocol, patients with MDD are treated with a first-line antidepressant, with the possibility to receive an evidence-based add-on medication, if clinically warranted, after eight weeks. A cohort of 134 participants (85 outpatients with MDD and 49 healthy participants) has been evaluated at baseline.

Results: The clinical characteristics of this cohort are similar to other studies of MDD. The patients were moderately depressed and moderately psychosocially impaired at baseline. Recruitment at all sites is ongoing to a target sample of 290 participants.

Conclusion/Implications: CAN-BIND is a large Canadian collaborative research endeavor that is attempting identify clinically relevant subtypes of depression and further our knowledge of the pathogenesis and pathophysiology of MDD. Given the multifaceted study design, we also expect to find novel psychobiological insights that will lead to the generation of new hypotheses to be validated in future studies.

Poster #30. **Education Is a Determinant of Paid Working among Treatment-Resistant Injection Drug Users in Maintenance Treatment with Highly Potent Opioids.**

Presenter: Mohammadali Nikoo, Graduate student

Authors: Mohammadali Nikoo

Faculty Sponsor: Dr. Michael Krausz

Introduction: Employment and in a broader term, working accelerates the process of recovery of patients diagnosed with opioid dependence. We aimed to assess the pattern and determinants of paid-working in a cohort of treatment-resistant patients who injected drugs in maintenance treatment.

Methods: The data was obtained from SALOME; a double blind, clinical trial that randomized 202 treatment-resistant patients who injected drugs to receive diacetylmorphine or hydromorphone for 12 months. We asked participants about their pat usual employment pattern at baseline and also how many days they were paid for working in the past 30 days at baseline and month 3, 6, 9 and 12.

Results: Six participants were employed at each follow-up visit and 47 (23.3%), 40 (20.30%), 39 (20.1 %), 52 (26.67%) and 51 (26.29%) participants reported paid working in the past 30 days at baseline, month 3, 6, 9 and 12-month follow-up visits, respectively. Post secondary education was a significant determinant of paid working during the follow-up period.

 Conclusion: Higher education enable patients in substitution treatment to undertake paid jobs.

Relevance and Implication: Vocational training and supported employment should be considered as part of the care for patients with opiate dependence in maintenance treatment.

Potential relevance: Opiate-dependent patients in substitution treatment are capable of working and a more comprehensive program is required to support their employment, which is indeed part of their recovery in the long-term.

Creating knowledge, caring for minds

Poster #31. **An epigenetic interrogation of obsessive-compulsive disorder**

Presenter: Andrew J. Perrin

Authors: Andrew J. Perrin, Meaghan Jones, Michael Kobor and S. Evelyn Stewart

Faculty Sponsor: Dr. Evelyn Stewart

Obsessive-compulsive disorder (OCD) is a debilitating psychiatric condition that can affect up to 1% of the population. Up to 80% of OCD cases present before the age of 18 and OCD that begins in childhood can be lifelong. Obsessions and compulsions can keep children home from school and sometimes even make them housebound. This can continue into adult life, significantly interfering with occupational and interpersonal function. A better understanding of what causes OCD and how to better treat it is therefore essential. Although genome-wide association studies have noted that certain genes are found more often than expected by chance in children with OCD, researchers have not been able to identify a single mutation that causes OCD. Nonetheless, twin-twin inheritance studies demonstrate that up to 65% of the causal factors underlying OCD are inherited. This invokes other, sequence-independent means of transmitting risk for OCD. Epigenetics is a type of information embedding that does not alter the sequence of a gene; chemical modifications of DNA and its packaging change the way the DNA is used, sometimes in response to environmental cues. This can take the form of DNA methylation, histone modification, production of small regulatory RNA's and induction of transcriptional silencing pathways. These modifications alter the accessibility of DNA for gene expression, allowing two individuals with identical genetic material to express different levels of the same gene in response to differing environmental factors. Arguably the most highly studied epigenetic mark is DNA methylation the addition of a methyl group to the 5' cytosine in CpG dinucleotides. Recent work on early life adversity and how it can contribute to later life psychopathology has shown that differing early life experiences leads individuals to express different levels of the same gene later in life, primarily via differential DNA methylation profiles. This dynamic nature of epigenetics also makes it possible that response to treatment may be encoded by epigenetic modifications too.

Methods: We are investigating whether epigenetics has an important role in OCD. Using a cohort of OCD-discordant monozygotic twins, we are conducting pilot studies to determine whether differential DNA methylation profiles can be detected between discordant twins.

Results/Discussion: As we continue to collect data, we hope to uncover epigenetic markers that are unique to OCD and then to confirm our findings in a larger group of non-twin sibs. Future avenues include optimization of our analysis to follow changes in epigenetic markers driven by exposure-response prevention and other cognitive behavioral modalities. This dynamic nature of epigenetics also makes it possible that response to treatment may be encoded by epigenetic modifications too.

Creating knowledge, caring for minds

Poster #32.   **The prevalence of depression and its effects on opioid-dependent injection drug users**

Presenter: Abnashi Randhawa Undergraduate student

Authors: Abnashi Randhawa

Faculty Sponsor: Dr. Michael Krausz

Introduction: The prevalence of depression in vulnerable populations, such as opioid-dependent injection drug users (ODIDUs), is higher compared to the general population. There is limited literature providing descriptive analyses of factors associated with depression among this population. Based on participants in the SALOME (Study to Assess Longer-term Opioid Medication Effectiveness) study we report on the prevalence of depression, the relationship between depression and age of first use of illicit opiates, and gender differences in the prevalence of depression.

Methods: Depression was self-reported (past 30 days and lifetime), based on the Addiction Severity Index (ASI) at the baseline of the study.

Results: Of the 202 participants 69.3% were male, 29.2% female, and 1.5% trans-female. Prevalence of depression was 65.3% in SALOME participants, compared to 11.3% in the general population. Mean age of first heroin injection was 25.13 years (SD=8.703) for those who did not report depression, and 24.60 years (SD=8.807) for those who reported depression.

Conclusion: Prevalence of depression is higher in ODIDUs compared to the general population. No significant associations exist between experiencing depression and age of first heroin use.

Relevance/Implications: Improve the health of this population through interventions developed by better understanding the psychiatric health needs of this population.

Creating knowledge, caring for minds

Poster #33.   **Cognitive impairment and generalized brain atrophy in homeless and vulnerably-housed individuals with traumatic brain injury**

Presenter: Toby Schmitt Research Assistant

Authors: Toby Schmitt

Faculty Sponsor: Dr. William Panenka

Introduction: Vancouver's downtown eastside is home to a marginalized group of homeless and vulnerably-housed individuals (HVHIs). Traumatic brain injury (TBI) may contribute to difficulty maintaining adequate housing, but identifying it in HVHIs remains challenging.

Methods: Multimodal MRI was available for 288 of 375 recruited participants. Brain volumes were identified with morphometry and white matter integrity was quantified with diffusion tensor imaging followed by analysis with tract-based spatial statistics (TBSS). Neuroradiologists identified participants with evidence of trauma due to TBI on MRI (MRI-TBI). We then selected a 2:1 matched comparison group from those without a history of TBI. Participants underwent neuropsychological testing.

Results: MRI-TBI was present in 21 (7.3%) participants, of whom 11 (52.3%) self-reported a history of TBI. Immediate memory scores were lower in MRI-TBI ($p<0.05$). In MRI-TBI, frontal, parietal, and occipital lobe grey matter volumes ($p<0.05$) and widespread white matter integrity DTI indices ($p<0.01$) were lower. Degree of impairment in memory and response inhibition in MRI-TBI correlated with extent of white matter damage and grey matter volume loss.

Conclusion: TBI in HVHIs is associated with functional impairment. Degree of brain atrophy can be quantified with multimodal MRI and correlates with degree of impairment.

Relevance: Neuroimaging is recommended as an objective measure of TBI in HVHIs, as self-report measures may be unreliable. When available, imaging methods such as multimodal MRI and morphometry may also be useful as markers of functional impairment.

Creating knowledge, caring for minds

Poster #34.   **A 6 year Longitudinal Study Investigating the Predictors of Remission from Postpartum Depression and Anxiety**

Presenter: Radhika Shankar Research Assistant

Authors: Radhika Shankar

Faculty Sponsor: Dr. Shaila Misri

Introduction: Ten to 15% of women suffer from moderate-to-severe depression/anxiety in the postpartum; this negatively impacts maternal and child health in the short/long-term. Our study examined the biopsychosocial predictors of symptom recovery in mothers with comorbid depression/anxiety from 25 weeks pregnancy to 6 years post-birth.

Methods: Eighty-six women diagnosed with antenatal depression and anxiety were recruited from the Reproductive Mental Health Program, Vancouver. Based on the symptom remission status of anxiety and depression over six years, participants were categorized into three groups: full recovery, partial recovery and no recovery. Validated scales measured maternal depression, anxiety and stress; and child health/behavior.

Results: Factors that were statistically significant in predicting full recovery from depression include: maternal health problems, total parental stress and child's internalizing behaviors. Spousal stress was a significant factor that predicted full recovery from anxiety.

Conclusion: Absence of maternal health concerns, low total parental stress and few child behavioural issues predicted full recovery from depression; whereas low levels of spousal stress was a significant factor in achieving full recovery from anxiety symptoms.

Relevance/Implications: Recovery from postpartum depression/anxiety is influenced by a variety of factors that impact illness trajectory. Early understanding of predictors could lead to timely interventions ensuring maternal-child wellbeing.

Potential Relevance: Our research investigates women's recovery from both depression and anxiety symptoms over six years and identifies relevant predictors that are associated with sustained symptom remission. Understanding these determinants could lead to the development of a decision-making model that predicts patient recovery trajectories based on individual patient predictive profiles.

Creating knowledge, caring for minds

Poster #35. **The Relation between Childhood Trauma and Later Traumatic Brain Injury Among Homeless Population**

Presenter: Michael Jae Song 2017 MPH (Master's of Public Health)
Authors: MJ. Song[1,2]; M. Nikoo[2,]; CG. Schütz[2]; MR. Krausz[1,2]

Faculty Sponsor: Dr. Michael Krausz

Introduction: Both traumatic brain injury (TBI) and childhood trauma are prevalent among homeless population, and childhood trauma may be a risk factor for TBI in this population. The purpose of this study is to find out if childhood trauma is associated with lifetime prevalence of TBI among homeless population.

Methods: The data from British Columbia Health of the Homeless Survey (BCHOHS) was used for this study. The main items included socio-demographics, National Survey of Homeless Assistance Providers and Clients (NSHAPC) and the Childhood Trauma Questionnaire (CTQ). The relationship between childhood trauma and TBI were analyzed using bivariate analysis followed by multivariable logistic regression, adjusting for age, gender, ethnicity, history of epilepsy, and psychiatric diagnoses.

Results: Among those who participated in the survey, prevalence of TBI was 63.6% and prevalence of childhood trauma was 86.6%. Childhood trauma was significantly associated with lifetime prevalence of TBI (OR = 2.27, 95% CI [1.35, 3.81]). After adjustment for other variables, history of traumatic brain injury remained significantly associated with childhood trauma (adjusted OR = 2.10, 95% CI [1.23, 3.56]).

Conclusion: Childhood trauma could be a risk factor for TBI in homeless population, suggesting a need for more childhood trauma screening and trauma-informed care.

Clinical Relevance: Childhood trauma and TBI both have significant impacts on health. Learning the impact of childhood trauma on TBI among the homeless population will help guide strategies in reducing homelessness. The study's findings suggest the need for more focus on childhood trauma prevention and trauma-informed care, as well as TBI screening.

Creating knowledge, caring for minds

Poster #36.   **A Clinical Model to Reduce Nicotine Dependence Among Mental Health Service Users**

Presenter: Sabrina Trigo Undergraduate Research Assistant

Authors: Sabrina Trigo[1,2] , , Dr. Mandeep Bhatti[1], Dr. Roseann Larstone [1,2], Richard Massey[4] & Nansi Long[5] Dr. Candida Graham[1,**2,**]

Faculty Sponsor: Dr. Candida Graham

Tobacco use is a significant determinant of ill health for mental health service users [MHSUs]. A recent review of the literature indicates very little research on tobacco reduction programs for MHSUs. Despite high smoking rates among MHSUs, this cohort does not have increased access to government-provided NRT to help improve long-term health outcomes. No studies to date have taken into account the unique perspectives, challenges and needs of MSHUs in developing TR programs. As part of a larger ongoing community participatory-based research project, a 12-week peer-lead tobacco reduction [TR] program was developed and implemented by MHSUs attending a psychosocial rehabilitation centre. This program uses an innovative peer support model and has been developed and evaluated through an iterative process between researchers, community partners, and MHSUs. Preliminary results using standardized assessments revealed significant pre- to post-program reductions in smoking levels. Assessment of participants' NRT preferences revealed that 4-mg gum, 21-mg patches, and 4-mg inhaler were the most common. To our knowledge this is the first peer-led TR model developed for and by MHSUs.

Potential current or future relevance: This work will inform future nicotine reduction programs tailored to MHSUs. Results will inform healthcare professionals of MHSUs' NRT preferences and how they can facilitate MHSUs smoking reduction in a peer led program. The model we have developed serves to inform the broader healthcare community.

Creating knowledge, caring for minds

Poster #37. **The Development of Measures of Support Beliefs and Behaviours: Understanding the Determinants of a Collaborative Stance in Carers**

Presenter: Joanna Zelichowska

Authors: Iyar M., Zelichowska, J., Thibodeau, M., Srikameswaran, S., Dunn, E., Brown, K., & Geller, J.

Faculty Sponsor: Dr. Josie Geller

Introduction: A collaborative support stance has been shown to be more acceptable and linked to better clinical outcomes than a directive stance. Despite a preference for collaborative support, a directive stance has been shown to be equally or more likely to occur in practice. The first objective of this research was to develop two new measures of carer beliefs and behaviours, the Support Stance Beliefs scale (SBL) and the Support Stance Behaviour scale (SBH). This research also aimed to increase understanding of factors associated with the delivery of collaborative support.

Methods: Carers ($N = 141$) comprised of mothers, fathers, partners, friends and siblings completed the SBL, SBH, rated closeness with their loved one, and completed the Inventory of Interpersonal Problems and the Experience of Caregiving Inventory.

Results: All carers rated a collaborative support stance as more helpful than a directive stance and there was congruency between their beliefs and behaviours. Analyses indicated that a collaborative support stance was associated with a more positive relationship experience, feelings of closeness, and having a less cold interpersonal style.

Relevance/Implications: The SBL and SBH may provide helpful information about carer stance. A collaborative support stance may be facilitated by addressing carer's beliefs about helpful support, the quality of the relationship with their loved one, and their interpersonal style.

Clinical Relevance: Caring for a loved one with an eating disorder is challenging and it is common for carers to use a directive approach. The newly developed Support Beliefs Scale and Support Behaviour Scale can be used as outcomes for interventions aimed at promoting collaboration in carers and can be used to test interpersonal theories of eating disorders. Study findings also suggest that addressing beliefs, interpersonal style and relationship experiences may be beneficial in interventions designed to increase helpful interactions.

Poster#38.   **Responses to Clinical Vignettes: Approaches used by Carers of Adults with Eating Disorders**

Presenter: Joanna Zelichowska

Authors: Zelichowska, J., Iyar, M., Srikameswaran, S., Dunn, E. C., Brown, K., & Geller, J

Faculty Sponsor: Dr. Josie Geller

Introduction: Previous research has shown that individuals with eating disorders have a preference for a collaborative, as opposed to directive support stance from their family and friends. This research examined factors associated with stance offered by carers of adults with eating disorders in response to written vignettes.

Methods: Mothers, fathers, partners, friends and siblings ($N = 120$) responded to eight written vignettes depicting individuals in their recovery from an eating disorder. They also completed a measure of beliefs about collaborative vs. directive support and measures of intra- and inter-personal functioning.

Results: Coding of vignette responses indicated that across all vignettes, 60% of responses were directive and 40% were collaborative. Support stance was associated with beliefs about support, interpersonal style, and demographic factors.

Relevance/Implications: This research represents a first attempt at using open-ended responses to clinical vignettes to examine the delivery and spirit in which carers offer support. Interestingly, whereas carers reported being more collaborative on a questionnaire of recalled behaviours, only 40% of their responses to written vignettes were coded as collaborative.

Clinical Relevance: Given patient and carer preferences for a collaborative support stance, the findings of this research may help to elucidate factors that may prevent carers from offering collaborative support. These findings may help to target interventions aimed at educating carers on how best to support their loved ones suffering with an eating disorder

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Poster#39.	**Executive Functioning Impairment on Daily Functioning of OCD-Affected Youth**

Presenter: Juliana Negreiros

Authors: Juliana Negreiros, PhD, Elaine Chan, BSc, Laura Belschner, MSc, Lynn D. Miller, PhD, S. Evelyn Stewart, MD

Faculty Sponsor: Dr. Evelyn Stewart

Introduction: OCD is a neuropsychiatric illness that often begins in childhood and has significant impact on family, academic, occupational, and social functioning. While most research has directly assessed executive function (EF) via standardized test batteries, exploring deficits in behaviours associated with EF may address the lack of ecological validity of direct executive function measures and provide information about EF impacts on daily functioning of OCD-affected youth.

Methods: This study examined parents' perception of their children's daily behaviour associated with EF, using the Behavior Rating Inventory of Executive Function (BRIEF), a rating scale designed to assess eight different aspects of EF, including inhibition, shifting, emotional control, initiation, working memory, planning/organization, organization of materials, and monitoring. OCD-affected youth's (n=33) BRIEF performance and reported academic difficulties were compared to those of matched healthy controls (n=33).

Results: There were statistically significant group differences across all BRIEF T-scores ($0.001 < p < 0.002$). Convergence between school-reported difficulties and parent-reported EF difficulties was observed, especially in subjects of math and writing.

Conclusion: OCD probands exhibit more executive dysfunction-associated behaviours that negatively impact functioning across environments.

Relevance: This is one of the first studies that assessed a range of observed behaviour difficulties associated with OCD-affected youths' ability to self-regulate cognitive and social problem solving.

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Poster #40.   **Neurocognition in OCD-Affected Youth, their Siblings, and Healthy Controls**

Presenter: Juliana Negreiros

Authors: Juliana Negreiros, PhD, Lynn D. Miller, PhD, S. Evelyn Stewart, MD

Faculty Sponsor: Dr. Evelyn Stewart

Introduction: OCD is a neuropsychiatric illness that often begins in childhood and has significant impact on individuals' functioning. There is increasing interest in determining intermediate markers of brain dysfunction (endophenotypes) that are associated with vulnerability for OCD via neurocognitive assessment. This study examined neurocognition in OCD-affected youth in comparison to their siblings and healthy controls.

Methods: Participants included 29 OCD-identified youth, 18 at-risk siblings, and 31 healthy controls, who were assessed in the areas of executive function, attention, and memory. Significant group differences were determined through analysis of covariance (ANCOVA) and mixed model ANCOVA with family membership as a random factor.

Results: OCD-identified youth presented with significant deficits in planning in comparison to healthy controls. Siblings demonstrated poorer decision-making when compared to OCD and healthy control participants. OCD probands exhibited significant executive dysfunction on daily behaviour when compared to the other two groups.

Conclusion: Similar to previous adult studies, impaired planning was found to be a potential endophenotype in OCD.

Relevance: This study contributes to the limited research on neurocognitive functioning of OCD-affected youth and their siblings, increases awareness about neurocognitive deficits in OCD, and provides information for the advancement in school and clinical interventions and early identification of those at risk for developing OCD.

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