



# Abstract Guide



HEALTH  
RESEARCH  
CONFERENCE

*A forum to showcase, connect, and strengthen health research excellence.*



**March 28<sup>th</sup>, 2026**  
Caesars Windsor Convention Centre  
#YQGHealthResearchConference

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# WELCOME

Thank you for joining us for the **2026 Health Research Conference**. Guest speakers and presenters include a diverse group of researchers, healthcare professionals, students, and community partners representing a wide range of health research areas. We are thrilled that you are here with us to showcase, connect, and strengthen local health research excellence. Welcome!

## ABOUT WE-SPARK HEALTH INSTITUTE

WE-SPARK Health Institute is an innovative partnership supported by Erie Shores HealthCare, Hôtel-Dieu Grace Healthcare, St. Clair College, University of Windsor, and Windsor Regional Hospital that brings together health research strengths, expertise, and infrastructure from across the Windsor-Essex region of Ontario, Canada. We are establishing research pipelines to address pressing health issues, advancing discovery, innovation and technology, training and promoting excellence among our health professionals, and engaging our community.

**Mission:** Enhance the health, well-being, and care of people through transformative research, evidence-based interventions, and knowledge translation.

**Vision:** A thriving and engaged research community driving innovation and advancements in health.

We look forward to continuing to ignite local research!

## THANK YOU TO OUR SPONSORS

DIAMOND



PLATINUM



GOLD



SILVER



BRONZE



## SCHEDULE OVERVIEW

7:45 AM	Registration & Light Breakfast	LOBBY
8:45 AM	Good Way Opening & Welcome   Lived-Experience Perspective	AUGUSTUS I & II
9:15 AM	Plenary Session <b>Moderator:</b> Dr. Lisa Porter, University of Windsor	AUGUSTUS I & II
10:15 AM	Refreshments/Movement Break	LOBBY
10:30 AM	Rapid Fire Session <b>Moderator:</b> Dr. Sara Santarossa, Henry Ford Health	AUGUSTUS I & II
11:00 AM	Poster Session A	AUGUSTUS III
12:00 PM	Lunch	AUGUSTUS I & II
12:45 PM	Poster Session B	AUGUSTUS III
2:00 PM	Concurrent Session A-1   <b>Moderator:</b> Dr. Adrian Guta, University of Windsor <i>LEARN Moderator: Dr. Onawa Labelle</i>	SATURNI
	Concurrent Session A-2   <b>Moderator:</b> Dr. Swati Mehta, University of Windsor <i>LEARN Moderator: Theresa Skwara</i>	LUNA
	Concurrent Session A-3   <b>Moderator:</b> Dr. Andrew Hubberstey, University of Windsor <i>LEARN Moderator: Samantha Asher</i>	MARTIS
	Concurrent Session A-4   <b>Moderator:</b> Jackie Fong, INSPIRE <i>LEARN Moderator: Dawn Mulder</i>	MERCURI
3:25 PM	Refreshments/Movement Break	LOBBY
3:40 PM	Concurrent Session B-1   <b>Moderator:</b> Dr. Adrian Guta, University of Windsor <i>LEARN Moderator: Andy Tannous</i>	SATURNI
	Concurrent Session B-2   <b>Moderator:</b> Dr. Swati Mehta, University of Windsor <i>LEARN Moderator: Alexandra Shoust</i>	LUNA
	Concurrent Session B-3   <b>Moderator:</b> Dr. Andrew Hubberstey, University of Windsor <i>LEARN Moderators: Jim Fair &amp; Garry Loeper</i>	MARTIS
	Concurrent Session B-4   <b>Moderator:</b> Jackie Fong, INSPIRE <i>LEARN Moderator: VeRonica Mitchell</i>	MERCURI
5:05 PM	Closing Remarks & Awards	AUGUSTUS I & II

# ABSTRACTS

## RAPID-FIRE ORAL PRESENTATIONS

ABSTRACT 001 

### ADULT SEXUAL RISK BEHAVIOUR IN A CANADIAN SAMPLE OF TWO-SPIRIT, TRANS, AND NON-BINARY SURVIVORS OF CHILDHOOD SEXUAL ABUSE

Oliver Cheek<sup>1</sup>, Dana Ménard<sup>1</sup>

<sup>1</sup>Department of Psychology, University of Windsor

**Category:** Social, Cultural, Environmental, and/or Population Health Research

Research examining the long-term impacts of childhood sexual abuse (CSA) has shown associations with increased sexual risk behaviour, including earlier sexual debut and sexual activity under the influence of alcohol/drugs. However, despite elevated risk of CSA victimization, the impact of CSA on sexual risk behaviours in transgender adults has not been investigated. This study examined the impact of CSA on sexual risk in transgender survivors. It was hypothesized that CSA history would be associated with increased sexual risk behaviour in adulthood and mediated by experiences of intimate partner violence (IPV), post-traumatic stress disorder (PTSD) symptoms, and lower levels of sexual self-esteem (SSE), and condom self-efficacy (CSE). A convenience sample of 309 Canadian 2STNB adults were recruited using social media and with assistance from partner organizations; 125 reported experiencing CSA. Participants completed an online survey assessing CSA, IPV, PTSD, SSE, CSE, sexual risk behaviour, and demographics. A path analysis showed significant indirect effects from CSA to sexual risk behaviour through IPV and PTSD symptoms ( $\beta = .03$ ,  $p < .05$ ), and through IPV and CSE ( $\beta = -0.02$ ,  $p < .05$ ). The full sequential pathway from CSA through SSE and CSE to risk was not statistically significant, though pathways between SSE and sexual risk ( $\beta = .38$ ,  $p < .05$ ) and from SSE to CSE ( $\beta = .04$ ,  $p < .05$ ) were significant. CSA was associated with greater sexual risk behaviours through its impact on IPV and PTSD symptoms. Focused attention on these mediators through education and therapy could help decrease risk behaviour in survivors.

ABSTRACT 002 

### VACCINE HESITANCY AMONG PEOPLE EXPERIENCING HOMELESSNESS: DETERMINANTS AND STRATEGIES TO IMPROVE UPTAKE – A SYSTEMATIC REVIEW

Michael Nakhla<sup>1</sup>, Reyad Elzaanoun<sup>1</sup>, Gracie Sun<sup>1</sup>, Jennifer Bondy<sup>2,4,5</sup>, Mehdi Aloosh<sup>3,4</sup>

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

People experiencing homelessness (PEH) face disproportionate infectious disease risk yet low vaccination uptake, partly due to vaccine hesitancy. We synthesized determinants of hesitancy among PEH and interventions associated with higher uptake, using the WHO definition (delay or refusal despite available vaccination services). We systematically reviewed studies reporting hesitancy, intent, uptake, or completion among PEH (unsheltered, sheltered, or precariously housed) across all vaccine types. English-language studies from database inception through October 2025 were included without geographic restrictions. Two reviewers screened and extracted data, coded determinants (structural/system, social/relational, individual, service-delivery), extracted intervention effects when reported, and assessed risk of bias using the Mixed Methods Appraisal Tool (MMAT). Hesitancy lay on a continuum from acceptance to refusal, including selective acceptance and delay. Studies used quantitative, qualitative, and mixed-method designs across settings. Determinants included structural/system barriers (ID/documentation, unstable housing, transport/time, policy barriers), social/relational factors (stigma/discrimination, medical mistrust, negative care experiences), individual factors (mental health/substance use challenges, misinformation, low perceived risk), and service-delivery factors (fragmented services vs mobile/shelter delivery, flexible hours, co-located care). Where evaluated, multicomponent, low-barrier approaches combining mobile or shelter delivery, peer support, reminders, and small incentives improved uptake and completion consistently. Hesitancy among PEH is multilevel; education alone is insufficient. Interventions most consistently associated with improved uptake/completion included mobile or shelter-based vaccination, peer navigators, small incentives, reminders, and trust-building, often paired with flexible access and co-located services. Policies enabling ID-flexible consent, sustained funding for low-barrier services and peer roles, and routine equity monitoring may help close immunization gaps.

## ABSTRACT 003

### THE ROLE OF SPY1 IN MAMMARY INVOLUTION AND ONCOGENESIS

Isabelle Hinch<sup>1</sup>, Bre-Anne Fifield<sup>1</sup>, Lisa Porter<sup>1</sup>

<sup>1</sup>Department of Biomedical Sciences, University of Windsor

**Category:** Biomedical Research

From puberty to menopause, factors attributed with breast cancer fluctuate with the natural mammary development. A period of increased breast cancer risk with increased metastasis and mortality occurs following childbirth – potentially linked to mammary involution: gland remodeling post lactation, which balances high rates of apoptosis and cell regeneration. Two processes controlled by the cell cycle and its regulators. The cyclin-like protein Spy1 can enable cell proliferation and override apoptosis. Spy1 levels have been found to be elevated breast cancer. Interestingly, levels of Spy1 are also elevated during involution. We hypothesized that Spy1 protects the cell population necessary for normal mammary gland reconstitution post involution. This study characterises a mouse model overexpressing Spy1 in the mammary gland (MMTV-Spy1) over an involution time course as well as DMBA (7,12-Dimethylbenz[a]anthracene) for cancer susceptibility. In vitro results suggest the ability of Spy1 of maintaining stemness and in vivo data indicates failure of healthy epithelial clearing during involution and increase oncogenic damage. This research begins to articulate the role of Spy1 during normal mammary involution in and how overexpression prevents healthy mammary healing potentially play a role in the predisposition of the breast to oncogenesis.

## ABSTRACT 004

### INTRAVENOUS ALBUMIN IN SURGICAL ONCOLOGY PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Aviva Moses<sup>1,2</sup>, Bram Rochwerg<sup>3,4</sup>, Sasha Kyser-Burke<sup>5</sup>, Katherine Zhu<sup>1</sup>, Samantha J McCluskey<sup>6</sup>, Omar I Hajjaj<sup>6</sup>, Shangari Vijenthira<sup>6</sup>, Justyna Bartoszko<sup>7</sup>, Stuart A McCluskey<sup>7,8</sup>, Edward G Clarke<sup>9</sup>, Angela Jerath<sup>7,10</sup>, Natalie Coburn<sup>11</sup>, Julie Hallet<sup>11</sup>, Christopher J D Wallis<sup>12,13</sup>, Sunil Patel<sup>14</sup>, Andrew Giles<sup>14</sup>, Jacqueline Trudeau<sup>15</sup>, Alexander Dotto<sup>15</sup>, Sarah Mclsaac<sup>16</sup>, James Masters<sup>17</sup>, Raphaella Rosebush-Mercier<sup>17</sup>, Oliver Grottko<sup>18</sup>, Nicole Relke<sup>19,20</sup>, Jeannie Callum<sup>21</sup>, Wiley Chung<sup>14</sup>

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**Category:** Clinical Research

Intravenous albumin is commonly administered during surgical oncology procedures despite limited evidence of benefit. This systematic review and meta-analysis evaluated whether albumin administration, compared to alternative fluid strategies, improves outcomes in patients undergoing cancer surgery. We searched MEDLINE, EMBASE, and Cochrane databases from inception to March 5, 2025, without language restrictions, following PRISMA and Cochrane guidelines. We included randomized controlled trials (RCTs) comparing albumin with alternative fluid strategies (crystalloids, synthetic colloids, or no

albumin) in adult cancer surgery patients. We evaluated outcomes rated as important or critical by an expert panel, performed meta-analyses using random-effects models, and assessed certainty of evidence using GRADE. We included nine RCTs (n=890 patients), five of which used crystalloids as the comparator. Pooled analysis found there may be no difference between albumin and alternative fluid groups in total complication rates (risk ratio [RR] = 0.96; 95% confidence interval [CI]: 0.68 to 1.35), intensive care unit or hospital length of stay, or perioperative blood loss (all low to moderate certainty). Effects on mortality and inotrope/vasopressor use were uncertain (very low certainty). Albumin administration was probably associated with a lower perioperative fluid balance (mean difference [MD] = -169.97 mL; 95% CI: -293.41 to -46.52, moderate certainty). Current evidence suggests albumin may not improve patient-important outcomes in surgical oncology. The modest reduction in fluid balance observed with albumin is unlikely to be clinically meaningful, and routine albumin use may contribute to unnecessary healthcare costs. Larger, multicentre RCTs are needed to guide evidence-based perioperative fluid management in surgical oncology.

## ABSTRACT O05

### **HEALTHCARE EXPERIENCES OF ADULTS LIVING WITH BORDERLINE PERSONALITY DISORDER IN CANADA: A SCOPING REVIEW**

Aman Ahluwalia-Cameron<sup>1</sup>, Jhanvi Patel<sup>1</sup>, Gurleen Saroya<sup>1</sup>

<sup>1</sup>School of Social Work, University of Windsor

**Category:** Health Services Research; Social, Cultural, Environmental, and/or Population Health Research

Borderline Personality Disorder (BPD) is a highly stigmatized mental health diagnosis, and individuals living with BPD frequently report negative, exclusionary, or fragmented experiences within healthcare systems. While qualitative research has documented aspects of these experiences, the Canadian evidence base remains dispersed and has not been comprehensively mapped. This scoping review aims to synthesize and map qualitative research examining the healthcare experiences of adults living with borderline personality disorder in Canada. Guided by the Joanna Briggs Institute (JBI) scoping review methodology and reported in accordance with PRISMA-ScR guidelines, we conducted a systematic search of multiple peer-reviewed electronic databases. Databases and keyword searches were approved by a University of Windsor librarian. Eligible studies included qualitative or mixed-methods research reporting first-person experiences of healthcare among adults (18+) diagnosed with BPD within Canadian healthcare contexts. Data were charted and synthesized descriptively and thematically. Preliminary findings indicate recurring themes related to stigma and diagnostic labeling, dismissal and invalidation by healthcare providers, barriers to accessing consistent and timely care, reliance on emergency services, and challenges navigating fragmented systems. The preliminary findings of this scoping review highlights persistent systemic barriers affecting the healthcare experiences of adults living with BPD in Canada. Findings underscore the need for trauma-informed, stigma-responsive, and structurally supported models of care. By examining the existing qualitative literature, this review identifies critical gaps and provides a foundation for future research, policy development, and service reform aimed at improving equity and quality of care for people living with BPD.

## ABSTRACT O06

### **DIFFERENTIAL HEPATIC GENE EXPRESSION ACROSS FIBROSIS STAGES IN HEPATOCELLULAR CARCINOMA**

Mahsa Rahimi<sup>1</sup>, Bre-Anne Fifield<sup>2</sup>, Lisa A Porter<sup>2</sup>

<sup>1</sup>Department of Integrative Biology, University of Windsor

<sup>2</sup>Department of Biomedical Sciences, University of Windsor

**Category:** Biomedical Research

Hepatocellular carcinoma (HCC) ranks among the leading causes of cancer-related deaths globally. Metabolic Associated Steatotic Liver Disease (MASLD), the most prevalent liver condition, is closely linked to a spectrum of hepatic disorders, including Metabolic Associated Steatohepatitis (MASH), liver cirrhosis, and eventually HCC. While cirrhosis is a well-established precursor to HCC, approximately 20% of HCC cases arise without prior cirrhosis, and the molecular mechanisms driving this subset of non-cirrhotic HCC remain poorly understood. This study employs a comprehensive bioinformatics approach to investigate the distinct molecular drivers of non-cirrhotic HCC compared to cirrhotic HCC. This study analyzed RNA-seq expression data to identify differentially expressed genes (DEGs) in cirrhotic and non-cirrhotic HCC compared to normal liver tissue. GO analysis revealed that the DEGs were involved in pathways regulating MAPK, PI3K-Akt, p53 signaling cell cycle pathway, and immune responses, highlighting their diverse roles in tumorigenesis. Core genes involved in cell cycle regulation were identified and their expression patterns were systematically compared across different fibrosis states in HCC. Key genes such as STAT3, JAK1, SPDYA, CDKN1A, and CDKN1C showed significant upregulation in non-cirrhotic HCC compared to cirrhotic HCC, suggesting roles in driving tumorigenesis independent of cirrhosis. This comprehensive bioinformatics analysis identified

core genes that mediate the molecular mechanisms underlying MASLD and MASH and their potential roles in non-cirrhotic HCC development. These findings provide a deeper understanding of the molecular basis of non-cirrhotic HCC and highlight promising biomarkers and therapeutic targets for diagnosing and managing this subset of HCC.

#### ABSTRACT O07

### **CO-CREATING A UNIFIED RESPONSE: A CROSS-SECTOR IPV TRAINING INITIATIVE IN WINDSOR-ESSEX**

**Amal Sleiman<sup>1</sup>, Amy Peirone<sup>1</sup>, Betty Barrett<sup>2</sup>**

<sup>1</sup>St. Clair College

<sup>2</sup>School of Social Work, University of Windsor

**Category:** Social, Cultural, Environmental, and/or Population Health Research; Clinical Research

Intimate Partner Violence (IPV) has been declared an epidemic in Windsor-Essex and across more than 90 Ontario municipalities. Despite growing awareness, responses remain fragmented due to inconsistent training, siloed service delivery, and limited shared language across sectors. Following several local femicides, the Violence Against Women Coordinating Committee of Windsor-Essex (VAWCCWE) Leadership Table identified the urgent need for standardized, cross-sector foundational knowledge to strengthen coordination and risk identification. Supported by a WE-SPARK Health Institute grant, we developed From Awareness to Action: Shaping a Unified Response to Intimate Partner Violence and Femicide in Windsor-Essex, a self-guided, evidence-informed training toolkit designed to align understanding and enhance collaborative response. The project brought together St. Clair College, the University of Windsor, and over 30 community agencies in a co-creative partnership. Nine students participated in a structured mentorship model pairing graduate and undergraduate learners, while community leaders reviewed and refined materials to ensure frontline relevance. The toolkit integrates public health framing, shared definitions, coercive control and risk escalation guidance, and practical tools to support trauma-informed, coordinated practice. This work has been seamlessly integrated into the Hub Without Walls initiative, a Windsor-Essex collaboration of over 20 community organizations working collectively to prevent, intervene, and respond to gender-based violence.

#### ABSTRACT O08

### **DIFFERENT PATHS, SAME STRUGGLES: SEXUAL WELL-BEING ACROSS ENDOMETRIOSIS DIAGNOSTIC PATHWAYS**

**Morgan Sterling<sup>1</sup>, A Dana Ménard<sup>1</sup>**

<sup>1</sup>Department of Psychology, University of Windsor

**Category:** Clinical Research

Endometriosis is associated with pain, fatigue, and disruptions in quality of life, including sexual well-being. Despite growing recognition of sexual health as a key component of psychological functioning, limited research has examined biopsychosocial factors that contribute to sexual satisfaction among individuals living with endometriosis. Few studies include individuals with non-surgical diagnoses, even though most women with endometriosis do not have surgical confirmation. This study aimed to (1) characterize levels of sexual functioning and sexual satisfaction in cisgender women with endometriosis, (2) identify biopsychosocial predictors of sexual satisfaction, and (3) examine differences between women with surgically confirmed and probable diagnoses. A cross-sectional online survey was completed by 162 cisgender women aged 16 years and older residing in Canada with either a surgically confirmed or probable diagnosis of endometriosis. Participants completed self-report measures assessing sexual functioning, sexual satisfaction, endometriosis symptoms, and psychological and social variables. Multiple regression analyses were conducted to examine predictors of sexual satisfaction. Participants reported low overall sexual functioning and sexual satisfaction, with many meeting criteria for sexual dysfunction. Higher sexual functioning and sexual self-esteem were strong predictors of sexual satisfaction, while fatigue and resilience showed smaller but significant associations. Sexual outcomes did not differ by diagnostic pathway. These findings highlight the importance of addressing both physical symptoms and psychological factors in understanding sexual satisfaction among women with endometriosis. They also support broader recruitment strategies that include individuals with probable diagnoses to enhance the inclusivity, relevance, and clinical applicability of future sexual health research.

ABSTRACT O09 

### **ESTABLISHING RELIABLE INTERNAL EXTRACTION CONTROLS AND OPTIMIZING THE PERFORMANCE OF THE LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (LAMP) ASSAY**

**Lea Tanovic<sup>1</sup>**, Maria Khoury<sup>1</sup>, Brayden LaBute<sup>1</sup>, Farinaz Ziaee<sup>1</sup>, Jackie Fong<sup>1</sup>, Yufeng Tong<sup>1</sup>

<sup>1</sup>Department of Chemistry & Biochemistry, University of Windsor

**Category:** Biomedical Research

Since the onset of the COVID-19 pandemic, Loop-Mediated Isothermal Amplification (LAMP) has emerged as a promising alternative to quantitative Polymerase Chain Reaction (qPCR) for pathogen detection through nucleic acid amplification in low-technology and time-sensitive settings. LAMP utilizes multiple primers to amplify target sequences; it is 7 exceptionally well-suited for point-of-care testing (POCT), requiring only a half hour of incubation time in a common laboratory heat source, such as a water bath or heat block. This study optimizes the LAMP protocol to increase sensitivity and identify the most suitable internal extraction control for SARS-CoV-2 detection. Three human proteins commonly found in saliva (actin, beta-2 microglobulin (B2M), and RNase P) were evaluated as internal extraction controls, with B2M proving to be most suitable. Two SARS-CoV-2 primer sets were tested: one targeting the envelope (E1) region and the nucleocapsid (N2) region of the SARS-CoV-2 genome. The assay's efficacy was tested with serially diluted SARS-CoV-2 standards and RNA extracted from positive COVID-19 saliva samples. It was found that the E1 primer set outperformed the N2 set, indicating a 2.5-fold improvement in detection limit compared to previous studies. This paper explores the optimization of an emerging isothermal amplification technique in the context of POCT.

ABSTRACT O10 

### **EYE-BASED INDICATORS OF COGNITIVE WORKLOAD DURING EXOSKELETON-ASSISTED PATIENT-HANDLING TASKS**

**Julie Webeck<sup>1</sup>**, Joel Cort<sup>1</sup>, Laurie Freeman<sup>2</sup>, Griffin Macaset<sup>1</sup>, Rawasi Fituri<sup>2</sup>, Francesco Biondi<sup>1</sup>

<sup>1</sup>Department of Kinesiology, University of Windsor

<sup>2</sup>Faculty of Nursing, University of Windsor

**Category:** Health Services Research

To determine whether wearing a back-support exoskeleton alters objective, eye-based indicators of cognitive workload during simulated patient-handling tasks. Exoskeletons are increasingly being considered to reduce physical demands in nursing. Successful adoption may depend on whether they affect cognitive workload or increase visual-attentional demands during task performance. In a within-subject, counterbalanced design, nursing students completed standardized simulated patient-handling tasks under two conditions (wearing an active back-support exoskeleton and no exoskeleton) while wearing eye-tracking glasses. Outcomes included active task duration, blink rate, mean blink duration, mean pupil diameter, and mean eyelid aperture. Paired comparisons were conducted across participants with valid data in both conditions (N = 27). Subjective usability was also assessed post-task to contextualize objective findings. No meaningful condition differences were observed for active task duration (Exo 42.04 s vs No\_Exo 41.94 s;  $p = 0.945$ ), blink rate (20.16 vs 20.27 /min;  $p = 0.937$ ), mean pupil diameter (3.64 vs 3.64 mm;  $p = 0.967$ ), or mean eyelid aperture (7.30 vs 7.34 mm;  $p = 0.816$ ). Mean blink duration was modestly higher in the exoskeleton condition (0.2469 vs 0.2316 s;  $p = 0.017$ ). Subjective responses indicated generally positive usability perceptions. These preliminary findings suggest that the exoskeleton did not increase common eye-based workload markers during simulated patient handling. The increase in blink duration may reflect subtle changes in visual strategy or task engagement. Future work to integrate subjective workload, additional physiological measures, and performance outcomes to inform exoskeleton implementation and training in nursing contexts is needed.

## POSTER SESSION

ABSTRACT P001 - A

### **EXPLORING THE MOLECULAR MECHANISM FOR ACTIVATION OF CYCLIN-DEPENDENT KINASES BY NON-CANONICAL SPEEDY/RINGO PROTEIN FAMILY MEMBERS**

**Alexander Agostinis<sup>1</sup>, Farinaz Ziaee<sup>1</sup>, Joseph Francis<sup>1</sup>, Yufeng Tong<sup>1</sup>**

<sup>1</sup>Department of Chemistry and Biochemistry, University of Windsor

**Category:** Biomedical Research

Cyclin-dependent kinases (CDKs) are central regulators of cell-cycle progression, coordinating checkpoint transitions through phosphorylation of key substrates such as the retinoblastoma tumour suppressor protein (Rb). Dysregulated CDK activity is a hallmark of many cancers, making CDKs important therapeutic targets. Selective CDK4/6 inhibitors, including palbociclib and ribociclib, are now standard treatments for hormone receptor–positive (HR+) breast cancer; however, resistance to these agents frequently emerges. Canonical CDK activation requires cyclin binding, yet growing evidence indicates that alternative, non-cyclin regulatory mechanisms also contribute to CDK control. Members of the Speedy/RINGO (SPDY) protein family have emerged as potent non-canonical activators of CDKs. SPDY proteins can activate CDK1 and CDK2 under atypical conditions, including cellular contexts in which cyclin–CDK complexes are inactive or inhibited. SPDY1, the prototypical family member, is well characterized as an activator of CDK1 and CDK2, but whether it can modulate the activity of other CDKs has not been systematically investigated. In this study, we aim to comprehensively profile interactions between the SPDY and CDK protein families. Using a biochemical approach combining recombinant protein purification with ADP-Glo–based kinase assays, we seek to identify SPDY–CDK binding partners, assess kinase activation, and evaluate the functional relevance of these interactions. Defining non-canonical modes of CDK regulation may reveal new therapeutic vulnerabilities in CDK-driven diseases, including breast cancer and sarcomas.

ABSTRACT P002 - B

### **ESTABLISHING A BIOMARKER DISCOVERY PLATFORM TO TRACK PROGRESSION TO TREATMENT RESISTANT NEUROENDOCRINE PROSTATE CANCER**

**Samavia Ahmad<sup>1,2</sup>, Jeffery Martin<sup>1</sup>, Christian Kassa<sup>1</sup>, Hannah Ferasol<sup>1</sup>, Bre-Anne Fifield<sup>1</sup>, Elizabeth Fidalgo da Silva<sup>1,3</sup>, Lisa A Porter<sup>1,3</sup>, Sindu Kanjeeal<sup>2,3</sup>**

<sup>1</sup>Department of Biomedical Sciences, University of Windsor

<sup>2</sup>Department of Oncology, Windsor Regional Hospital

<sup>3</sup>WE-SPARK Health Institute

**Category:** Biomedical Research; Health Service Research; Clinical Research

Prostate cancer (PC) is the most commonly diagnosed cancer among men in North America. Although many patients initially respond to androgen-deprivation therapy, a subset progress to castration-resistant prostate cancer (CRPC) and may further develop neuroendocrine prostate cancer (NEPC), an aggressive and treatment-resistant subtype with poor clinical outcome. Early identification of NEPC remains limited by reliance on invasive tissue biopsies that are not routinely performed during disease progression. This study aims to evaluate circulating tumor RNA (ctRNA) from liquid biopsies as a biomarker for tracking molecular progression from CRPC to NEPC. We hypothesize that ctRNA derived from blood, urine, and saliva reflects tumor-associated transcriptional signatures characteristic of NEPC. Prospective biospecimen collection from prostate cancer patients has initiated, with sample acquisition ongoing. The current patient pool of n=10 is representative of both progressing castration-sensitive and metastatic castration-resistant PC subtypes. Blood, urine, and saliva samples are processed using standardized protocols and prepared for whole transcriptome sequencing (WTS). Transcriptomic analyses will focus on NEPC-associated gene expression patterns, including cell cycle regulators and neuroendocrine-lineage markers. This pilot study will establish a novel scalable framework for ctRNA-based liquid biopsy analysis in prostate cancer patients. Successful identification of NEPC-associated transcriptional signatures will support expansion to larger clinical studies and advance non-invasive approaches for early detection, treatment stratification, and personalized disease monitoring.

ABSTRACT P003 - A

### **INVESTIGATING THE ROLE OF THE UPR IN TROPHOBLAST DIFFERENTIATION AND HYPOXIA-INDUCED PLACENTAL DYSFUNCTION**

**Mohamed Ali**<sup>1</sup>, Diba Chowdhury<sup>1</sup>, Stephen J Renaud<sup>1,2</sup>

<sup>1</sup>Department of Anatomy and Cell Biology, University of Western Ontario

<sup>2</sup>Children's Health Research Institute, Lawson Health Research Institute

**Category:** Biomedical Research

The placenta is essential for fetal development, mediating gas, nutrient, and waste exchange through the syncytiotrophoblast (STB), a multinucleated cell layer at the maternal-fetal interface. Impaired STB development is a hallmark of preeclampsia, a serious pregnancy complication. Placental hypoxia, commonly observed in preeclampsia, is known to disrupt STB formation. UPR hyperactivation has been implicated in placental dysfunction; however, its relationship with hypoxia and STB dysregulation remains poorly understood. We hypothesized that hypoxia impairs STB differentiation via activation of UPR pathways. Accordingly, this study aimed to examine UPR activation under normoxic and hypoxic conditions and assess the roles of UPR branches in STB differentiation and function. BeWo cells were cultured under standard (20% O<sub>2</sub>) or hypoxic (1% O<sub>2</sub>) conditions with or without 8-bromo-cAMP to induce STB-like differentiation. Individual UPR branches were selectively inhibited using established small-molecule inhibitors. STB formation was evaluated by immunofluorescent quantification of fused syncytia and by measuring STB marker expression using RT-qPCR and western blotting. Under standard conditions, 8-bromo-cAMP robustly induced STB formation, which was significantly impaired under hypoxia and not rescued by UPR inhibition. In contrast, inhibition of the IRE1 $\alpha$  and ATF6 UPR branches under standard conditions disrupted STB formation, indicating their requirement for syncytialization. STB differentiation under standard oxygen was associated with increased expression of multiple UPR markers, whereas hypoxia selectively reduced IRE1 $\alpha$  signaling. These findings indicate that hypoxia impairs STB formation through a UPR-independent mechanism while revealing essential roles for IRE1 $\alpha$  and ATF6 in normal placental syncytialization.

ABSTRACT P004 - B

### **IMPACT OF CLINICAL TRIAL NAVIGATORS ON CLINICAL TRIAL ACCRUAL THROUGH MULTIDISCIPLINARY CASE CONFERENCES: A PRE- & POST-IMPLEMENTATION STUDY**

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**Category:** Health Service Research

Participation in clinical trials has been associated with improved prognosis in some cancers, yet clinical trial accrual rate remains low in Canada (~5%). Integrating Clinical Trial Navigators (CTNs) into multidisciplinary case conferences (MCCs) has shown promise in improving trial discussions, increasing referrals, and streamlining enrollment processes. This study aims to assess the feasibility and acceptability of embedding CTNs within MCCs, evaluate physician satisfaction before and after implementation, and examine preliminary changes in clinical trial accrual rates and time to referral. This single-centre pilot study is being conducted at the Windsor Cancer Centre, focusing on breast and neurological cancers. MCC discussions were held virtually between March and December of 2025. In collaboration with physicians, CTNs determined patient eligibility for trial searches, using updated trial master lists. Physician surveys and semi-structured interviews guided by the Consolidated Framework for Implementation Research (CFIR) are being conducted to obtain feedback on implementation barriers and facilitators. Quantitative data will be used to compare accrual-related outcomes between breast and neurological cohorts, while qualitative data is being analyzed using deductive and inductive thematic analysis. This study is ongoing. CTNs attended 28 MCCs. Pre-implementation surveys and interviews were sent to 117 Canadian physicians. To date, 19 pre-implementation interviews were conducted. Preliminary findings suggest that integrating CTNs into MCCs is both acceptable and feasible. Further quantitative analysis is required to more fully characterize implementation effectiveness. If effective, future studies should evaluate the scalability and generalizability of this model across various cancers and healthcare systems.

ABSTRACT P005 - A

### **INVESTIGATING eIF2 $\alpha$ -MEDIATED TRANSLATIONAL CONTROL IN TASTE MEMORY FORMATION**

**Nancy Almasri<sup>1</sup>, Josh Miller<sup>1</sup>, Anna Papanastassiou<sup>1</sup>, Vijendra Sharma<sup>1</sup>**

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**Category:** Biomedical Research

Learning and memory depend on activity-dependent protein synthesis that supports synaptic plasticity. A key regulator of translational initiation is the phosphorylation state of eukaryotic initiation factor 2 alpha (eIF2 $\alpha$ ), where reduced phosphorylation enhances protein synthesis and facilitates long-term memory formation. Taste memory provides a well-defined model to study these mechanisms, engaging a circuit that includes the insular cortex (IC), medial prefrontal cortex (mPFC), and basolateral amygdala (BLA). While previous studies demonstrate that reduced eIF2 $\alpha$  phosphorylation enhances taste memory, these findings are largely based on tissue-level analyses and do not resolve the specific neuronal populations involved. This study aims to identify region- and cell-type-specific eIF2 $\alpha$  signalling dynamics during taste memory formation. We hypothesize that novel taste learning selectively reduces phosphorylated eIF2 $\alpha$  in excitatory neurons of the insular cortex compared to familiar or aversive taste conditions. To test this, mice will undergo established behavioural taste learning paradigms, followed by biochemical and cellular analyses at a critical post-learning time point. Western blotting will quantify phosphorylated and total eIF2 $\alpha$ , along with upstream kinases, in the IC, mPFC, and BLA to assess region-specific translational regulation. Complementary immunohistochemistry will be used to visualize p-eIF2 $\alpha$  signalling within defined neuronal subtypes in the IC, enabling cell-type-specific resolution. Together, these approaches will clarify how translational control is engaged across brain regions and neuronal populations during taste learning. Defining excitatory and inhibitory neuron populations that exhibit eIF2 $\alpha$ -dependent translational changes during taste learning will clarify circuit-specific mechanisms of memory encoding and identify precise molecular targets relevant to cognitive dysfunction.

ABSTRACT P006 - B

### **SEXUAL SATISFACTION OF 2STNB INDIVIDUALS WITH ENDOMETRIOSIS**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Endometriosis (endo) is a chronic disease characterized by the growth of endometrial-like tissue outside of the uterus, forming lesions and adhesions within the abdominal cavity. Although endo is primarily seen as a cis-women's health condition, any individual assigned female at birth (AFAB) may be vulnerable to endo, including transgender, non-binary, and two-spirit individuals (2STNB). There is a growing recognition that endo, and the physical pain it may cause, can have profound effects on sexual satisfaction and sexual functioning, which are closely linked to overall quality of life. However, the existing literature in this area is overwhelmingly focused on the experiences of cisgender women. The goal of this study was to determine the unique impacts of endo on the sexual satisfaction of 2STNB individuals. 2STNB individuals with and without endometriosis, and cisgender women with endo across Canada completed an online questionnaire that included measures of sexual satisfaction, sexual functioning, gender identity, and their experience with endo. Quantitative results from the study will be presented, including descriptive patterns of sexual satisfaction and analyses examining associations and group differences. Results from this study will help to inform health care providers on the unique ways in which endo may impact sexual well-being for 2STNB individuals.

ABSTRACT P007 - A

**EVALUATION OF CLINICAL AND PATIENT OUTCOMES USING CAPA-IVM IN A CLINICAL SETTING: A MIXED METHODS CLINICAL TRIAL**

**Isabella Arthur<sup>1</sup>, Adam Pillon<sup>1</sup>, Rahi Victory<sup>1</sup>**

<sup>1</sup>Victory Reproductive Care

**Category:** Clinical Research

Capacitation in vitro maturation (CAPA-IVM) is an emerging assisted reproductive technology that enables the retrieval of immature oocytes without any medical intervention, presenting an alternative to traditional IVF. Although traditionally used in women with high ovarian reserve or elevated anti-Müllerian hormone (AMH), its rationale may extend to advanced maternal age (AMA). The antral follicle is a physiologically low-oxygen niche that supports oocyte maturation. With increasing age, this microenvironment becomes dysregulated, characterized by altered oxygen metabolism and oxidative stress, which are associated with poor oocyte quality. Emerging evidence further suggests that the developmental contribution of oocytes at different stages of nuclear maturity shifts with age, supporting earlier retrieval strategies and optimized rescue maturation. By enabling earlier retrieval of oocytes and maturation under controlled in vitro conditions, CAPA-IVM may help mitigate age-associated microenvironmental stressors and expand autologous fertility options for patients who are frequently counselled toward donor oocytes. This study aims to evaluate the efficacy, safety, and feasibility of CAPA-IVM in a Canadian fertility centre, particularly among women of AMA and/or low AMH. Quantitative outcomes include oocyte yield and maturation, fertilization, embryo development, implantation, clinical pregnancy, live birth, and treatment-related adverse events. This study will inform the clinical implementation of CAPA-IVM in Canada. The findings may support broader access to lower-burden, patient-centred fertility treatment and guide the design of future multicentre trials.

ABSTRACT P008 - B

**FUNCTIONAL METAGENOMIC DISCOVERY OF KANAMYCIN RESISTANCE DETERMINANTS FROM WASTEWATER METAGENOMES**

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<sup>1</sup>Department of Biology, University of Waterloo

**Category:** Social, Cultural, Environmental, and/or Population Health Research

Municipal wastewater represents a critical intersection between environmental, microbial, and human-associated ecosystems and serves as an important reservoir for antimicrobial resistance (AMR). While wastewater-based surveillance has emerged as a powerful tool for monitoring resistance trends, most current approaches rely on sequence homology to known reference databases, limiting their ability to detect novel or highly divergent resistance determinants. The objective of this study is to identify phenotypically active kanamycin resistance mechanisms in wastewater that evade conventional sequence-based detection. To address this gap, a cosmid-based functional metagenomic library constructed from influent municipal wastewater was screened using a multi-host workflow to reduce host-specific expression bias. Environmental DNA was initially selected for kanamycin resistance in *Pseudomonas putida*, followed by plasmid recovery and validation in *Escherichia coli*. Resistant clones were prioritized for long-read sequencing, assembly, and bioinformatic analysis, including interrogation against the Comprehensive Antibiotic Resistance Database and open reading frame prediction. Several kanamycin-resistant clones were identified, including a focal clone that reproducibly conferred resistance across hosts despite lacking any annotated aminoglycoside resistance genes. Ongoing subcloning and functional validation aim to resolve the genetic basis of this resistance phenotype. These findings highlight the limitations of homology-based AMR surveillance and reinforce the value of integrating functional metagenomics with wastewater monitoring. By revealing unannotated resistance determinants at the human-environment intersection, this work advances a One Health framework for early AMR detection and supports proactive public health strategies aimed at mitigating emerging resistance threats.

ABSTRACT P009 - A

### **IDENTIFICATION OF CELL-TYPE-SPECIFIC TRANSLATIONAL CONTROL MECHANISMS OF LONG-TERM DEPRESSION AND MEMORY FORMATION**

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<sup>1</sup>Department of Biomedical Sciences, University of Windsor

**Category:** Biomedical Research

During long-term memory formation, newly synthesized proteins modify neural networks by strengthening or weakening synaptic connections. In rodents, spatial and object recognition memory necessitate the activation of long-term depression at specific hippocampal synapses. The downstream pathway of long-term depression involves activating the eukaryotic initiation factor 2 (eIF2) pathway and protein synthesis. Phosphorylation of eIF2 $\alpha$  plays a critical role in regulating the translation of specific mRNAs. Research indicates that the translation mediated by p-eIF2 $\alpha$  is essential and sufficient for long-term depression and its associated learning behaviour. In contrast, blocking p-eIF2 $\alpha$  prevents protein synthesis-dependent long-term depression. The cell-type-specific mechanisms by which p-eIF2 $\alpha$ -dependent translation promotes synaptic plasticity and memory remain unknown. Different cell types in the brain play unique roles in shaping synaptic function, and identifying the cell-type-specific mechanisms underlying these processes explains how the brain adapts to its environment and experiences. Using the novel object recognition behaviour test, a long-term memory task, we behaviourally induced long-term depression in mice. Shortly after mice are perfused, immunohistochemistry is performed to measure p-eIF2 $\alpha$  levels in excitatory neurons and astrocytes. We observed an increase in p-eIF2 $\alpha$  levels in CA1 excitatory neurons and astrocytes following novel object recognition, suggesting their activation during long-term depression induction. Our results imply that phosphorylation of eIF2 $\alpha$  is upregulated in hippocampal excitatory neurons and astrocytes during long-term depression, where it may facilitate the translation of specific mRNAs involved in behavioural memory consolidation. This study aims to understand the mechanisms by which the brain encodes new information and stores it as long-term memories.

ABSTRACT P010 – B

### **UTILIZING NOVEL BIOINFORMATICS TOOLS TO EXPLORE CELL CYCLE-TARGETING APPROACHES AGAINST NEUROBLASTOMA**

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**Category:** Biomedical Research

Neuroblastoma is the most common extracranial solid tumour in children. Despite efforts to develop effective therapeutic strategies involving chemotherapy and retinoid-mediated differentiation, advanced neuroblastoma remains one of the most difficult tumours to treat with only a 40% long-term survival post-therapy. High-risk neuroblastoma tumours present significant intra-tumoral heterogeneity including the presence of unique immature and drug-resistant subpopulations of neuroblastoma stem cells (NbSCs). NbSCs possess self-renewing properties and the ability to differentiate into other subpopulations within the tumour. Exploring complex mechanisms regulating the aggressiveness of NbSCs is critical to finding effective therapies against neuroblastoma. We hypothesize that utilization of novel bioinformatics tools will allow us to determine pivotal cell-cycle-associated changes underlying treatment resistance of NbSCs. We will use multiplexed immunofluorescent staining combined with fluorescent reporters in neuroblastoma cells in vitro to explore their cell-cycle properties. This model will be used to optimize and train a novel AI program capable of studying molecular properties of cells in a high throughput manner. Using this system, expression and activity of key cell cycle proteins reflecting properties of various neuroblastoma subpopulations will be analyzed throughout the current standard-of-care treatment regimen. This research will contribute to better understanding of cell cycle mediated regulation of treatment refractory subpopulations of neuroblastoma, revealing potential targeting approaches to prevent progression of the disease.

ABSTRACT P011 - A

**ROLE OF THE ER IN INITIAL DIAGNOSTIC PATHWAY OF MULTIPLE MYELOMA PATIENTS: A RETROSPECTIVE REVIEW OF 80 PRESENTATIONS AT A REGIONAL HOSPITAL**

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research; Clinical Research

Multiple Myeloma (MM) remains an incurable hematological malignancy with approximately 4000 diagnoses a year in Canada. Due in part to the subtle symptomatology of the pre-myeloma and early stages of the disease, diagnostic delay remains common, ultimately impacting prognosis and patient quality of life. Moreover, recent NHS-based studies in the U.K. suggest that a relatively high proportion of MM patients experience diagnostic delay, following complicated referral routes, with nearly a third of diagnoses occurring in acute care settings. Additionally, these studies indicate that socially vulnerable and/or isolated populations may be disproportionately diagnosed in these acute care environments. While this phenomenon remains understudied within the Canadian healthcare system, the present study aims to explore it through a retrospective chart review of all patients with a histopathological diagnosis of MM presenting to the Windsor Regional Hospital Cancer Centre who experienced one or more visits to the Windsor Regional Hospital Emergency Room (WRH-ER) prior to diagnosis. Although diagnostic delay remains common, this study seeks to expand our understanding of the evolving role of the emergency department in the management of complex diseases, with preliminary findings suggesting that emergency room presentations may offer opportunities for more timely diagnosis, enhancing patient outcomes and quality of life.

ABSTRACT P012 - B

**IN VIVO ANALYSIS OF VIRAL M12 PROTEIN INTERACTIONS WITH THE NKR-P1C RECEPTOR IN NATURAL KILLER CELLS**

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**Category:** Biomedical Research

Natural killer (NK) cells are key effector cells of the innate immune system. Their functions are regulated by activating and inhibitory receptors that recognize ligands on target cells, including those infected with murine cytomegalovirus (MCMV). MCMV genome encodes immune-evasion proteins that interact with NK cell receptors in mice to interfere with NK cell recognition. For example, MCMV glycoprotein m12 interacts with inhibitory NKR-P1B receptor to inhibit NK cell responses. MCMV m12 protein also interacts with activating NKR-P1C receptor, but the role of this interaction in NK cells is not known. We hypothesize that NKR-P1C receptor recognizes viral m12 protein to activate NK cell responses against infected cells. The objective of this study is to use an in vivo cell rejection assay to study effects of viral m12 protein interactions with NKR-P1C receptor on NK cells. For this study, we will generate m12-expressing RMA (NK cell resistant) and RMA-S (NK cell susceptible) lymphoma cell lines transfected with an m12 plasmid by electroporation and selected for neomycin (G418) resistance. Stable m12-expressing RMA and RMA-S cells and empty vector transfected control cells will be injected intraperitoneally into wild-type (WT) and NKR-P1C-deficient mice to determine whether m12 interaction with NKR-P1C receptor alters NK cell-mediated rejection of target cells. This study will reveal how the viral protein affects NK cell recognition in vivo.

ABSTRACT P013 - A

**ANY MEDICATION YOU CAN SCAN, I CAN SCAN FASTER: A NURSING COMPETITION**

**Katrina Billion<sup>1</sup>, Catherine Taylor<sup>1</sup>, Jacob Wiebe<sup>1,2</sup>**

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<sup>2</sup>WE-SPARK Health Institute

**Category:** Health Service Research

Barcode medication administration (BCMA) and patient identification are essential in reducing medication errors, adverse reactions, and hospital length of stay. Despite the positive results of implementing BCMA in the hospital setting, implementing and maintaining nursing compliance with BCMA remains a challenge. This study evaluated whether implementing a leaderboard accountability system has reduced total medication when considering medication and patient scan rates. Discern Analytics 2.0 generated a BCMA scan rate leaderboard every week to notify all nursing staff of the top medication scanners. Nurses with the top scan rates and consistent top scan rates received a scanning badge and an email recognition that was broadcasted to all nursing staff. Accountability was provided via a personal email that was sent by the manager to nurses that did not meet the 80% benchmark for both medication and patient scan rates. Following implementation of the intervention,

average monthly medication and patient scan rates improved substantially. Medication scan compliance increased from 79.6% to 91.5%, while patient scan compliance rose from 78.2% to 92.4%. Multivariable regression analysis showed that patient scan compliance was the only factor significantly associated with a reduction in total medication errors. Higher patient scan rates were linked to fewer errors overall. The model explained 17% of the variability in medication errors. Future studies should examine departmental differences in BCMA use and assess this accountability approach across multiple hospitals to improve generalizability.

#### ABSTRACT P014 - B

### THE “OZEMPIC LIMB”: UNDERSTANDING THE IMPACT OF GLP-1 AGONISTS ON PROSTHESIS USE AND RESIDUAL LIMB CARE IN AMPUTEE PATIENTS

Janelle Bykowski<sup>1</sup>, Garrick Loewen<sup>2</sup>, Brock Loewen<sup>2</sup>, Dana Seslija<sup>3</sup>

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**Category:** Case Study/Learning from the Field

Semaglutide belongs to a class of medications called glucagon-like peptide 1 receptor agonists (GLP-1 RAs), which are commonly prescribed for type 2 diabetes and obesity management. While GLP-1 RAs have many positive effects on glycemic control and cardiovascular health, the secondary effect of weight loss can present a challenge in maintaining optimal prosthesis fitting among individuals with prosthetic limbs. Herein, we describe three cases of semaglutide use in patients with lower limb prostheses who subsequently developed a variety of complications including skin breakdown, disproportionate residual limb volume loss, and increased residual limb pain. These issues not only decreased patient quality of life, but also increased the volume of care required for management. The first patient was a 76-year-old male with a dysvascular right transfemoral amputation. After starting semaglutide, he was unable to consistently wear his prosthesis for over a year due to issues with fit. The second patient was a 39-year-old female with a left transtibial amputation secondary to pain and decreased mobility. She developed a painful bone spur following rapid weight loss, necessitating referral to plastic surgery for revision and osteotomy. The third patient was a 62-year-old male with a traumatic left transtibial amputation. Suboptimal prosthetic fit and skin breakdown led to painful blistering, skin friability, and signs of verrucous hyperplasia. Overall, this case series underscores the need to prescribe GLP-1 RAs judiciously among amputee patients. It also highlights the importance of instigating proactive measures and increasing education to minimize expected complications when GLP-1 RA therapy is necessary.

#### ABSTRACT P015 - A

### ENGINEERING FLUORESCENT NANOANTENNAS FOR THE ACTIVITY OF $\beta$ -GALACTOSIDASE

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**Category:** Biomedical Research

Enzyme activity assays play a critical role in clinical diagnostics and therapeutic development. They support biomarker detection, drug screening, and reporter-based readouts in cell and gene studies.  $\beta$ -Galactosidase is a clinically relevant enzyme that is widely used across biomedical and translational research. However, many spectroscopic enzyme assays rely on covalent labeling or synthetic chromogenic substrates. Unfortunately, these approaches can alter the kinetic parameters of the enzyme-substrate system. Fortunately, DNA-based fluorescent nanoantennas provide an alternative sensing strategy based on noncovalent dye-protein interactions within a streptavidin-scaffolded complex. This design enables sensitive, real-time reporting of conformational changes during enzyme activity with spectroscopically silent biological substrates. While nanoantenna sensing has been demonstrated for a phosphatase, its generalizability remains unresolved. Our project focuses on engineering a nanoantenna-based sensing framework for  $\beta$ -galactosidase, a different type of enzyme. This work aims to establish a transferable platform to streamline and accelerate the development of future clinically relevant enzyme assays. We demonstrate that streptavidin-assembled complexes containing biotinylated  $\beta$ -galactosidase and fluorescent nanoantennas generate measurable signal perturbations during catalysis. Thus, this approach enables kinetic analysis with natural substrates such as lactose. Computational analysis supports the most probable nanoantenna lengths to reach predicted dye-protein interaction sites. Real time fluorescence data is then fit using a script based on Michaelis-Menten kinetics to extract  $k_{cat}$  and  $K_M$  values and benchmarked against standard chromogenic  $\beta$ -galactosidase assays. Together, these results support a generalizable assay platform that is compatible with clinical reporter systems and spectroscopically silent biomarker detection.

ABSTRACT P016 - B

## **A QI INITIATIVE TO MITIGATE IMMUNOTHERAPY-RELATED TOXICITIES AMONG PATIENTS RECEIVING IMMUNOTHERAPY USING A NOVEL GRADE 2 TOXICITY TOOL**

**Aaron Catalan**<sup>1</sup>, Christian Edward James-Mcdonald<sup>2</sup>, Alfrid Patrick Mina<sup>3</sup>, Caroline Hamm<sup>3</sup>

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**Category:** Health Service Research

Immune checkpoint inhibitors have shown to improve the outcomes of several cancer types; however, immune-related toxicities (IRT) remain a major concern. Due to the complexity of IRTs, current guidelines are difficult for both providers and patients to understand. This study aimed to develop and evaluate a grade 2 immunotherapy toxicity screening tool designed to identify and prevent progression of IRTs before they result in hospitalization or irreversible organ damage. The tool was developed from patient and healthcare provider handouts adapted from the Cancer Care Ontario Immune Checkpoint Inhibitor Toxicity Management Clinical Practice Guideline. A Plan-Do-Study-Act (PDSA) cycle was employed to test and refine the tool, with iterative changes based on feedback from healthcare providers and patients. Handouts were distributed to patients and healthcare providers and displayed in chemotherapy suites and clinics. The intervention's effectiveness was assessed through surveys distributed to both groups six months after implementation to gather perceptions and identify barriers to use. The first wave of surveys included 43 providers and 28 patients. Results highlighted that the tool was useful and easy to follow. Missing symptoms and implementation gaps were noted then incorporated into the next phase. For the next assessment, survey feedback will guide the revised tool, with a quiz assessing patient and provider use. Furthermore, the handout will be placed in the nurses' triage to promote its utilization. To compare pre- and post-intervention toxicities, a retrospective analysis will be conducted of grade 3 and 4 toxicities, emergency room visits, and hospitalizations.

ABSTRACT P017 - A

## **THE ROLE OF SPY1 IN SEX-SPECIFIC CELLULAR MECHANISMS DRIVING PROGRESSION OF METABOLIC DYSFUNCTION-ASSOCIATED STEATOTIC LIVER DISEASE**

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**Category:** Biomedical Research

Liver cancer is the third leading cause of cancer mortality worldwide with hepatocellular carcinoma (HCC) accounting for nearly 90% of cases. Men are nearly three times more likely to develop HCC than women, illustrating a significant sex-specific disparity that remains poorly understood. Metabolic-dysfunction associated steatotic liver disease (MASLD) drives chronic liver injury and increases susceptibility to liver cancer. Understanding MASLD progression in sex-specific contexts is essential for clarifying disease susceptibility and outcomes. Disruptions in cell-cycle regulation are fundamental drivers of liver dysfunction and may contribute to sex-based differences in MASLD. Altered checkpoint control can influence hepatocyte responses to stress, regeneration, and cellular composition. Spy1 is a cyclin-like protein that activates CDK2 and promotes proliferation in the presence of DNA damage. Overexpression of Spy1 is known to increase susceptibility to HCC and is associated with increased hepatocyte proliferation, suggesting its importance in disease progression. To investigate sex- and age-dependent effects on hepatocyte biology, this project utilizes the Alb-Spy1 transgenic mouse model which drives hepatocyte-specific Spy1 overexpression. Although Alb-Spy1 mice do not spontaneously develop HCC, they exhibit key MASLD features. Data supports that Spy1 promotes sex- and age-dependent alterations in cellular dynamics, favoring environments characteristic of early MASLD, increasing susceptibility to advanced liver disease. This study identifies Spy1 as a potential mediator of sex- and age-dependent changes in MASLD progression, allowing investigation of how dysregulated cell cycle control may contribute to differential susceptibility to liver disease across sex and age, informing future therapies and preventative efforts.

ABSTRACT P018 - B

## **WASTEWATER SURVEILLANCE TO TRACK A GENERATIONAL SCALE OUTBREAK OF MEASLES IN ONTARIO, CANADA, FEBRUARY – NOVEMBER 2025**

**Ryland Corchis-Scott**<sup>1</sup>, Elisabeth Mercier<sup>2</sup>, Edgard M Mejia<sup>3</sup>, Qiudi Geng<sup>1</sup>, Ethan Harrop<sup>1</sup>, Ana Podadera<sup>4</sup>, Natalie Lewoc<sup>5</sup>, Kenneth KS Ng<sup>4</sup>, Nataliya Santiago<sup>3</sup>, Natalie Knox<sup>3</sup>, Lawrence Goodridge<sup>6</sup>, Chand S Mangat<sup>3</sup>, Chrystal Landgraff<sup>3</sup>, Karen B Riddell<sup>7</sup>, Jackie Fong<sup>1</sup>, Mehdi Aloosh<sup>5,8</sup>, Robert Delatolla<sup>2</sup>, R Michael McKay<sup>1</sup>

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**Category:** Social, Cultural, Environmental, and/or Population Health Research; Case Study/Learning from the Field

The Province of Ontario (Canada) experienced a generational scale outbreak of measles in 2025. We applied wastewater surveillance concurrently with clinical-based surveillance to track measles incidence in southwestern Ontario adjacent to the United States. Measles virus (MeV) signal in wastewater was positively associated with clinical cases but did not provide early alert of changes in measles incidence when resolved by epidemiological week. Assessment of virus partitioning showed MeV RNA was broadly distributed in the liquid phase but is most concentrated in the solids. An assay was adapted for differentiation of vaccine and wildtype MeV and used to detect vaccine genotype measles following an inoculation campaign targeting underserved groups in the region. MeV shedding in wastewater was estimated through repeated sampling of sewer laterals serving a hospital treating confirmed measles infections. This measles outbreak serves as a case study highlighting the application of wastewater surveillance for measles while supporting method development in real-time.

ABSTRACT P019 - A

## **ARE WE SLEEPING ON THE RISKS? THE ROLE OF SLEEP QUALITY IN SPORT-RELATED CONCUSSION**

**Vanessa Correia**<sup>1</sup>, Lauren Moon<sup>1</sup>, Christopher Abeare<sup>1</sup>

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**Category:** Clinical Research

Sport participation is a leading cause of concussion in young adults, with significant consequences for physical and mental well-being. Identifying modifiable risk factors, such as sleep quality, may inform prevention and recovery efforts. This study examined whether poorer pre-morbid sleep quality increased the likelihood of sustaining a sport-related concussion and was associated with poorer post-injury sleep and greater post-concussive symptom severity. We also evaluated whether consistently poor sleep (pre- and post-injury) was linked to greater symptom severity compared to transient sleep disturbance, and whether pre-morbid sleep explained additional variance in symptom severity beyond post-injury sleep. Participants were collegiate athletes (ages 17–26) from multiple high-contact varsity sports teams. Sleep quality was assessed using measures of perceived sleep satisfactoriness and daytime functional impact. Baseline data were available for 652 assessments spanning three years, with matched baseline and post-injury data for 66 athletes. We found that poorer baseline sleep quality was associated with poorer post-injury sleep quality, and vice versa. Most athletes reported sleep quality within normal limits at both time points and low levels of post-concussive symptoms. The other hypotheses were not supported, though methodological constraints, like restricted range, may have limited the ability to detect true effects. Future research using different populations or larger samples can help clarify the role of pre-morbid sleep in concussion risk and symptomatology.

ABSTRACT P020 - B

### **CLINICAL SCREENING FOR AUTISM SPECTRUM DISORDER AT THE REGIONAL CHILDREN'S CENTRE: SEX, AGE, SCREENING METHOD, AND SCQ SCORE ASSOCIATIONS**

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**Category:** Health Service Research

Demand for autism assessments continues to exceed publicly funded diagnostic capacity, leading to long wait times and limited access to evaluations. In settings where children present with complex comorbidities, efficient screening is essential for identifying who may require diagnostic assessment. Research is needed to identify factors that improve screening accuracy within this high-demand context. This study explored whether sex, age, screening method (phone vs. in-person), and SCQ scores predicted screening and diagnostic outcomes. A retrospective review analyzed screening data (2021-2025). Screening involved completing a SCQ and clinical interview by phone or in-person. In-person screening included a brief play-based interaction with the child. Variables included sex, age, screening method, SCQ score, assessment completion, and diagnostic outcome. Of 298 children screened, 68.8% were male (n = 205), 51.7% were screened by phone (n = 154), and 48.7% were referred for further assessment (n = 145). Among referrals, 67.6% scored above the SCQ cutoff ( $\geq 15$ ; n = 98), and 64.8% completed a diagnostic assessment (n = 94), resulting in an autism diagnosis for 47.9% (n = 45). Referrals were significantly associated with SCQ scores above cutoff, older age (12-17), and phone-based screening (all p's < .001), but not sex (p = 0.90). SCQ cutoff was the strongest predictor (OR = 7.78, 95% CI [4.06, 14.91], p < .001). No variables predicted diagnosis. The SCQ demonstrated high sensitivity (82.9%) but low specificity (29.2%), emphasizing the need to refine screening practices and overall tools to reduce unnecessary referrals while improving accuracy.

ABSTRACT P021 - A

### **A NOVEL APPROACH TO IMPROVING CLINICAL TRIAL REFERRAL AND ENROLLMENT IN PATIENTS WITH CANCER: A CROSS-SECTIONAL ANALYSIS**

**Christina Di Carlo<sup>1</sup>**, Michael Touma<sup>2</sup>, Renee Nassar<sup>2</sup>, Mahmoud Hossami<sup>3</sup>, Salah Alhajsaleh<sup>2,3</sup>, Christina Trieu<sup>2,3</sup>, Anaam Jaet<sup>2,3</sup>, Alfred Mina<sup>2</sup>, Laurice Togonon Arayan<sup>2</sup>, Depen Sharma<sup>4</sup>, Swati Kalia<sup>2</sup>, Milica Paunic<sup>5</sup>, Roaa Hirmiz<sup>2</sup>, Megan E Delisle<sup>6</sup>, Govana Sadik<sup>3</sup>, Mohammad Nour El Hindawi<sup>3</sup>, Matteo Frattaroli<sup>3</sup>, Hannah Chacko<sup>3</sup>, Batoul El Sayed<sup>1</sup>, Caroline M Hamm<sup>1</sup>

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**Category:** Health Service Research

Participation in clinical trials is fundamental to advancements in cancer treatment. Recent data estimates 7.1% of patients with cancer are enrolled into treatment trials. A Clinical Trials Navigator (CTN) program found current clinical trial repositories provided outdated, insufficient, or inaccurate information. The objective of this abstract is to evaluate a novel methodology of creating cancer-specific 'Master Lists' as a more accurate clinical trial repository. Master Lists were developed by skilled clinical trial navigators and maintained monthly by performing searches on five trial repositories. Participants are self referred or referred by a healthcare professional. The Master List was searched for eligible studies and weekly reviews were performed to prioritize potential trials. The patient, sponsors, and principal investigators are contacted by the MD FollowUp program to review preferred trials. The Master List is updated based on information gained from direct contact with study coordinators. Throughout March 3, 2025 – January 25, 2026, 133 people participated in the CTN program and a total of 114 clinical trial sites were contacted. The Master List was updated 61 times for 78 trials with information not available on ClinicaTrials.gov. Implementation of an MD FollowUp program improved trial accrual rate from 18% to 42%. This dynamic Master List with consistently updated information allowed an improvement in successful referral to accrual ratio, thereby improving the efficacy of the clinical trials unit. Overall, the Master List serves as a comprehensive resource that is expected to translate into improved clinician engagement in the clinical trials process.

ABSTRACT P022 - B

## **ONCOLOGY PROVIDER PRACTICES AND PERSPECTIVES ON AMBULATORY THROMBOPROPHYLAXIS**

Christina Di Carlo<sup>1</sup>, Zayya Zendo<sup>1</sup>, **Beatrice Floris<sup>2</sup>**, **Maira Chaudhry<sup>2</sup>**, **Moe El-Zein<sup>2</sup>**, **Fatima Hamad<sup>2</sup>**, **Cristian Iannicello<sup>2</sup>**, Andrea Cervi<sup>1,3</sup>

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**Category:** Health Service Research; Clinical Research

Cancer-associated thrombosis (CAT) is the second leading cause of death in patients with cancer. Pharmacologic thromboprophylaxis has been shown to effectively reduce the risk of CAT without a significant increase in major bleeding and is recommended for high-risk patients by multiple international guidelines. Despite this, uptake in ambulatory oncology practice remains limited. This study evaluates oncology providers' practices related to thromboprophylaxis in the ambulatory setting and seeks to identify perceived barriers and factors influencing clinical decision-making. We are conducting a descriptive mixed-methods study at a regional cancer centre in Southwestern Ontario, Canada. Oncology providers involved in outpatient cancer care were invited to complete an anonymous electronic survey, followed by participation in focus groups. Survey data from 30 oncology providers demonstrate substantial variability in thromboprophylaxis practices. Providers reported discussing CAT risk with approximately 40% of patients and reviewing thromboprophylaxis risks and benefits with 35%. Respondents estimated that roughly 30% of their patients currently receive thromboprophylaxis. Although 73% of providers indicated familiarity with CAT risk stratification tools, nearly half (47%) reported never using these tools in routine practice. Frequently cited barriers included limited clinic time (40%), lack of familiarity with guidelines (30%), concerns about bleeding risk (30%), limited experience with risk assessment tools (26%), and concerns regarding potential drug interactions (13%). These findings highlight important gaps in the implementation of thromboprophylaxis in ambulatory oncology care and provide a foundation for targeted educational initiatives and workflow interventions aimed at promoting evidence-based practice.

ABSTRACT P023- A

## **OPTIMIZING OPERATING ROOM SUPPLY UTILIZATION AND COST EFFICIENCY AT ERIE SHORES HEALTHCARE**

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<sup>2</sup>Erie Shores HealthCare

**Category:** Health Service Research

Erie Shores HealthCare (ESHC), a 72-bed community hospital in Leamington, Ontario, is committed to delivering high-quality surgical care while maintaining fiscal sustainability. The Operating Room (OR) is one of the hospital's highest-cost areas, with significant expenses tied to surgical supplies, instruments, and consumables. Variability in surgeon preference cards and lack of standardized supply usage contribute to inefficiencies, overstocking, and waste, driving up costs without improving patient outcomes. Additionally, the dynamic nature of surgical procedures limits the accuracy of traditional pick list-based costing methods, as many supplies used are not consistently captured, resulting in hidden expenses and incomplete cost data. Our aim is to analyze and optimize OR supply usage through a process-improvement approach. A bottom-up case-costing methodology was employed to collect and review detailed supply utilization data across multiple surgical specialties, allowing us to determine the true cost of each procedure and assess alignment with case requirements. Analysis revealed notable variability in supply utilization and costs across certain comparable surgical procedures, with specific high-cost items contributing disproportionately to these inconsistencies. Based on these findings, targeted efforts to standardize surgical pick lists were initiated. Ultimately, this initiative seeks to reduce unnecessary expenditure and improve OR efficiency, supporting both financial sustainability and high-quality surgical care at ESHC.

ABSTRACT P024 - B

### **EXPLORING NKR-P1C RECEPTOR FUNCTION IN INNATE IMMUNITY**

**Ronaldo Eid<sup>1</sup>, Munir Rahim<sup>1</sup>**

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**Category:** Biomedical Research

Type 1 innate lymphoid cells (ILC1s) and conventional natural killer (NK) cells rapidly respond to and protect against invading pathogens and cancer. Their functions are regulated by germline-encoded NK receptors, several of which are shared between the two cell types. While the role of some of these receptors has been elucidated in NK cells, knowledge gaps still exist in terms of the role these receptors play in ILC1 biology and immunity. For example, NKR-P1C is an activating receptor in murine NK cells that is also highly expressed in ILC1s, but its function in these cells is not fully understood. While its endogenous ligand remains unknown, reporter cell assays have shown NKR-P1C binding to murine cytomegalovirus (MCMV)-encoded m12 glycoprotein. This NKR-P1C:m12 interaction is thought to promote NK cell-mediated immunity against MCMV infection. As such, we aim to determine whether this receptor plays a similar non-redundant role in ILC1 responses to MCMV infection. We hypothesize that NKR-P1C is essential to murine ILC1 effector function and its knockout will significantly impair tissue-resident ILC1 responses and consequently host fitness during the early stages of MCMV infection. Using wild-type (WT) and NKR-P1C-deficient mice, we will study NKR-P1C function in ILC1 and its role in immunity against MCMV infection by analyzing the phenotype, development, maturation, distribution, and effector function of ILC1s across different tissues under steady-state conditions and during MCMV infection. Overall, this study will reveal the function of a highly expressed NK receptor in ILC1 biology and antiviral immunity.

ABSTRACT P025 - A

### **REPROGRAMMING ORGANIC POLYMERS VIA DYNAMIC COVALENT BONDS**

**Nour Elharake<sup>1</sup>, Rachael Warner<sup>2</sup>, Angela Awada-Robert<sup>2</sup>, Simon Rondeau-Gagné<sup>2</sup>**

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**Category:** Biomedical Research

$\pi$ -Conjugated semiconducting polymers (SPs) are excellent materials to produce next-generation technologies due to their tunable electronic and optical properties, especially regarding wearable biosensors. Through sidechain and backbone engineering, SPs can possess both amorphous and crystalline domains, allowing them to be inherently flexible while maintaining charge transport. Yet, SPs are susceptible to fractures from mechanical stress. To address this, we look to incorporate dynamic covalent bonds into the sidechains of non-symmetric isoindigo (IiD) based polymers. Our objective is to install terminal thiol functional groups to understand how the formation of disulfide bonds between neighbouring polymers and environmental thiolates can be used to study disulfide exchange. We hypothesize that engineering the SP sidechain in a non-symmetric manner will allow for control over solubility and processability resulting from changing the crosslinked network. This alters the physical characteristics of biosensors, allowing them to adjust to various biological environments to detect disease biomarkers. We will equip the monomeric IiD species with a thioacetate terminal sidechain on one of the lactam nitrogens, and a solubilizing branched chain on the other. After polymerization, we will deprotect to access the thiol. From here, we can expose the thiols to an oxidant to achieve a crosslinked insoluble polymer or a soluble polymer model that allows us to explore dynamic disulfide exchange, respectively. Following treatment with thiolate-containing solutions, a reversible thiol-disulfide exchange will occur. Our work establishes a dynamic exchange that presents a novel way to access various forms of polymer processability, including solubility and reversible morphology of the polymer.

ABSTRACT P026 - B

## **INVESTIGATING NKR-P1C RECEPTOR FUNCTION IN NATURAL KILLER CELL REGULATION VIA RECOGNITION OF VIRAL M12 PROTEIN**

**Meelad Elias<sup>1</sup>, Munir Rahim<sup>1</sup>**

<sup>1</sup>Department of Biomedical Sciences, University of Windsor

**Category:** Biomedical Research

Natural Killer cells are innate lymphoid cells part of the immune system. They have cell mediated cytotoxic functions with the ability to recognize and kill infected, cancerous, and transformed cells. Recognition and targeting of these cells depend on the overall balance of various activating and inhibitory receptor-ligand interactions. In mice, receptors belonging to the NKR-P1 receptor family are involved in NK cell responses against murine cytomegalovirus (MCMV)-infected cells. MCMV genome encodes for proteins that can interact with NK cell receptors to affect their functions. For example, m12, a glycoprotein encoded by MCMV's genome is an immunoevasin, which binds to inhibitory NKR-P1B receptor and inhibits NK cell activity. However, m12 has also been shown to interact with activating NKR-P1C receptor, but its impact of this interaction on NK cell activity is not known. The objective of this study is to determine the role of NKR-P1C receptor in NK cell recognition of MCMV m12 protein. I hypothesize that NKR-P1C:m12 interaction is a positive regulator of NK cell activity. This will be tested using in vitro functional assays in which NK cells obtained from wild-type (WT) and NKR-P1C-deficient mouse spleens will be co-cultured with m12 transfected Ba/F3 cells. NK cell activity will then be assessed by measuring IFN- $\gamma$  production, NK cell degranulation, and NK cell proliferation. This research will further the understanding of the role of NK cell receptors in viral immunity. Specifically, it will provide insight into how NK cells can recognize virus infected cells and counteract their immunoevasion strategies.

ABSTRACT P027 – A

## **FACILITATORS AND BARRIERS TO INTEGRATING TRAUMA-INFORMED CARE IN UNDERGRADUATE NURSING EDUCATION**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Trauma is ubiquitous and inequitably distributed, disproportionately affecting individuals and communities marginalized by racism, colonialism, and structural violence. Many nursing students enter undergraduate programs with significant prior trauma exposure, yet educational environments may unintentionally reproduce harm. Although trauma-informed care (TIC) is an equity-oriented framework aligned with social justice and anti-oppressive approaches, its systematic integration into undergraduate nursing curricula remains limited, leaving new graduate nurses underprepared to respond safely and effectively to trauma in clinical practice. This qualitative interpretive descriptive study, informed by the Health Equity Framework, explored individual, relational, structural, and organizational factors shaping Ontario nurse educators' understanding of TIC and their perceived ability, barriers, and facilitators to integrating TIC into nursing education. Nurse educators with at least two years of undergraduate teaching experience completed an initial Qualtrics survey (n=145), which informed purposive sampling for in-depth interviews with 28 participants. Data were analyzed using Reflexive Thematic Analysis, attending to power, context, and educational structures influencing pedagogical decision-making. Findings revealed a critical tension between educators' commitment to equity-oriented teaching and the structural constraints that limit sustained implementation of trauma-informed pedagogy. Key facilitators included educator commitment, reflective and innovative teaching strategies, supportive leadership, and collaborative curriculum design, while persistent barriers included curricular overcrowding, limited faculty preparation, inconsistent clinical role-modelling, and the invisibility of TIC content, compounded by the absence of a clear definition. Advancing trauma-informed nursing education requires intentional curricular mapping, institutional accountability, and faculty development to embed TIC as an anti-oppressive educational praxis and strengthen psychologically safe learning environments.

ABSTRACT P028 - B

### **BECOMING CULTURALLY COMPETENT: A NARRATIVE INQUIRY OF TRANSFORMATIVE LEARNING IN AN INTERNATIONAL, INTERPROFESSIONAL NURSING PLACEMENT**

Rachel Ann Elliott<sup>1</sup>, Heather Sweet<sup>1</sup>, Natalie Bownes<sup>1</sup>, **Bayan Nasra**<sup>1</sup>, Kelsey Schumacher<sup>1</sup>, Kelly-Anne VanderDoe<sup>1</sup>, Gabriela Digesu<sup>1</sup>, Eunice Kungu<sup>1</sup>, Grace Okello<sup>1</sup>, Emma Crew<sup>1</sup>, Mia Chauvin<sup>1</sup>, Kendall Soucie<sup>2</sup>

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**Category:** Clinical Research; Case Study/Learning from the Field

Global health inequities and climate-related challenges increasingly affect community health, particularly in low- and middle-income countries. Undergraduate nursing students often have limited opportunities to engage with these issues. Research indicates that registered nurses lack cultural competence, and nurses commonly report feeling ill-equipped to care for culturally diverse patients. This participatory qualitative study explored undergraduate nursing students' development of cultural competence during an international, interprofessional clinical placement (IICP) in rural Tanzania, focusing on culturally responsive nursing practice and preparation for real-world community health challenges. Ten students completed placements alongside education students, local partners, and healthcare professionals, having previously completed a fourth-year Global and Planetary Health course. Narrative inquiry guided the study design to privilege students' stories of meaning-making, identity formation, and transformative learning during immersion in a low-resource health system shaped by historical and structural inequities. Data were generated through semi-structured interviews and reflective journals, supporting both retrospective and in-the-moment accounts of learning. Reflexive thematic analysis was undertaken iteratively, emphasizing reflexivity, interpretation, and the co-construction of themes. Five themes were generated: (1) opportunities for personal growth, (2) relationship building to facilitate collaboration, (3) interprofessional teamwork and leadership skills, (4) cultural competence development through immersion, and (5) shifting mindsets and learning from resource-limited settings. Findings underscore how structured reflection and debriefing can deepen equity-oriented learning by enabling students to critically examine assumptions, power, and privilege. These insights support the integration of international and interprofessional placements, alongside intentional reflective pedagogy, into undergraduate nursing curricula.

ABSTRACT P029 - A

### **INVESTIGATING TIME-RESTRICTED FEEDING IN THE REGULATION OF COLORECTAL CANCER PROGRESSION**

**Mehr Fatmah**<sup>1</sup>, Rachna Patel<sup>2</sup>, Vania Carmona-Alcocer<sup>2</sup>, Phillip Karpowicz<sup>2</sup>

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**Category:** Biomedical Research

Circadian rhythms regulate key physiological processes, and their disruption is linked to colorectal cancer risk. Time-restricted feeding (TRF) confines food intake to the organism's active phase to align with the circadian rhythm and reduce metabolic disruption. It has shown potential to reduce tumorigenesis in various cancer models, but its mechanism in colorectal cancer is unknown. Using the ApcMin/+ mouse model, which replicates early human colorectal tumorigenesis, this study investigates how TRF influences intestinal tumour development in a genetic cancer model. It isolates the effect of TRF independent of dietary or environmental factors that disrupt circadian rhythms. We hypothesize that TRF reduces intestinal tumorigenesis in ApcMin/+ mice by decreasing tumour initiation events, and/or size in 2 or 3 months of treatment. ApcMin/+ mice were divided into control and TRF groups, the latter receiving food only during a 12-hour active-phase window. After 2 and 3 months, intestines were dissected and sectioned by a graduate student. APC mutations lead to  $\beta$ -catenin accumulation, serving as a reliable marker for microscopic tumour identification via staining. Tumour number, measuring initiation, and area, measuring size, were quantified and normalized to the length of the tissue section, using ZEISS ZEN software and compared between groups via t-tests. This work will clarify whether TRF affects tumour initiation or size. Identifying the mechanism will inform whether timing of feeding may affect circadian regulation in the gut in the context of TRF studies and may support TRF as a non-invasive strategy for colorectal cancer prevention.

ABSTRACT P030 - B

### **A NOVEL BIOBANK TO TRACK INFECTIOUS DISEASES AMONG CANCER PATIENTS IN THE WINDSOR-ESSEX REGION**

**Elizabeth Fidalgo da Silva**<sup>1,2,3</sup>, Jeffery Martin<sup>1</sup>, Christian Kassa<sup>1</sup>, Isabelle Hinch<sup>1</sup>, Samavia Ahmad<sup>1</sup>, Hannah Ferarol<sup>1</sup>, Maria Badalova<sup>1</sup>, Jackie Fong<sup>1,3</sup>, Lisa A Porter<sup>1,2,3</sup>

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<sup>3</sup>INSPIRE

**Category:** Biomedical Research; Health Service Research; Clinical Research

Cancer patients are at a high risk of viral infections such as flu, RSV and COVID due to their weakened immune system from treatments such as chemotherapy. Their weakened immune system can also lead to the reactivation of latent viruses such as herpes, shingles, and Cytomegalovirus. To reduce these risks, proactive measures such as vaccinations, prompt medical attention for any symptoms and increased screening methods are crucial. The COVID-19 pandemic demonstrated that healthcare centres worldwide were unprepared to manage infectious diseases on a large scale, which severely impacted cancer patients. According to the COVID-19 and Cancer Consortium [1], 26% of cancer patients became severely ill, and 13% died after becoming infected with COVID-19. Another study [1] showed 25% of cancer patients required mechanical ventilation compared to 4.7% of non-cancer patients. To successfully manage infectious diseases and mitigate the impact of emerging pathogens on cancer patients, rapid, ultra-sensitive viral RNA detection is critical. Canada Biomedical Research Fund and Biosciences Research Infrastructure Fund have funded the Integrated Network for the Surveillance of Pathogens. The Porter Lab at the University of Windsor is part of the Detection Technology Work Group to support robust and timely pathogen surveillance. Our work consists of establishing a Biobank using cancer patients' samples (blood, urine, saliva and breast milk) to track infectious disease outbreaks among this population. Banking clinical data and a sharing data platform will provide crucial resources for public health and research, delivering high-quality specimens for rapid response and long-term study of viral infections. 1.<https://ccc19.org/index.html> 2.<https://brieflands.com/journals/ijcm/articles/110907>

ABSTRACT P031 - A

### **A PILOT FEASIBILITY STUDY TO INTEGRATE THE CLINICAL TRIAL NAVIGATOR PROGRAM INTO THE LUNG CANCER WAITLIST AT A LARGE CANADIAN CANCER CENTRE**

**Matteo Frattaroli**<sup>1</sup>, **Mohammad El-Hindawi**<sup>1</sup>, **Hannah Chacko**<sup>1</sup>, Christina Trieu<sup>1</sup>, Salah Alhajsaleh<sup>1</sup>, Anaam Jaet<sup>1</sup>, Michael Touma<sup>2</sup>, Renee Nassar<sup>2</sup>, Mahmoud Hossami<sup>2</sup>, Roaa Hirmiz<sup>2</sup>, Swati Kalia<sup>2</sup>, Batoul El Sayed Ali<sup>2</sup>, Alfred Mina<sup>3</sup>, Laurice Togonon Arayan<sup>3</sup>, Christina Di Carlo<sup>4</sup>, Govana Sadik<sup>5</sup>, Milica Paunic<sup>6</sup>, Olla Hilal<sup>7</sup>, Depen Sharma<sup>8</sup>, Anthony Luginaah<sup>9</sup>, Pratham Gupta<sup>9</sup>, Ria Patel<sup>9</sup>, Gregory Charalambos Anagostopoulos<sup>9</sup>, Megan Delisle<sup>10,11</sup>, Caroline Hamm<sup>1,2,3</sup>

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research; Clinical Research

Less than 5% of cancer patients enter clinical trials, and this is even lower amongst vulnerable and rural populations. The objective of this project is to implement and evaluate the effectiveness of navigator-assisted clinical trials enrolment programs in a new setting. This pilot study will examine the implementation the Clinical Trial Navigator (CTN) program into the Cancer Care Manitoba: Winnipeg site. Patients with lung cancer waiting to see a medical oncologist will be offered supported access to the CTN program, with the goal of identifying potential clinical trials for patients for their stage of cancer. Pre-implementation interviews with key-stakeholders will inform adaptations of the implementation strategy, a CTN navigator will be housed in Winnipeg to support patient access to the program. We hypothesize that the CTN program can successfully be integrated into the lung cancer waitlist in Winnipeg and will result in improved patient-reported outcomes, decreased time-to-treatment for lung cancer patients at the Winnipeg site, and patients will have increased access to clinical trials, measured

by the number of patients interested in, referred to pre-screening, and enrolled onto a trial. We have successfully identified and hired a CTN navigator for the Winnipeg site and Research Ethics approval is pending. We are also pleased that the navigator hired is Indigenous, a success metric for the CTN Indigenous pathway. The supporting medical oncologist in Winnipeg has also been identified, and interviews have started. Future directions include scaling the program to other cancer types and sites to further reduce disparities in trial access.

ABSTRACT P032 - B

### **DIFFERENTIATION OF STAPHYLOCOCCUS AND STREPTOCOCCUS SPECIES USING LASER-INDUCED BREAKDOWN SPECTROSCOPY**

**Jasmine Fric<sup>1</sup>**, Rachel Chevalier<sup>1</sup>, Abdullah Mustafa<sup>1</sup>, Lauren Dmytrow<sup>1</sup>, Simona Brezeanu<sup>1</sup>, Will Conlon<sup>1</sup>, Danielle Renard<sup>1</sup>, Katherine Keller<sup>1</sup>, Emma Pesce<sup>1</sup>, Jack Holland<sup>1</sup>, Ayman Younes<sup>1</sup>, Faiza Fric<sup>1</sup>, Steven Rehse<sup>1</sup>

<sup>1</sup>University of Windsor

**Category:** Biomedical Research

Rapid and accurate diagnosis of bacterial pathogens is essential for timely medical response. The Streptococcus and Staphylococcus genera are both Gram-positive cocci, among the most common pathogens behind human infections, and can be particularly difficult to differentiate. Due to their related morphology and behaviour, these bacterial infections often present with overlapping symptoms, such as in the case of pneumonia. However, it is clinically essential to quickly distinguish whether an infection is of staphylococcal or streptococcal origin; confusing the two can be fatal, as they are often not targeted by the same drugs. Thus rises the need for rapid differentiation techniques as opposed to conventional diagnostic methods, which can be more challenging and time-consuming. Laser-induced breakdown spectroscopy (LIBS) could provide the necessary solution to these impediments, being a rapid analytical technique capable of differentiating various bacterial species in biospecimens. Aliquots of Staph. aureus and Strep. salivarius were deposited onto a nitrocellulose medium using centrifugation. Ablating the bacterial samples with a 1064 nm 9 ns Nd:YAG laser produced a high-temperature microplasma, from which optical emission spectra were collected for analysis and classification. The spectra from these bacterial species were classified using partial least squares discrimination analysis (PLS-DA) and an artificial neural network with principal component analysis preprocessing (PCA-ANN), allowing a rapid objective differentiation. The resulting classification accuracies will be presented, illustrating the potential of LIBS to differentiate closely related organisms with similar clinical presentations. Applications of LIBS in diagnosing these infections will be further discussed.

ABSTRACT P033 - A

### **A TWO-TIER DEBRIEFING PATHWAY TO SUPPORT WORKFORCE WELL-BEING ACROSS IN-PERSON AND REMOTE HEALTHCARE SETTINGS**

**Kristin Gallant<sup>1</sup>**, Funmi Olayinka<sup>1</sup>, Purity Karunge<sup>1</sup>, Jacqueline Trudeau<sup>1</sup>

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**Category:** Health Service Research; Case Study/Learning from the Field

Healthcare workers across in-person and remote care settings are routinely exposed to emotionally complex, ethically challenging, and distressing situations. While debriefing is recognized as beneficial for staff well-being, many healthcare organizations lack consistent, structured, and scalable debriefing approaches adaptable across diverse care environments. As a result, emotional load and moral distress are often carried individually, contributing to burnout, reduced psychological safety, and workforce instability. The objective of this project is to propose an evidence-informed, two-tier debriefing pathway designed to support the emotional well-being of interdisciplinary healthcare workers across acute, community, home care, public health, and remote care settings. The proposed model integrates two complementary components. Tier 1 is a Rapid Response Debrief using STOP5 or STOP5-R (remote), providing a brief (5–10 minute) structured debrief immediately following a challenging event. Tier 2 is a Reflective Well-Being Debrief, a scheduled 15–30 minute facilitated session embedded within existing team meetings, allowing deeper reflection on cumulative emotional load. The model is grounded in principles of psychological safety, moral distress, and emotional load, and includes defined training, role distribution, and workflow integration. Future application includes pilot implementation and evaluation of uptake, staff perceptions of psychological safety, sick time trends, retention indicators, and recurring system-level themes. This two-tier pathway offers a low-cost, scalable approach to strengthening workforce resilience across diverse healthcare settings.

ABSTRACT P034 - B

## **ASSESSING KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING CANCER SCREENING AMONG SOUTH ASIAN IMMIGRANTS IN WINDSOR-ESSEX**

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<sup>2</sup>University of Windsor

**Category:** Health Service Research

Organized cancer screening programs in Ontario significantly reduce mortality, yet uptake in the Erie St. Clair region remains below targets, with significant disparities observed among immigrant populations. Windsor-Essex has a growing South Asian community facing documented barriers to screening, but no local study has systematically assessed their knowledge, attitudes, and practices (KAP) regarding breast, cervical, and colorectal cancer screening. This quality improvement project aims to comprehensively describe the KAP and perceived barriers related to organized cancer screening among South Asian immigrants in Windsor-Essex. The findings will guide the development of culturally tailored interventions to improve screening equity. A community-based, cross-sectional survey will be administered anonymously via REDCap to 100 adult South Asian immigrants, recruited through community organizations. The survey will assess demographics, screening knowledge, self-reported practices, as well as perceived barriers and facilitators. Data will be analyzed using descriptive statistics, chi-square tests, and multivariable logistic regression to identify factors associated with screening uptake. Results will provide an essential evidence base for the Windsor Regional Cancer Program and community partners to design targeted outreach, education, and navigation support. This initiative aligns with provincial goals to eliminate cervical cancer and improve early detection, ultimately working to reduce the cancer burden in this population.

ABSTRACT P035 - A

## **A PILOT STUDY OF WASTEWATER-BASED MONITORING OF NOROVIRUS IN DETROIT-WINDSOR METROPOLITAN AREA**

Qiudi Geng<sup>1</sup>, Ethan Harrop<sup>1</sup>, Wayne Haider<sup>1</sup>, Yaxin He<sup>1</sup>, Ryland Corchis-Scott<sup>1</sup>, Mackenzie Beach<sup>1</sup>, Maia Prelipceanu<sup>1</sup>, Andrea Busch<sup>2</sup>, John Norton<sup>2</sup>, R Michael McKay<sup>1</sup>

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Norovirus (NoV) is one of the leading causes of acute gastroenteritis (AGE) worldwide, yet its actual level of infection is likely underestimated, as many infections are mild symptoms and go unreported. In this study, 312 wastewater samples were collected from Detroit and Windsor between September 2024 and August 2025 to quantify genogroups GI and GII, which are commonly associated with human illness. Additionally, 162 upstream samples from two Windsor hospitals were analyzed. Genotype GII was detected in all wastewater samples, while 27% and 93% of hospital samples tested positive for GI and GII, respectively, which indicates NoV GII infections are associated with more severe symptoms than GI. Moreover, although genogroup proportions varying over time, GII was more prevalent than GI in Windsor, whereas in Detroit, GI was found at significantly higher concentrations than GII. Peak concentrations of both GI and GII occurred between December and April in both cities. These findings underscore the utility of wastewater-based epidemiology (WBE) for tracking under-reported infectious diseases.

ABSTRACT P036 - B

## **CHARACTERIZATION OF S. AUREUS PROLINE DEPENDENT GROWTH IN MACROPHAGES**

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**Category:** Biomedical Research

The pathogen *Staphylococcus aureus* proliferates in macrophage phagolysosomes. Proline, an essential amino acid, must be acquired by *S. aureus* within the phagolysosome. Proline uptake in *S. aureus* is driven by two high-affinity transporters, PutP and ProT. WT *S. aureus* can biosynthesize proline but is subject to carbon catabolite repression (CCR) by CcpA in glucose-containing media. A proC mutant cannot biosynthesize proline. We've identified that proC and WT *S. aureus* grow similarly in primary human and RAW macrophages, indicating that proline biosynthesis is dispensable for intracellular growth. Conceivably, *S. aureus* acquires proline within the phagolysosome through PutP and/or ProT. To test this, RAW macrophages were infected with either putP or proT single mutants, which grew akin to WT. Contrastingly, a putP, proT mutant ( $\Delta 2$ ) exhibited significantly impaired growth. In vitro growth analyses combined with these macrophage infection data indicate that the phagolysosome

is proline-limited and that *S. aureus* requires proline transporters for growth. Furthermore, the impaired growth of  $\Delta 2$  indicates the absence of proline biosynthesis, ostensibly due to CCR, showing that the phagosome is glucose replete. To further characterize the proline-dependent growth of *S. aureus* within macrophages, primary human macrophages will be infected. Additionally, confocal fluorescence microscopy will be performed to confirm that the growth defect of  $\Delta 2$  occurs within the mature phagolysosome. Finally, a GFP-based reporter and a *ccpA* mutant will be synthesized to assess the impact of CCR on intracellular proline-dependent growth of *S. aureus*. This study will highlight how *S. aureus* acquires nutrients, which underpins its pathogenic success.

ABSTRACT P037 - A

### **REGULATION OF TUMOR-INFILTRATING NK CELL RESPONSES VIA IL-12/IL-23 AXIS**

**Sophia Girgis<sup>1</sup>, Munir Rahim<sup>1</sup>**

<sup>1</sup>Department of Biomedical Sciences, University of Windsor

**Category:** Biomedical Research

Natural Killer (NK) cells are lymphocytes of the innate immune system, which have the capacity to kill diseased cells, including tumor cells, virally infected cells, and stressed cells. NK cells respond to target cells via functions mediated by an overall signaling balance of activating and inhibitory receptors. NK cell functions are also regulated by cytokines, such as interleukin-12 (IL-12) and IL-23, which are thought to have opposite effects on NK cell functions. IL-12 and IL-23 are heterodimeric cytokines that share a common p40 subunit. Their receptors (IL-12R and IL-23R) are also heterodimers that share a common IL-12R $\beta$ 1 subunit. IL-12 activates NK cells and fosters anti-tumor responses by increasing cytotoxicity, promoting cell survival and proliferation, and immune infiltration. However, IL-23's role is more nuanced, with some evidence indicating that it can inhibit NK cell functions. We have detected upregulation of IL-23R expression in tumor-infiltrating NK cells. We hypothesize that in solid tumors, IL-23 suppresses tumor-infiltrating NK cell activity and promotes tumor progression, potentially by interfering with IL-12 functions. Using mouse models of mammary tumors (MMTV-PyVT transgenic mice and orthotopic E0771 mammary adenocarcinoma cell injection) we will determine if IL-23 inhibits tumor-infiltrating NK cell functions. We will also evaluate if IL-23 can induce NK cell exhaustion, anergy, or functional reprogramming. Lastly, we will determine whether blocking IL-23 or treatment with IL-12 can enhance NK cell function in mammary tumors. Findings from this study will shed light on mechanisms by which IL-12 and IL-23 affect anti-tumor immunity mediated by NK cells.

ABSTRACT P038 - B

### **SPATIOTEMPORAL VARIABILITY IN WASTEWATER-DERIVED CARBAPENEM-RESISTANCE GENES FROM MUNICIPAL SOURCES IN THE LAURENTIAN GREAT LAKES CATCHMENT**

**Ethan Harrop<sup>1</sup>, Qiudi Geng<sup>1</sup>, Ryland Corchis-Scott<sup>1</sup>, Mackenzie Beach<sup>1</sup>, Owen Corchis-Scott<sup>1</sup>, John Norton<sup>2</sup>, Andrea Busch<sup>2</sup>, Ian Morgan<sup>3</sup>, Mehdi Aloosh<sup>4</sup>, R Michael McKay<sup>1</sup>**

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<sup>4</sup>Windsor-Essex County Health Unit

**Category:** Social, Cultural, Environmental, and/or Population Health Research

Antimicrobial resistance is quickly becoming one of the largest threats facing global health. To combat this threat, surveillance is necessary to understand the presence of potential antimicrobial resistance beyond what is identified in clinical isolates. Using wastewater-based surveillance, we conducted a year long sampling campaign of four critical concern carbapenem-resistance genes at five sites to determine spatiotemporal patterns. Environmental factors were also examined to identify potential influencers of carbapenemase gene concentrations in the wastewater. Non-metric multidimensional scaling (NMDS) revealed that these antimicrobial resistance genes exhibited significant site-specific, but not seasonal, clustering. Further investigation into seasonal variation revealed that gene concentrations were significantly different between season and displayed monotonic changes. The four carbapenemase genes did not exhibit similar trends or concentrations across seasons or treatment plants, but all underwent large day-to-day fluxes. Using distance-based redundancy analysis (dbRDA), environmental factors were able to explain ~40% of the variation in gene profiles. However, each gene had differing correlations to all of the environmental factors studied here. These results indicate that a complex matrix of factors influence each antimicrobial resistance gene in a unique way with no consistent spatiotemporal patterns across the carbapenemase gene class.

ABSTRACT P039 - A

**OBJECTIVELY MEASURED PRENATAL PHYSICAL ACTIVITY AND PLACENTAL DNA METHYLATION: FINDINGS FROM A PROSPECTIVE BIRTH COHORT**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Maternal physical activity (PA) during pregnancy is associated with reduced risk of adverse pregnancy outcomes; however, its effects on the placenta are unclear. The objective of this research was to explore if objectively measured maternal PA during the second- and third- trimesters is associated with a specific genome-wide placental DNA methylation pattern. Data were drawn from REACH-Fitbit, a sub-cohort, of the ongoing Reach Enterprise to Advance Children's Health (REACH) longitudinal birth cohort. Maternal PA was assessed using Fitbit-derived metrics including average daily steps and time spent sedentary, lightly active, fairly active, or very active during the second- and third- trimesters. Placental DNA methylation was measured in DNA extracted from full thickness chorionic plate sections using the Illumina Infinium MethylationEPIC BeadChip. Epigenome Wide Association Studies (EWAS) were conducted to explore associations between PA metrics and placental DNA methylation, adjusting for maternal BMI, race, and age; gestational age at birth; and fetal sex. Forty-seven placental samples with high-quality genome-wide DNA methylation data (848,385 CpG sites after quality control) were analyzed. Most participants were Black (57.4%) and gave birth to female infants (63.8%). No CpG sites demonstrated significant differential methylation in relation to trimester-specific Fitbit-derived PA metrics after correction for multiple testing (FDR P-value < 0.05). In this cohort, objectively measured maternal PA during pregnancy was not associated with genome-wide placental DNA methylation. These findings may reflect limited statistical power and underscore the need for larger studies to clarify whether maternal PA influences placental epigenetic variation and downstream placental function.

ABSTRACT P040 - B

**A DROSOPHILA MODEL OF DIABETIC NEUROPATHY**

**Gwen Haslam**<sup>1</sup>, Alexandria St. Louis<sup>1</sup>, Jeffrey Dason<sup>1</sup>

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**Category:** Biomedical Research

Sensory neuropathy is a common complication of diabetes mellitus and is characterized by altered pain perception and reduced nociceptive sensitivity to stimuli. High-sugar diets in *Drosophila melanogaster* are widely used to model diet-induced metabolic stress relevant to diabetic-like states, providing a tractable system to study how chronic metabolic challenges affect sensory behaviour. Using a *Drosophila* adult thermal nociception assay, we examined how a high-sugar diet (HSD) affects nociceptive sensitivity. We found that both male and female flies maintained on HSD exhibited nociceptive hyposensitivity compared to those on a normal-sugar diet (NSD). This hyposensitive phenotype persisted after flies were returned to a NSD for seven days following chronic HSD, indicating that dietary experience during early adulthood produces sustained changes in sensory-driven behaviour. These findings suggest that chronic metabolic stress can induce persistent modulation of nociceptive responses that are not immediately reversed with dietary improvement. Expression of a constitutively active insulin receptor in nociceptors also resulted in nociceptive hyposensitivity, suggesting that the effects we observed are due to altered insulin signalling in nociceptors. Ongoing work aims to identify molecular pathways, including transcriptional and signalling regulators, that link metabolic stress to long lasting changes in adult sensory function. Together, this work supports the use of adult *Drosophila* as a valuable model for investigating how metabolic dysregulation may contribute to long-term sensory deficits relevant to diabetic neuropathy.

ABSTRACT P041 - A

## WEARABLE-BASED PHYSICAL ACTIVITY ASSESSMENT IN CHILDREN AGED 5-8 YEARS: A PILOT STUDY

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**Category:** Social, Cultural, Environmental, and/or Population Health Research; Case Study/Learning from the Field

Childhood physical activity (PA) levels have declined substantially with implications for childhood health (e.g. obesity, mental health). However, effects in school-aged populations remain unclear, due to limitations in existing PA measurement approaches and need for improving methods of childhood PA. The purpose of this pilot study was to collect preliminary PA data through wearable devices (Fitbit Charge 6) and assess feasibility through parallel child-caregiver interviews for future large-scale study within an ongoing longitudinal birth cohort, Research Enterprise to Advance Children's Health (REACH). A convenience sample of ten mother-child dyads (child ages 5-8 years; 6 female/4 male children) were recruited and consented. Compliance was assessed using intraday heart rate (HR) data, defined as  $\geq 10$  hours/day of HR measurements. Upon study completion, "talk-draw-play" interviews (i.e., interactive, child-centered qualitative approach) with children and semi-structured interviews with caregivers were conducted to assess acceptability, barriers, and facilitators of long-term wearable device use. Data were analyzed through rapid qualitative analysis. Nine of the ten children (90%) completed the feasibility study. Overall compliance rate was 66% and children averaged 6,726 steps per day over four weeks; common activities included aerobic workouts, running, and playing sports. Children reported enjoyment of autonomy, activity monitoring and peer-sharing; caregivers noted goal tracking and health education benefits, alongside device-related barriers (i.e. account switching and alert management). Findings demonstrate high feasibility (90% completion) and acceptability of using wearable devices to capture PA data in young children and support the integration of these measures into future, ongoing longitudinal studies.

ABSTRACT P042 - B

## EPIGENETIC AND TRANSCRIPTOMIC ANALYSIS OF CELL CYCLE GENES IN MULTIPLE MYELOMA AND PATIENT PERSPECTIVES ON BARRIERS TO ASCT

**Aser Herman<sup>1</sup>**, Ava Albonaimi<sup>1</sup>, John Hudson<sup>1</sup>, Lisa Porter<sup>1</sup>, Indryas Woldie<sup>2</sup>, Sahar Khan<sup>3</sup>, Anna Kozarova<sup>1</sup>

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**Category:** Biomedical Research

Multiple myeloma (MM) is the second most common blood cancer, characterized by the excessive proliferation of antibody-producing B cells. It has also been shown to have profound epigenetic and transcriptional dysregulation. Reduced Representation Bisulfite Sequencing (RRBS) allows for high resolution profiling of CpG methylation, particularly within CpG rich promoters, where DNA methylation can modulate transcription factor binding and gene expression. Using RRBS and RNA-sequencing datasets, we analyzed methylation and expression differences of key cell cycle genes in normal plasma cells versus diagnosis samples. RNA-seq showed overexpression of PLK2 in MM diagnosis samples compared to controls. In contrast to PLK2's role in other hematological malignancies, RRBS identified minimal differentially methylated regions (DMRs) in the promoter sequence, suggesting that PLK2 upregulation may be a result of a loss or absence of promoter methylation. With insight into the genomic background of MM, it is important to begin looking at treatment options for this cancer, and what may act as a barrier to prevent patients from accessing such treatments. Limited data exists on Windsor-Essex MM patients' decline of autologous stem cell transplantation (ASCT). This study aims to determine the demographic, socioeconomic, and psychosocial factors that influence MM patients' decisions to decline or accept ASCT in the Windsor-Essex area. Insights from this research will guide the creation of patient education materials and aid clinician communication on ASCT. It will also guide the development of improved psychosocial support resources and care coordination within Windsor Regional Hospital to support patients who undergo ASCT.

ABSTRACT P043 - A

### **FUNCTIONAL CHARACTERIZATION APPROACH TO IDENTIFY NOVEL ANTIMICROBIAL RESISTANCE GENES USING COSMID LIBRARIES FROM PSEUDOMONAS SP.**

**Julie E Hernandez-Salmeron**<sup>1</sup>, Yemurayi Hungwe<sup>1</sup>, Samran Prasla<sup>1</sup>, Shiv Naik<sup>1</sup>, Ria Menon<sup>1</sup>, Aranksha Thakor<sup>1</sup>, Alyssa Overton<sup>1</sup>, Jenn Knapp<sup>1</sup>, Trevor Charles<sup>1,2</sup>

<sup>1</sup>Department of Biology, University of Waterloo

<sup>2</sup>Metagenom Bio Life Science

**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research; Clinical Research  
Bacterial infections pose a significant threat to global health, especially with the growing resistance to antibiotics. Among critical priority pathogens, *Pseudomonas* species are of particular concern due to their intrinsic resistance mechanisms and capacity to acquire novel resistance genes. Relatively few studies have characterized antimicrobial resistance genes (ARGs) in environmental *Pseudomonas* strains, especially those encoding  $\beta$ -lactamases. In this study, we analyzed a collection of 56 bacterial strains isolated under carbapenem antibiotic selection from municipal and hospital wastewater systems across Ontario. Whole-genome sequencing taxonomy assigned 11 *Pseudomonas* species, further annotation in CARD and ResFinder databases identified known ARGs across all isolates. However, most of the carbapenem-resistant isolates did not show observable  $\beta$ -lactamases or carbapenemase gene determinants. To investigate the nature of the antibiotic resistance, we constructed cosmid-based genomic libraries using DNA from highly resistant *Pseudomonas* strains. After confirming carbapenem resistance, the positive clones were sequenced using Oxford Nanopore Technology. Bioinformatic analysis showed a group of clones with overlapping regions when mapped to the reference genome, containing several uncharacterized coding sequences. Through functional screening of these clones, subcloning and Tn5 mutagenesis, we aim to identify and characterize novel resistance genes, with particular emphasis on uncharacterized  $\beta$ -lactamase and carbapenemase activities. This approach not only supports the detection of ARGs that may be overlooked by sequence-based methods but also enables the characterization of their phenotypic effects and potential clinical implications of ARGs found in non-clinical settings. Furthermore, it emphasizes the importance of monitoring wastewater as a reservoir system for emerging resistance threats.

ABSTRACT P044 - B

### **MULTIMODAL IMAGING CHANGES AND OUTCOMES WITH THE TREATMENT OF MACUMIRA IN DRY AMD**

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**Category:** Clinical Research

Age-related macular degeneration (AMD) is the leading cause of blindness and is estimated to affect 288 million people by 2040 (Wong et al., 2014) with treatment options limited to observation, lifestyle changes and nutritional supplementation (Cabral de Guimaraes et al., 2020). Transpalpebral microcurrent stimulation, also known as MacuMira, is a novel treatment for AMD, approved by Health Canada in 2022. Early evidence suggests improvement in visual acuity and contrast sensitivity in patients receiving MacuMira, however, there lacks comprehensive data examining its effects on visual function and retinal structure. The aim of this study is to evaluate changes in best-corrected visual acuity (BCVA), contrast sensitivity, vision-related quality of life, and drusen assessment in patients undergoing transpalpebral microcurrent stimulation therapy for dry AMD in clinical practice. This study is a chart review study of patients receiving MacuMira treatment at Windsor Eye Associates (Dr. Yoganathan). Outcomes include BCVA and contrast sensitivity at baseline, 1 week, 3, 6, 9, and 12 months post treatment. Drusen volume assessments will also be conducted at the same timestamps through Optical Coherence Tomograph and Optomap Ultra-Widefield Retinal Imaging. Visual Function Questionnaire-25's (VFQ-25) will be used to evaluate quality of life at baseline, 6, and 12 months. MacuMira is a novel treatment that has been assessed in only one major study (Parkinson et al., 2023) and additional research is needed to assess the clinical validity of this non-invasive treatment. Furthermore, the present study incorporates patient-reported outcomes measures to assess perceived improvements in vision-related tasks.

ABSTRACT P045 - A

## **NAVIGATING COMPLEXITY: HEALTHCARE PROVIDER PERSPECTIVES ON ENGAGING OLDER ADULTS AND FAMILIES DURING CARE TRANSITIONS**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research; Case Study/Learning from the Field

Population aging is a defining demographic shift of the twenty-first century, with older adults comprising a rapidly growing proportion of Canada's population. This trend places increasing pressure on healthcare systems, particularly during transitions of care - high-risk periods marked by fragmented communication, complex coordination demands, and heightened vulnerability for older adults with multimorbidity. Meaningful patient and caregiver engagement during these transitions is essential to safety and continuity of care, yet remains inconsistently enacted in practice. This study examines healthcare providers' perspectives on factors that facilitate or hinder patient and caregiver engagement during care transitions for older adults. Guided by the Choosing Healthcare Options by Involving Canada's Elderly (CHOICE) framework, a focused ethnographic approach was employed. Semi-structured interviews were conducted with multidisciplinary healthcare providers involved in transitional care in Windsor-Essex, Ontario. Data were analyzed using thematic analysis with inductive and deductive coding. Findings identified two overarching categories influencing engagement: internal and external factors. Internal factors included healthcare provider collaboration, patient-directed care, family inclusion and engagement, and safety considerations. External factors encompassed family conflict and expectations, unrealistic expectations often related to limited health literacy, and the complexity of care arising from multiple comorbidities. Collectively, these factors shaped providers' ability to support meaningful engagement and safe transitions. By centring provider perspectives, this study addresses a critical gap in transitional care research and highlights modifiable relational, organizational, and contextual influences on engagement. Findings inform evidence-informed strategies, training, and policies to strengthen patient-centred, coordinated, and safe care transitions for older adults.

ABSTRACT P046 - B

## **REGULATION OF THE MYOTUBULARIN FAMILY OF LIPID PHOSPHATASES BY MITOGEN-ACTIVATED PROTEIN KINASES**

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<sup>1</sup>Department of Chemistry and Biochemistry, University of Windsor

**Category:** Biomedical Research

The myotubularins (MTMs) are phosphoinositide lipid phosphatases that regulate membrane dynamics required for endosomal maturation, autophagy, and vesicular trafficking. MTMs primarily dephosphorylate phosphatidylinositol 3-phosphate [PI(3)P] and phosphatidylinositol 3,5-bisphosphate [PI(3,5)P<sub>2</sub>], and their function is modulated by interactions between catalytically active and inactive family members. Mutations in MTM1 and MTMR2 cause X-linked myotubular myopathy and Charcot Marie Tooth disease (CMT), highlighting the importance of precise MTM regulation. We previously identified ERK-dependent phosphorylation of MTMR2 at Ser58 as a key determinant of its association with PI(3)P-enriched endosomal membranes. Building on this finding, we present preliminary evidence that multiple MAPKs target distinct MTMs and MTM complexes, suggesting a broader role for MAPK signaling in MTM regulation. Using quantitative mass spectrometry in combination with MAPK inhibitors, we show that MTMR5 is phosphorylated by JNK at Ser1229 and by ERK at Ser118. Additionally, preliminary data indicate that MTM1 is phosphorylated by muscle-specific p38 $\gamma/\delta$  at Ser588 and Ser591, potentially influencing MTM1 stability. Together, these data support a model in which differential MAPK-mediated phosphorylation fine-tunes MTM localization and turnover. Given that MAPK signaling pathways are dysregulated in myotubular myopathy and CMT, ongoing work will assess whether MAPK hyperactivation contributes to disease pathogenesis through phosphorylation-dependent attenuation of MTM function.

ABSTRACT P047 - A

### **PATIENT EXPERIENCE WITH AN AI-ASSISTED SPINE CONSULTATION INTAKE SYSTEM: A PROSPECTIVE OBSERVATIONAL STUDY**

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**Category:** Clinical Research

Artificial intelligence (AI) assisted tools are increasingly used to support clinical workflows, including patient intake and history collection. However, patient acceptance and perceived value in specialty spine care remain poorly understood. This study evaluates patient-reported experience with an AI-assisted spine consultation intake system used prior to in-person assessment. Consecutive new spine patients completed an AI-assisted intake encounter designed to collect structured clinical history for review by the treating spine surgeon. After the interaction, patients completed a structured survey assessing usability, communication quality, comfort, trust, perceived clinical value, and overall satisfaction using Likert-scale items, with optional free-text feedback. Responses were summarized descriptively, and qualitative comments were reviewed thematically. Forty-five patients completed the survey. Most patients reported that the AI assistant was easy to understand and interact with, with favorable ratings for conversational flow and clarity. Most did not feel rushed and perceived the interaction as clear and natural. Most respondents were comfortable sharing personal medical information and understood the AI system’s role in gathering information for the surgeon. Overall satisfaction was high, and most patients expressed willingness to use the AI assistant again. Qualitative feedback emphasized convenience, time savings, reduced paperwork, and improved preparedness, with suggested improvements related mainly to pacing and minimizing disruptions. Patients demonstrated high acceptability and satisfaction with an AI-assisted spine intake system. The tool was perceived as user-friendly and clinically helpful, supporting its feasibility as a patient-centered adjunct to spine consultations. Further study is warranted to evaluate impacts on consultation efficiency.

ABSTRACT P048 - B

### **DISSECTING THE ROLE OF CELL CYCLE INHIBITORS IN PROSTATE**

**Christian Kassa<sup>1</sup>, Jeffery Martin<sup>1</sup>, Kaitlin Ferraro<sup>1</sup>, Samavia Ahmad<sup>1</sup>, Hannah Ferasol<sup>1</sup>, Elizabeth Fidalgo da Silva<sup>1</sup>, Sindu Kanjeekal<sup>2</sup>, Lisa A Porter<sup>1</sup>**

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**Category:** Biomedical Research; Clinical Research

Prostate cancer (PC) affects 1 in 8 Canadian men, and its global incidence continues to rise. Common treatments involve radiation therapy, chemotherapy, surgery, and standard-of-care hormone therapy. Although hormone therapy is initially effective for many patients, treatment resistance often develops, leading to more aggressive and lethal subtypes such as castration-resistant prostate cancer (CRPC) and neuroendocrine prostate cancer (NEPC). Cell cycle dysregulation is a key driver of PC progression, in part due to the loss of tumour suppressors genes, such as p53 and RB and/or the upregulation of oncogenes such as c-Myc. My research focuses on validating cell cycle inhibitors, specifically cyclin-dependent kinase inhibitors (CDKi), for their ability to prevent the progression of PC to NEPC. Adenocarcinoma PC (AdPC), CRPC, and NEPC cell line models are treated with CDKi, and their effects on the cell cycle are evaluated using gene and protein expression analyses and cell proliferation assays. The next goal of this project is to knock out tumour suppressor genes (p53 and RB) using CRISPR technology in the AdPC cell line to analyse the effects of these genes in PC progression. At the same time, biological samples including urine, blood, and saliva from PC patients at Windsor Regional Hospital are being analysed to detect PC biomarkers. Together, the findings from these samples and bioinformatic analyses of public PC datasets will help us to better understand PC progression to NEPC and support the development of new treatments for this disease.

ABSTRACT P049 - A

## PREBIOTIC INDUCED MODULATION OF GUT DERIVED METABOLITES IN MELANOMA PATIENT STOOL – AN IN VITRO STUDY

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**Category:** Health Service Research

Growing evidence demonstrates that gut microbiome and its metabolites influence immunotherapy responses in melanoma. Microbial metabolites like short-chain fatty acids (SCFA) can modulate immune checkpoint inhibitor (ICI) efficacy through both pro and anti inflammatory effects. Our clinical trial data in metastatic melanoma patients treated with fecal microbiota transplantation and ICI therapy suggest that tryptophan derivatives and amino acids are associated with ICI response. However, whether beneficial metabolite profiles can be induced through targeted microbiome modulation remains unclear. Prebiotics, substrates selectively utilized by host microbes to confer a health benefit, represent one experimentally tractable approach to shift the microbiome towards profiles associated with improved ICI response. We hypothesized that prebiotic supplementation would enrich metabolites associated with immune function, gut barrier integrity, and improved immunotherapy response. To test this, frozen stool samples from 25 treatment naïve melanoma patients were cultured in vitro anaerobically for 24 hours with/without prebiotics, including inulin, lacto neo tetraose (LnT), or xylooligosaccharides (XOS). Culture supernatants were analyzed for tryptophan metabolites, amino acids, and SCFAs using Liquid Chromatography–tandem Mass Spectrometry. LnT and XOS significantly increased indole 3 lactic acid (ILA), threonine, butyric acid, iso butyric acid, and propionic acid. Inulin enhanced ILA and glycine and showed increasing trends in histidine and threonine. Notably, tryptophan metabolites linked to ICI resistance were not increased by any of the prebiotics. These data demonstrate that prebiotics selectively modulate patient-derived microbial metabolites, motivating future investigations of combination prebiotic approaches, and supporting their potential use as adjunctive strategies to optimize immunotherapy responses in melanoma patients.

ABSTRACT P050 - B

## STRAIN- AND INDIVIDUAL-SPECIFIC EFFECTS OF PREBIOTICS ON GUT BACTERIA

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**Category:** Biomedical Research; Clinical Research

With the emerging role of the gut microbiota in disease pathogenesis, interest in strategies to modulate gut microbial composition has increased substantially. Prebiotics—defined as substrates selectively utilized by host microorganisms to confer a health benefit—are among the most widely studied tools for microbiome modulation. Prebiotics enrich beneficial *Lactobacillus* and/or *Bifidobacterium* species while suppressing opportunistic pathogens. Human milk oligosaccharides (HMOs), including lacto-N-tetraose (LnT) and fucosyllactose (FL), are known to increase the abundance of *Bifidobacteriaceae* and *Bacteroidaceae*. Inulin, fructooligosaccharides (FOS), galactooligosaccharides (GOS), and xylooligosaccharides (XOS), have been shown to modulate gut-microbial communities. However, evidence suggests that prebiotic effects are strain specific. To investigate this specificity, we evaluated six prebiotics using selected gut bacterial strains. Three strains each of *Bifidobacterium* (*B. longum* BL05, *B. longum* 35624, *B. lactis* BB 12), *Lactobacillus* (*L. rhamnosus* GG, *L. rhamnosus* GR-1, *L. reuteri* RC 14), and *Bacteroides* (*B. cellulosyticum*, *B. clarus*, *B. intestinalis*) were cultured anaerobically in supplemented brain heart infusion media with or without prebiotics. Additionally, stool samples from six healthy donors were incubated in a gut-simulated medium. After 24 hours of incubation, bacterial growth was assessed. FOS and XOS enhanced the growth of most strains, except *Bacteroides* species. Inulin and BifidoBoost selectively promoted *Bifidobacterium* strains and *L. rhamnosus* GG. Healthy donor

stool responses were highly individual dependent. Collectively, these findings support our hypothesis that prebiotic effects on gut bacteria are highly customized, exhibiting both strain-specific and individual-dependent responses. This highlights the need for precision-based approaches when designing prebiotic interventions for gut microbiome modulation.

ABSTRACT P051 - A

### **ASSESSING HEALTH INFORMATION NEEDS IN CLL/INDOLENT NON-HL PATIENTS ON SURVEILLANCE**

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**Category:** Clinical Research

Chronic lymphocytic leukemia (CLL) and indolent non-Hodgkin lymphomas (iNHL) are mature B-cell neoplasms characterized by the progressive accumulation of monoclonal B lymphocytes. Diagnosis of CLL/iNHL is often incidental, occurring during routine clinical and laboratory evaluation in asymptomatic patients. With the current criteria for initiating therapy requiring evidence of disease progression, treatment is often deferred in favour of active surveillance or a watch-and-wait strategy. Contact from clinical staff is infrequent in these approaches, causing significant psychological distress and negative impacts on a patient's quality of life, symptom burden, and role function. The aim of this mixed-methods survey study is to evaluate patient assessments of disease understanding and correlations with depression/anxiety. Patient-reported interactions with healthcare will also be considered in relation to information provision and psychological support. Eligible participants will include patients with a histopathological diagnosis of CLL who are on active surveillance and have not received any treatment. Survey questions will gather quantitative data on the patient's understanding of the disease and psychological distress. Open-ended inquiries will further provide qualitative insights into patient information sources, needs, and gaps. Logistic regression will be used to examine the associations between patients' self-assessed knowledge of their condition and healthcare team interactions, depression, anxiety, and coping strategies. Findings from this study can improve surveillance strategies in disease management by addressing patient experiences, educational needs, existing support, and healthcare encounters.

ABSTRACT P052 - B

### **CELL-TYPE-SPECIFIC MECHANISMS IMPLICATED IN MRNA TRANSLATION AND MEMORY IN AGING AND ALZHEIMER'S DISEASE**

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**Category:** Biomedical Research

mRNA translation in the brain is necessary for long-term memory consolidation, and its dysregulation is implicated in memory loss in Alzheimer's disease. Pathological features of Alzheimer's disease include the accumulation of amyloid-beta peptides and hyperphosphorylated tau proteins. The accumulation of these proteins results in many stressors that trigger the integrated stress response, which phosphorylates the  $\alpha$  subunit of eukaryotic initiation factor 2 (p-eIF2 $\alpha$ ), inhibiting general protein synthesis. Prolonged integrated stress response activation in Alzheimer's disease increases p-eIF2 $\alpha$  levels, downregulates general protein synthesis, and impairs long-term memory consolidation. p-eIF2 $\alpha$  is a key translational control mechanism to bidirectionally control long-term memory in health and disease. Learning stimulates general protein synthesis in a healthy brain by dephosphorylation of p-eIF2 $\alpha$ . Cell-type-specific suppression of the integrated stress response in mice models of translation rescued memory deficit. However, the cell-type-specific translation regulation mechanisms are less understood in aging and Alzheimer's disease. Therefore, we prevented eIF2 $\alpha$  phosphorylation in specific cell populations of aged and Alzheimer's disease mice to study the effects on memory formation. Dissecting cell-type-specific translational control mechanisms in Alzheimer's can aid in developing therapeutics to target specific cell populations, potentially leading to better treatment outcomes.

ABSTRACT P053 - A

## **FUNCTIONAL CHARACTERIZATION AND DISCOVERY OF NOVEL ANTIMICROBIAL RESISTANCE GENES USING AGROBACTERIUM TUMEFACIENS AS SURROGATE HOST**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research; Clinical Research

Antimicrobial resistance (AMR) poses a critical threat to global health across human, animal, and environment. Wastewater treatment act as convergence points for AMR bacteria and resistance genes from clinical, agricultural, and community, making them reservoirs for emerging resistance determinants. While metagenomic sequencing has provided insight into the distribution of antimicrobial resistance genes (ARGs), sequence-based approaches alone cannot determine gene functionality. Functional metagenomic screening enables discovery of uncharacterized ARGs based on resistance phenotypes; however, its effectiveness can be limited by host-dependent gene expression. In this study, a functional metagenomic approach is used to identify carbapenem resistance determinants from wastewater-microbial communities using *Agrobacterium tumefaciens* as surrogate host. *Agrobacterium* was selected due to its phylogenetic proximity to zoonotic Alphaproteobacteria and its ability to support functional expression of resistance determinants that may remain silent in conventional *Escherichia coli*-based screening systems. Screening of a wastewater-derived cosmid library yielded seven clones exhibiting carbapenem resistance. None of these clones were found to encode known carbapenemase genes in preliminary analyses. Notably, resistance phenotypes were not retained in *E. coli* indicating that the observed carbapenem resistance is host dependent. These findings suggest that conventional *E. coli*-based functional screens may fail to detect environmentally encoded resistance determinants. Targeted subcloning, and Tn5 transposon mutagenesis aim to identify the genomic regions responsible for the resistance phenotypes and to determine whether these determinants represent known or novel mechanisms of carbapenem resistance. Together, these findings highlight wastewater as source of host-dependent ARGs and demonstrate the utility of alternative surrogate hosts for functional metagenomic screening.

ABSTRACT P054 - B

## **EXPLORING PRINCIPLES OF THE INTERPLAY BETWEEN GLIOMA STEM CELLS AND THE ENDOTHELIAL COMPONENT IN GLIOBLASTOMA**

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**Category:** Biomedical Research

Glioblastoma (GBM) is the most common and aggressive primary malignant brain tumour with a poor prognosis and high relapse rate. A major treatment obstacle is the presence of glioma stem cells (GSCs), a subset of tumour cells that can evade standard of care treatment and recapitulate the tumour. The significant therapeutic challenge is aggravated by components of the tumour microenvironment, including endothelial cells (ECs), that may enhance the maintenance of GSCs through the secretion of critical factors and direct contact cell-cell interactions. We hypothesize that ECs may have differential effects on subpopulations of GSCs based on the expression of certain cell surface markers, such as CD44 and CD133, which are associated with aggressiveness and drug resistance of GBM. We explore the role of the EC-GSC interplay in GBM aggressiveness and therapy response through *in vitro* and *in vivo* assays where we introduce the endothelial component through diverse approaches. GSCs exposed to the endothelial component will be evaluated for stemness level, proliferative capacity, and chemotherapy response. Dissecting the role of the endothelial component in the regulation of specific GSCs could help inform treatments that target critical molecular players that drive GBM progression.

ABSTRACT P055 - A

## **WHAT PRACTICE REVEALS: BRIDGING CLINICAL INSIGHT AND RESEARCH ON POLYVICTIMIZATION**

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**Category:** Case Study/Learning from the Field

As a registered social worker (RSW) supporting survivors of interpersonal violence and trauma, I observed a troubling pattern: many of the women I supported experienced violence not once, but repeatedly throughout their lives. Yet healthcare and social service systems consistently responded to these as isolated incidents, missing the cumulative impact and creating fragmented care. The disconnect between lived experiences and system responses prompted a deeper examination of how polyvictimization – the cumulative experience of multiple forms of violence across the lifespan – remains inadequately recognized in support systems. This research critically examines and advances how polyvictimization among adult women is conceptualized in existing literature and clinical practice. It illuminates gaps between clinical presentations of cumulative violence and fragmented system responses, bridging empirical knowledge with clinical wisdom to inform trauma-and-violence-informed approaches. This research integrates two knowledge sources. First, a comprehensive critical synthesis of empirical, conceptual, and theoretical literature related to polyvictimization among adult women. Second, a reflexive analysis of clinical observations from practice as an RSW supporting individuals with complex trauma and various experiences of interpersonal and structural violence. Future applications center survivor experiences within fragmented systems through comprehensive lifetime screening, integrated care pathways, and trauma-and-violence-informed approaches. System-level changes require challenging protocols that fragment violence into isolated incidents, advocating for policy supporting integrated care pathways connecting mental health, primary care, and specialized violence services. Educational implications include preparing practitioners to recognize and respond to the cumulative impacts of polyvictimization across women's lives.

ABSTRACT P056 – B

## **CAN SEXUAL SELF-EFFICACY BE A PREVENTATIVE FACTOR AGAINST TECHNOLOGY-FACILITATED SEXUAL VIOLENCE?**

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**Category:** Clinical Research

Technology-facilitated sexual violence (TFSV) is a public safety concern, resulting in severe harm to victims' mental health and social status. Studies found that online sexual behaviours (OSB) can increase the risk of TFSV victimization and young adults are at greater risk due to their constant online presence in social spaces, such as social media. OSB provides opportunities for individuals to engage in risky sexual in-person behaviours (RSB) such as meeting strangers offline for sexual activities, increasing the risk for negative sexual experiences. Studies in traditional sexual violence have found that sexual self-efficacy (SSE) decreases the risk of RSB. This study aims to examine precipitating (OSB and RSB) and preventative (SSE) factors associated with TFSV, and if SSE can reduce TFSV victimization. It is expected that individuals with higher SSE will experience less TFSV because they will engage in fewer online and in-person sexual behaviours than individuals with lower SSE, and that SSE will reduce TFSV risk. The proposed study will ask university-aged adults to self-report on their TFSV experiences, online and in-person sexual behaviours, and SSE. Linear and logistic regressions will be applied to examine the relationships between TFSV, sexual behaviours, and SSE. Mediation will be used to examine the effects of OSB and RSB on TFSV, and the indirect effect of SSE on TFSV.

ABSTRACT P057 - A

## **REGULATION OF THE HYVH1-HSP70 CELL SURVIVAL COMPLEX THROUGH TYROSINE PHOSPHORYLATION MEDIATED BY THE PROTO-ONCOGENE SRC KINASE**

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**Category:** Biomedical Research

Human YVH1 (hYVH1, also known as DUSP12) is a highly conserved atypical dual-specificity phosphatase (DUSP) with known functions in 60S ribosome biogenesis and stress granule disassembly. Additionally, hYVH1 is cytoprotective following oxidative and thermal stresses, although the mechanism remains elusive. Our lab has previously shown that hYVH1 can bind to the ATPase domain of stress-inducible chaperone Heat Shock Protein 70 (HSP70). Understanding the function and regulation of the hYVH1-HSP70 interaction could give valuable information into hYVH1's role in cell survival. Here, expression and activation of Src kinase leads to lower co-immunoprecipitation of HSP70 with hYVH1. Interestingly, this effect is altered under mild oxidative stress or PTP inhibition. Direct dissociation of the complex with recombinant Src was further demonstrated using an in-vitro kinase assay. To probe for necessary phosphorylation sites, we performed phosphopeptide enrichment, coupled with high-definition multiple reaction monitoring mass spectrometry (HDMRM-MS), and found multiple Src-mediated phosphorylation sites on both proteins. Using phosphorylation-mimetic mutants, we showed that phosphorylation of Tyr41 and Tyr183 on HSP70 differentially modulate its ability to associate with hYVH1. This suggests that differential tyrosine phosphorylation of HSP70 creates proteoforms with increased or decreased affinity for hYVH1. Given the cytoprotective nature of hYVH1 and HSP70, we postulate that dissociation of the hYVH1-Hsp70 complex is an important event during cell stress recovery, and that Src-mediated phosphorylation of Tyr183 on HSP70 is sufficient. We hypothesize, this disassembly of the hYVH1-Hsp70 complex permits translocation of hYVH1 to the nucleus to participate in the restoration of 60S ribosome biogenesis and protein translation.

ABSTRACT P058 - B

## **LIVED EXPERIENCES OF TYPE 1 DIABETES: EXPLORING YOUNG ADULTS' PERSPECTIVES OF DIABETES DISTRESS, ILLNESS IDENTITY, AND SELF-COMPASSION**

**Krista Lucier<sup>1</sup>, Jessica Kichler<sup>1</sup>, Onawa LaBelle<sup>1</sup>, Kendall Soucie<sup>1</sup>, Ayowale Olorunsola<sup>1</sup>**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Young adulthood is a critical developmental period for individuals living with type 1 diabetes (T1D), as increasing independence, identity formation, and social transitions coincide with the ongoing demands of intensive illness self-management. During this stage, many young adults (YAs) experience elevated diabetes distress (DD), reflecting the emotional burden of managing T1D alongside broader developmental challenges. Although DD is well documented in this population, less is known about how YAs integrate T1D into their developing identities or how self-compassion (SC) shapes their lived experiences of distress. Guided by the Common-Sense Model of Self-Regulation, this dissertation proposes a qualitative exploration of how YAs with T1D understand the relationships among DD, illness identity (II), and SC. Using reflexive thematic analysis, this study will examine in-depth accounts from YAs aged 18 to 25 living in Canada who have been diagnosed with T1D for at least one year. Participants will complete the Type 1 Diabetes Distress Assessment System (T1-DDAS) as a contextual screener to support purposeful sampling, followed by semi-structured interviews exploring experiences of DD, identity development, coping, and meaning-making. Particular attention will be paid to how SC, including diabetes-specific expressions of common humanity, and II are perceived as shaping emotional adjustment during the transition to adulthood. By centering lived experience, this research aims to address gaps in the literature by integrating SC and II within a coherent theoretical framework and focusing explicitly on YAs with T1D. Findings are expected to inform developmentally sensitive, compassion-focused approaches to supporting psychological well-being in this population.

ABSTRACT P059 - A

## **INTERACTIVE MRI LABELING INTERFACE FOR DEVELOPMENT OF A STANDARDIZED LUMBAR SPINE STENOSIS SCORING SYSTEM AND FUTURE AI AUTOMATION**

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**Category:** Clinical Research

Accurate assessment of lumbar spinal stenosis on MRI remains subjective, with notable inter-observer variability. Existing grading frameworks such as the Pfirrmann and Modic classifications provide partial descriptors but lack comprehensive integration or standardization across central and foraminal regions. To address this gap, we developed a digital platform that enables radiologists and spine specialists to systematically label axial MRI slices, forming the foundation for a validated scoring system and subsequent machine learning automation. A multidisciplinary team designed a web-based MRI labeling interface that displays paired axial images for comparative grading. Each image allows independent classification of central and lateral (foraminal) stenosis as mild, moderate, or severe, with uniform image scaling to ensure visual consistency. This interface will be used in a reliability study involving 150 de-identified lumbar spine MRIs encompassing a range of pathologies. Each case is independently rated by multiple experts, and inter-rater reliability will be quantified using Cohen's  $\kappa$  statistic. Labeled datasets from this process will then serve as the ground truth for training convolutional neural networks (CNNs) to automate stenosis severity prediction. The prototype interface standardizes visual presentation and simplifies structured expert annotation, enabling efficient large-scale data collection. Preliminary testing demonstrated intuitive usability and consistent labeling patterns among early users. Data collection ongoing. This labeling tool operationalizes expert consensus into structured data, bridging clinical insight and AI model development. Its integration into the research workflow is expected to improve diagnostic consistency through a validated scoring system and accelerate the creation of a model for automated lumbar spine assessment.

ABSTRACT P060 - B

## **SPY1-MEDIATED CELL CYCLE REGULATION AS A TARGET TO OVERCOME GSC-INDUCED THERAPY RESISTANCE IN GLIOBLASTOMA**

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**Category:** Biomedical Research

Glioblastoma (GBM) is an extremely lethal type of a brain tumour evading all intricate attempts of modern therapies. Extensive genetic analyses of GBM have indicated a variety of deregulated molecular pathways involved in DNA repair, apoptosis, cell migration adhesion and cell cycle regulation. Brain tumor initiating cells (BTICs) aid in the initiation, progression, and therapy resistance of heterogenous mass of glioblastoma and are responsible for post-therapy tumour recurrence. BTICs share properties with normal neural stem cells (NSCs), including ability to self-renew and giving rise to differentiated progeny. Previously, our lab established that the levels of an atypical cell cycle protein, SPY1 (RINGO; gene SPDYA) are elevated in malignant human glioma and its upregulation correlates with poor prognosis of patients with GBM. SPY1 is responsible for the symmetric division of BTICs in subsets of high-grade glioma leading to aberrant expansion of those aggressive populations of cells. Spy1 activates Cyclin Dependent Kinases (CDK) and has been demonstrated to override protective cell cycle checkpoints. We hypothesize that select targeting of SPY1-CDKs will be an effective therapeutic intervention for subsets of GBM patients. My research project focuses on how targeting of SPY1 can contribute to better control over the growth and progression of GBM by eliminating BTIC populations. The objectives of my study will allow for evaluation of GBM biology in face of SPY1 depletion and functional assessment utilizing GBM patient-derived, three-dimensional spheroids and in vivo zebrafish Patient Derived Xenograft (PDX) screening platform.

ABSTRACT P061 - A

## **INFLUENCE OF NUCLEOBASE QUENCHING ON FLUORESCENT NANOANTENNA ENZYME ASSAY**

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**Category:** Biomedical Research

Alkaline Phosphatases (APs) are ubiquitous metalloenzymes that hydrolyse phosphomonoesters to yield inorganic phosphate (Pi) and an alcohol. In humans, intestinal AP regulates duodenal pH and microbiota growth via ATP hydrolysis, and consequently, there is great interest in studying it and other biologically relevant substrates. However, these substrates lack intrinsic chromogenic and fluorogenic properties, making them difficult to analyse. Fluorescent Nanoantennas (FluorNAs), an emerging spectroscopic method, address this challenge by monitoring real-time enzyme catalytic activity. FluorNAs consist of an oligonucleotide linker labelled with a biotin and a fluorophore at opposite ends. Streptavidin, a homotetrameric protein with high affinity for biotin, serves as an anchor binding both FluorNAs and a biotinylated protein of interest, such as biotinylated AP. These binding steps produce fluorescent signal changes due to non-covalent dye-protein interactions. Previous docking simulations predicted that fluorescein (FAM) binds near the AP active site, while Cyanine 3 (Cy3) binds at a distal site. During catalysis, the dye is perturbed, causing a transient signal change that can be used to extract Michaelis-Menten kinetic parameters. We examined various factors such as fluorophore labelling position, different fluorophore types, diverse oligonucleotide lengths, and the fluorescence quenching properties of canonical and modified nucleobases. We found that fluorophore labelling at the 5'-end yields an increased fluorescence signal. Additionally, FAM as a reporter molecule surpasses Cy3 in assessing catalytic activity. Finally, altering linker lengths and the nucleobase sequence produced surprising results. Understanding the sequence-tuneable aspect of the FluorNAs signal will ideally enable us to study other enzymes of biomedical interest.

ABSTRACT P062 - B

## **METHODOLOGY FOR THE IDENTIFICATION OF INTERNATIONAL AGRICULTURAL WORKERS FOR RETROSPECTIVE CHART REVIEWS IN THE WINDSOR-ESSEX REGION**

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research; Clinical Research; Case Study/Learning from the Field

The Windsor-Essex region employs thousands of International Agricultural Workers (IAWs) annually. Despite their essential role in food security, these individuals are often invisible within hospital administrative data. Electronic Medical Records (EMRs) do not consistently capture occupational status, making it difficult for researchers to analyze the specific healthcare needs or outcomes of IAWs. IAWs can be accurately identified using address-matching in Windsor Regional Hospital (WRH) and Erie Shore HealthCare (ESHC) EMRs within a standardized methodological framework. Develop a multistep identification protocol to identify International Agricultural Workers in WRH and ESHC Electronic Medical Records. Assess the accuracy of address-matching as a tool for the identification of IAWs. Establish a standardized identification framework for IAW research that is transferable across diverse hospital settings. A localized registry of agricultural workplaces is developed by identifying and compiling all active farm addresses across the Windsor-Essex region. Residential addresses in the WRH and ESHC EMRs are compared against this comprehensive list. Records with matching addresses are flagged as potential IAWs for further validation and analysis using clinical documentation. Using the identification methodology, we will conduct a retrospective cohort study at WRH and ESHC to identify healthcare disparities faced by IAWs in the emergency department. These findings will provide the evidence needed to advocate for regional health policies that better support the needs of the migrant worker community.

ABSTRACT P063 - A

## SYSTEMATIC REVIEW OF ACCURACY OF ARTIFICIAL INTELLIGENCE IN NEUROSURGICAL TRIAGE AND DECISION-MAKING

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**Category:** Health Service Research; Clinical Research

Artificial intelligence (AI) applications in neurosurgery are rapidly expanding, yet the role of these technologies in clinical triage and diagnostic decision-making is poorly characterized. Effective triage is critical for optimizing patient outcomes and resource allocation, particularly for time-sensitive conditions such as traumatic brain injury, stroke, and spinal emergencies in resource-limited and high throughput settings. Understanding how AI-based tools perform relative to clinician judgment is critical for safe and effective implementation. This systematic review evaluates the diagnostic accuracy and triage performance of AI models compared to neurosurgeons in clinical decision-making scenarios and identifies factors influencing AI performance. Two independent reviewers performed a systematic search of peer-reviewed studies between 2015-2025 in PubMed, MEDLINE, ACM Digital Library, Cochrane Library, and PROSPERO. Reviewers extracted AI model type, clinical scenario, patient populations, and performance metrics. Across included studies, AI systems demonstrated high agreement with neurosurgeons and multidisciplinary teams for high-urgency triage decisions (Cohen's  $\kappa$  up to 0.76; triage accuracy 93–100%) and consistently outperformed junior clinicians and non-specialist providers. Performance was strongest in time-critical presentations (ROC–AUC up to 0.95), with poorer performance observed in low-urgency or detailed diagnostic classification tasks (agreement as low as  $\kappa = 0.27$ ), particularly when clinical input was limited. Future analyses will assess dataset representativeness, validation methods, and methodological transparency. By identifying gaps in current applications and highlighting conditions where AI shows clinical promise, this work can guide healthcare systems in developing AI-assisted decision support tools that improve timely access to neurosurgical care while maintaining patient safety.

ABSTRACT P064 - B

## THE WINDSOR ARITHMETIC COGNITIVE TOOL (WACT): A PILOT STUDY OF GLOBAL COGNITIVE ASSESSMENT IN NEUROLOGICAL INPATIENTS

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**Category:** Clinical Research

Brief cognitive screening tools used in hospitalized neurological patients frequently emphasize orientation and language, which may underestimate deficits in working memory, attention, and executive function. The Windsor Arithmetic Cognitive Tool (WACT) was developed as a rapid, numerically-based assessment intended to reflect global cognitive capacity through graded arithmetic manipulation, minimizing linguistic and cultural bias. In this prospective observational study, adult patients admitted to a neurosurgical ward—including elective and emergency spine and cranial cases—completed the WACT alongside established cognitive instruments: the Montreal Cognitive Assessment (MoCA), Orientation Log (O-Log), and Cognitive Log (Cog-Log). WACT scoring is based on the number of digits manipulated and cognitive load imposed by carrying operations, as described in the WACT design methodology. Descriptive statistics with 95% confidence intervals (CIs) were calculated; convergent validity was assessed using correlation analyses. Twenty-five patients completed all assessments. Mean WACT score was 4.68 (SD 1.95; 95% CI 3.87–5.49); mean WACT2 score was 5.00 (SD 1.63; 95% CI 4.33–5.67). Mean MoCA score was 20.64 (95% CI 18.48–22.80), Cog-Log 18.04 (95% CI 15.87–20.21), and O-Log 25.92 (95% CI 23.89–27.95). WACT demonstrated moderate to strong correlations with MoCA ( $r = 0.63$ ), Cog-Log ( $r = 0.53$ ), and O-Log ( $r = 0.47$ ). A marked ceiling effect was observed for O-Log scores, with 40% of patients scoring the maximum despite variability in WACT performance. The WACT appears sensitive to cognitive deficits not captured by orientation-focused instruments and may provide complementary information regarding global cognitive function in neurosurgical inpatients. These findings support further validation with larger samples to establish reliability, responsiveness, and clinical utility.

ABSTRACT P065 - A

## INVESTIGATION OF STATIN RYANODINE RECEPTOR 1 ACTIVATION ON MITOCHONDRIAL FUNCTION AND AMINO ACID BALANCE IN SKELETAL MUSCLE

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**Category:** Biomedical Research

Statins are cholesterol-lowering medications prescribed for the management of atherosclerotic disease. Myalgia, muscle pain without damage, is reported in 10-25% of users. While the mechanism of statin-induced myalgia is not entirely understood, evidence points to mitochondrial dysfunction and dysregulated calcium homeostasis as key contributors. Statins, including atorvastatin (Ato) and cerivastatin (Cer), inhibit oxidative phosphorylation, generate oxidative stress, and subsequently modify skeletal muscle amino acid (AA) balance. Recently, statins were shown to activate ryanodine receptor 1 (RyR1), likely associated with the observed dysregulated calcium homeostasis. To evaluate the effect of statin RyR1 activation on skeletal muscle function, specifically mitochondrial function and AA balance, we compared a potent RyR1 activator, Cer, against a moderate RyR1 activator, Ato. We hypothesized that potent RyR1 activation would lead to worsened mitochondrial outcomes, and cotreatment with a RyR1 inhibitor would attenuate mitochondrial dysfunction and AA fluctuations for both statins. C2C12 myotubes were incubated with Ato or Cer, and cotreated with RyR1 inhibitor ruthenium red (RR). Mitochondrial ROS, LDH, mitochondrial dynamics/function marker content, and amino acid concentrations were evaluated. Ato and Cer increased myotube superoxide production, which was attenuated by RR cotreatment in Cer only. Mitochondrial dysfunction was managed via different mechanisms; Ato and Ato-RR treatment increased PARK2 content, and Cer treatment increased TOMM22 content. Both statins, regardless of cotreatment, modified AA balance. Our findings suggest that while potent RyR1 activation can play a role in statin-induced mitochondrial dysfunction, it is not the primary driver of this dysfunction and likely not the central mechanism underlying statin-induced myalgia.

ABSTRACT P066 - B

## MOLECULAR IMPRINTED POLYMER-BASED ELECTROCHEMICAL SENSOR FOR CYTOCHROME C DETECTION AS A BIOMARKER OF LIVER DAMAGE AND HEPATITIS C

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**Category:** Biomedical Research

Hepatitis-C virus (HCV) infection remains a leading cause of chronic liver disease, cirrhosis, and hepatocellular carcinoma worldwide. Liver injury associated with HCV infection induces mitochondrial dysfunction and apoptosis, resulting in the extracellular release of cytochrome c, a redox-active protein increasingly recognized as a biomarker of hepatic damage and disease progression. Despite its diagnostic relevance, current cytochrome c detection methods are limited by low selectivity, high cost, and complex workflows. This study investigates a molecularly imprinted polymer (MIP)-based electrochemical sensor for the selective capture and detection of cytochrome c, enabling indirect assessment of liver damage associated with Hepatitis-C. A poly(m-phenylenediamine) (PmPD) recognition layer was electropolymerized onto a carbon-coated working electrode using a three-electrode configuration. Cyclic voltammetry identified an optimal polymerization oxidation potential of 0.2 V, enabling controlled film growth. Potentiostatic chronoamperometry was used to tune polymer thickness through charge density, yielding an optimal hydrated film thickness of approximately 2.5-4.5 nm at 1 mC cm<sup>-2</sup>, consistent with the molecular dimensions of cytochrome c. Polymer integrity, morphology, and chemical functionality were characterized using Fourier transform infrared spectroscopy, scanning electron microscopy, atomic force microscopy, and optical microscopy. Electrochemical performance was evaluated using differential pulse voltammetry, with ongoing optimization focused on maximizing peak current suppression upon cytochrome c rebinding within the imprinted cavities. Electrochemical impedance spectroscopy further supports binding events through changes in charge-transfer resistance. This work demonstrates a label-free, tunable electrochemical platform for cytochrome c detection, showing its potential for accessible assessment of liver damage associated with Hepatitis-C and related hepatic diseases.

ABSTRACT P067 - A

### **A MULTIFACETED STUDY OF NEUROENDOCRINE PROSTATE CANCER USING A NOVEL PROGRESSION PLATFORM FOR THERAPEUTIC TARGETING AND BIOMARKER DISCOVERY**

**Jeffery Martin<sup>1</sup>, Kaitlin Ferraro<sup>1</sup>, Christian Kassa<sup>1</sup>, Samavia Ahmad<sup>1</sup>, Hannah Ferasol<sup>1</sup>, Elizabeth Fidalgo da Silva<sup>1,2</sup>, Sindu Kanjeekal<sup>3</sup>, Lisa Porter<sup>1,2</sup>**

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**Category:** Biomedical Research; Clinical Research

Prostate cancer (PC) is the second most common cancer among men worldwide, affecting 83 men daily in Canada. As treatment options and detection methods continue to evolve, disease management and overall patient outcomes have improved. However, these treatments can unfortunately pressure PC cells to adapt into a more aggressive, treatment-resistant disease, known as neuroendocrine prostate cancer (NEPC). Treatment options and detection methods for NEPC are very limited as it is resistant to all current therapies and common biomarkers for PC are absent in NEPC, leading to a poor prognosis of ~8 months. Our lab has identified a class of cell cycle regulatory proteins elevated in NEPC, and we hypothesize that these proteins can drive the progression to and/or can act as new biomarkers for this drug-resistant form of disease. To test this, we have developed a novel in vitro PC-to-NEPC platform that mimics disease progression and helps elucidate the specific role of these regulatory proteins during PC progression to NEPC. Further, we are testing drugs that can inhibit downstream pathways of these proteins to see if they can treat and/or prevent the progression of disease to NEPC. Finally, we are collecting blood, urine, and saliva from patients with advanced PC to detect and optimize new biomarkers for NEPC using whole transcriptome sequencing. Preventing disease progression and identifying new biomarkers for NEPC using non-invasive methods remains one of the greatest challenges in this field, and our results demonstrate strong evidence that this is a promising direction that will meaningfully impact patients.

ABSTRACT P068 - B

### **EVALUATING ACCESS PATHWAYS AND SERVICE UTILIZATION AT THE MENTAL HEALTH AND ADDICTION URGENT CARE CENTRE (MHAUCC): A RETROSPECTIVE CHART REV**

**Kevin Matte<sup>1</sup>, Kelly Mailloux<sup>1</sup>, Leah McLellan<sup>1</sup>, Tammy Kotyk<sup>1</sup>, Bailey Csabai<sup>1,2</sup>, Leslee Ward<sup>1,2</sup>, Jennifer Voth<sup>1,2</sup>**

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**Category:** Health Service Research

Background: Emergency departments (ED) are often the default setting for individuals experiencing mental health or addictions crises, leading to long wait-times for service. The Mental Health and Addictions Urgent Crisis Centre (MHAUCC) was launched to provide rapid access to specialized mental health care as an alternative to the ED. The MHAUCC achieves positive outcomes for patients and the system overall by improving access to specialized services, improving patient satisfaction and diverting clients away from the ED. Objectives: The primary purpose is to evaluate the demographic of patients who utilized the MHAUCC. The secondary objective is to examine service utilization for each patient and discharge outcomes. Methods: A retrospective chart review is underway to analyze clients discharged from the MHAUCC between May 1 and October 31, 2025. Preliminary Results: To date, 189 client charts have been reviewed (M age = 35 years, SD = 15.2; 51% female). The majority of encounters were walk-in patients (68%) and 24% were referrals from the ED or first responders. On average, MHAUCC encounters lasted 103 minutes, and one third of clients received more than one specialty service during their visit. Following their visit, over 15% of clients were directly transferred to community addiction care facility, and more than half were discharged home. Implications: Findings from this evaluation demonstrates that the MHAUCC can help divert inappropriate ED presentations and provide quicker access to a range of specialized services. These results support the MHAUCC as an alternative model that reduces ED burden and improves patient outcomes.

ABSTRACT P069 - A

## **EVALUATING THE DIAGNOSTIC YIELD AND EFFICIENCY OF THE RAAMP CLINIC: A 2-YEAR RETROSPECTIVE REVIEW OF CANCER DIAGNOSIS PATHWAYS**

**Madelyn McGregor<sup>1</sup>, Kristina Marrocco<sup>1</sup>, Megan Smit<sup>1</sup>, Nicholas Caro<sup>2</sup>, Nicholas Saad<sup>2</sup>, Fatimah Bondok<sup>1</sup>, Marco Sladoje<sup>1</sup>, Wassim Saad<sup>2,3</sup>**

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**Category:** Health Service Research; Clinical Research

Although evidence consistently links prolonged diagnostic intervals to poorer cancer outcomes (Neal 2015; Tørring 2011), patients with vague or non-specific presentations often experience significant delays. International models demonstrate the benefits of rapid diagnostic access (Hiom 2015; Jensen 2014). In Ontario, Diagnostic Assessment Programs (DAPs) aim to streamline cancer diagnosis, but gaps persist for patients with unexplained symptoms and abnormal findings (Cancer Care Ontario 2013; CPAC 2019). The Rapid Assessment and Management Program (RAAMP) aims to expedite access to diagnostic testing, reduce redundant investigations, and coordinate referrals across specialties. This program is particularly relevant given the substantial provincial and local delays in consultations and diagnostic imaging (Moir & Barua, 2024; Ontario Health, 2025), which have worsened since the COVID-19 pandemic (Walker, 2022). Although RAAMP referrals have grown substantially, RAAMP's diagnostic yield and efficiency have not been systemically evaluated. This retrospective chart review will analyze all new RAAMP referrals over a two-year period (2023-2024) to quantify RAAMP's diagnostic yield by referral indication and diagnostic intervals to definitive diagnosis, using demographics, referral data, key events, and final diagnoses. Secondary objectives will measure the time from diagnosis to oncology consultation and assess feasibility for future mortality analysis. By identifying high-yield referral indications and diagnostic bottlenecks, this study aims to inform regional healthcare planning, optimize rapid assessment pathways for patients with unexplained symptoms, and support broader implementation of coordinated diagnostic models across Ontario.

ABSTRACT P070 - B

## **PATIENT NAVIGATOR IN OPHTHALMOLOGY; OUTCOMES OF ADDITIONAL SUPPORT**

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<sup>4</sup>Western University

<sup>5</sup>University of Rochester

**Category:** Health Service Research; Clinical Research

Retinal patients face issues beyond the immediate eye conditions, mental health burden, comorbidity management, low health literacy, transportation barriers, and limited access to HCP's. These factors contribute to reduced engagement with eye care and impaired quality of life. Patient navigator programs have demonstrated benefit in other domains of health care, however their integration into retinal care remains sparse, limiting support service provision. The aim of this study is to evaluate the feasibility of implementing a patient navigator program in a community retina clinic through pre and post interventional questionnaires. Secondary objectives include identifying key barriers to care and assessing the program's potential to improve vision-related quality of life and mental health outcomes. We hypothesize that identifying/addressing unmet needs and delivering tailored navigation support will improve patient-reported outcomes. Semi-structured interviews will identify challenges in accessing care and inform development of community-based resources. Approximately 700 patients have completed initial screening surveys, with participating patients completing validated questionnaires assessing vision-related quality of life and mental health (VFQ-25, IVI, GAD-7, PHQ-9) prior to navigator involvement. Individualized navigation will link patients with mental health, diabetic, transportation, and low-vision resources. Surveys will be re-administered following navigation support for 6-8 months. Program feasibility and impact will be evaluated using pre-post patient-reported outcomes and program delivery metrics, including the number of navigation interventions and successful linkages to recommended supports. Findings will inform scalability of a patient navigator model in retinal care, with potential application to other clinical settings to improve access, coordination, and patient experience.

ABSTRACT P071 – A

## **BRIDGING LANGUAGE AND HEALTHCARE ACCESS FOR INTERNATIONAL AGRICULTURAL WORKERS THROUGH COMMUNITY-BASED ENGLISH CONVERSATION GROUPS**

**Rosa Mikheil<sup>1</sup>**, Caroline Hamm<sup>1</sup>

<sup>1</sup>Windsor Regional Hospital

**Category:** Social, Cultural, Environmental, and/or Population Health Research

International Agricultural Workers (IAWs) are essential contributors to Canada's agricultural industry, yet their healthcare needs remain underserved. Significant barriers to care include communication gaps, difficulties navigating the healthcare system, and cultural misunderstandings. Limited English proficiency and unfamiliarity with medical terminology and healthcare processes can result in misunderstanding medical instructions, misdiagnosis, delayed care, and reduced trust in healthcare providers. This project aims to build rapport with migrant agricultural workers while improving their English communication skills, healthcare literacy, and autonomy, ultimately supporting their ability to advocate for their own health needs within the Canadian healthcare system. English Conversation Groups (ECGs) are weekly, volunteer-led sessions that pair community volunteers with migrant agricultural workers through a partnership with the South Essex Community Council. These small-group meetings provide a supportive environment for workers to practice conversational English, learn basic medical terminology, and become more familiar with navigating the healthcare system in Canada. Sessions are tailored to participant needs and emphasize practical language use, confidence-building, and culturally responsive communication. Given the temporary nature of IAW contracts and the uncertainty of worker return each season, the ECG program is designed to be ongoing and adaptable to new cohorts of workers. Sustaining this initiative has the potential to continuously support incoming IAWs, strengthen community partnerships, and contribute to improved healthcare access, patient-provider communication, and health equity for international agricultural workers in Canada.

ABSTRACT P072 - B

## **INVESTIGATING eIF2 $\alpha$ -MEDIATED TRANSLATIONAL CONTROL IN TASTE MEMORY FORMATION**

**Joshua Miller<sup>1</sup>**, Rogers Koboji<sup>1</sup>, Maria Badalova<sup>1</sup>, Nancy Almasri<sup>1</sup>, Samuel Olotu<sup>1</sup>, Anna Papanastassiou<sup>2</sup>, Vijendra Sharma<sup>1</sup>

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**Category:** Biomedical Research

Learning and memory rely on activity-dependent protein synthesis that enables synaptic plasticity and long-term circuit remodeling. The eukaryotic initiation factor 2 alpha (eIF2 $\alpha$ ) is a key regulator of translational initiation, and reductions in eIF2 $\alpha$  phosphorylation have been shown to enhance protein synthesis and support long-term memory formation. However, the way that eIF2 $\alpha$ -mediated translational control operates within specific neuronal populations and circuits during sensory learning remains poorly understood. This project investigates the role of eIF2 $\alpha$  signaling in taste memory formation, focusing on the circuit activation involved in the insular cortex, medial prefrontal cortex, and basolateral amygdala. We used behavioral taste-learning paradigms to test novel, familiar, and aversive taste experiences followed by region-specific analysis using immunohistochemistry to quantify changes in phosphorylated and total eIF2 $\alpha$  and related signaling pathways. Genetic and viral approaches were used to selectively manipulate eIF2 $\alpha$  phosphorylation in defined neuronal populations and projection pathways, allowing assessment of cell-type and circuit-specific contributions to memory formation. Projection-specific manipulation strategies can be used to study circuit-specific translation regulation within defined neuronal populations, allowing characterization of the translational mechanisms that underly learning-related plasticity. By integrating molecular, cellular, and systems-level analyses, this work aims to reveal how translational control shapes sensory memory encoding. Understanding these mechanisms may provide insight into fundamental processes of cognitive function and create therapeutic strategies for neurological disorders that are characterized by impaired memory, including Alzheimer's disease.

ABSTRACT P073 - A

### **EVALUATING THE POTENTIAL OF AFFINITY-BASED PURIFICATION TO ENHANCE THE CAPTURE OF VIRAL PARTICLES FROM ENVIRONMENTAL AND WASTEWATER SAMPLES**

**Elijah Murtagh**<sup>1</sup>, Jesse M Marangoni<sup>1</sup>, Ana Podadera<sup>1</sup>, Domenic Varacalli<sup>1</sup>, Ethan Harrop<sup>2</sup>, Cameron Chevalier<sup>3</sup>, Ryland Corchis-Scott<sup>2</sup>, Mackenzie Beach<sup>2</sup>, Qiudi Geng<sup>2</sup>, Daniel J Mennill<sup>3</sup>, R Michael McKay<sup>2</sup>, Kenneth KS Ng<sup>1</sup>

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**Category:** Biomedical Research; Social, Cultural, Environmental, and/or Population Health Research

Efficiently detecting and characterizing pathogenic viruses and emerging variants in complex environmental and wastewater samples can help to inform the development of One Health and public health policies to better manage the effects of viral infectious diseases. Although a variety of techniques based on a combination of filtration and precipitation methods have been used to isolate or enrich for viral particles and viral genetic material from wastewater and environmental water samples, the amount and quality of viral RNA extracted from these samples is typically compromised by a diversity of contaminating substances, hydrolytic nucleases and the low concentration of many viruses of interest. To improve on the recovery of high-quality genomic RNA from influenza and respiratory syncytial viruses, we initiated pilot studies to explore how lectins and antibodies immobilized on magnetic beads can help to enhance the recovery of trace levels of model glycoprotein ligands, virus-like particles and viral particles spiked into test samples mimicking wastewater and environmental water samples. Preliminary results suggest some of the strengths and limitations of using affinity-based purification methods to enhance the capture of viral particles from environmental and wastewater samples.

ABSTRACT P074 - B

### **IMPAIRMENTS OF CEREBROVASCULAR FUNCTION FOLLOWING ONE NIGHT OF RESTRICTED SLEEP IN HEALTHY YOUNG ADULTS**

Ryan Mutuchky<sup>1</sup>, **Ida-Ehosa Olaye**<sup>2</sup>, Ibrahim Wafai<sup>1</sup>, Marc-Antoine Roy<sup>3</sup>, Mahmoudreza Taghizadeh<sup>3</sup>, Shahrzad Soleimani Dehnavi<sup>3</sup>, Patrice Brassard<sup>3</sup>, Anthony R Bain<sup>1</sup>

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**Category:** Clinical Research

Chronically poor sleep hygiene is associated with an increased risk of dementia, Alzheimer's disease, and cognitive decline, independent of other medical comorbidities. However, it is unclear whether poor sleep hygiene directly impacts cerebrovascular regulation, which may in turn explain the increased risk for cognitive decline. Accordingly, this study aimed to determine the effects of one night of restricted sleep on cerebrovascular function in young adults. We hypothesized that a single night of restricted sleep will impair cerebral autoregulation (CA) and neurovascular coupling (NVC), compared to a normal night of sleep. Sixteen healthy adults (22±1yrs; 9M/7F) completed two morning laboratory visits following either normal sleep at home or sleep restrictions (<2hrs) in a randomized crossover design. CA was determined by the magnitude changes in middle cerebral artery velocity (MCAv, Transcranial Doppler) in response to oscillatory changes in blood pressure (Finometer®) induced from 5-minutes of squat-stands at 10-second intervals. NVC was determined by the change in posterior cerebral artery velocity (PCAv) in response to 30-second intervals of a visual stimulus (Where's Waldo search). Preliminary data analysis indicates significant alterations in the CA response, but only moderate changes in NVC. Specifically, the time corrected percent rise in MCAv ( $\Delta\text{MCAvT}/\Delta\text{MAPT}$ ) with increases in blood pressure was higher following restricted sleep (1.693±0.667%) compared to normal sleep (1.326±0.488%) p=0.015, suggesting impaired autoregulatory function. These data provide insight on mechanisms that may be exacerbated by, or consequent to, insufficient sleep. Findings may inform preventative strategies targeting sleep hygiene to preserve cerebrovascular and cognitive health.

ABSTRACT P075 - A

## PROXIMITY MAPPING OF TUBERIN AND HAMARTIN REVEALS CELL CYCLE-LINKED LYSOSOMAL ASSOCIATION

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**Category:** Biomedical Research

Disruptions in how cells grow and divide are central to diseases ranging from cancer to rare genetic disorders. The Tuberous Sclerosis Complex (TSC), composed of the proteins Tuberin (TSC2) and Hamartin (TSC1), is a key suppressor of cell growth that regulates mTORC1, a nutrient-sensing kinase complex. In previous work, our lab demonstrated that Tuberin directly binds Cyclin B1 and regulates the G2/M transition, establishing a non-canonical role in mitotic control. To explore how this regulation is spatially organized, we analyzed publicly available proximity-dependent biotinylation (BioID) datasets from asynchronous cells and identified proximity between Tuberin-Cyclin B1 and lysosomal scaffolds such as LAMTOR1, suggesting the TSC complex may participate in coordinating growth signaling and mitotic entry. Interestingly, mTOR itself showed minimal overlap with these proteins, pointing to a TSC-specific role distinct from classical nutrient signaling. These findings inform our ongoing studies using BioID-tagged Hamartin and Tuberin constructs to validate dynamic mitotic interactions and to further explore the complex's potential involvement in DNA damage checkpoints. By dissecting the spatial dynamics of Tuberin and Hamartin across the cell cycle, this work may offer new insight into how disruption of their coordination contributes to disease states characterized by unchecked proliferation, including cancer and TSC-associated tumours.

ABSTRACT P076 - B

## EXAMINING THE EFFECT OF EDUCATION LEVEL AND JOB SUITABILITY FOR THE CLINICAL TRIALS NAVIGATOR PROGRAM

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**Category:** Health Service Research; Clinical Research

The Clinical Trials Navigator (CTN) program, established in 2019, has helped identify potential trials for over 740 cancer patients, with the assistance of over 12 CTNs. Our CTNs have been trained in a few disease sites each. Through this study, the CTN program will train multiple participants from both a scientific background, and with no scientific background. With the CTN syllabus, we aim to improve our understanding of what is required to be a successful navigator. The primary objective of this study is to determine whether a scientific background is necessary to become a successful navigator. The secondary objective is to determine the efficacy and quality of the syllabus created. This study will be conducted using a mixed methodology, qualitative research approach and will include two cohorts: 20 participants with a scientific background and 20 participants with no scientific background. Posters have been set up throughout the Windsor Regional Cancer Centre, and science buildings at the University of Windsor. Other recruitment methods include word of mouth, social media posts, and contacting patient support organizations. This study will consist of participants completing an eligibility form and a pre-syllabus survey on REDCap. Subsequently, they are required to complete the CTN syllabus within 6 weeks. Afterwards, they will complete a post-syllabus survey and an optional interview to provide feedback. We anticipate enrolling 8 participants by the end of February 2026. We predict that the cohort with a scientific background will be more successful, with a hope to expand this course beyond Windsor.

ABSTRACT P077 - A

## **SINGLE-STEP PURIFICATION OF LOW-ABUNDANCE BIOTINYLATED BIOMOLECULES WITH ENGINEERED, SWITCHABLE AFFINITY STREPTAVIDIN MUTEINS**

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**Category:** Biomedical Research

Because of its exceptionally tight, femtomolar affinity interaction with the small molecule biotin, streptavidin is commonly used to capture low-abundance biotinylated ligands in applications ranging from multiprotein complex pull-downs to proteomics. The low dissociation rate of the streptavidin-biotin complex, with a half-life of several months, ensures stable binding but also prevents the subsequent elution of the target molecule under non-denaturing conditions. To address this limitation, we have rationally engineered a series of redox-sensitive, switchable affinity streptavidin muteins. Binding kinetics studies show that our panel of muteins retain high-affinity binding (sub-picomolar to nanomolar) under neutral or oxidizing redox conditions, but also allows the rapid elution of target molecules following the reduction of an engineered disulfide bond, with dissociation half-lives which range from minutes to milliseconds (2000-17,000-fold decrease versus oxidized forms). We demonstrate how these muteins can be used to purify low-abundance biotinylated target proteins from cell lysates with yields and purity superior to competing purification technologies. These pilot experiments illustrate how our novel panel of muteins can provide advantages over wild-type streptavidin and other lower-affinity biotin-binding proteins in applications where both high-affinity capture and the rapid release of biotinylated biomolecules are required.

ABSTRACT P078 - B

## **CREATING SPACE FOR GRIEF: A BEREAVEMENT SUPPORT INITIATIVE IN CRITICAL CARE**

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research

Bereavement in critical care settings affects both families experiencing loss and nurses who are repeatedly exposed to patient death and moral distress. Although evidence supports structured bereavement interventions, practices in intensive care units (ICUs) remain inconsistent, culturally variable, and often unsupported by formal guidance. The lack of standardized, grief-informed approaches leaves nurses underprepared to support families during end-of-life care while managing their own emotional well-being. This scoping review aimed to examine current bereavement practices in adult critical care settings and to identify evidence-based strategies that support families and nursing staff. Objectives included mapping existing interventions, identifying facilitators and barriers to implementation, and highlighting opportunities for nurse-led approaches to strengthen compassionate, consistent bereavement care. A PRISMA-ScR-guided scoping review was conducted across MEDLINE, CINAHL, Embase, and PsycINFO. Eligible literature included studies describing bereavement interventions, frameworks, or supports targeting families or healthcare staff in adult ICUs. Data were charted by intervention type, target population, reported outcomes, staff experiences, and implementation barriers. Findings were reviewed with nursing and interprofessional stakeholders to contextualize clinical applicability. The review revealed substantial variability in bereavement practices, including memory-making activities, follow-up communication, family education resources, spiritual care referrals, and staff debriefings. Effective approaches emphasized cultural sensitivity, early communication, and nurse leadership. Key barriers included limited training, emotional burden, variable unit culture, and lack of organizational policy. These findings support the development of standardized, nurse-led bereavement resources to enhance family-centered care, support nurse well-being, and promote healthier ICU work environments.

ABSTRACT P079 - A

## **EXPLORING ARTS BASED APPROACHES TO HELP SEEKING IN INTIMATE PARTNER VIOLENCE**

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**Category:** Health Service Research

Individuals leaving intimate partner violence (IPV) relationships often encounter fragmented and re-traumatizing supports or services at a time of heightened vulnerability. These can impact how safe survivors feel and their willingness to disclose and seek future support through formal services. Despite frequent interactions with healthcare systems, survivors' perspectives on accessing and navigating formal and informal supports remain underexplored, particularly in ways of centering autonomy and trauma-informed care. Arts-based research (ABR) has emerged as a trauma-informed methodological approach that facilitates expression, reflection, and dialogue. However, there remains limited research examining how these approaches may illuminate the help-seeking process. The purpose of this qualitative study is to explore how ABR methods may influence perceptions of help-seeking and engagement with support resources among those affected by IPV. This study will employ an ABR design that invites participants to engage in creative mapping and visual expression to reflect on experiences and perspectives related to seeking support. Data will be collected through participant-generated artwork and semi-structured interviews, allowing for a multimodal exploration of meaning. Reflexive thematic analysis will be conducted to identify key patterns related to barriers, facilitators, unmet needs, and emotional dimensions of help-seeking, utilizing both narrative and visual data. The findings from this study aim to contribute to an understanding of how ABR supports trauma-informed and participant-centered inquiry into the delivery of formal support services. Future applications include informing nursing and interdisciplinary practice, education, and community-based interventions by emphasizing alternative and creative pathways to support and promote safety for individuals impacted by IPV.

ABSTRACT P080 - B

## **CELL-TYPE-SPECIFIC ROLE OF EIF2 $\alpha$ PATHWAY HUMAN ALZHEIMER'S DISEASE BRAINS**

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**Category:** Biomedical Research

Protein synthesis is required for the consolidation of short-term memory into long-term memory, and it is regulated by various signaling pathways including the eIF2 $\alpha$  pathway. The eIF2 $\alpha$  pathway bidirectionally regulates the initiation of protein synthesis via the phosphorylation and dephosphorylation of the alpha( $\alpha$ ) subunit of eukaryotic translation initiation factor 2(eIF2 $\alpha$ ) in response to cellular stress. Increased cellular stress induces the activation of eIF2 $\alpha$  kinases (PKR, PERK, GCN2 and HRI) which then phosphorylate eIF2 $\alpha$  (p-eIF2 $\alpha$ ) leading to downregulation of general protein synthesis. Elevated p-eIF2 $\alpha$  levels impair learning and inhibition of p-eIF2 $\alpha$  enhances learning. Cognitive functions, like learning and memory, are impaired in dementias such as Alzheimer's disease. Alzheimer's disease is a neurodegenerative disorder characterized by aggregation of amyloid-beta oligomers and hyperphosphorylated tau neurofibrillary tangles; elevated cellular stress and p-eIF2 $\alpha$  levels; and severe impairments in learning and memory. Post-mortem brain tissue from AD patients exhibits elevated p-eIF2 $\alpha$  levels; however, the cell-type-specific role is less understood. Studies on mice lend support for cell-specific role of eIF2 $\alpha$  pathway in excitatory and some inhibitory neurons. Thus, it is hypothesized that Alzheimer's disease causes stress in nervous cells which leads to higher p-eIF2 $\alpha$  levels in both excitatory neurons and glial cells. To this end, immunohistochemistry on paraffin embedded tissue will be employed to study the p-eIF2 $\alpha$  levels in astrocytes of human AD brains and free floating IHC would be used for the mouse AD brains.

ABSTRACT P081 - A

## **SPHINGOLIPID-HANDLING ENZYMES ARE AN ALTERED AND CONSISTENT SIGNATURE IN CANCER CACHEXIA**

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**Category:** Biomedical Research

Cancer cachexia (CCx) is a paraneoplastic syndrome characterized by an ongoing loss of skeletal muscle mass and is associated with reduced survival and poor treatment-related outcomes in patients. Currently, no curative treatments exist for CCx, and therapeutic targets remain elusive. Sphingolipids are a class of signaling lipids that influence skeletal muscle mass and health; however, they remain relatively underexplored as a potential target for CCx treatment. Sphingolipids are enzymatically converted and/or activated and therefore, transcription of genes associated with sphingolipid-handling may present as therapeutic targets. It is hypothesized that across multiple skeletal muscle transcriptomic datasets, sphingolipid-handling enzymes will be altered towards promoting a cachectic phenotype in CCx mouse models as compared to wildtype (WT) controls. Three transcriptomic datasets using mouse models of CCx were analyzed. SRA files were processed using the following packages in Python (ver 3.12.9): fastp, STAR, and featureCounts. Differential expression analyses were completed using DESeq2 in R Studio (ver 4.4.3). In one dataset, there were no alterations in sphingolipid-handling enzyme transcripts between CCx and WT models. In two of three datasets, sphingolipid-handling enzymes were found to be altered. Key findings from these two datasets included consistent upregulation of KDSR and downregulation of Cers1 and GDF1 (all  $p_{adj} < 0.05$ ). Increases in SPT subunits Sptlc1 and Sptlc2 were also found once each in one dataset ( $p_{adj} < 0.05$ ). Analysis of these datasets demonstrate that there are consistent alterations in sphingolipid-handling enzyme expression across some CCx models. Collectively, these present potential therapeutic targets in the treatment of CCx.

ABSTRACT P082 - B

## **DEVELOPING PEPTIDE DRUGS TO ADDRESS AUTOIMMUNE DISORDERS**

**Mina Pairawan<sup>1</sup>, Sima Dehghandokht<sup>2</sup>, Ezequiel Silva Nigenda<sup>2</sup>, Daniel Meister<sup>2</sup>, John F Trant<sup>2</sup>**

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**Category:** Biomedical Research

Rheumatoid arthritis (RA) is an autoimmune disorder characterized by the aberrant recognition of self-peptides presented by Human Leukocyte Antigen (HLA) molecules, leading to chronic inflammation and joint damage. Previous peptide-based approaches have shown limited success, as they rely solely on natural amino acids, which restrict binding affinity and specificity. This project seeks to develop HLA Blockers (HLABs) containing non-natural amino acids with exceptional affinity to HLA-DRB1\*0401, which can outcompete self-antigens and block T-cell activation without compromising the entire immune system. We have developed multiple assays to evaluate the binding affinity of our synthesized peptide to the HLA molecule. The first is a cell-free fluorescent peptide binding assay using purified HLA-DR4 incubated with FITC-labeled peptides on agarose beads. The second is a cell-based assay using HEK-293 cells expressing membrane-bound HLA-DR4 to assess binding affinity under physiological conditions. The cell-free assay showed a concentration-dependent increase in fluorescence intensity, confirming peptide binding to HLA-DR4. Membrane expression of HLA-DR4 was confirmed in HEK293 cells, and flow cytometry results revealed increased fluorescence after peptide incubation. We will eventually perform T-cell inhibition assays to evaluate whether the peptides are able to displace self-peptides from HLA DR4 and inhibit T cell activation. In this study, RA serves as a model for other major histocompatibility complex class-II associated autoimmune disorders, however, the results can be applicable to several diseases such as type-1 diabetes, multiple sclerosis, etc. This novel approach has the potential to revolutionize the treatment of autoimmune disorders, that impact millions of individuals worldwide.

ABSTRACT P083 - A

### **RESYNCHRONIZATION FOR AMBULATORY HEART FAILURE TRIAL IN CHRONIC ATRIAL FIBRILLATION – PHARMACOLOGICAL RATE CONTROL VS. PACE AND ABLATE STUDY**

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**Category:** Clinical Research

The population of patients with atrial fibrillation (AF) and comorbid heart failure (HF) is greatly increasing. Most of these patients require anticoagulation, some will benefit from rhythm control, and most will need rate control to prevent worsening HF. Currently, pharmacological therapy is the standard of care for these individuals, however, implantation of a ventricular Pacemaker with an Atrioventricular nodal ablation (P&A) offers better rate control than the pharmacological approach by allowing from meticulous regulation of the ventricular rate. Further, newer pacing methods, conduction system pacing (CSP), offer a more physiological approach than previous techniques. The primary objective of the trial is to evaluate the optimal strategy to manage patients with permanent AF and HF. We hypothesize that CSP is superior to pharmacological rate control for reducing the hierarchical outcomes of all-cause mortality, frequency of HF events, reduction in NT-proBNP, and improvement in quality of life. 600 participants with permanent AF and HF will be enrolled in this international multicentre, open label randomized controlled trial. Participants are randomized in a 2:1 ratio to receive P&A with CSP or standard pharmacological therapy. RAFT-P&A received funding from CIHR in 2025. Nine Canadian centres are actively recruiting with several additional Canadian and international centres being onboarded. Twenty-three participants have been enrolled. We anticipate that the results of this trial will impact current guidelines for this patient population. The involvement of community physicians in recruitment is paramount for the success of this study.

ABSTRACT P084 - B

### **SYSTEMIC BARRIERS AND MORAL DISTRESS AMONG HEALTHCARE WORKERS CARING FOR INTERNATIONAL AGRICULTURAL WORKERS: A QUALITATIVE STUDY**

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research

Healthcare workers (HCWs) caring for international agricultural workers (IAWs) frequently encounter structural barriers that complicate care delivery and generate moral distress, yet little research has examined how these systemic limitations shape providers' ethical experiences and clinical practice in Canada. This study explored the lived experiences of HCWs providing care to IAWs in Windsor–Essex, Ontario, a region heavily reliant on migrant agricultural labour. Sixteen HCWs participated in semi-structured virtual interviews, which were transcribed and analyzed thematically using a descriptive phenomenological approach informed by Giorgi's framework. Four interrelated themes emerged: systemic and structural barriers to care, including language barriers, precarious employment-linked health coverage, and transportation challenges; moral distress and emotional burden among providers when institutional constraints prevented ethically aligned care; fear, dependency, and social isolation shaping IAWs' healthcare-seeking behaviours and disclosure of illness; and critical resource gaps requiring coordinated, system-level solutions. Participants described assuming expanded advocacy roles and delivering care under conditions that undermined continuity, confidentiality, and clinical decision-making. Structural inequities affecting IAWs were perceived to produce cumulative moral distress among HCWs, contributing to burnout, workforce strain, and inefficiencies within already overburdened healthcare systems. These findings highlight the need for integrated policy reforms, enhanced navigation and communication supports, structured transportation solutions, and proactive chronic disease management to promote equitable care delivery while supporting a resilient and sustainable healthcare workforce.

ABSTRACT P085 - A

### **ANALYSIS OF NEUROINFLAMMATORY PROTEINS IN ALZHEIMER'S DISEASE**

**Anna Papanastassiou<sup>1</sup>, Josh Miller<sup>2</sup>, Rogers Koboji<sup>2</sup>, Maria Badalova<sup>2</sup>, Vijendra Sharma<sup>2</sup>**

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**Category:** Biomedical Research

Neuroinflammation in Alzheimer's disease is a chronic, self-perpetuating process mediated by microglia and astrocytes that amplifies immune activation and drives neurodegeneration. Microglia and astrocytes are the two primary glial cell types involved in this process, which sustain immune activation and accelerate neurodegeneration in Alzheimer's disease. The activation of microglia is initiated when microglial pattern-recognition receptors detect accumulating extracellular Amyloid- $\beta$  plaques in the neural environment. Microglia transition from a neuroprotective role into an active, chemotactic state, releasing pro-inflammatory cytokines to alert surrounding cells in the environment of imposed danger. These cytokines activate astrocytic receptors, driving astrocytes into a reactive, senescent state and promoting the release of additional inflammatory mediators into the neuronal environment. These astrocyte-derived cytokines are then detected by microglial receptors, reinforcing microglial activation and sustaining inflammatory signalling. Bidirectional microglia-astrocyte signalling sustains a self-perpetuating inflammatory cascade that activates the integrated stress response via eukaryotic translation initiation factor 2 alpha (eIF2 $\alpha$ ) phosphorylation, leading to senescence, protein accumulation, and neuronal degeneration. The role of eIF2 $\alpha$  in neuroinflammation is less understood in astrocytes and microglia. By performing Western Blotting and Immunohistochemistry (IHC), the neuroinflammatory markers that are elevated in Alzheimer's disease mouse models can be identified. This process will be used to understand how downregulating eIF2 $\alpha$  in microglia and astrocytes will affect the level of neuroinflammatory proteins. Modulating phosphorylation of eIF2 $\alpha$  in astrocytes and microglia could have the potential to prevent neurodegeneration in Alzheimer's disease.

ABSTRACT P086 - B

### **THE STORIES OF PHYSICIAN LEARNERS' EXPERIENCES WITH BURNOUT IN THE COVID-19 PANDEMIC**

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research; Case Study/Learning from the Field

Burnout is a well-documented concern across the healthcare system with high prevalence rates for physician and physician learners (PL; e.g., medical students and residents), which was amplified by the COVID-19 pandemic. There are various interventions aimed at addressing burnout; however, their effectiveness lacks empirical evidence. Creative art therapies, such as virtual body mapping (VBM), have been used as a tool in therapy to communicate complex and subjective aspects of emotion. Due to its utility in a mental health population, VBM can address the need for innovative and effective interventions for burnout in physician learners. The purpose was to explore the use of VBM as a novel intervention for burnout in PLs. Grounded in a constructivist paradigm, a case study approach was used to present three PLs' experiences with burnout during COVID-19. Participants completed a VBM intervention consisting of three one-hour sessions hosted on Microsoft Teams. VBM data included a completed body map, a testimonio (personal narrative), and key (legend for body map). Data analysis followed an eight-step descriptive phenomenological method and a storytelling approach to create individual narratives of participants' experiences. The results tell three stories: 1) Masking myself, 2) I will not die, I will only be tortured, and 3) I am here, which explored the common themes of physical and emotional burdens, navigating challenging environments (e.g., hopelessness, death, and sexism), support systems, and career outlook. As such, VBM is a novel and promising tool to help healthcare workers process burnout.

ABSTRACT P087 - A

## **NANOPARTICLE-ENRICHED PEO COATINGS FOR DENTAL IMPLANTS: COMPARATIVE STUDY ON CP-T1 AND TI-6A1-4V**

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**Category:** Biomedical Research

This study focuses on plasma electrolytic oxidation (PEO) and nanoparticle incorporation on grades 4 and 5 titanium (Ti), aiming to optimize surface properties and enhance osseointegration. Grades 4 and 5 Ti discs were used. Four groups were established for each titanium grade: Control (C), Main Electrolyte (M), Main Electrolyte + Nanohydroxyapatite (MH), and Main Electrolyte + Nanohydroxyapatite + TiO<sub>2</sub> (MHTi). PEO was conducted using optimized electrical parameters. Characterization through SEM, EDX, XRD, roughness, and wettability were employed. SEM images presented uniform pore distribution across treated samples. Grade 4 titanium exhibited larger pores, while grade 5 titanium showed smaller and more numerous pores. EDX confirmed the incorporation of calcium and phosphorus, with Ca/P ratios ranging from 1.87 to 3.24. Nanohydroxyapatite coated specimens presented higher elemental incorporation. XRD analysis revealed the presence of hydroxyapatite, along with anatase and rutile phases, confirming the crystalline nature of the coatings. Roughness values (Sa) ranged between 1.5 and 2.6 µm, with the 4MH group exhibiting the highest surface roughness. Wettability tests demonstrated a significant increase in hydrophilicity in all treated samples. Grade 4 titanium surfaces displayed lower contact angles, indicating enhanced wettability. The PEO process significantly enhanced surface properties such as porosity, roughness, and hydrophilicity, which are key to promoting osseointegration. Grade 4 titanium showed superior performance overall, but further biological validation is needed for clinical applications. This research can optimize the bone growth process surrounding dental implants, with potential impact on the research field, industry, and patient care.

ABSTRACT P088 - B

## **LINKING EXPERIMENTAL AND CLINICAL EVIDENCE FOR SPY1 AS A DRIVER OF TUMOUR SUSCEPTIBILITY AND PROGRESSION DURING MAMMARY INVOLUTION**

**Tejas Patel**<sup>1</sup>, Isabelle Hinch<sup>1</sup>, Laurice Arayan<sup>2</sup>, Rosa Ferraiuolo<sup>1</sup>, Huda Al-Wahsh<sup>3</sup>, Bre-Anne Fifield<sup>1</sup>, Caroline Hamm<sup>2</sup>, Lisa A Porter<sup>1</sup>

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**Category:** Biomedical Research

Breast cancer is the most diagnosed cancer in women, yet specific life stages are associated with distinct changes in disease risk and prognosis. Breast cancer diagnosed within five to ten years following childbirth is classified as postpartum breast cancer (PPBC), a subtype associated with significantly higher rates of metastasis and mortality compared to breast cancer diagnosed in nulliparous women. These aggressive clinical outcomes have been linked to post-lactational mammary gland involution, a normal developmental process involving extensive epithelial cell death, regeneration, and extracellular matrix remodeling as the gland returns to its pre-pregnancy state. Mammary gland involution is characterized by widespread suppression of cell cycle regulators; however, non-canonical proteins like Spy1, which can bypass checkpoint control via unique activation of CDK2 to promote cell cycle progression, have not previously been well examined in developmental studies. Spy1 expression has been shown to promote epithelial cell survival and ductal proliferation, with elevated Spy1 levels during involution which may permit inappropriate survival and tumor formation. In this project tumour susceptibility and pathological features will be examined using a DMBA-induced mammary tumour model during post-lactational involution and compared with nulliparous controls. Histological analysis of breast tissue will assess proliferation, immune infiltration, and hormone receptor status. In parallel, cell cycle protein level expression of human breast cancer patients tissue microarrays will be examined and compared between PPBC and non-PPBC cases. Together, these studies aim to provide a translational insight into the role of Spy1 and other cell cycle proteins in postpartum breast cancer susceptibility and progression.

ABSTRACT P089 - A

## **EXPLORING THE POTENTIAL MODERATING ROLE OF CHRONIC PAIN ON THE RELATIONSHIP BETWEEN RESILIENCY, SOCIAL SUPPORT, AND PTG IN EMERGING ADULTS**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Chronic pain is characterized as pain symptoms that persist for longer than three months, despite treatment. When individuals experience this type of pain it can also create an opportunity for the emergence of post-traumatic growth (PTG). PTG refers to the positive psychological change that develops from traumatic experiences or highly stressful events, allowing an individual to experience enhanced personal strength and positive outlook on life. The purpose of the proposed study is to explore the role of chronic pain as a potential moderator in the relationship between both resiliency and social support and PTG in emerging adults; as this population has been identified as a group with unique healthcare needs and experiences. The research questions seek to examine whether chronic pain levels influence how resilience and social support is associated with PTG in emerging adults. It is hypothesized that chronic pain severity will moderate these two relationships (i.e., resiliency and PTG as well as social support and PTG). This study uses archival data previously collected as part of a parent study (Factors Influencing Post-Traumatic Growth (PTG) in Emerging Adults with Chronic Medical Illness). The proposed study will conduct two moderation linear regression models to clarify the potential moderating role of chronic pain in the relationship between resilience, social support, and PTG. Identifying whether chronic pain has a role in these relationships can inform interventions and advance theoretical models beyond the typical role of chronic pain as either a predictor or outcome variable.

ABSTRACT P090 - B

## **DISSECTING THE DIFFERENTIAL ROLE OF CELL CYCLE PROTEINS IN BREAST CANCER STEM CELL REGULATION AND TREATMENT RESISTANCE**

**Nick Philbin<sup>1</sup>, Ellen M Laurie<sup>1</sup>, Bre-Anne Fifield<sup>1,2</sup>, Mohammed A Bourouh<sup>1,3</sup>, Lisa A. Porter<sup>1,2</sup>**

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**Category:** Biomedical Research

Triple Negative Breast Cancer (TNBC) occurs in 10-15% of breast cancer diagnoses, has a greater rate of relapse and subsequent death within three years of primary treatment. This is partly due to the ineffective nature of chemotherapy selecting for the survival of a population known as Breast Cancer Stem Cells (BCSCs); a population of cells TNBC patients have a greater proportion of. Understanding the mechanisms regulating BCSC in these conditions is a question of paramount importance. BCSC markers have traditionally been identified via stochastic markers which prevent the ability to track these populations as they change in real time. This work highlights the development of a ALDH1A3 reporter construct which dissects different BCSCs responses in a dynamic fashion. The cellular decision of BCSC to remain arrested and the timing of their re-entry is regulated through the expression of temporally regulated cyclins and their binding partners, Cyclin-dependent kinases (CDKs). To understand which cell cycle proteins are key in regulating this process, ALDH1A3 BCSC populations will be tracked over time following treatment with chemotherapy. Cells will be collected at arrested and re-cycling timepoints. They will subsequently be probed for a panel of cell cycle proteins. Following this manipulation of select cell cycle proteins will be performed to determine their essentiality in survival and/or cell cycle re-entry. Determining which proteins may be key in these processes, presents the opportunity for the development of targeted treatment options to limit resistant cell populations and potential susceptibility to relapse in this patient demographic.

ABSTRACT P091 - A

## **COUPLING DISEASE DYNAMICS WITH PHARMACEUTICAL PLANNING: APPLICATIONS TO CANADIAN PUBLIC HEALTH PREPAREDNESS**

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research

Mathematical models coupling infectious disease dynamics with pharmaceutical planning are vital for supporting public health decisions during epidemics. These models estimate demand, evaluate prioritization, and examine how resource constraints influence outcomes. This poster examines three integrated modelling approaches applied to Canadian settings. Greer and Schanzer (2013) developed an age- and risk-structured model to estimate antiviral demand for the Canadian National Antiviral Stockpile. Tuite et al. (2010) utilized a deterministic compartmental model to evaluate how vaccination prioritization affected H1N1 outcomes in Ontario. Finally, Paul and Venkateswaran (2017) coupled an epidemic model with a multi-echelon supply chain, demonstrating that distribution delays significantly reshape epidemic trajectories. Together, these studies illustrate how integrating disease modelling with pharmaceutical planning is critical for effective public health preparedness in Canada.

ABSTRACT P092 - B

## **THE VALUE OF HEALTH JUSTICE PARTNERSHIPS IN MENTAL HEALTH SETTINGS**

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<sup>1</sup>Faculty of Law, University of Windsor

**Category:** Social, Cultural, Environmental, and/or Population Health Research

Mental Health Justice Partnerships (MHJPs) integrate legal advocacy into mental health settings to address legal and social determinants that shape health outcomes. International evidence shows that co-located legal services can reduce distress, improve stability, and enhance access to justice. In Canada, however, MHJPs remain limited, particularly in mental health and addiction contexts marked by systemic fragmentation and coercion. This symposium examines how MHJPs can be designed, evaluated, and scaled in mental health settings without reproducing carceral, paternalistic, or colonial practices. It aims to identify ethical risks, governance structures, and best practices that support rights-based, trauma-informed, and community-led approaches. The symposium convenes legal advocates, clinicians, social workers, scholars, students, and people with lived experience through a keynote and three interdisciplinary panels organized across place, discipline, and structure. Comparative models from Australia, the United States, and the United Kingdom are examined alongside Canadian experiences, with focused discussion on consent, confidentiality, interdisciplinary tensions, and structural injustice. The symposium will generate shared evaluation frameworks, inform future Canadian MHJP pilots, and strengthen interdisciplinary collaboration across health and justice sectors. By centring disability justice, Indigenous sovereignty, and lived-experience leadership, it advances MHJPs as a critical strategy for improving mental health equity and access to justice.

ABSTRACT P093 - A

## **INVESTIGATING THE ROLE OF CD44 IN MEDIATING SENEESCENCE IN GLIOMA STEM CELLS**

**Vanessa Riolo<sup>1</sup>, Alexandra Sorge<sup>1</sup>, Dorota Lubanska<sup>1</sup>, Lisa A Porter<sup>1,2</sup>**

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**Category:** Biomedical Research

Glioblastoma (GBM), a grade IV malignant brain tumor, is characterized by an extremely poor prognosis, with a median survival of approximately 12-15 months. Despite the intensive standard of care therapy, including surgery, followed by chemotherapy and radiation, almost all patients relapse. This high rate of tumour recurrence is attributed to the presence of Glioma Stem Cells (GSCs). GSCs are characterized by the expression of the CD44 receptor which is linked to stem-like properties, enhanced migration, and therapy resistance of these cells. Cell cycle regulation plays a critical role in treatment evasion by CD44+ GSCs which rely on CD44 to prevent the onset of senescence. Senescence is double-edged sword, functioning to permanently arrest damaged or oncogene-activated cells, though later having the potential to fuel pro-tumourigenic environments because of their senescence associated secretory phenotype (SASP). Dissecting the cell cycle signaling properties of CD44+ GSCs, which mediate senescence in GBM and constitute potential therapeutic targets, remains a gap in the field and fuels the focus of my project. Using GBM patient-derived cultures, we investigate the consequences of manipulation of critical cell cycle regulators in functional assays as well as via gene expression analysis. Further, employed cell cycle reporters will allow us to study changes in GSC cultures in real time to advance our understanding of the role of CD44+ GSCs and their cell cycle regulation in GBM progression. Leveraging these patient-derived cultures, this work will take meaningful steps towards furthering our understanding of GSC vulnerabilities to fuel the development of novel therapeutic strategies.

ABSTRACT P094 - B

## **DISSECTING MAMMARY GLAND INVOLUTION TO ADVANCE EARLY DETECTION STRATEGIES FOR POSTPARTUM BREAST CANCER**

**Kiara Roncone**<sup>1</sup>, Isabelle Hinch<sup>1</sup>, Bre-Anne Fifield<sup>1,2</sup>, Lisa A Porter<sup>1,2</sup>

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**Category:** Biomedical Research

Postpartum breast cancer (PPBC) is a highly aggressive breast cancer subtype diagnosed within ten years following childbirth. PPBC women have a 2.7-fold increased risk of metastasis and death compared to age-matched nulliparous women. During the postpartum period, the mammary gland undergoes involution, a process marked by apoptosis, extracellular matrix remodeling, and immune cell infiltration, which promotes a transient pro-tumourigenic microenvironment. Elevated levels of the atypical cyclin-like protein Spy1, a non-canonical activator of CDKs that overrides normal cell-cycle checkpoints, has been shown to rise during involution and increases mammary oncogenic damage. Preliminary data from MMTV-Spy1 overexpression mouse models demonstrate increased hyperplasia and a more permissive microenvironment following involution, supporting Spy1 as a key driver to a more aggressive microenvironment during involution. Early detection of PPBC is often impeded by this unique microenvironment, thus creating challenges with traditional diagnostic imaging. Liquid biopsies utilizing blood, saliva, and breast milk, serve as a promising diagnostic platform via cell-free RNA detection. This project aims to characterize the effect of Spy1 elevation on the microenvironment of the involuting mouse mammary gland and explore a novel early detection platform for PPBC.

ABSTRACT P095 - A

## **CHARACTERIZING THE ROLE OF RCA1 IN DROSOPHILA FEMALE MEIOSIS**

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**Category:** Biomedical Research

Regulated progression through female meiosis is essential for fertility and depends on precisely controlled ubiquitin-mediated protein degradation. The Anaphase-Promoting Complex/Cyclosome (APC/C) and the Skp1–Cullin–F box (SCF) complex are two major E3 ubiquitin ligases that coordinate meiotic and mitotic cell-cycle transitions by targeting key regulatory proteins, including cyclins, for degradation. Regulator of Cyclin A1 (Rca1), the *Drosophila* homolog of mammalian Early Mitotic Inhibitor 1 (Emi1), is a well-established inhibitor of APC/C activity during mitosis, yet its role in meiosis remains uncharacterized. Preliminary evidence indicates that germline-specific depletion of Rca1 results in meiotic arrest and embryonic lethality, suggesting that Rca1 is essential for successful meiotic progression. The objective of this project is to characterize the meiotic function of Rca1 and to determine whether this role is mediated through APC/C inhibition or through a previously unrecognized SCF-dependent mechanism, as suggested by the presence of an F-box domain on Rca1. To verify the meiotic requirement for Rca1, embryos generated from females with germline-specific depletion of Rca1 are collected and immunostained to assess meiotic progression. In parallel, ovaries from Rca1-depleted females are assessed to evaluate dysregulation in cyclin expression. Complementary genetic approaches are being used to generate domain-specific Rca1 mutants to assess whether Rca1 acts through APC/C or SCF dependent pathways during meiosis. Together, this work will clarify how ubiquitin-dependent regulatory pathways control female meiosis and fertility. More broadly, it may reveal a novel role for SCF-associated mechanisms in gametogenesis and expand our understanding of conserved cell-cycle regulation.

ABSTRACT P096 - B

## **BI-ATRIAL THROMBUS IN TRANSIT ACROSS AN UNDIAGNOSED PATENT FORAMEN OVALE IN THE SETTING OF PULMONARY EMBOLISM AND PERSISTENT HYPOXIA**

**Omar Samarraiet**<sup>1</sup>, Pedrom Farid<sup>1,2,3</sup>, Marco Herrera<sup>1,2,3</sup>, Andrea Cervi<sup>1,2,3</sup>

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**Category:** Case Study/Learning from the Field

Pulmonary embolism (PE) is a dangerous and potentially fatal blockage of pulmonary arteries that result in hypoxia through ventilation–perfusion mismatch, intrapulmonary shunting, or rarely, right-to-left intracardiac shunting across a patent foramen ovale (PFO) or other septal defects. While PFOs are present in 20-30% of adults, a thrombus traversing a PFO is exceedingly rare and signals elevated pulmonary pressures, conferring substantial risk of systemic embolization and clinical deterioration if not immediately addressed. To describe a rare case of bi-atrial thrombus in transit across a PFO presenting with persistent hypoxia despite anticoagulation, and to highlight the diagnostic and therapeutic implications. A 37-year-old woman presented with acute proximal deep vein thrombosis (DVT) and saddle PE. Despite weight-based low-molecular-weight heparin therapy, she remained persistently hypoxic. Initial transthoracic echocardiography demonstrated right ventricular dysfunction and pulmonary hypertension. On day seven of hospitalization, the patient acutely decompensated with atrial flutter and hypotension. Urgent bedside echocardiography revealed a large, mobile thrombus extending from the right to left atrium through an previously undiagnosed PFO. She underwent urgent surgical thrombectomy with PFO closure, during which an 11.5-cm thrombus was removed in-toto. Persistent hypoxia was attributed to right-to-left shunting exacerbated by elevated pulmonary pressures and presence of the intracardiac thrombus reflecting the elevated right heart pressures. Surgical intervention successfully prevented systemic embolization. This case highlights the importance of early echocardiographic evaluation in PE patients with unexplained hypoxia and supports consideration of thrombus in transit when clinical response to anticoagulation is inadequate.

ABSTRACT P097 - A

## **CREATING INCLUSIVE SPACES IN SPORTS: UNDERSTANDING 2SLGBTQ+ ATHLETES' SPORT EXPERIENCES**

**Giancarlo Savoni**<sup>1</sup>, Dana Ménard<sup>1</sup>, Samantha Monk<sup>1</sup>, Bailey Csabai<sup>1</sup>, Sarah Woodruff<sup>1</sup>

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Two-spirit, lesbian, gay, bisexual, transgender, and queer (2SLGBTQ+) individuals have reported multiple barriers to participating in recreational sports, including homophobia, bullying, and transphobic language. These factors cause many 2SLGBTQ+ athletes to dislike sport environments and to stop participating altogether, leading to adverse outcomes such as decreased physical activity. Competitive and team sports have been cited by 2SLGBTQ+ individuals as their least popular type of physical activity, due to challenges such as discriminatory policies, the lack of inclusive and comfortable environments, insufficient institutional support, and challenges related to shared space. The present study aimed to explore the experiences of 2SLGBTQ+ members of recreational sports clubs. Semi-structured interviews were conducted with 14 Canadian participants and analyzed using reflexive thematic analysis through a social constructionist lens. Identified themes will be presented to highlight how sports clubs can become more inclusive and meet the needs of 2SLGBTQ+ athletes. Implications will be considered for current and prospective sports club members, club organizers, and community supporters to reduce barriers and improve sports participation among 2SLGBTQ+ athletes.

ABSTRACT P098 - B

## **THE ROLE OF MICRORNAS IN DROSOPHILA NOCICEPTION**

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**Category:** Biomedical Research

MicroRNAs (miRNAs) are small, non-coding RNA molecules that contribute to the regulation of nearly all biological processes by controlling post-transcriptional gene expression. Increasing evidence suggests miRNAs are important modulators in pain, with specific miRNAs being upregulated or downregulated following acute tissue injury and in patients with disorders like fibromyalgia and complex regional pain syndrome. Targeting miRNAs in pain research has demonstrated significant potential as biomarkers for diagnosis of pain disorders, and even therapeutic targets for treatment of chronic pain. Despite this acknowledged potential, a functional screen of all available miRNAs for their involvement in pain does not exist. The objective of this study is to identify and characterize specific miRNAs contributing to the nociceptive response. This will be accomplished by behaviourally screening 130 *Drosophila melanogaster* lines in which individual miRNAs will be targeted in nociceptors using miRNA sponges that sequester and inhibit miRNA function. Each line is tested using a *Drosophila* larval thermal nociception assay to determine altered sensitivity to stimuli. Our current results have found that the expression of some miRNA sponges in nociceptors results in hypersensitivity, whereas expression of others result in hyposensitivity relative to controls. The full collection of available miRNA sponges is currently being tested, and miRNAs found to be involved in nociception will be further characterized using molecular approaches and potential targets will be identified.

ABSTRACT P099 - A

## **VALIDATING SEMI-AUTOMATED SEGMENTATION OF REGENERATING MYOFIBRES USING CELLPOSE, AN OPEN-SOURCE DEEP LEARNING TOOL**

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**Category:** Biomedical Research

Histological quantification of skeletal muscle fibres is a key technique in studying skeletal muscle. Manually identifying fibre borders (segmentation) is time consuming and subject to inter-researcher variability and biases. Developments in machine learning models have resulted in Cellpose; an open-source deep learning model that can be trained by the end user to quickly segment images of varying cell types. Regenerating skeletal muscle is visually complex, making manual segmentation challenging. Cellpose offers an opportunity to drastically reduce the time spent segmenting complex cell types without compromising validity. To establish the validity and efficiency of using a generalizable deep learning model for cell segmentation of skeletal muscle. Murine tibialis anterior muscle was acquired following injury. Sections were immunostained to identify cell borders and regeneration status. Representative images were acquired of each sample. A default Cellpose model was retrained using sample images from this dataset, which was then used to segment the dataset. Comparatively, images were manually segmented in ImageJ. Total regenerating cell counts and mean cross-sectional area (CSA) was analyzed statistically using paired Student's t-tests and Pearson correlation. No statistically significant difference was observed between Cellpose and manual segmentation in mean regenerating cell CSA ( $p = 0.494$ ), and a strong positive correlation was found between the two methods (Pearson's  $r = 0.981$ ,  $p < 0.001$ ), thus indicating validity of the software approach employed. These findings support the utility of open-source, deep learning-based tools in muscle histology research and support their broader adoption amongst cell biologists.

ABSTRACT P100 - B

### **MONITORING RESPIRATORY SYNCYTIAL VIRUS SEQUENCE VARIATIONS USING A NOVEL TILED AMPLICON SEQUENCING METHOD OPTIMIZED FOR WASTEWATER SAMPLES**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Respiratory syncytial virus (RSV) is an enveloped, nonsegmented, negative-sense RNA virus in the Pneumoviridae family and a leading cause of respiratory tract infections in both pediatric and elderly populations. The two antigenically distinct subtypes of RSV, A and B, show particular variability in the sequences of the attachment protein (G) and, to a lesser extent, the fusion protein (F). As part of an effort to develop a wastewater-based surveillance network to monitor emerging pathogens at the critical international border region between Windsor and Detroit, we have developed a tiled amplicon sequencing method that targets the G and F genes for RSV subtypes A and B. Our method uses subtype-specific and subtype-nonspecific RT-qPCR to identify samples positive for RSV-A and RSV-B, some of the primer sequences from a tiled amplicon method reported by the ARTIC network, the Oxford Nanopore MinION/GridION sequencing platform, and data processing analysis from the Galaxy Suite. High levels of sequence coverage were obtained for the complete G and F genes of RSV-A and B from many wastewater samples collected from hospitals, student residence halls, and wastewater treatment plants. However, amplification efficiency was observed to be low and variable for some amplicons, reducing sequence coverage and depth for some typical samples. A variety of additives were evaluated in an effort to increase the efficiency of multiplex PCR amplification reactions. By enabling the analysis of wastewater samples, our method helps to reveal patterns of RSV sequence variation that complements the sequence information obtained from clinical samples alone.

ABSTRACT P101 - A

### **SWALLOWING EXERCISES IN PRETERM INFANTS**

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**Category:** Clinical Research

Preterm infants born before 33 weeks' gestational age frequently lack the coordinated suck–swallow–breathe sequence required for safe oral feeding, resulting in dependence on tube feeding and delayed achievement of independent oral feeding (IOF). IOF is a key discharge criterion from the neonatal intensive care unit (NICU), yet no standardized intervention exists to systematically support its development. Prolonged NICU stays are common and have been associated with increased healthcare utilization and adverse psychosocial outcomes for families. Prior research suggests that targeted swallowing exercises can accelerate the acquisition of IOF; however, the effect of these interventions on NICU length of stay remains unclear. We hypothesized that preterm infants receiving a structured swallowing exercise program would achieve IOF earlier and experience shorter NICU stays compared with age-matched controls receiving standard care. This study implemented a targeted swallowing exercise program for preterm infants at Windsor Regional Hospital. Outcomes included time to IOF and total NICU length of stay, which were compared with those of age-matched historical controls. Preliminary analyses demonstrated that infants who participated in the swallowing exercise program achieved IOF significantly earlier and were discharged from the NICU sooner than controls. These findings may support the hypothesis that structured swallowing interventions may enhance feeding readiness and facilitate earlier discharge in preterm infants. This program can represent a feasible, low-risk intervention with potential to standardize feeding support in the NICU. Ongoing data collection and prospective studies are planned to further evaluate effectiveness and inform broader implementation.

ABSTRACT P102 - B

## **ESTABLISHING A MOUSE MODEL FOR THE STUDY OF MALE BREAST CANCER**

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**Category:** Biomedical Research

Breast cancer is rare in men, accounting for less than 1% of all breast cancers worldwide and the incidence of male breast cancer has increased globally. Male breast cancer diagnosis and treatment model that of the disease in women due to the lack of prospective studies for male breast cancer patients. As a result, male breast cancer is generally diagnosed at a more advanced disease stage and has a higher fatality than breast cancer in women. Due to the rarity of the disease, population-based studies are challenging. Therefore, establishing an animal model to study male breast cancer is critical for further understanding of this rare disease. Current animal models of breast cancer are geared towards the disease in women, such as transgenic MMTV-PyVT mouse models, which show 100% penetrance in female mice. However, only few male mice develop tumours with delayed onset, making these models unsuitable to study male breast cancer. Additionally, there are no male mammary tumour cell lines available to study male breast cancer. To address these challenges, we aim to establish and characterize tumour cell lines from male MMTV-PyVT mice that develop mammary tumours. Established male mammary tumour cell lines will be injected subcutaneously in young male MMTV-PyVT mice, which is expected to induce tumours with 100% penetrance and earlier tumour onset. This project aims to generate cell lines for in vitro studies of male breast cancer cells and in vivo induction of mammary tumours in male mice.

ABSTRACT P103 - A

## **THROUGH THE LENS OF THOSE WHO CARE: INSIGHTS FROM INFORMAL CAREGIVERS OF LUNG TRANSPLANT RECIPIENTS**

**Jane Simanovski<sup>1</sup>, Harveer Mashiana<sup>1</sup>, Siya Pandey<sup>1</sup>, Jody Ralph<sup>1</sup>, Jamie Crawley<sup>1</sup>, Edward Cruz<sup>1</sup>**

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**Category:** Health Service Research; Clinical Research

Lung transplantation is a life-saving intervention for individuals with end-stage lung disease, yet the post-transplant course is often complicated by rejection, infection, and comorbidities. Informal caregivers play a central role in supporting recipients throughout this demanding recovery process, yet their experiences remain underexplored. While caregiving is associated with significant burden and psychological distress, it may also yield positive outcomes such as personal growth, strengthened relationships, and enhanced meaning. This cross-border study examines and compares outcomes among informal caregivers of lung transplant recipients in Ontario, Canada, and Michigan, United States. In this cross-sectional, cross-border study, informal caregivers of lung transplant recipients are invited to complete an online Qualtrics survey. Caregiver burden is assessed using the Zarit Burden Interview, which measures perceived strain associated with the caregiving role. Symptoms of anxiety and depression are evaluated using the Hospital Anxiety and Depression Scale. Positive aspects of caregiving are measured with the Positive Aspects of Caregiving Scale, which captures perceived benefits, meaning, and rewarding experiences related to caregiving. The study is currently underway. Findings will identify key challenges and strengths among informal caregivers of lung transplant recipients and are expected to inform improvements in access to existing caregiver supports and guide the development of targeted, evidence-based resources across both regions.

ABSTRACT P104 - B

## **THE ROLE OF OXYSTEROL-BINDING PROTEIN IN SYNAPTIC VESICLE CYCLING AND DEVELOPMENT**

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**Category:** Biomedical Research

Cholesterol is essential for synaptic development and neurotransmission, yet the underlying mechanisms of cholesterol trafficking at synapses and how disruptions in cholesterol trafficking affect synaptic structure and function remain unclear. Oxysterol-Binding Protein (OSBP) is a lipid transporter involved in cholesterol regulation, but its roles in synaptic development and function have not been studied. This study examines the effects of OSBP at the *Drosophila melanogaster* larval neuromuscular junction (NMJ), a well-established model to study synapses. FM1-43 imaging was performed on *Osbp1* loss-of-function mutants and genetic controls to determine if OSBP is required for synaptic vesicle exocytosis and endocytosis. Our data did not reveal any differences in synaptic vesicle exocytosis and endocytosis between *Osbp1* mutants and controls. To determine if OSBP is required for synaptic development, NMJs of control and *Osbp1* mutants were stained with a marker of

presynaptic terminals (HRP) and a marker of active zones (BRP). We found that Osbp1 mutants displayed a significant reduction in the number of presynaptic bouton number compared to the control larvae, indicating that OSBP negatively regulates synaptic growth. We are currently testing whether OSBP is involved in activity-dependent synaptic growth. Collectively, this study aims to determine how OSBP-mediated cholesterol trafficking contributes to synaptic development and plasticity.

ABSTRACT P105 – A

### **ASSESSING EQUITY, DIVERSITY, INCLUSION, AND ANTI-RACISM CLIMATE IN INSPIRE: A MIXED-METHODS STUDY OF A CANADIAN RESEARCH TRAINING NETWORK**

**Mahshid Soleimani<sup>1</sup>, Makayla Quinn<sup>1</sup>, Siddhesh S Kadam<sup>2</sup>, Cassidy Kost<sup>1</sup>, Bridget Heuvel<sup>3</sup>, Jackie Fong<sup>3</sup>, Lawrence Goodridge<sup>2</sup>, Robert M L McKay<sup>3</sup>, Kendall Soucie<sup>1</sup>**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research; Case Study/Learning from the Field

Equity, diversity, inclusion, and anti-racism (EDI-AR) are central to healthy research training environments, yet little empirical data exist on how trainees experience these climates within large, multi-site Canadian networks. This study examines these issues within INSPIRE, a multi-institution and multi-disciplinary research network, spanning multiple disciplines. A mixed-methods climate assessment (N = 43) was conducted using validated measures of equity, diversity, inclusion, belonging, and anti-racism, along with open-ended items on barriers and supports. Quantitative items were analyzed descriptively, and qualitative data were thematically coded. Participants generally perceived the network as welcoming and collaborative. However, neutral responses were common across domains, suggesting limited visibility of EDI practices for some members. The clearest gap emerged in anti-racism: most respondents disagreed that the network encourages bystander intervention following racial microaggressions. Qualitative themes identified inconsistent communication, unclear processes, and limited structured EDI training as barriers, while community connectedness and supportive mentorship were named as facilitators. Findings indicate that while trainees experience many aspects of INSPIRE as inclusive, systemic gaps persist in antiracism practices and transparency-patterns consistent with broader challenges in Canadian academic training environments. Impact: Results underscore the need for national networks to strengthen skill based anti-racism training, clarify reporting pathways, and increase the visibility of EDI initiatives to promote equitable and psychologically safe training climates.

ABSTRACT P106 - B

### **EVALUATING UBISOL-Q10 AND ASHWAGANDHA TREATMENT EFFECTS ON FRAILTY PROGRESSION IN 5XFAD MICE USING AN EXPANDED FRAILTY INDEX**

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**Category:** Biomedical Research

Alzheimer's disease (AD) is a neurodegenerative disorder characterized by amyloid pathology and progressive cognitive decline. Frailty is an accelerated aging phenotype involving multisystem dysregulation and increased vulnerability to adverse health outcomes. Emerging evidence suggests AD pathology may contribute to systemic frailty through shared mechanisms such as inflammation, oxidative stress, and mitochondrial dysfunction. However, frailty assessment in AD mouse models remains limited by indices that may not capture subtle functional decline over time. This study uses existing longitudinal data from male 5XFAD transgenic mice, a model of early-onset AD with rapid amyloid beta plaque accumulation and neuroinflammation. Mice were assigned to wild-type controls, untreated 5XFAD, and 5XFAD treated with a combined natural tonic containing water-soluble Coenzyme Q10 (Ubisol-Q10) and Ashwagandha root extract (E-ASH). Frailty progression was previously measured using a validated mouse Frailty Index (FI), alongside repeated behavioral recordings. The aim of the study is to evaluate treatment effects on frailty progression using the established FI and to expand the FI by extracting additional functional indicators from the video data. Proposed measures include gait-based features (tail mobility, back-foot placement abnormalities, hip swing angle) and wire hang-derived metrics (tail wrapping as a binary variable, fatigue-related changes across the session, recovery time, and balance/proprioceptive behaviors). It is expected treated 5XFAD mice will demonstrate reduced frailty progression compared to untreated transgenic mice. Incorporating additional quantitative measures may improve sensitivity for detecting early frailty changes and ameliorate how well frailty scores capture functional decline over time.

ABSTRACT P107 – A

### **IMPACT OF TARGETED MEDICATION COUNSELLING DURING DISCHARGE: ERIE SHORES HEALTHCARE EXPERIENCE**

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**Category:** Health Service Research

Medication counselling is an essential component of the hospital discharge process to promote medication adherence and prevent adverse drug events. However, pharmacists in rural hospitals often face staffing and resource limitations that reduce their capacity to provide optimized counselling at discharge. A pharmacist-led medication counselling initiative could improve medication adherence, promote post-discharge patient satisfaction, and reduce 30-day hospital readmission. The lead pharmacist trained the doctors and nurses to use the teach-back method when counseling patients about their medication. Patients that were discharged through the Admission and Discharge Unit at Erie Shore Healthcare were given an updated medication list that provided detailed updated information about their medication dosage or medication changes. The research team conducted a series of random post-discharge telephone follow-up calls (n = 37) on days 7, 15, and 30 to identify gaps in the counselling service. Patients were asked to rate their overall satisfaction of the discharge experience within 7 days of their discharge. The hospital readmission data was also analyzed to evaluate whether the medication counselling service was effective at reducing hospital readmissions. 92% of patients rated the medication counselling an 8 or 9 on a 10-point Likert scale. 94.6% of patients reported that they received an updated medication list which indicates a successful implementation of the intervention. While the 30-day readmission rate showed a downward trend, the change was not statistically significant (p-value > 0.05), suggesting that a larger sample size or longer observation period may be necessary to detect an effect.

ABSTRACT P108 – B

### **MERKEL CELL CARCINOMA: WINDSOR REGIONAL HOSPITAL EXPERIENCE OF A RARE DISEASE OVER 16 YEARS**

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<sup>2</sup>Department of Radiation Oncology, Windsor Regional Hospital

**Category:** Clinical Research

Merkel cell carcinoma is a rare, aggressive neuroendocrine skin cancer with increasing incidence in the Windsor region. Although surgery and external beam radiation therapy (EBRT) are established treatments for local disease control, real-world outcomes of single- versus combined-modality therapy in regional cancer centres are not well defined. This study aimed to evaluate treatment patterns and survival outcomes for MCC at Windsor Regional Hospital (WRH) over the last 16 years. We hypothesized that multi-modality therapy (surgery and EBRT) is associated with improved survival compared to single-modality treatment (surgery or EBRT alone). The primary objective was to compare overall survival (OS) and progression-free survival (PFS) between treatment approaches. After REB approval, we conducted a retrospective cohort study of patients with MCC treated at WRH between 2009 and 2025. OS and PFS were estimated through Kaplan-Meier curve and compared using log-rank analysis. We found 44 treated cases, median age 77 years, male 57%, 33 (75%) received multi-modality, and 11 (25%) received single-modality treatment. Median follow-up time was 24 months. Baseline characteristics were similar between groups. Median OS was significantly longer in the multi-modality group compared to the single-modality group (80.0 months vs 17.1 months; p = 0.005). Median PFS was longer with multi-modality therapy (21.7 vs 9.8 months); however, the difference was not statistically significant (p=0.27). These findings support the use of combined-modality local treatment for MCC and demonstrate the value of multi-modality care within a regional cancer program.

ABSTRACT P109 - A

### **ARTIFICIAL INTELLIGENCE USE IN UNDERGRADUATE MEDICAL EDUCATION: PRELIMINARY PILOT FINDINGS AND A DIFFUSION OF INNOVATION-INFORMED FRAMEWORK**

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research

Artificial intelligence (AI) tools are increasingly used in medical education, yet structured guidance remains limited. Understanding student adoption patterns may inform responsive curriculum design. We conducted a cross-sectional pilot survey of pre-clerkship medical students at the Windsor Campus of the Schulich School of Medicine & Dentistry. All Year 1 and 2 students were invited via institutional email. The anonymous online survey collected data on AI use for learning and clinical preparation. Findings informed the development of a Rogers' Diffusion of Innovations-based classification framework. Of 80 invited students, 15 responded (18.8% response rate; 60% Year 1, 40% Year 2). Among respondents, 80% (95% CI: 54.8%–92.9%) reported using AI for medical education; 20% (95% CI: 7.0%–45.2%) reported no use. Common applications included clarifying incorrect answers (66.7%; 95% CI: 41.7%–84.8%) and understanding general concepts (60%; 95% CI: 35.7%–80.2%). Given the small sample, results are descriptive. Most respondents reported using AI in their studies, while a notable minority remain non-users. This variation highlights differing levels of readiness and engagement. Future work will apply a diffusion-of-innovation framework to classify students by adopter category and explore underlying psychological and educational factors. Identifying these subgroups may inform targeted strategies for the ethical, effective, and equitable integration of AI into undergraduate medical education.

ABSTRACT P110 - B

### **EVALUATING REFERRALS OF VERTIGO CASES TO OTOLARYNGOLOGY IN ONTARIO**

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**Category:** Biomedical Research; Health Service Research

Vertigo is a common presenting complaint in primary care, yet referral practices to otolaryngology (ENT) remain inconsistent. International studies suggest that a substantial proportion of vertigo referrals may be unnecessary. For example, the introduction of pre-ENT vestibular clinics in the United Kingdom has enabled early diagnosis and management of benign paroxysmal positional vertigo (BPPV), with over one-quarter of patients managed without specialist referral. Conversely, other studies have identified under-referral of elderly patients with chronic dizziness, resulting in delayed access to care. More recently, an Australian audit demonstrated that nearly half of ENT referrals were unnecessary, highlighting opportunities to reduce wait times and optimize specialist resources. Despite this growing international evidence, Canadian data on vertigo referral patterns remain limited. This study aims to evaluate the appropriateness of vertigo referrals to ENT in Windsor. A retrospective review was conducted of all vertigo-related referrals made to the office of Dr. Ali Hilal during the 2025 calendar year. Referrals were assessed based on the current clinical expertise of Ontario ENT practitioners. Data collection included demographics, presenting symptoms, and previous tests conducted. Referrals were categorized as appropriate or potentially inappropriate. It is anticipated that a proportion of referrals will not meet criteria for ENT consultation, and could have been equally and successfully managed by a primary care provider. Identifying patterns of over-referral may inform targeted education for primary care providers and support refinement of referral pathways, improving access to timely specialist care while reducing unnecessary strain on the Canadian healthcare system.

ABSTRACT P111 - A

## **A PROSPECTIVE ASSESSMENT OF FRAILITY IN PATIENTS WITH HEMATOLOGICAL MALIGNANCIES AND CORRELATION WITH SMARTWATCH IDENTIFIED RISK FACTORS**

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**Category:** Health Service Research; Clinical Research

Frailty is recognized by clinicians as a predictor of poor survival outcomes and greater risk of complications in patients with hematological malignancies undergoing parenteral chemotherapy. Limited evidence exists on the relationship between frailty and objectively measured physical activity and physiological parameters, and its association with quality-of-life (QoL) measures and baseline demographic characteristics. This study aims to assess frailty in patients with hematological malignancies, most notably multiple myeloma, undergoing parenteral chemotherapy. A complete frailty assessment will be performed for each patient, including physical and mental status and cognitive function. Patient fitness will also be tracked using a Fitbit Versa device, which records physical and physiological parameters, including stress levels, sleep patterns, daily step count, baseline heart rate, and heart rate variability. This comprehensive exploration will provide valuable insight into the multifaceted nature of frailty in patients with hematological malignancies and its potential modifiable determinants. In addition, the findings are expected to help guide improvements in clinical decision-making and support personalized care by providing a better understanding of frailty through the use of smartwatch-identified risk factors.

ABSTRACT P112 - B

## **TRANSVERSUS ABDOMINUS PLANE BLOCK FOR HEPATIC SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**Category:** Biomedical Research

Effective postoperative analgesia following hepatic surgery remains challenging due to large incisions, significant visceral manipulation, and the need to balance pain control with early mobilization and avoidance of opioid-related adverse effects. Regional anesthesia techniques such as the transversus abdominis plane (TAP) block have been increasingly adopted; however, evidence regarding their effectiveness across diverse liver procedures and surgical approaches remains heterogeneous and inconclusive. This systematic review and meta-analysis aim to evaluate the analgesic efficacy and safety of TAP blocks in adults undergoing hepatic surgery compared with systemic analgesia alone, neuraxial techniques, local wound infiltration, or other regional blocks. We hypothesize that TAP blocks reduce postoperative pain scores and opioid consumption without increasing complication rates. A comprehensive search of major medical databases will be conducted to identify randomized controlled trials and comparative cohort studies involving adults ( $\geq 18$  years) undergoing open, laparoscopic, donor, or transplant-related hepatic surgery. Interventions will include any TAP block variant or technique. Primary outcomes will be postoperative pain scores at 6-12, 24, and 48h and total opioid consumption standardized to morphine milligram equivalents. Secondary outcomes will include time to first rescue analgesia, postoperative nausea and vomiting, ambulation time, pulmonary complications, length of stay, and block-related adverse events. Comparators will be grouped into systemic/no block, neuraxial, and other regional techniques. Quantitative synthesis will be performed where appropriate using random-effects meta-analysis. Findings will inform perioperative analgesic guidelines for hepatic surgery, support evidence-based regional anesthesia selection, and identify gaps for future trials and procedure-specific pathways.

ABSTRACT P113 - A

## **POPKIN: ESTABLISHING RNA-COMPATIBLE DUAL NUCLEOTIDE ANALOGUE LABELLING TO LINK CELL CYCLE DYNAMICS WITH SINGLE-CELL TRANSCRIPTOMICS**

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**Category:** Biomedical Research

Cell cycle length is a key regulator of cell fate, proliferation, and differentiation, yet it remains difficult to quantify in heterogeneous cell populations. Dual nucleotide analogue labelling provides a way to track cell cycle progression, but most established detection methods rely on harsh fixation conditions or copper-catalyzed chemistry that degrade RNA. As a result, accurate cell cycle measurements are often incompatible with downstream single-cell transcriptomic analyses. The objective of this project is to develop and validate a dual nucleotide analogue labelling workflow using AmdU and BrdU that preserves nucleic acid integrity while enabling reliable measurement of cell cycle dynamics. Cells will be pulse-labelled with AmdU and BrdU at staggered intervals to mark successive rounds of DNA synthesis and fixed using methanol to maintain RNA integrity. We have demonstrated successful detection of AmdU incorporation in methanol-fixed cells using copper-free Click-iT chemistry, confirming that analogue signal can be retained under RNA-preserving conditions. Importantly, RNA extracted following the complete workflow remains of high quality. Ongoing optimization focuses on extending this RNA-preserving workflow to BrdU detection avoiding acid-based DNA denaturation, enabling completion of dual analogue identification under methanol fixation. BrdU detection will be performed using a BrdU-specific antibody selected to minimize cross-reactivity between analogues. This approach will enable direct integration of cell cycle measurements with transcriptional profiling, supporting studies that examine how proliferation dynamics vary across cell types in development, tissue homeostasis, and disease.

ABSTRACT P114 - B

## **FRUIT AND VEGETABLE INTAKE ASSESSMENT DURING PREGNANCY: A COMPARISON OF DIETID AND A SURVEY TOOL**

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**Category:** Health Service Research

Adequate nutrition during pregnancy is crucial for fetal development and long-term maternal and child health. DietID is a rapid, image-based dietary assessment tool shown to be acceptable for measuring diet quality during pregnancy. However, DietID has not been validated for estimating fruit and vegetable (F+V) intake during pregnancy. To evaluate agreement between F+V intake estimates from DietID and a validated fruit and vegetable screener, the Eating at America's Table Study (EATS) among participants in the ongoing longitudinal birth cohort, the Research Enterprise to Advance Children's Health (REACH). Pregnant participants who completed both DietID and the EATS during the third trimester were included (n=103). Average daily cup of fruits, vegetables, and the two combined were calculated. For DietID, total fruit intake was defined as fruit, fruit juice, and processed fruit, while total vegetable intake was defined as vegetables, vegetable juice, and fried vegetables. Right-skewed intakes were log-transformed; differences, associations, and agreement were assessed using Wilcoxon tests. Spearman correlations, intraclass correlation coefficients, and Bland-Altman plots, with sensitivity analyses excluding outliers and surveys >1 month apart. DietID estimated lower fruit intake (p=0.005) and higher vegetable intake (p<0.001) than EATS, with no difference for combined intake (p=0.18). Correlations were weak (r=0.06-0.19). After outlier removal, vegetable correlation improved modestly (r=0.26, p=0.020). ICCs showed poor agreement across outcomes (ICC=0.04-0.12). Bland-Altman plots indicated systematic bias. Agreement between tools was poor in pregnancy. DietID may better assess overall dietary patterns than absolute F+V intake, warranting further validation studies.

ABSTRACT P115 - A

### **ATYPICAL ACUTE TOXICITIES OF WEEKLY DOCETAXEL WITH RADIATION FOR CISPLATIN-INELIGIBLE PATIENTS WITH LOCALLY ADVANCED SSC OF THE HEAD & NECK**

Elena Tay<sup>1,2</sup>, Pencilla Lang<sup>1</sup>, Paul Stewart<sup>1</sup>, Sara Kuruvilla<sup>1</sup>, Caitlin Carreau<sup>1</sup>, Jennifer Murray<sup>1</sup>, Christopher Goodman<sup>1</sup>, Adam Mutsaers<sup>1</sup>, David Palma<sup>1</sup>, Nancy Read<sup>1</sup>, Kevin Fung<sup>1</sup>, Danielle Macneil<sup>1</sup>, Adrian Mendez<sup>1</sup>, Anthony Nichols<sup>1</sup>, Timothy Phillips<sup>1</sup>, Alika Kingsbury-Paul<sup>1</sup>, Sylvia Mitchell<sup>1</sup>, Karen Eddy<sup>1</sup>, Eric Winquist<sup>1,2</sup>

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**Category:** Case Study/Learning from the Field

A randomized trial demonstrated improved overall survival for cisplatin-ineligible squamous cell carcinoma of the head and neck (SCCHN) patients treated with weekly docetaxel plus radiotherapy (RT) compared with RT alone (Patil 2023). As a result, docetaxel-RT was adopted at our institution, and real-world experience was reported. SCCHN patients treated with curative-intent concurrent docetaxel (15 mg/m<sup>2</sup> IV weekly) and IMRT were identified from a REB-approved database. Clinical, treatment, and outcome data were collected. Primary outcomes included treatment delivery, acute toxicities, and complications. 38 patients (29 male, 9 female) received docetaxel-RT between October 2023 and September 2025, definitively (30) or postoperatively (8). Median age was 65.5 years (range 31–75). Primary sites included oropharynx (24; 21 HPV-related), oral cavity (6), hypopharynx (3), larynx (2), unknown (2), and maxilla (1). Cisplatin ineligibility was most commonly due to ototoxicity (16) or kidney disease (11); 8 patients met multiple criteria. 2 patients died during RT. RT completion occurred in 92% and  $\geq 5$  docetaxel doses were delivered to 86%. Hospitalization occurred in 44%. Among patients without baseline feeding tubes, 55% required placement during treatment. Stomatitis occurred in 43% of non-oral cavity patients, often early. 3 patients discontinued docetaxel due to grade 4 dermatitis. No unexpected grade  $\geq 3$  systemic toxicities were observed. Docetaxel-RT was feasible but associated with frequent, sometimes early, mucosal and skin toxicity differing from cisplatin-RT patterns. Prophylactic feeding tubes and close early monitoring are recommended. Identifying patients at risk for severe toxicity and refining dose-modification strategies should be priorities.

ABSTRACT P116 - B

### **FRAUDULENT PARTICIPATION IN HEALTH RESEARCH: A TEXTUAL EVIDENCE SYNTHESIS OF DETECTION PRACTICES AND ETHICAL IMPLICATIONS**

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**Category:** Case Study/Learning from the Field

Fraudulent participation in research, including identity misrepresentation and bot- or AI-generated responses, poses a growing threat to data quality, ethical integrity, and research credibility. Expanded online recruitment and incentivized participation have increased vulnerability to impostor participants. Despite rising awareness, the literature remains fragmented across disciplines and methodologies, limiting coherent, actionable guidance for researchers. To synthesize evidence on how fraudulent participation is identified, interpreted, and managed, and to examine ethical and methodological implications of fraud detection and prevention strategies. Guided by the Joanna Briggs Institute Manual for Systematic Reviews of Textual Evidence, this review uses a JBI textual evidence synthesis approach, which is well-suited to analyzing expert opinion, methodological discourse, and policy or practice guidance in areas where empirical evidence is limited. Eligible sources include peer-reviewed studies, methodological papers, opinion and discussion articles, editorials, and grey literature that address fraudulent or impostor research participation in health and/or health services research. A comprehensive search was conducted across six databases and targeted grey literature sources. Data extraction and synthesis are underway to map detection practices, ethical trade-offs, and reported impacts on research integrity. Preliminary results for this research-in-progress will be presented at the conference. This review will consolidate and clarify existing approaches, assumptions, and ethical considerations related to participant verification and fraud mitigation. By mapping current practices and debates, it will support transparent, reflexive decision-making in research and ethics review, and inform context-sensitive responses that balance participant protection with scientific rigour in digital research contexts.

ABSTRACT P117 - A

### **HIGH MOLECULAR WEIGHT HYALURONAN BLOCKS UVB-INDUCED SKIN CANCER: A ROLE FOR MUTANT TRP53**

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**Category:** Biomedical Research

Although UVB-induced mutations accumulate in skin with increasing age, not every mutant clone initiates keratinocyte tumors, suggesting a tumor-suppressing effect of the host microenvironment. High molecular weight hyaluronan (hmwHA), which is decreased with age and UVB-exposure, has been identified as one such tumor resistance factor. HmwHA inhibits UVB-induced keratinocyte tumor initiation. Hr<sup>-/-</sup>:Ptch1<sup>+/-</sup> mice, a model of UVB-induced cutaneous basal (BCC) and squamous (SCC) cell carcinoma susceptibility, were exposed to UVB twice/week for 26 weeks and treated 5X/week with an application of a skin-penetrating, patented, hmwHA formulation (HAPE) using vehicle cream as a control. Immortalized human keratinocytes (HaCaT) that had been exposed to hmwHA in vitro were subcutaneously injected into Nude mice. Immunofluorescent staining and whole exome sequencing was used to analyze the effect of HA on mutagenesis, activation of oncogenic driver pathways, cell proliferation, and apoptosis. HAPE prevented BCC and SCC initiation, inhibited oncogenic driver pathways, and maintained epidermal quiescence and polarity. However, similar levels of DNA damage and mutant driver oncogenes were present in both HAPE and control UVB-exposed skin but Trp53 mutations were absent in HAPE-treated skin. Further analyses showed that HAPE induced apoptosis of CD44<sup>+</sup>/Krt15<sup>+</sup>/mutant Trp53<sup>+</sup> tumor-initiating cells in vivo. Addition of hmwHA to HaCaT cells that contain gain-of-function TP53 mutations suppressed TP53 expression and induced apoptosis of CD44<sup>+</sup>/Krt15<sup>+</sup>/Trp53<sup>+</sup> keratinocyte subpopulations. Furthermore, knockdown of TRP53 expression in HaCaT keratinocytes by ShRNA transfection induced cell apoptosis. These results predict that hmwHA suppresses tumor initiation by culling tumor-initiating cells bearing a mutant Trp53.

ABSTRACT P118 - B

### **A NOVEL CLINICAL TRIAL FOLLOW-UP MODEL WITHIN THE CLINICAL TRIALS NAVIGATOR PROGRAM: A CROSS-SECTIONAL ANALYSIS OF THE MD FOLLOWUP PROGRAM**

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**Category:** Health Service Research

The Clinical Trials Navigator Program (CTN) was developed to improve access to clinical trials and increase accrual. Two key barriers were identified: limited patient literacy and challenges with trial follow-up. The MD FollowUp program addresses these gaps through personalized trial education, coordinated eligibility inquiries, and reduced administrative burden for oncologists. A cross-sectional study was conducted from March 2025 to January 2026, analyzing 154 patient searches in the MD FollowUp program. Outcomes included patient interest in trial contact, external referral activity, reasons for non-referral, enrollment outcomes, and reasons for non-enrollment. Clinical trial enrollment rates before and after MD FollowUp implementation were compared. A total of 154 searches were included in the MD FollowUp program. Of these, 124 searches (81%) had at least one available clinical trial and responded to initial outreach, with 67 (54%) expressing interest in trial contact. Among those expressing interest, 19 patients (28%) had an external referral sent, while 48 patients (72%) did not have an external referral

sent due to patient- or centre-specific reasons. Of the 19 external referrals, four patients (21%) were declined by the trial site, four patients (21%) remain under review, and three patients (16%) declined participation. Eight patients were successfully enrolled, corresponding to an enrollment rate of 42%. In comparison, the pre-MD FollowUp enrollment rate was 18%. The MD FollowUp program is a patient-centred initiative that improves clinical trial enrolment and patient literacy while reducing oncologist administrative burden through proactive trial eligibility assessment.

ABSTRACT P119 - A

## **REDEFINING 'NORMAL': A CANADIAN CASE STUDY OF CANCER SURVIVORS' EXPERIENCES REMAINING AND/OR RETURNING TO WORK DURING THE COVID-19 PANDEMIC**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

As cancer survival rates increase in Canada, a growing number of working-age individuals face challenges returning to work after treatment. This study examines the experiences of Canadian cancer survivors who remained in or returned to the workforce during the COVID-19 pandemic. Participants were cancer survivors aged 25-62 who had been employed prior to their diagnosis. They completed a brief online survey about their return-to-work (RTW) experiences and were invited to participate in a semi-structured interview. Seven participants took part in the interviews, which were transcribed and analyzed through inductive thematic analysis. Four overarching themes emerged: (1) The Perfect Storm of Systemic Challenges, highlighting healthcare barriers exacerbated by the pandemic; (2) You Are Not Alone, emphasizing the importance of social support in mitigating isolation; (3) One Size Does Not Fit All – Individual Journeys, reflecting the need for flexible workplace accommodations and patient self-advocacy; and (4) Creating a “New Normal,” illustrating how survivors reassessed priorities, work identities, and personal well-being. Participants described delayed treatments, lack of fertility options, and limited support during appointments due to pandemic restrictions. Workplace accommodations varied, with some survivors feeling supported while others faced inflexibility. Findings emphasized the need for improved healthcare responsiveness, personalized RTW accommodations, and improved employer training to support cancer survivors. The study also reveals how the COVID-19 pandemic exacerbated existing systemic gaps, underscoring the importance of preparing healthcare and employment systems to better support vulnerable populations during times of crisis.

ABSTRACT P120 - B

## **THE DYNAMICS OF NURSE-POLICE TEAMS: A STRENGTHS-BASED FOCUSED ETHNOGRAPHIC EXPLORATION**

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**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research; Clinical Research

Canadian hospitals and police services are operating beyond capacity to meet the needs of equity deserving populations, including individuals experiencing homelessness, substance use disorder and mental health issues. One novel approach to co-response models of community crisis response, is the Nurse Police Team (NPT). The NPT introduces a unique partnership between police constables and registered nurses who provide outreach services and crisis response. The NPT aims to reduce unnecessary hospital admissions, strengthen community support, and improve community health outcomes. By employing focused ethnography, this project aims to explore the shared experiences of NPT members from a strengths-based approach. Semi-structured interviews (seven police offices and seven registered nurses) took place over the Microsoft Teams® platform with two members of the research team, consisting of registered nurses, a police constable and a social worker. Aided by Intellectus Statistics TM software, the interview transcripts were analyzed by members of the research team to identify themes that will help inform the findings of the study. Five main themes were identified including: 1) work in progress, 2) enhanced community trust with compassion over authority, 3) building community and addressing barriers, 4) safety first, and 5) room to expand the team's role and improve effectiveness. Our findings demonstrate that trust building and integrated outreach is a cornerstone to address systemic inequities for equity deserving populations. Moving forward, further research should

evaluate the impact of NPTs from the viewpoint of the unhoused and evaluate utilization of community-based systems to better understand program outcomes.

ABSTRACT P121 - A

### **AVIAN FLU DETECTION VIA PHOTOTHERMAL PHASE MODULATION IN AN OPTICAL FIBER-BASED INTERFEROMETER**

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**Category:** Biomedical Research

Canada is experiencing a major resurgence of Highly Pathogenic Avian Influenza (HPAI), with over 17.2 million birds affected since 2021 and severe outbreaks continuing into 2024–2025, including the first domestically acquired human H5N1 case. This underscores the urgent need for rapid, on-farm surveillance. Fiber-based Mach–Zehnder Interferometers (MZIs) offer high sensitivity for virus detection, but their use in poultry farms is limited by environmental noise, where temperature fluctuations and mechanical vibrations can mask virus-induced signals. We aim to develop a fiber-based MZI sensor capable of distinguishing light phase changes due to capture of virus-gold nanoparticle complexes on the sensor surface. We hypothesize that by evoking the photothermal plasmonic properties of GNPs, we can generate a unique frequency-modulated interferometric signal that enables detection of virus at low concentrations. The sensor consists of an optical fiber with cladding functionalized with immobilized H5N1 antibodies. Target viruses are pre-conjugated with 40 nm AuNPs. A 532 nm green laser, coupled into the fiber, is modulated at a specific rate (1 Hz) to excite the Localized Surface Plasmon Resonance (LSPR) of the captured AuNPs. This produces localized periodic heating, translating into a 1 Hz phase oscillation within the MZI. By monitoring only this specific frequency component, the sensor effectively segregates the meaningful biological signal from random environmental fluctuations. This sensing platform enables real-time, field-deployable monitoring of H5N1 in high-risk agricultural settings. Future work will focus on optimizing modulation frequency to improve signal-to-noise ratio and expanding the system for multi-pathogen detection.

ABSTRACT P122 - B

### **EXPANDING ACCESSIBLE COMMUNITY TESTING FOR RESPIRATORY VIRUSES USING SALIVA-BASED QPCR SCREENING**

**Domenic Varacalli<sup>1</sup>, Maria Badalova<sup>2</sup>, Jackie Fong<sup>1</sup>, Mahshid Soleimani<sup>3</sup>, Brayden LaBute<sup>2</sup>, Farinaz Ziaee<sup>1</sup>, Lisa Porter<sup>2</sup>, Yufeng Tong<sup>1</sup>, Kendall Soucie<sup>3</sup>, Kenneth Ng<sup>1</sup>**

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**Category:** Biomedical Research

A key lesson from the COVID-19 pandemic was the importance of accessible testing to lessen the spread of viral pathogens in the community. At the height of the pandemic, we developed a low-cost and time-effective saliva-based testing platform to detect COVID-19 at the University of Windsor campus. Through this platform, we processed over 1000 samples and identified approximately 40 COVID-19 cases from 2021 – 2023. In January 2026, we re-launched the platform and focused on reaching out to the University of Windsor campus and the surrounding community, expanding our testing to include Flu A/B and RSV. We advertised our project through CBC Radio, newsletters, emails to classes, Instagram, and flyers to recruit participants. We also developed informational resources such as a website and tutorial videos to make our saliva kit pick-up/drop-off and sample collection process easily understandable. Participants can pick-up a saliva collection kit from our lab and store it in their freezer until symptoms occur. The kit includes instructions, two saliva collection tubes, and a brief survey to record their symptoms and provide feedback. After participants drop-off their saliva samples (at the Special Constables Office or at our lab, at the University of Windsor), we utilize qPCR to detect for COVID-19, Flu A/B and RSV. Samples that are positive are sent for sequencing to determine the variant of the virus. Our platform offers an adaptable approach to provide the community with informative testing to help identify and mitigate the spread of pathogens with pandemic potential in the future.

ABSTRACT P123 - A

## **PSYCHOMETRIC PROPERTIES OF A MEASURE FOR MOTIVATIONS FOR ELECTRONIC CIGARETTE USE**

**Nicole Wall**<sup>1</sup>, Susan Fox<sup>1</sup>, Jody Ralph<sup>1</sup>, Natalie Giannotti<sup>1</sup>, Chantal Boucher<sup>2</sup>

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Electronic cigarette use (i.e., vaping) is associated with several adverse effects, and has become a global concern. Research has shown high rates of young adults, who were not prior cigarette smokers, initiating vaping. The college and university environment presents a unique culture that may be associated with potential risk factors for vaping uptake. There is limited research that focuses on the psychometric properties of instruments that measure motivations for vaping. Using valid and reliable instruments for data collection minimizes the risk of bias and helps to ensure rigorous results, thereby building evidence-based knowledge. To evaluate the psychometric properties of a questionnaire that measures motivations for vaping among college and university students, and to analyze its potential use as a valid and reliable questionnaire in future research. The original data were collected in 2019 using a cross-sectional descriptive survey design that examined vaping practices, perceptions, and predictors among college and university students in Southwestern Ontario. A secondary analysis will be conducted using data obtained from the subset of participants who had ever vaped (N = 780). A 22-item scale that measured participants' reasons for vaping (e.g., to quit smoking, control appetite, relax) was embedded within the larger questionnaire. Data analysis will include descriptive statistics, followed by testing for validity and reliability, including analysis of structural validity, criterion validity, known-groups validity, and internal consistency. Understanding the reasons why people are vaping is imperative to develop targeted interventions for vaping cessation and prevention altogether.

ABSTRACT P124 - B

## **UNDERSTANDING REFERRAL DECISIONS TO OUTPATIENT AND OUTREACH STROKE REHABILITATION: A PRELIMINARY ANALYSIS**

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**Category:** Health Service Research

Post-acute rehabilitation stroke patients in Windsor-Essex are typically referred to outpatient (OP; hospital-based) or outreach (OR; home-based) rehabilitation services at discharge. While Canadian Stroke Best Practices recommend that referrals are based on functional needs and support levels, no referral guidelines exist. Additionally, there is limited evidence regarding outcomes across the different rehabilitation models. Objectives: This study aimed to evaluate referral patterns of stroke patients to OP and OR based on demographics, functional ability, and quality of life. A secondary objective was to compare changes in outcomes between OP and OR. Methods: A pre-post design was used, combining a retrospective chart review and prospective rehabilitation outcomes. Results: A total of fifteen consented participants completed OP or OR (M age = 70 years, SD = 12.2; 66% Male). Results indicate no significant differences ( $p > 0.05$ ) between participants referred to OP or OR in terms of age, stroke severity, number of comorbidities, quality of life, depressive symptoms, or functional ability. Significant improvements in functional ability from pre- to post-treatment ( $p < 0.05$ ) were observed for either group. There were also no significant differences ( $p > 0.05$ ) in the magnitude of pre- to post-treatment change when comparing outcomes between OP and OR. Implications: These early findings, despite the small sample, indicate that both programs yield comparable functional gains and highlight the need to identify additional factors that drive post-hospital referral decisions to OP and OR.

ABSTRACT P125 - A

## **COURAGEOUS CONVERSATIONS IN CARE: USING AN INDIGENOUS-FOCUSED SIMULATION TO TAKE ACTION AGAINST RACISM**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research; Case Study/Learning from the Field

Nursing students are often underprepared to recognize and respond to racism in clinical practice, particularly within emotionally complex contexts such as end-of-life care. Indigenous patients continue to experience racism within healthcare systems, underscoring the need for nursing education to move beyond cultural awareness toward actionable, anti-racist practice. Simulation offers a safe, experiential approach to prepare students for these realities. The objective of this initiative is to prepare fourth-year nursing students to deliver culturally safe care to a rapidly deteriorating Indigenous patient while addressing racism as it occurs. The simulation is designed to increase students' confidence, communication skills, and ethical responsiveness when confronted with racist comments in clinical settings. A high-fidelity Indigenous simulation scenario was developed that intentionally incorporates simulated racist comments. Students are provided with two structured opportunities within the scenario to apply Dr. Holly Graham's CPR Racism toolkit to interrupt and address racism in the moment. Facilitated debriefing and reflection focus on communication strategies, relational accountability, and emotional processing. This approach demonstrates how simulation can be used to operationalize cultural safety, cultural humility, and anti-racist competencies in undergraduate nursing education. Future directions include expanding the use of anti-racism-informed simulation across clinical contexts and evaluating student learning outcomes related to preparedness, confidence, and ethical action. Embedding racism-responsive simulations may strengthen nursing graduates' ability to provide equitable, respectful care for Indigenous patients and families.

ABSTRACT P126 - B

## **ONE HEALTH SURVEILLANCE OF WASTEWATER-ASSOCIATED PATHOGENS AND AMR GENES IN THE HURON-ERIE CORRIDOR: SEASONAL AND EVENT-DRIVEN DYNAMICS**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

The Huron-Erie corridor receives the cumulative effluent of >20 wastewater treatment plants in Canada and the US. The connecting waters of this corridor can transport wastewater-associated pathogens and antimicrobial-resistance (AMR) genes thus impacting the beneficial uses of these waters, including recreation, potable water and ecosystem health. These signals are episodic and require hydrologic and biogeochemical context at appropriate temporal resolution. We conducted weekly (February–December 2025) monitoring of composite water samples across nearshore and offshore Detroit River sites, pairing molecular assays (RT-qPCR) with concurrent water-quality measurements. Results showed that spring conditions were event-driven, with turbidity spiking to ~100 NTU with concurrent increases in phosphorus, inorganic nitrogen, and dissolved organic carbon. Major ions ( $\text{Cl}^-$ ,  $\text{Na}^+$ ,  $\text{Ca}^{2+}$ ) and alkalinity (115–120  $\text{mg L}^{-1}$  as  $\text{CaCO}_3$ ) increased, consistent with enhanced mixing, particle transport, and road-salt inputs. Summer conditions were comparatively stable with reduced variability. Pepper mild mottle virus (PMMoV) was consistently detected and served as a fecal-signal baseline. Norovirus GI was rare, while GII appeared intermittently. Carbapenemase genes showed similar patterns: blaKPC was frequently detected, whereas blaNDM occurred sporadically during high-turbidity/high-alkalinity periods and near the method's detection limit. Of note, variability concentrated in spring, when hydrologic mixing and particle transport amplified wastewater/AMR signal changes. Our results indicate that surveillance should prioritize spring high-flow windows and use ions, alkalinity, and turbidity as operational flags for when wastewater/AMR markers are most likely to be detectable.

ABSTRACT P127 - A

## **CONSEQUENCES OF RB TRIPLE KNOCKOUT ON CELL SIZE AND APOPTOSIS IN MOUSE EMBRYOS**

**Fadya Youssef<sup>1</sup>, Darsh Bhatt<sup>2</sup>, Smit Rami<sup>2</sup>, Adina Dass<sup>2</sup>, Brian DeVeale<sup>2</sup>**

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**Category:** Biomedical Research

Proper regulation of the cell cycle is essential for embryonic development, differentiation, and controlled proliferation. The retinoblastoma (Rb) family of tumor suppressors—Rb, p107, and p130—regulates the G1/S restriction point, ensuring appropriate coordination between cell growth and cell cycle progression. Conditional triple knockout (cTKO) mouse embryos lacking all three Rb family members arrest development at approximately embryonic day E9.0, despite appearing morphologically normal, suggesting underlying cellular defects. Our previous single-cell RNA sequencing (scRNA-seq) analyses revealed abnormal accumulation of cells in S and G2/M phases in a subset of cell types, but the downstream cellular consequences remain unclear. We hypothesize that loss of Rb family leads to increased cell size, impaired differentiation, and elevated apoptosis in specific embryonic cell populations. To test this, we've analyzed existing scRNA-seq datasets from tamoxifen-treated cTKO and untreated (wildtype) embryos using Seurat. Total unique molecular identifier (UMI) counts were used as a proxy for RNA abundance and cell size, while mitochondrial read proportions served as an indicator of apoptotic activity. Statistical analysis using ANOVA and Tukey revealed minimal differences between genotypes in most cell populations, as expected. In contrast, a subset of cell types exhibited increased cell size and elevated mitochondrial read fractions in cTKO cells due to inappropriate cell cycle entry and loss of normal growth checkpoints. These findings clarify how Rb family loss disrupts growth control and cell survival during early embryogenesis and provides broader insight into mechanisms linking cell cycle misregulation, apoptosis, and developmental failure, with implications for understanding tumorigenesis.

ABSTRACT P128 - B

## **IMPROVING VIRAL DETECTION AND DISCOVERY IN WASTEWATER THROUGH ENRICHMENT STRATEGIES AND METAGENOMIC ASSEMBLY-BASED BIOINFORMATIC PIPELINE**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research; Clinical Research

Wastewater-based surveillance is widely used to monitor viral pathogens at the population level, yet detection of viral genetic material remains challenging due to low viral abundance and high background from bacterial and host-derived material, particularly in untargeted metagenomic approaches that lack amplification steps such as PCR. Optimizing laboratory enrichment strategies alongside bioinformatic analysis is therefore critical for improving viral detection and discovery from complex wastewater matrices. This study evaluates laboratory enrichment strategies and bioinformatic workflows to enhance viral recovery from seven wastewater samples collected in Southern Ontario, including one municipal wastewater sample and six hospital wastewater samples. Three enrichment methods were applied consistently across samples: PEG, Amicon ultrafiltration, and CERES concentration. These approaches were compared for their ability to reduce non-viral background and improve viral signal prior to shotgun metagenomic sequencing. Viral detection combined database-dependent taxonomic classification using Kraken and Bracken with assembly-based screening for conserved viral hallmark genes, particularly RdRp, to improve detection of divergent and low-abundance viruses. Enrichment strategy selection strongly influenced viral recovery and detection sensitivity. Hospital wastewater samples exhibited distinct viral community profiles compared to municipal wastewater, with increased detection of viral pathogens. Among the methods evaluated, Amicon ultrafiltration increased viral detection by approximately 100–150× relative to pellet-based processing and yielded viral fractions of approximately 10–30%. Assembly-based RdRp screening expanded viral detection beyond reference-based classification alone, enabling recovery of divergent and candidate novel viral sequences. Overall, integrating optimized enrichment strategies with assembly-based, marker-guided bioinformatic pipelines enhances viral detection in wastewater and supports robust viral discovery for environmental and public health surveillance.

ABSTRACT P129 - A

## **ALLOSTATIC LOAD AND DEMENTIA AMONG MIDDLE-AGED AND OLDER ADULTS WITH AND WITHOUT CANCER BY RACE/ETHNICITY**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

The cancer survivorship population in the U.S. is growing, with a disproportionate number being Black individuals. Black individuals are also disproportionately affected by heightened allostatic load (AL) and cancer-related cognitive impairment. However, there remains limited research on how a cancer diagnosis could alter AL and how AL among cancer survivors could relate to cognitive aging by race/ethnicity. To describe AL among older adults with/without cancer by race/ethnicity, and to identify associations between cancer, AL, and dementia. Cancer status, AL biomarkers, and cognitive function were obtained from the US Health and Retirement Study, 2006-2016. Two AL indexes were based on biomarkers from dried blood spots (DBS; n=11820) and venous blood samples (VBS; n=7670). Linear mixed models estimated the DBS-based AL trajectories by cancer status. Linear regression estimated the association between cancer status and the VBS-based AL score. Mediation analyses investigated the effect of AL on the relationship between cancer diagnosis and incident dementia. There were 841 (7.1%) and 199 (2.6%) cancer survivors in the DBS and VBS samples, respectively. Baseline DBS-based AL did not differ between cancer survivors/cancer-free but was modified by race/ethnicity. Black cancer survivors had lower DBS-based AL scores compared to Non-Hispanic White cancer survivors ( $\beta$ : -0.30, 95% CI: -0.53, -0.06). DBS-based AL did not change over time. Though not statistically significant, the total indirect effect of cancer on dementia through AL accounted for 10.5% of the total effect. Future investigation with longer follow-up is needed to explore associations between cancer diagnosis, AL, and dementia.

ABSTRACT P130 - B

## **MEASURING MEANINGFUL PATIENT ENGAGEMENT IN RESEARCH: EVIDENCE FROM THE PATIENT ADVISOR PROGRAM**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Patient engagement increases relevance of studied topics and builds trust within communities. This study evaluated the quality of engagement for Patient Advisors (PA) enrolled within Henry Ford Health's Patient Advisor Program. A cross-sectional survey, sent to 574 PAs, utilized the Public and Patient Engagement Evaluation Tool-Patient (PPEET-P) consisting of 21 closed- (n = 15) and open-ended (n = 6) items across the principles of quality engagement: 1) Communication and supports for participation (3-items), 2) Sharing your views and perspectives (4-items), 3) Impacts and influence of the engagement initiative (4 items), and 4) Final thoughts (n = 3). All closed-ended questions were answered on a 5-point Likert Scale with anchors from strongly disagree to strongly agree and analyzed using descriptive statistics. Open-ended questions were analyzed using three-step qualitative content analysis. The survey was completed by 199 PAs with a mean age of 60.7 years (SD = 15.57). PAs were primarily women (75.6%), and White (64.3%), followed by Black (30.7%). Most PAs had been engaged for 1-3 years (30.7%) in an average of 4.6 research projects (SD = 7.32). The proportion of participants who agreed or strongly agreed with the domains ranged from 62.9% to 92% for communication and supports for participation, 83.9% to 91.5% for sharing your views and perspectives, 79.4% to 83.4% for impacts and influence, and 85.9% to 88.9% for final thoughts. PAs reported quality engagement experiences in the Patient Advisor Program. Future research is needed to standardize evaluation to provide generalizable results.

ABSTRACT P131 - A

### **PHOTOTHERMAL IMPRINTED POLYMER-BASED MICROFLUIDIC BIOSENSOR FOR RAPID HEPATITIS C VIRUS DETECTION AND QUANTIFICATION**

**Hasti Navab**<sup>1</sup>, Ali Doostmohammadi<sup>1</sup>, Pouya Rezaei<sup>1,2</sup>, Nima Tabatabaei<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, York University

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**Category:** Biomedical Research

Hepatitis C Virus (HCV) affects 50 million people globally with 240,000 annual deaths. While direct-acting antivirals achieve >95% cure rates, 50% of infected individuals remain undiagnosed. Current HCV diagnosis requires at least two tests taking up to one week: an initial point-of-care antibody screen followed by centralized laboratory viral load testing. Either the same sample is reflex tested or the patient must supply an additional sample. One-step point-of-care testing for active HCV infections would enable single-visit results and rapid care planning. Develop a novel photothermal microfluidic biosensor using molecularly imprinted polymer (MIP) thin films for rapid, low-cost detection and quantification of HCV E2 envelope glycoprotein, a conserved surface biomarker across genotypes. The photothermal detection system was established with 532 nm laser excitation, LWIR camera, and lock-in processing. Non-imprinted polymer (NIP) controls were synthesized to establish baseline non-specific binding. Gold nanoparticles (50 nm) were conjugated to E2 protein (AuNP-E2) at concentrations from 1000–10 ng/mL. Initial photothermal signal generation was confirmed, validating detection based on lock-in thermography where modulated laser excitation generates periodic heat signals through localized surface plasmon resonance. MIP fabrication will be optimized by evaluating functional monomers and cross-linkers to create high-affinity E2 binding cavities. Comparative MIP versus NIP studies will quantify imprinting effect and determine limit of detection targeting <1 ng/mL. Microfluidic integration will enable automated sample handling for portable point-of-care implementation, improving HCV screening accessibility and early diagnosis.

ABSTRACT P132 - B

### **BRIDGING THE GAP BETWEEN EVIDENCE, ORAL HEALTH EQUITY, AND IMPLEMENTATION: A LITERATURE REVIEW**

**Luke Di Paolo**<sup>1</sup>, Margo Reilly<sup>2</sup>, Jennifer Ridsdale<sup>2</sup>, Grace Park<sup>3</sup>, Rio Anzolin<sup>1</sup>, **Nesya Walls**<sup>2</sup>, **Aida Taherkermani**<sup>4</sup>

<sup>1</sup>Department of Mental and Allied Health, Windsor Regional Hospital

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**Category:** Health Service Research

Oral health inequities are prevalent in marginalized populations, especially in mental health inpatient settings where patients face compounded barriers to care. While evidence-based oral health programs exist, they are not yet integrated into routine care, particularly when complex patient-level determinants drive oral health disparities. This literature review aims to synthesize research on these barriers and map them to implementation science frameworks in order to support the evaluation of the Windsor Family Health Team's (WFHT) integrated Oral Health Education Program (OHEP) in Windsor Regional Hospital's (WRH) inpatient mental health unit. A structured literature review of peer-reviewed articles published between 2015 and 2025 was conducted on social determinants of health, oral health equity, and implementation science. Key databases included PubMed, CINAHL, and PsycINFO. Articles were selected based on relevance to vulnerable populations and implementation frameworks. Multi-level barriers identified include mental health comorbidities, socioeconomic instability, low oral-health literacy, and dental anxiety and fear. These factors contribute to a cycle of avoidant, delayed, and symptom-driven care. Successful implementation of evidence-based programs relies on acceptability, feasibility, fidelity, and sustainability. The RE-AIM, CFIR, and Proctor implementation frameworks inform adaptation of the OHEP from its initial embedment in primary care to its integration in the inpatient mental health unit. This literature review explores using implementation outcomes as equity-driven indicators for OHEP operation in non-traditional settings. Key findings support strategies to plan, measure, and document impact, thus bridging the gap between evidence and equity in oral health care for vulnerable or at-risk populations.

## Rapid Fire Presenters

ABSTRACT P133 

### ADULT SEXUAL RISK BEHAVIOUR IN A CANADIAN SAMPLE OF TWO-SPIRIT, TRANS, AND NON-BINARY SURVIVORS OF CHILDHOOD SEXUAL ABUSE

Oliver Cheek<sup>1</sup>, Dana Ménard<sup>1</sup>

<sup>1</sup>Department of Psychology, University of Windsor

**Category:** Social, Cultural, Environmental, and/or Population Health Research

Research examining the long-term impacts of childhood sexual abuse (CSA) has shown associations with increased sexual risk behaviour, including earlier sexual debut and sexual activity under the influence of alcohol/drugs. However, despite elevated risk of CSA victimization, the impact of CSA on sexual risk behaviours in transgender adults has not been investigated. This study examined the impact of CSA on sexual risk in transgender survivors. It was hypothesized that CSA history would be associated with increased sexual risk behaviour in adulthood and mediated by experiences of intimate partner violence (IPV), post-traumatic stress disorder (PTSD) symptoms, and lower levels of sexual self-esteem (SSE), and condom self-efficacy (CSE). A convenience sample of 309 Canadian 2STNB adults were recruited using social media and with assistance from partner organizations; 125 reported experiencing CSA. Participants completed an online survey assessing CSA, IPV, PTSD, SSE, CSE, sexual risk behaviour, and demographics. A path analysis showed significant indirect effects from CSA to sexual risk behaviour through IPV and PTSD symptoms ( $\beta=.03$ ,  $p<.05$ ), and through IPV and CSE ( $\beta = -0.02$ ,  $p < .05$ ). The full sequential pathway from CSA through SSE and CSE to risk was not statistically significant, though pathways between SSE and sexual risk ( $\beta=.38$ ,  $p<.05$ ) and from SSE to CSE ( $\beta = .04$ ,  $p < .05$ ) were significant. CSA was associated with greater sexual risk behaviours through its impact on IPV and PTSD symptoms. Focused attention on these mediators through education and therapy could help decrease risk behaviour in survivors.

ABSTRACT P134 

### VACCINE HESITANCY AMONG PEOPLE EXPERIENCING HOMELESSNESS: DETERMINANTS AND STRATEGIES TO IMPROVE UPTAKE – A SYSTEMATIC REVIEW

Michael Nakhla<sup>1</sup>, Reyad Elzaanoun<sup>1</sup>, Gracie Sun<sup>1</sup>, Jennifer Bondy<sup>2,4,5</sup>, Mehdi Aloosh<sup>3,4</sup>

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

People experiencing homelessness (PEH) face disproportionate infectious disease risk yet low vaccination uptake, partly due to vaccine hesitancy. We synthesized determinants of hesitancy among PEH and interventions associated with higher uptake, using the WHO definition (delay or refusal despite available vaccination services). We systematically reviewed studies reporting hesitancy, intent, uptake, or completion among PEH (unsheltered, sheltered, or precariously housed) across all vaccine types. English-language studies from database inception through October 2025 were included without geographic restrictions. Two reviewers screened and extracted data, coded determinants (structural/system, social/relational, individual, service-delivery), extracted intervention effects when reported, and assessed risk of bias using the Mixed Methods Appraisal Tool (MMAT). Hesitancy lay on a continuum from acceptance to refusal, including selective acceptance and delay. Studies used quantitative, qualitative, and mixed-method designs across settings. Determinants included structural/system barriers (ID/documentation, unstable housing, transport/time, policy barriers), social/relational factors (stigma/discrimination, medical mistrust, negative care experiences), individual factors (mental health/substance use challenges, misinformation, low perceived risk), and service-delivery factors (fragmented services vs mobile/shelter delivery, flexible hours, co-located care). Where evaluated, multicomponent, low-barrier approaches combining mobile or shelter delivery, peer support, reminders, and small incentives improved uptake and completion consistently. Hesitancy among PEH is multilevel; education alone is insufficient. Interventions most consistently associated with improved uptake/completion included mobile or shelter-based vaccination, peer navigators, small incentives, reminders, and trust-building, often paired with flexible access and co-located services. Policies enabling ID-flexible consent, sustained funding for low-barrier services and peer roles, and routine equity monitoring may help close immunization gaps.

ABSTRACT P135 

### THE ROLE OF SPY1 IN MAMMARY INVOLUTION AND ONCOGENESIS

Isabelle Hinch<sup>1</sup>, Bre-Anne Fifield<sup>1</sup>, Lisa Porter<sup>1</sup>

<sup>1</sup>Department of Biomedical Sciences, University of Windsor

**Category:** Biomedical Research

From puberty to menopause, factors attributed with breast cancer fluctuate with the natural mammary development. A period of increased breast cancer risk with increased metastasis and mortality occurs following childbirth – potentially linked to mammary involution: gland remodeling post lactation, which balances high rates of apoptosis and cell regeneration. Two processes controlled by the cell cycle and its regulators. The cyclin-like protein Spy1 can enable cell proliferation and override apoptosis. Spy1 levels have been found to be elevated breast cancer. Interestingly, levels of Spy1 are also elevated during involution. We hypothesized that Spy1 protects the cell population necessary for normal mammary gland reconstitution post involution. This study characterises a mouse model overexpressing Spy1 in the mammary gland (MMTV-Spy1) over an involution time course as well as DMBA (7,12-Dimethylbenz[a]anthracene) for cancer susceptibility. In vitro results suggest the ability of Spy1 of maintaining stemness and in vivo data indicates failure of healthy epithelial clearing during involution and increase oncogenic damage. This research begins to articulate the role of Spy1 during normal mammary involution in and how overexpression prevents healthy mammary healing potentially play a role in the predisposition of the breast to oncogenesis.

ABSTRACT P136 

### INTRAVENOUS ALBUMIN IN SURGICAL ONCOLOGY PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Aviva Moses<sup>1,2</sup>, Bram Rochweg<sup>3,4</sup>, Sasha Kyser-Burke<sup>5</sup>, Katherine Zhu<sup>1</sup>, Samantha J McCluskey<sup>6</sup>, Omar I Hajjaj<sup>6</sup>, Shangari Vijenthira<sup>6</sup>, Justyna Bartoszko<sup>7</sup>, Stuart A McCluskey<sup>7,8</sup>, Edward G Clarke<sup>9</sup>, Angela Jerath<sup>7,10</sup>, Natalie Coburn<sup>11</sup>, Julie Hallet<sup>11</sup>, Christopher J D Wallis<sup>12,13</sup>, Sunil Patel<sup>14</sup>, Andrew Giles<sup>14</sup>, Jacqueline Trudeau<sup>15</sup>, Alexander Dotto<sup>15</sup>, Sarah Mclsaac<sup>16</sup>, James Masters<sup>17</sup>, Raphaella Rosebush-Mercier<sup>17</sup>, Oliver Grottke<sup>18</sup>, Nicole Relke<sup>19,20</sup>, Jeannie Callum<sup>21</sup>, Wiley Chung<sup>14</sup>

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**Category:** Clinical Research

Intravenous albumin is commonly administered during surgical oncology procedures despite limited evidence of benefit. This systematic review and meta-analysis evaluated whether albumin administration, compared to alternative fluid strategies, improves outcomes in patients undergoing cancer surgery. We searched MEDLINE, EMBASE, and Cochrane databases from inception to March 5, 2025, without language restrictions, following PRISMA and Cochrane guidelines. We included randomized controlled trials (RCTs) comparing albumin with alternative fluid strategies (crystalloids, synthetic colloids, or no albumin) in adult cancer surgery patients. We evaluated outcomes rated as important or critical by an expert panel, performed meta-analyses using random-effects models, and assessed certainty of evidence using GRADE. We included nine RCTs (n=890

patients), five of which used crystalloids as the comparator. Pooled analysis found there may be no difference between albumin and alternative fluid groups in total complication rates (risk ratio [RR] = 0.96; 95% confidence interval [CI]: 0.68 to 1.35), intensive care unit or hospital length of stay, or perioperative blood loss (all low to moderate certainty). Effects on mortality and inotrope/vasopressor use were uncertain (very low certainty). Albumin administration was probably associated with a lower perioperative fluid balance (mean difference [MD] = -169.97 mL; 95% CI: -293.41 to -46.52, moderate certainty). Current evidence suggests albumin may not improve patient-important outcomes in surgical oncology. The modest reduction in fluid balance observed with albumin is unlikely to be clinically meaningful, and routine albumin use may contribute to unnecessary healthcare costs. Larger, multicentre RCTs are needed to guide evidence-based perioperative fluid management in surgical oncology.

## ABSTRACT P137

### **HEALTHCARE EXPERIENCES OF ADULTS LIVING WITH BORDERLINE PERSONALITY DISORDER IN CANADA: A SCOPING REVIEW**

Aman Ahluwalia-Cameron<sup>1</sup>, Jhanvi Patel<sup>1</sup>, Gurleen Saroya<sup>1</sup>

<sup>1</sup>School of Social Work, University of Windsor

**Category:** Health Services Research; Social, Cultural, Environmental, and/or Population Health Research

Borderline Personality Disorder (BPD) is a highly stigmatized mental health diagnosis, and individuals living with BPD frequently report negative, exclusionary, or fragmented experiences within healthcare systems. While qualitative research has documented aspects of these experiences, the Canadian evidence base remains dispersed and has not been comprehensively mapped. This scoping review aims to synthesize and map qualitative research examining the healthcare experiences of adults living with borderline personality disorder in Canada. Guided by the Joanna Briggs Institute (JBI) scoping review methodology and reported in accordance with PRISMA-ScR guidelines, we conducted a systematic search of multiple peer-reviewed electronic databases. Databases and keyword searches were approved by a University of Windsor librarian. Eligible studies included qualitative or mixed-methods research reporting first-person experiences of healthcare among adults (18+) diagnosed with BPD within Canadian healthcare contexts. Data were charted and synthesized descriptively and thematically. Preliminary findings indicate recurring themes related to stigma and diagnostic labeling, dismissal and invalidation by healthcare providers, barriers to accessing consistent and timely care, reliance on emergency services, and challenges navigating fragmented systems. The preliminary findings of this scoping review highlights persistent systemic barriers affecting the healthcare experiences of adults living with BPD in Canada. Findings underscore the need for trauma-informed, stigma-responsive, and structurally supported models of care. By examining the existing qualitative literature, this review identifies critical gaps and provides a foundation for future research, policy development, and service reform aimed at improving equity and quality of care for people living with BPD.

## ABSTRACT P138

### **DIFFERENTIAL HEPATIC GENE EXPRESSION ACROSS FIBROSIS STAGES IN HEPATOCELLULAR CARCINOMA**

Mahsa Rahimi<sup>1</sup>, Bre-Anne Fifield<sup>2</sup>, Lisa A Porter<sup>2</sup>

<sup>1</sup>Department of Integrative Biology, University of Windsor

<sup>2</sup>Department of Biomedical Sciences, University of Windsor

**Category:** Biomedical Research

Hepatocellular carcinoma (HCC) ranks among the leading causes of cancer-related deaths globally. Metabolic Associated Steatotic Liver Disease (MASLD), the most prevalent liver condition, is closely linked to a spectrum of hepatic disorders, including Metabolic Associated Steatohepatitis (MASH), liver cirrhosis, and eventually HCC. While cirrhosis is a well-established precursor to HCC, approximately 20% of HCC cases arise without prior cirrhosis, and the molecular mechanisms driving this subset of non-cirrhotic HCC remain poorly understood. This study employs a comprehensive bioinformatics approach to investigate the distinct molecular drivers of non-cirrhotic HCC compared to cirrhotic HCC. This study analyzed RNA-seq expression data to identify differentially expressed genes (DEGs) in cirrhotic and non-cirrhotic HCC compared to normal liver tissue. GO analysis revealed that the DEGs were involved in pathways regulating MAPK, PI3K-Akt, p53 signaling cell cycle pathway, and immune responses, highlighting their diverse roles in tumorigenesis. Core genes involved in cell cycle regulation were identified and their expression patterns were systematically compared across different fibrosis states in HCC. Key genes such as STAT3, JAK1, SPDYA, CDKN1A, and CDKN1C showed significant upregulation in non-cirrhotic HCC compared to cirrhotic HCC, suggesting roles in driving tumorigenesis independent of cirrhosis. This comprehensive bioinformatics analysis identified core genes that mediate the molecular mechanisms underlying MASLD and MASH and their potential roles in non-cirrhotic

HCC development. These findings provide a deeper understanding of the molecular basis of non-cirrhotic HCC and highlight promising biomarkers and therapeutic targets for diagnosing and managing this subset of HCC.

ABSTRACT P139 

### **CO-CREATING A UNIFIED RESPONSE: A CROSS-SECTOR IPV TRAINING INITIATIVE IN WINDSOR-ESSEX**

**Amal Sleiman<sup>1</sup>, Amy Peirone<sup>1</sup>, Betty Barrett<sup>2</sup>**

<sup>1</sup>St. Clair College

<sup>2</sup>School of Social Work, University of Windsor

**Category:** Social, Cultural, Environmental, and/or Population Health Research; Clinical Research

Intimate Partner Violence (IPV) has been declared an epidemic in Windsor-Essex and across more than 90 Ontario municipalities. Despite growing awareness, responses remain fragmented due to inconsistent training, siloed service delivery, and limited shared language across sectors. Following several local femicides, the Violence Against Women Coordinating Committee of Windsor-Essex (VAWCCWE) Leadership Table identified the urgent need for standardized, cross-sector foundational knowledge to strengthen coordination and risk identification. Supported by a WE-SPARK Health Institute grant, we developed From Awareness to Action: Shaping a Unified Response to Intimate Partner Violence and Femicide in Windsor-Essex, a self-guided, evidence-informed training toolkit designed to align understanding and enhance collaborative response. The project brought together St. Clair College, the University of Windsor, and over 30 community agencies in a co-creative partnership. Nine students participated in a structured mentorship model pairing graduate and undergraduate learners, while community leaders reviewed and refined materials to ensure frontline relevance. The toolkit integrates public health framing, shared definitions, coercive control and risk escalation guidance, and practical tools to support trauma-informed, coordinated practice. This work has been seamlessly integrated into the Hub Without Walls initiative, a Windsor-Essex collaboration of over 20 community organizations working collectively to prevent, intervene, and respond to gender-based violence.

ABSTRACT P140 

### **DIFFERENT PATHS, SAME STRUGGLES: SEXUAL WELL-BEING ACROSS ENDOMETRIOSIS DIAGNOSTIC PATHWAYS**

**Morgan Sterling<sup>1</sup>, A Dana Ménard<sup>1</sup>**

<sup>1</sup>Department of Psychology, University of Windsor

**Category:** Clinical Research

Endometriosis is associated with pain, fatigue, and disruptions in quality of life, including sexual well-being. Despite growing recognition of sexual health as a key component of psychological functioning, limited research has examined biopsychosocial factors that contribute to sexual satisfaction among individuals living with endometriosis. Few studies include individuals with non-surgical diagnoses, even though most women with endometriosis do not have surgical confirmation. This study aimed to (1) characterize levels of sexual functioning and sexual satisfaction in cisgender women with endometriosis, (2) identify biopsychosocial predictors of sexual satisfaction, and (3) examine differences between women with surgically confirmed and probable diagnoses. A cross-sectional online survey was completed by 162 cisgender women aged 16 years and older residing in Canada with either a surgically confirmed or probable diagnosis of endometriosis. Participants completed self-report measures assessing sexual functioning, sexual satisfaction, endometriosis symptoms, and psychological and social variables. Multiple regression analyses were conducted to examine predictors of sexual satisfaction. Participants reported low overall sexual functioning and sexual satisfaction, with many meeting criteria for sexual dysfunction. Higher sexual functioning and sexual self-esteem were strong predictors of sexual satisfaction, while fatigue and resilience showed smaller but significant associations. Sexual outcomes did not differ by diagnostic pathway. These findings highlight the importance of addressing both physical symptoms and psychological factors in understanding sexual satisfaction among women with endometriosis. They also support broader recruitment strategies that include individuals with probable diagnoses to enhance the inclusivity, relevance, and clinical applicability of future sexual health research.

ABSTRACT P141 

### **ESTABLISHING RELIABLE INTERNAL EXTRACTION CONTROLS AND OPTIMIZING THE PERFORMANCE OF THE LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (LAMP) ASSAY**

**Lea Tanovic<sup>1</sup>**, Maria Khoury<sup>1</sup>, Brayden LaBute<sup>1</sup>, Farinaz Ziaee<sup>1</sup>, Jackie Fong<sup>1</sup>, Yufeng Tong<sup>1</sup>

<sup>1</sup>Department of Chemistry & Biochemistry, University of Windsor

**Category:** Biomedical Research

Since the onset of the COVID-19 pandemic, Loop-Mediated Isothermal Amplification (LAMP) has emerged as a promising alternative to quantitative Polymerase Chain Reaction (qPCR) for pathogen detection through nucleic acid amplification in low-technology and time-sensitive settings. LAMP utilizes multiple primers to amplify target sequences; it is 7 exceptionally well-suited for point-of-care testing (POCT), requiring only a half hour of incubation time in a common laboratory heat source, such as a water bath or heat block. This study optimizes the LAMP protocol to increase sensitivity and identify the most suitable internal extraction control for SARS-CoV-2 detection. Three human proteins commonly found in saliva (actin, beta-2 microglobulin (B2M), and RNase P) were evaluated as internal extraction controls, with B2M proving to be most suitable. Two SARS-CoV-2 primer sets were tested: one targeting the envelope (E1) region and the nucleocapsid (N2) region of the SARS-CoV-2 genome. The assay's efficacy was tested with serially diluted SARS-CoV-2 standards and RNA extracted from positive COVID-19 saliva samples. It was found that the E1 primer set outperformed the N2 set, indicating a 2.5-fold improvement in detection limit compared to previous studies. This paper explores the optimization of an emerging isothermal amplification technique in the context of POCT.

ABSTRACT P142 

### **EYE-BASED INDICATORS OF COGNITIVE WORKLOAD DURING EXOSKELETON-ASSISTED PATIENT-HANDLING TASKS**

**Julie Webeck<sup>1</sup>**, Joel Cort<sup>1</sup>, Laurie Freeman<sup>2</sup>, Griffin Macaset<sup>1</sup>, Rawasi Fituri<sup>2</sup>, Francesco Biondi<sup>1</sup>

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**Category:** Health Services Research

To determine whether wearing a back-support exoskeleton alters objective, eye-based indicators of cognitive workload during simulated patient-handling tasks. Exoskeletons are increasingly being considered to reduce physical demands in nursing. Successful adoption may depend on whether they affect cognitive workload or increase visual-attentional demands during task performance. In a within-subject, counterbalanced design, nursing students completed standardized simulated patient-handling tasks under two conditions (wearing an active back-support exoskeleton and no exoskeleton) while wearing eye-tracking glasses. Outcomes included active task duration, blink rate, mean blink duration, mean pupil diameter, and mean eyelid aperture. Paired comparisons were conducted across participants with valid data in both conditions (N = 27). Subjective usability was also assessed post-task to contextualize objective findings. No meaningful condition differences were observed for active task duration (Exo 42.04 s vs No\_Exo 41.94 s;  $p = 0.945$ ), blink rate (20.16 vs 20.27 /min;  $p = 0.937$ ), mean pupil diameter (3.64 vs 3.64 mm;  $p = 0.967$ ), or mean eyelid aperture (7.30 vs 7.34 mm;  $p = 0.816$ ). Mean blink duration was modestly higher in the exoskeleton condition (0.2469 vs 0.2316 s;  $p = 0.017$ ). Subjective responses indicated generally positive usability perceptions. These preliminary findings suggest that the exoskeleton did not increase common eye-based workload markers during simulated patient handling. The increase in blink duration may reflect subtle changes in visual strategy or task engagement. Future work to integrate subjective workload, additional physiological measures, and performance outcomes to inform exoskeleton implementation and training in nursing contexts is needed.

## CONCURRENT SESSIONS

### **A-1: Breaking Barriers: Rethinking Mental Health Systems**

**Moderator:** Adrian Guta, University of Windsor

**LEARN Moderator:** Dr. Onawa Labelle

ABSTRACT O11

#### **FRAGMENTATION, STIGMA, AND INEQUITY: STRUCTURAL BARRIERS TO BORDERLINE PERSONALITY DISORDER CARE IN ONTARIO**

Aman Ahluwalia-Cameron<sup>1</sup>, Adrian Guta<sup>1</sup>

<sup>1</sup>School of Social Work, University of Windsor

**Category:** Case Study/Learning from the Field

This sub-study examined how structural and organizational features of Ontario's mental health system shape care access and delivery for people living with Borderline Personality Disorder (BPD). Drawing on social workers' experiences, we explored how system fragmentation, funding, and social determinants of health interact to sustain inequities in service provision. Between April 2020 and January 2021, forty-one semi-structured interviews were conducted with social workers across hospital, community, and private-practice settings in Ontario. Guided by a critical realist framework, data were analyzed through a four-stage process of: description, abstraction, abduction, and retroduction to identify underlying generative mechanisms that structure BPD care delivery. Four interrelated mechanisms were identified: (1) constrained service availability and exclusionary program criteria that restrict timely access; (2) siloed organizational structures that limit coordination and default to emergency-based responses; (3) intersectional social determinants of health such as poverty, housing insecurity, and marginalization which intensify barriers to continuity of care; and (4) absence of system-level coordination and standards to support collaborative, integrated approaches. Findings reveal how health system fragmentation and structural stigma operate as interlocking mechanisms that reproduce inequitable care for people with BPD. Addressing these inequities requires system-wide reform that integrates funding, governance, and service delivery across sectors. Embedding standardized care pathways, cross-sector collaboration, and lived-experience leadership are critical for developing a more equitable and responsive mental health system.

**Learning Objectives:**

- (1) Reflect on the importance of research to shape policies and practices.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

ABSTRACT O12

#### **PROGRAM LEAD: HOW CAN A PROGRAM FOCUSED ON PROFESSIONAL AND LIFELONG LEARNING EMPOWER HQP AND FOSTER THEIR MENTAL HEALTH?**

Leah Ellen McMunn<sup>1</sup>, Tiffany Cheng<sup>2</sup>, Connor Bourgonje<sup>1</sup>, Ashley Thompson<sup>3</sup>, Jeremy Kerr<sup>4</sup>, Kim Hellemans<sup>5</sup>, Gino DiLabio<sup>5</sup>, Alison B Flynn<sup>1</sup>, Dora Cavallo-Medved<sup>6</sup>, Karamjeet Dhillon<sup>7</sup>, Stephanie De Franceschi<sup>8</sup>, **Isabelle Barrette-Ng<sup>9</sup>**

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**Category:** Social, Cultural, Environmental, and/or Population Health; Case Study/Learning from the Field

Despite years of specialized education, undergraduate and graduate highly qualified personnel (HQP) feel unprepared to navigate academia, research, and the professional market because current programs lack formal training in professional and learning skills. Consequently, ~70% HQP experience imposter syndrome - feeling like frauds despite objective success. Moreover, HQP report mental health challenges including fatigue, isolation, and self-doubt, contributing to burnout and

attrition. In response, we created Program LEAD (Lifelong Education and Development) to help HQP develop essential skills, build resilience, and enhance workforce readiness and retention through six modules: mentorship, strategic learning, project management, academic resilience, navigating challenging conversations, and using GenAI strategically. LEAD is an open education multi-modal course that can be taken by everyone, at any time. LEAD is flexible and can be a self-directed resource or integrated within courses, group training, or more. Ultimately, we expect LEAD to improve competency in these skills and subsequently improve psychological wellbeing by providing the formal training HQP reportedly lack. A longitudinal survey study will assess changes in perceived competency in professional skills and psychological well-being (e.g., depression, anxiety, imposter syndrome). A secondary goal is to evaluate equity concerns of HQP shaped by their contexts and personal experiences. Follow-up interviews will explore how LEAD may address equity concerns by providing formal accessible training in the necessary skills for success. Findings from this mixed-methods project will identify systemic challenges faced by HQP and evaluate LEAD's potential to enhance preparedness, wellbeing, and success across diverse career pathways.

**Learning Objectives:**

- (1) Reflect on their organization's current Diversity, Equity, and Inclusion (DEI) activities, and propose one actionable change to improve inclusivity.
- (2) Outline an innovative adaptation that addresses the current needs of the community.
- (3) Reflect on the importance of research to shape policies and practices.
- (4) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (5) Explain the importance of collaboration in addressing health problems.

**ABSTRACT O13**

**COPING WITH THE STIGMA OF MENTAL ILLNESS: AN INTERPRETIVE DESCRIPTIVE STUDY OF OUT-PATIENTS IN A PUBLIC MENTAL HEALTH HOSPITAL IN GHANA**

**Sebastian Gyamfi**<sup>1</sup>, Joseph Adu<sup>2</sup>, Ebenezer Martin-Yeboah<sup>3</sup>, Mark Owusu<sup>4</sup>

<sup>1</sup>Faculty of Nursing, University of Windsor

<sup>2</sup>Department of Nursing, Toronto Metropolitan University

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<sup>4</sup>School of Health Sciences, University of Canterbury

**Category:** Social, Cultural, Environmental, and/or Population Health Research

Stigma reduces the status of individuals from full social acceptance, motivating the stigmatized person to find ways to cope with the perceived threat as much as possible. Coping with the stigma of mental illness is a multifaceted endeavor shaped by religiocultural, psychosocial, and individual factors; helping to inform future interventions that can foster resilience and empower individuals to confront stigma within their communities. The present study explored the individual experiences of dealing with a mental illness daily within the public space. We applied an interpretive description method using a semi-structured interview guide to elicit subjective responses from a purposive sample of twelve recruited outpatients receiving care in a hospital in Ghana. Study participants described various strategies (involving adaptive and maladaptive ways) through which individuals coped with their illness. Participants dealt with stigma by employing mechanisms that included secrecy, avoidance/withdrawal, relaxation techniques, confrontation, ignoring the stigmatizing agent, ingroup comparisons, and engaging in diversion activities. The participants' observations suggest they were unhappy about how society perceived and treated them. To effectively mitigate stigma, there is a need for multifaceted and collaborative approaches of active engagement with the public, family members, healthcare providers, policymakers, and government.

**Learning Objectives:**

- (1) Provide specific examples of how to incorporate patients' lived experiences into daily practice.
- (2) Discuss the implications of health disparities and identify actionable steps to address these disparities in their own research or practice.
- (3) Identify health challenges and related solutions, trends, emerging issues and gaps.

## ABSTRACT O14

### **POLICY ANALYSIS OF INVOLUNTARY SUBSTANCE USE TREATMENT LEGISLATION ACROSS CANADIAN PROVINCES**

**Kate Scott<sup>1</sup>**, Daniel Buchman<sup>2</sup>, Gillian Kolla<sup>3</sup>, Adrian Guta<sup>1</sup>

<sup>1</sup>University of Windsor

<sup>2</sup>University of Toronto

<sup>3</sup>Memorial University of Newfoundland

**Category:** Health Services Research

Involuntary treatment for substance use disorders is expanding rapidly across Canadian provinces, with health legislation enabling family members, police, and courts to initiate detention for treatment. This expansion is occurring despite research indicating no benefit over voluntary treatment and evidence of harm, including elevated post-discharge overdose mortality. To analyze how provincial governments present clinical and legal justifications for involuntary substance use treatment in policy documents. We conducted a narrative policy analysis of documents from six Canadian provinces: four that enacted or introduced involuntary treatment legislation (Alberta, British Columbia, Saskatchewan, Manitoba) and two that considered but paused or limited implementation (New Brunswick, Ontario). Documents included legislation, government webpages, news releases, ministerial announcements, and clinical guidance documents (September 2024–January 2026). Preliminary findings indicate three dominant themes across implementing provinces. First, biomedical rationales characterized substance use as compromising decision-making capacity, positioning involuntary treatment as life-saving intervention. Second, public safety rationale characterized individuals with substance use disorders as posing risks to themselves and others. Third, recovery-oriented language positioned coercive intervention as compassionate care. Discrepancies emerged between legislative text and government communications within the same jurisdiction. All four implementing provinces expanded authority to initiate involuntary treatment to include family members, police, and courts. Provincial policy emphasizes clinical and public safety rationales; however, peer-reviewed evidence on treatment effectiveness and perspectives of disproportionately affected populations are largely absent from policy documents. Findings highlight evidence-policy gaps with implications for social work practice and advocacy.

**Learning Objectives:**

- (1) Analyze current trends in health research and apply relevant findings to their own research or practice.
- (2) Reflect on the importance of research to shape and policies and practices.
- (3) Identify health challenges and related solutions, trends, emerging issues and gaps.

#### ***A-2: Care in Motion: Improving Quality, Safety & Rehabilitation***

**Moderator:** Swati Mehta, University of Windsor

**LEARN Moderator:** Theresa Skwara

## ABSTRACT O15

### **FROM RISK TO RESILIENCE: TRANSFORMING FALL PREVENTION IN HOSPITAL CARE**

**Katrina Billion<sup>1</sup>**, Catherine Taylor<sup>1</sup>, Neelu Sehgal<sup>1</sup>, Sara Wilson<sup>1</sup>, Jacob Wiebe<sup>1</sup>

<sup>1</sup>Erie Shores HealthCare

**Category:** Health Services Research

Falls among older adults remain a leading cause of functional decline, healthcare expenses, and increased length of stay in the hospital. A 2024 falls prevention initiative revealed that cognitively impaired inpatients were the most at risk of falling. This study evaluated whether the incidence of hospital falls could be reduced by developing and implementing a comprehensive standardized falls reduction framework. Beginning in early 2025, a standardized falls-reduction framework was implemented that included a hospital-wide falls policy, mandatory e-learning for clinical staff, audit tools with a tracking dashboard, patient fall-prevention education, standardized charge nurse rounding with fall-risk verification, formal flagging of high-risk fallers, after-hours audits, and post-fall huddles. Data were obtained from electronic medical records, and the fall totals number of falls before and after implementation were compared. The total number of falls increased across injury, no injury, and near miss categories from 2024 to 2025. Injury increased from 2 to 5 ( $p = 0.275$ ); No injury increased 100 to 107 ( $p = 0.645$ ); Near Miss increased 52 to 68 ( $p = 0.166$ ). Though none of the categories decreased with statistical significance, the substantial increase in near misses may reflect a greater awareness to alleviate the fall rather than preventing them entirely. Additional analysis showed that diagnoses of delirium increased from 31% (FY2023-24) to 47% (FY2024-25), which may explain the higher

number of overall falls. Further research is needed to determine whether delirium-focused interventions could reduce fall rates in the hospital.

**Learning Objectives:**

- (1) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

**ABSTRACT O16**

**STATISTICAL ANALYSIS OF LENGTH OF STAY PERFORMANCE IN INPATIENT REHABILITATION: A FOUNDATION FOR PROCESS IMPROVEMENT**

**Edward Matengele<sup>1</sup>, Darwish Alami<sup>1</sup>, Rashoo Brar<sup>1</sup>**

<sup>1</sup>Erie Shores HealthCare

**Category:** Health Service Research

Inpatient rehabilitation units face ongoing pressure to optimize patient flow and bed utilization, especially in acute care hospitals serving geriatric populations. Lengths of stay (LOS) that exceed benchmarks limit capacity and reduce operational efficiency, thus identifying drivers and patterns of extended LOS is essential for improved efficiency. This study measured severity, defined as the difference between the actual and expected length of stay (LOS), across clinical categories in a rehabilitation unit. This study sought to identify priority categories for process improvement initiatives using a dual analytical perspective. A retrospective analysis was conducted on 348 encrypted patient records from Erie Shores HealthCare's rehabilitation services between 2023 and 2025. Data was obtained from the National Rehabilitation Reporting System and Cerner. Patients were categorized into 10 clinical groups based on Case Mix Groupings. Two metrics were calculated: average severity per category, identifying categories with prolonged stays, and the product of severity and volume, which captures the operational burden. Pareto analysis principles determined priority categories for intervention. Analysis showed that 57.7% of patients stayed longer than expected, totaling 1,827.8 excess bed days. Neurological/cognitive conditions had the highest severity at 7.47 days, while respiratory conditions showed the greatest impact, with 179.0 excess bed days due to high patient numbers. Both the neurological/cognitive and renal/genitourinary categories ranked among the top five in both perspectives, highlighting shared priorities. These findings provide a quantitative basis for Value Stream Mapping initiatives and process improvements in high-impact clinical areas.

**Learning Objectives:**

- (1) Compare and contrast different methodologies used in health research studies and determine which methodologies could be applied to support their own evidence-based practice.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

## ABSTRACT O17

### **ENHANCING THE EXERCISE EXPERIENCE: EFFECTS OF VIRTUAL ENVIRONMENT DESIGN ON ENJOYMENT AND AFFECT DURING PHYSICAL ACTIVITY**

**Samantha Monk<sup>1</sup>, Mary Voyer<sup>1</sup>, Jessica Buterbaugh<sup>1</sup>, Emily Chauvin<sup>1</sup>, Emily Csabai<sup>1</sup>, Sarah Woodruff<sup>1</sup>**

<sup>1</sup>Department of Kinesiology, University of Windsor

**Category:** Social, Cultural, Environmental and/or Population Health Research

Regular physical activity is associated with physical and mental health benefits, yet participation levels remain low across populations. Enjoyment and affective responses during exercise are strong predictors of continued engagement, highlighting the importance of designing exercise experiences that are accessible and emotionally rewarding. Virtual reality (VR)-based exercise can enhance the experiential quality of physical activity. However, little is known about how the visual style of VR environments influences exercise experience and affective responses. The purpose of this study was to examine whether the visual style of VR exercise environments differentially influences physiological effort, perceived exertion, enjoyment, and affect during cycling exercise. It was hypothesized that exercise intensity would not differ between environments, while enjoyment and positive affect would vary as a function of visual style. Using a within-subjects design, 46 adults completed two moderate-intensity cycling sessions in VR: one in an animated environment and one in a photo-realistic environment, with order counterbalanced. Heart rate was continuously monitored to assess physiological effort. Following each session, participants reported perceived exertion, enjoyment, and positive and negative affect. Heart rate and perceived exertion did not differ between environments, indicating comparable exercise intensity. In contrast, enjoyment was significantly greater in the animated environment, and affective responses revealed higher positive affect without changes in negative affect. These findings suggest that animated VR environments can enhance the emotional quality of exercise without increasing physical demands. From a population health perspective, VR-based exercise systems that prioritize enjoyment and positive affect may better support physical activity participation.

**Learning Objectives:**

- (1) Outline an innovative adaptation that addresses the current needs of the community.
- (2) Analyze current trends in health research and apply relevant findings to their own research or practice.
- (3) Assess the potential of emerging technologies to advance patient outcomes.
- (4) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (5) Describe how design features of virtual environments can influence enjoyment and affective responses to physical therapy.

## ABSTRACT O18

### **ENHANCING STROKE REHABILITATION INTERDISCIPLINARY TEAMS: EXPLORING REHABILITATION NURSING PRACTICES AND PERSPECTIVES**

**Eric Tanlaka<sup>1</sup>, Amanda McIntyre<sup>2</sup>, Denise Connelly<sup>3</sup>, Nancy Snobelen, Yolande Haffar<sup>1</sup>**

<sup>1</sup>Faculty of Nursing, University of Windsor

<sup>2</sup>Arthur Labatt Family School of Nursing, Faculty of Health Sciences, Western University

<sup>3</sup>School of Physical Therapy, Faculty of Health Sciences, Western University

**Category:** Health Service Research

In interdisciplinary stroke rehabilitation teams, little is known regarding how nurses perform their therapeutic roles or implement therapeutic techniques. A research gap exists in recognizing rehabilitation nurses as members of the interdisciplinary stroke rehabilitation team, with their work minimized and undervalued as part of the formal rehabilitation process. A cross-sectional study, using an online survey, was employed to document the practices of Registered Practical Nurses (RPNs) and Registered Nurses (RNs) in stroke rehabilitation units and map their nursing rehabilitation practices to internationally established rehabilitation frameworks. Over 250 Ontario RPNs and RNs working in stroke rehabilitation participated in a Qualtrics survey, with a survey response rate of approximately 25% based on an estimated population of 1000 eligible current members of professional nursing associations. The nurses were invited to participate by the Registered Practical Nurses Association of Ontario (WeRPN), the College of Nurses of Ontario (CNO), and the Nursing Research Interest Group, part of the Registered Nurses' Association of Ontario (RNAO). The instrument included questions to elicit data regarding sociodemographic characteristics of participants, and the competencies and rehabilitative roles as outlined by the international frameworks for rehabilitation nursing. Results showed stronger correlations between the American and Australasian scales for both RPNs and RNs compared with their respective correlations with the United Kingdom scale. RPNs and RNs exhibited comparable levels of engagement in care-related tasks in stroke rehabilitation units. Mapping the practices of RPNs and RNs to international competency standards provides a basis for comparing Canadian rehabilitation nursing practices to established world leaders.

**Learning Objectives:**

- (1) Analyze current trends in health research and apply relevant findings to their own research or practice.
- (2) Reflect on the importance of research to shape policies and practices.

- (3) Explain the importance of collaboration in addressing health problems.

### **A-3: Digital Frontiers: Data, Technology & Immersive Health Innovation**

**Moderator:** Andrew Hubberstey, University of Windsor

**LEARN Moderator:** Samantha Asher

#### ABSTRACT O19

### **SIMULATING SOLUTIONS: A DATA-DRIVEN APPROACH TO RURAL ED CHALLENGES**

Mason Leschyna<sup>1</sup>, **Matt Bessey**<sup>1</sup>, Opher Baron<sup>2</sup>, Dimitry Krass<sup>2</sup>, Neelu Sehgal<sup>1</sup>, Holly Kettle<sup>1</sup>

<sup>1</sup>Erie Shores HealthCare

<sup>2</sup>University of Toronto

**Category:** Health Service Research

Emergency departments (EDs) in rural hospitals face growing challenges related to increasing patient volumes, rising acuity, aging populations, and prolonged inpatient length of stay (LOS). These pressures contribute to ED crowding, extended wait times, and delayed access to inpatient beds. These pressures highlight the need for innovative, data-driven solutions. Implementing SiMLQ will enable ED leadership to visualize key performance indicators and identify the drivers of patient flow metrics. In January 2024, ESHC partnered with SiMLQ, a machine-learning predictive simulation platform designed to optimize ED flow. Historical and current ED journey data were integrated to model patient movement and system bottlenecks. Simulations were run to test operational scenarios and assess the impact of changes in key variables, including admitted Length of Stay (LOS), overall LOS, Physician initial assessment (PIA), Left Without Being Seen (LWBS). In 2025, the time for PIA steadily decreased from 3.5 hrs to 10% in early 2025 to <4% in October 2025. Furthermore, with a correlation between PIA and LOS for admitted, high acuity non-admitted, and low acuity patients (0.29, 0.9, and 0.57), respectively, the overall LOS decreased by 33-50% (8-9hrs to 4-6hrs). The admitted LOS decreased from 24 hrs to 9-14 hrs, which is driven by a decrease in time to inpatient bed. These improvements happened despite a 30% increase in patient volumes in 2025 and without adding significant clinical resources to the ED.

**Learning Objectives:**

- (1) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

#### ABSTRACT O20

### **EXPLORING THE ALL OF US RESEARCH PROGRAM: PRACTICAL APPLICATIONS FOR HEALTH RESEARCH**

**Samantha D'Agostino-Pinto**<sup>1,2</sup>, Ze Meng<sup>2</sup>, Menghua Tao<sup>2</sup>, Jin Jun<sup>2</sup>, Brian Ahmedani<sup>3</sup>, Christine Johnson<sup>2</sup>, Cathryn Peltz<sup>2</sup>

<sup>1</sup>Department of Kinesiology, University of Windsor

<sup>2</sup>Department of Public Health Sciences, Henry Ford Health

<sup>3</sup>Center for Human Policy & Health Services Research, Henry Ford Health

**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research

The All of Us Research Program (AoURP) is a nationwide precision medicine initiative, funded by the National Institutes of Health, aimed at accelerating health research by creating one of the most comprehensive biomedical datasets to date. Designed to address longstanding gaps in medical research, the AoURP database strives to collect health information from over one million participants across the United States, with intentional inclusion of populations historically underrepresented in biomedical research. The database integrates self-reported survey data, electronic health records, physical measurements, and genomic information within a secure, cloud-based research environment. The goal of this presentation is to highlight the relevance of AoURP for researchers and trainees involved in various health research programs. We will highlight the structure of the database, data access policies, and considerations for responsible and ethical use. Examples of ongoing research projects will demonstrate how All of Us data can be leveraged to investigate health behaviours, chronic disease, and health disparities across various populations. By highlighting both the strengths and limitations of the database, this session aims to support researchers at various career stages in identifying meaningful and feasible research questions using large-scale population health data. Emphasis will be placed on the database's potential to advance equity-focused and translational research that better reflects real-world populations. Attendees will gain practical insight into how the AoURP database can be used to inform and promote innovative health research.

**Learning Objectives:**

- (1) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.

## ABSTRACT O21

**VIRTUAL INTEGRATED RELIABLE TRANSFORMATIVE USER-DRIVEN E-HEALTH SYSTEM (VIRTUES)  
CARDIAC CARE DIGITAL HEALTH PLATFORM**

**Habib R Khan**<sup>1</sup>, Nellie Kamkar<sup>1</sup>, Mina Aziz<sup>2</sup>, Matthew Bennett<sup>3</sup>, Bindu Bittira<sup>4</sup>, Christopher Cheung<sup>5</sup>, Kenneth Gin<sup>3</sup>, Umjeet Jolly<sup>6</sup>, Yaariv Khaykin<sup>7</sup>, Paul Oh<sup>8</sup>, Ratika Parkash<sup>9</sup>, Allan Skanes<sup>1</sup>, Jorge Wong<sup>10</sup>, Anthony Tang<sup>1</sup>

<sup>1</sup>London Health Sciences Centre, Western University

<sup>2</sup>Vancouver Health Sciences

<sup>3</sup>University of British Columbia

<sup>4</sup>Sudbury Regional Hospital

<sup>5</sup>Sunnybrook Health Sciences Centre

<sup>6</sup>St. Mary's Hospital

<sup>7</sup>Southlake Regional Hospital

<sup>8</sup>Peter Munk Cardiac Care

<sup>9</sup>Nova Scotia Health Authority

<sup>10</sup>Public Health Research Institute, Hamilton

**Category:** Clinical Research

Type II diabetes represents a substantial disease burden in Canada, contributing to increased morbidity, premature mortality, and rising healthcare costs. Obesity is a key risk factor for Type II diabetes, underscoring the urgent need for interventions that improve glycaemic control, measured by hemoglobin A1c (HbA1c), among these at-risk populations. VIRTUES is a nationwide digital health intervention designed to deliver patient centred, guideline-based recommendations and individually tailored educational content to support cardiometabolic health. We hypothesized that: (1) most VIRTUES participants would be overweight or obese; (2) engagement with VIRTUES would be associated with reductions in HbA1c; and (3) improvements would be most evident among higher risk patients, particularly those who are overweight or obese. A total of 186 participants (69% male) were included in this analysis. All participants had a cardiovascular condition and had at least two recorded HbA1c values: one at enrollment and one following engagement with the VIRTUES platform. At baseline, HbA1c values (Mean=6.06; SD=0.82) were elevated suggesting prediabetes or Type II diabetes in a predominant proportion of participants (N=117; 63%). Most participants were overweight or clinically obese (N=142; 76%). Encouragingly, VIRTUES reduced HbA1c values in a substantial portion of participants (N=83, 45%), the vast majority of whom were either overweight or clinically obese (N=68, 82%). These findings support VIRTUES as a clinically meaningful digital health tool for diabetes management, delivering measurable improvements in glycaemic control, particularly among overweight and obese patients with the greatest clinical need.

**Learning Objectives:**

- (1) Outline an innovative adaptation that addresses the current needs of the community.
- (2) Analyze current trends in health research and apply relevant findings to their own research or practice.
- (3) Discuss the implications of health disparities and identify actionable steps to address these disparities in their own research or practice.
- (4) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (5) Reflect on the importance of research to shape policies and practices.
- (6) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (7) Explain the importance of collaboration in addressing health problems.

## ABSTRACT O22

### DEVELOPMENT AND VALIDATION OF THE PEIR-IDEAS SCALE: A CO-CREATED MEASURE OF PATIENT ENGAGEMENT IN RESEARCH

Sara Santarossa<sup>1,2</sup>, Ashley Redding<sup>1</sup>, Chi Chang<sup>3</sup>, Carl P Wilson<sup>3</sup>, Dana Murphy<sup>1</sup>, Leah Copeland<sup>1</sup>, Asraa Alhawli<sup>4</sup>, Maureen Bennett<sup>5</sup>, Martine Caldwell<sup>6</sup>, Karen Clemmons-Lloyd<sup>7</sup>, Kimberly Cummings<sup>7</sup>, John Doyle<sup>7</sup>, Sandy Kesavan<sup>7</sup>, VeRonica Mitchell<sup>7</sup>, Angela Murphy<sup>8</sup>, Deyal Riley<sup>7</sup>, Linda Stechison<sup>7</sup>, Karen Kippen<sup>1</sup>

<sup>1</sup>Public Health Sciences, Henry Ford Health

<sup>2</sup>Department of Obstetrics, Gynecology and Reproductive Biology, College of Human Medicine, Michigan State University

<sup>3</sup>Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University

<sup>4</sup>Arab Community Centre for Economic and Social Services, Dearborn, Michigan

<sup>5</sup>Care Experience, Henry Ford Health

<sup>6</sup>Department of Emergency Medicine, Henry Ford Health

<sup>7</sup>Patient Advisor Program, Patient Engaged Research Center, Henry Ford Health

<sup>8</sup>Organizational Health Literacy, Henry Ford Health

**Category:** Health Service Research; Social, Cultural, Environmental, and/or Population Health Research

The Patient Engagement in Research Scale (PEIRS; 37-items, 7-construct) was the first quantitative measure of patient engagement in research; however, its validity testing was limited. To strengthen psychometric rigor, while centering principles of Inclusion, Diversity, Equity, Acceptance, and Safety (IDEAS), we developed the PEIR-IDEAS scale. All work were co-created with the Science of Engagement Team (SEAT), a partnership of diverse stakeholders. We conducted a structured reliability and validation process assessing content, face, and construct validity, and test-retest reliability. Content validity was assessed through expert ratings, content validity indices (CVI), and iterative revisions with SEAT. SEAT patient partners completed a 9-week research training program and co-led face validity testing via nine focus groups and content analysis. The PEIR-IDEAS 1.0 scale was distributed to patient partners (n=574). Confirmatory factor analysis and test-retest results informed scale refinement. CVI and focus group findings informed the 39-item PEIR-IDEAS 1.0, which retained 11 original PEIRS items and all constructs, added an N/A response option, and revised instructions. Psychometric evaluation with 199 participants (75.6% women; 30.7% Black) supported a 27-item, 6-construct model (Procedural Requirements, Convenience of Contributions, Team Environment and Interaction, Support, Feel Valued, and Benefits) with acceptable fit (CFI=0.934, TLI=0.925, RMSEA=0.059, SRMR=0.045); all factor loadings  $\geq 0.5$ . Convergent validity was confirmed (AVE  $> 0.5$ ), though some discriminant validity concerns suggest construct overlap. Test-retest reliability results indicate moderate to high stability. The PEIR-IDEAS scale is a psychometrically validated, co-created measure that advances the science of engagement and supports more inclusive and equitable engagement practices.

#### Learning Objectives:

- (1) Describe the conceptual foundations of patient engagement in health research and its relevance to improving research quality and impact.
- (2) Explain the rationale for developing the PEIR-IDEAS Scale as a co-created measure of patient engagement.

#### **A-4: INSPIRE Room**

**Moderator:** Jackie Fong, INSPIRE

**LEARN Moderator:** Dawn Mulder

#### ABSTRACT O23

### **SUPPLY CHAIN RESILIENCE: NAVIGATING GEOPOLITICAL DIVERGENCE IN NORTH AMERICAN PHARMACEUTICAL TRADE**

**Terence Dimatulac<sup>1</sup>, Hanna Maoh<sup>1</sup>, Mart Leardi-Anderson<sup>1</sup>, Anne Snowden<sup>2</sup>, Alexandra Wright<sup>2</sup>, Christine Chan<sup>2</sup>**

<sup>1</sup>Cross Border Institute, University of Windsor

<sup>2</sup>Odette School of Business, University of Windsor

**Category:** Social, Cultural, Environmental and/or Population Health Research

The cross-border movement of pharmaceutical goods (Harmonized System Chapter 30) constitutes a critical component of Canada's national infrastructure. This trade is not merely commercial, but a critical national security asset. Over the past decade, Canada has faced compounding challenges: managing chronic deficits, responding to COVID-19 demand shocks, and navigating a hostile U.S. trade environment. The recent imposition of tariffs and threatened 100% levies on pharmaceuticals exposed the fragility of supply chains designed for efficiency rather than resilience. In 2024, Statistics Canada recorded a pharmaceutical trade deficit with the U.S. of US\$2.66 billion, a staggering 185% increase since 2020, signaling a severe deterioration in trade balance despite rising demand. In response, the government has enacted a paradigm shift in industrial policy, prioritizing internal barrier removal and partner diversification through measures like Bill C-5. Leveraging comprehensive public datasets from Statistics Canada, this study maps the flow of essential life-saving medicines, specifically vaccines, antibiotics, and insulin, evaluating the risks posed by sole-source dependencies. We further identify vulnerabilities within the final dosage manufacturing and retail-ready import mix and analyze the efficacy of legislative measures in mitigating border volatility. Our analysis identifies specific sole-source dependencies in U.S. manufacturing hubs, pinpointing Indiana, New Jersey, and Pennsylvania as Canada's major trading partners. These states host industry leaders like Eli Lilly, Roche, and Johnson & Johnson, making them critical targets for Canada's legislative shifts. This research provides a strategic roadmap for navigating the geopolitical bifurcation of North American pharmaceutical supply chains, ensuring long-term resilience for Canadian patients.

#### **Learning Objectives:**

- (1) Reflect on the importance of research to shape policies and practices.
- (2) Identify health challenges and related solutions, trends, emerging issues, and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

#### ABSTRACT O24

### **QUANTITATIVE APPROACHES TO OUTBREAK DYNAMICS AND PHARMACEUTICAL SUPPLY CHAIN RESILIENCE**

**Chapin S Korosec<sup>1</sup>, Melody Pitchak<sup>1</sup>, Benjamin Benteke<sup>1</sup>, Siddhesh S Kadam<sup>1</sup>, Monica G Cojocaru<sup>1</sup>**

<sup>1</sup>Department of Mathematics and Statistics, University of Guelph

**Category:** Biomedical Research; Health Service Research; Social, Cultural, Environmental and/or Population Health Research; Clinical Research

This talk will provide an update on early-stage progress across three interconnected supply-chain research directions focused on public health resilience in Ontario and Canada. First, we describe a modelling program on measles resurgence in Ontario: the first paper develops and fits a public-health-unit (PHU)-dependent SEIR framework to characterize spatial heterogeneity in measles transmission, while the second paper leverages this calibrated model to perform scenario analyses of vaccine deployment under the assumption of unconstrained supply, with the goal of identifying strategies capable of "outrunning" severe measles outbreak trajectories under geographical and transportation constraints. Second, we present ongoing work toward a quantitative model of the Ontario over-the-counter (OTC) pharmaceutical supply chain, designed to assess how disruptions, such as border closures, abrupt trade policy shifts, or manufacturing shortages, propagate through distribution networks and affect access for Canadians. Finally, we outline an interdisciplinary review in development that unites perspectives from applied mathematics, public health policy, and civil and transportation engineering to examine the current state of pharmaceutical supply-chain modelling and to chart pathways forward. Collectively, our work aims to outline a national strategy for pharmaceutical supply-chain resilience that integrates mathematical modelling, public health priorities, and critical infrastructure insights.

**Learning Objectives:**

- (1) Reflect on the importance of research to shape policies and practices.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

## ABSTRACT O25

**ACCESSORY GENOME TURNOVER CONTRIBUTES TO THE RISE AND DECLINE OF VANA VACOMYCIN-RESISTANT ENTEROCOCCUS FAECIUM ST80**Opeyemi U Lawal<sup>1,2</sup><sup>1</sup>School of the Environment, University of Windsor<sup>2</sup>Great Lakes Institute for Environmental Research, University of Windsor**Category:** Biomedical Research; Social, Cultural, Environmental and/or Population Health Research

Vancomycin-resistant *Enterococcus faecium* (VREfm) is a One Health pathogen and a major global health concern. In the Capital Region of Denmark, the vanA-positive VREfm ST80 clone became dominant but declined over subsequent years. Here, the genomic mechanisms underlying this shift was assessed by characterizing 334 ST80 isolates collected between 2012 and 2020 from colonization and infection across nine Danish hospitals. Phylogenomics identified two major clusters and nine subclusters. Subcluster 1A (169/334) accounted for 72% of isolates from 2012–2015, whereas isolates from 2016–2020 were distributed across all subclusters, indicating temporal diversification. Pairwise distances of  $\leq 15$  SNPs indicated sustained Intra- and inter-hospital transmission. Variation reflected mutation accumulation, recombination, and gain/loss of accessory genes and plasmids. Eight recombination hotspots were detected in core loci linked to cell wall synthesis, sugar and amino acid biosynthesis, and multiple transporters. Accessory genome comparisons showed subcluster-enriched resistance genes including *ermG*, *tet(M)* and *tet(S)*, and differences in genes linked to biofilm formation, ABC transport, and biosynthesis of polysaccharides, terpenoids, and aspartate, consistent with niche adaptation. Plasmid diversity increased in later years, including a decline in an *Inc18* plasmid (80% to 38%) and emergence of two additional plasmids, coinciding with reduced clonal stability. Hybrid long-read assemblies identified mosaic phage-like plasmids carrying the *vanA* operon together with *ermB*, *aadE*, and *aph(3')-IIIa*, suggesting potential co-mobilization of resistance via transduction and/or conjugation. Overall, endemic VREfm can remain transmissible while recombination and plasmid turnover remodel *vanA* and co-resistance carriage, a consideration for genomic surveillance and infection control strategies.

**Learning Objectives:**

- (1) Analyze current trends in health research and apply relevant findings to their own research or practice.
- (2) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (3) Reflect on the importance of research to shape policies and practices.

## ABSTRACT O26

**DEVELOPING EFFICIENT TARGETED SEQUENCING METHODS FOR THE SURVEILLANCE OF RESPIRATORY VIRUS VARIANTS IN WASTEWATER AND ENVIRONMENTAL SAMPLES**Ana Podadera<sup>1</sup>, Isidora Sekaric<sup>1</sup>, Ethan Harrop<sup>2</sup>, Cameron Chevalier<sup>3</sup>, Ryland Corchis-Scott<sup>2</sup>, Mackenzie Beach<sup>2</sup>, Qiudi Geng<sup>2</sup>, Daniel J Mennill<sup>3</sup>, R Michael McKay<sup>2</sup>, Kenneth KS Ng<sup>1</sup><sup>1</sup>Department of Chemistry and Biochemistry, University of Windsor<sup>2</sup>Great Lakes Institute for Environmental Research, University of Windsor<sup>3</sup>Department of Integrative Biology, University of Windsor**Category:** Social, Cultural, Environmental and/or Population Health Research

Many endemic respiratory viruses display strong seasonal patterns, causing significant public health impacts in fall and winter. Efficient monitoring of viral diversity and evolution is critical for early detection of emerging variants with increased infectivity or pathogenicity. Inspired by the success of tiled amplicon sequencing for SARS-CoV-2 wastewater surveillance, we hypothesized that targeting variable genomic regions of key respiratory viruses would improve sensitivity and efficiency in wastewater and environmental samples, where clinical sequencing methods often perform poorly. We developed a targeted tiled amplicon sequencing platform for influenza A virus, respiratory syncytial virus (RSV), and measles virus. Primer sets generating 400–600 bp amplicons were designed de novo using PrimalScheme and VarVamp or adapted from published protocols. RT-PCR and library preparation workflows were optimized to maximize genome coverage, specificity, and sensitivity. Wastewater and environmental samples were collected and processed using multiple concentration methods, and sequencing was performed on Oxford Nanopore MinION and GridION platforms. Using this approach, we sequenced influenza A hemagglutinin and neuraminidase genes (H1, H3, H5, N1) from wastewater and environmental samples, revealing distinct temporal and spatial genotype patterns. The platform also rapidly identified the D8 measles virus genotype in wastewater

during the 2025 Leamington, ON outbreak and sequenced targeted regions of RSV-A and RSV-B from multiple wastewater sites, demonstrating broad applicability. Overall, this targeted amplicon sequencing strategy provides an efficient, robust framework for multi-virus wastewater surveillance, delivering timely genomic data to support public health and One Health decision-making.

**Learning Objectives:**

- (1) Compare and contrast different methodologies used in health research studies and determine which methodologies could be applied to support their own evidence-based practice.
- (2) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (3) Identify health challenges and related solutions, trends, emerging issues and gaps.

**B-1: Empowering Practice: Education, Workforce & Community Innovation**

**Moderator:** Adrian Guta, University of Windsor

**LEARN Moderator:** Andy Tannous

ABSTRACT O27

**EMPLOYMENT EXPERIENCES OF PHILIPPINE-EDUCATED AND CANADIAN-EDUCATED FILIPINO NURSES IN ONTARIO, CANADA**

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**Category:** Health Services Research

Canada has relied on internationally educated nurses (IENs) to address persistent health workforce shortages. Philippine-educated nurses (PENs) represent 40% of all IENs practicing in Canada, yet systemic barriers may constrain their ability to contribute fully to the workplace. While Filipino nurses represent a significant portion of Ontario's nursing workforce, little is known about how country of nursing education shapes their professional experiences and access to career advancement opportunities. This study aimed to examine and compare the employment experiences of PENs and Canadian-educated Filipino nurses (CEFNs) working in Ontario. We sought to identify differences in workplace integration, career trajectory, and experiences of discrimination between these two groups. Using a multimethod approach, we surveyed 510 nurses with the Racial and Ethnic Microaggressions Scale and demographic questionnaires, analyzing differences through chi-square and t-tests. Additionally, we conducted in-depth interviews with 51 participants, employing Braun and Clarke's thematic analysis guided by Stigma and Transitions theories. Findings revealed that PENs experienced inequitable professional access marked by occupational segregation and significantly higher microaggressions related to competence and workplace exclusion. While both groups encountered transition challenges and racism, CEFNs had greater access to career advancement opportunities and formal professional networks. PENs relied more heavily on informal support systems and prioritized economic survival over professional growth. These findings underscore the urgent need for healthcare organizations to implement targeted interventions including mentorship programs for IENs, equity audits ensuring equal advancement opportunities, improved credential recognition processes, and comprehensive training initiatives promoting workforce equity and dismantling discriminatory practices.

**Learning Objectives:**

- (1) Reflect on their organization's current Diversity, Equity, and Inclusion (DEI) activities, and propose one actionable change to improve inclusivity.
- (2) Analyze current trends in health research and apply relevant findings to their own research or practice.
- (3) Reflect on the importance of research to shape policies and practices.

## ABSTRACT O28

### **TRAUMA-INFORMED TEACHING PRACTICES: ADVANCING TRAUMA-INFORMED PEDAGOGY IN UNDERGRADUATE NURSING EDUCATION**

Rachel Elliott<sup>1</sup>, Edward V Cruz<sup>1</sup>, Sherry Morrell<sup>1</sup>, Adrian Guta<sup>2</sup>, Kathryn A Pfaff<sup>1</sup>

<sup>1</sup>Faculty of Nursing, University of Windsor

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**Category:** Social, Cultural, Environmental and/or Population Health Research

Trauma is prevalent among undergraduate nursing students, many of whom enter programs with prior exposure to traumatic experiences that may be compounded by demanding academic and clinical environments. Cumulative trauma exposure can negatively affect clinical performance, academic success, and student well-being, with inequities in trauma exposure and access to supportive learning environments disproportionately affecting students from equity-seeking groups. While trauma-informed care (TIC) is increasingly recognized as essential to nursing practice, its systematic integration into undergraduate nursing curricula remains limited. Trauma-informed educational practices (TIEP) extend TIC principles into higher education and provide an equity-oriented framework to support student well-being. Guided by Transformational Learning Theory, this interpretive descriptive qualitative study explored nurse educators' knowledge and experiences with TIC and examined how TIEP are conceptualized and enacted in undergraduate nursing education. Semi-structured interviews were conducted with 28 nurse educators teaching across Ontario. Data were analyzed using reflexive thematic analysis to generate practice-oriented insights and to develop a conceptual model grounded in educators' experiences. Findings generated processes were central to trauma-informed educational practice: (1) creative and experiential learning strategies that cultivate student self-awareness, (2) relationally attuned "brave spaces" that promote psychological safety, and (3) educator role modelling of trauma-informed values to support clinical application. These processes informed a conceptual model for trauma-informed nursing education, highlighting trauma-informed pedagogy as a shared responsibility requiring curriculum-wide integration and institutional accountability. Findings position TIC as a transformative, equity-centred approach that extends beyond content delivery to reshape teaching and learning environments.

**Learning Objectives:**

- (1) Define the core principles of trauma-informed care and explain their relevance to undergraduate nursing education.
- (2) Examining the theoretical foundations that support trauma-informed pedagogy within health professions education.
- (3) Describe the impact of trauma exposure (including adverse childhood experiences and academic stress) on nursing students' learning, clinical performance, and professional identity formation.

## ABSTRACT O29

### **LOCAL VOICES ON LOCAL RESEARCH: INTERVIEW-DRIVEN INSIGHTS ON HEALTH-BASED RESEARCH**

Jessica Flammia<sup>1</sup>, Danielle Gyemi<sup>1</sup>

<sup>1</sup>WE-SPARK Health Institute

**Category:** Health Service Research

Health research improves community health and informs treatment best practices in communities of all sizes. Different communities have access to different resources when it comes to completing health-based research. Windsor-Essex/Chatham-Kent (WECK) has a satellite medical school campus; however, our healthcare network does not currently include an academic hospital and its associated resources, putting our community in a unique position when it comes to health-based research. This ongoing qualitative, interview-based study explores perceived facilitators, barriers, and other factors experienced by members of the health research community in WECK. Fifteen participants have been recruited from our local health research community (medical professionals, academic professionals, management/senior leadership, students, etc). Virtual, semi-structured interviews were conducted. They were recorded, transcribed verbatim, verified, and anonymized before being analyzed thematically using the Theoretical Domains Framework. Individual points were coded into themes, sub-themes, and categories. A primary theme highlighted the importance of facilitating collaboration, allowing individuals to focus on the aspect of research that fits best within their capacity and skill. A lack of time was also noted as a significant barrier, acknowledging the importance of having dedicated time conduct research projects. Other noteworthy themes included funding, mentorship, and access to resources. Insights from this project can encourage discussion on the ways our community (and others like it) can advance health research and advocacy work in obtaining more supports. Over time, as these conversations continue, more health research coming out of WECK may improve access to care and strengthen the health of our community as a whole.

**Learning Objectives:**

- (1) Outline an innovative adaptation that addresses the current needs of the community.
- (2) Reflect on the importance of research to shape policies and practices.
- (3) Explain the importance of collaboration in addressing health problems.

## ABSTRACT O30

### REGISTERED NURSE PRESCRIBER ROLE IN ONTARIO: BARRIERS AND FACILITATORS OF ROLE IMPLEMENTATION

**Gina Pittman**<sup>1</sup>, Sherry Morrell<sup>1</sup>, Jane Simanovski<sup>1</sup>, William M Bannon, Ava Mammarella<sup>1</sup>, Hala Abu Rashi<sup>1</sup>, Ibrahim Abdulmoula<sup>1</sup>, Edona Ahmeti<sup>1</sup>, Adelia Scofield<sup>1</sup>, Debbie Sheppard-Lemoine<sup>1</sup>

<sup>1</sup>Faculty of Nursing, University of Windsor

**Category:** Health Service Research

Registered nurse (RN) prescribing was introduced in Ontario in 2023 to improve access to care and optimize the nursing scope of practice. While educational programs were developed rapidly, little is known about RN prescribers' experiences with role implementation and workplace integration. This study explored RN prescribers' perspectives on educational preparation and identified barriers and facilitators to successful role adoption. A mixed-methods design was used. A cross-sectional survey of 52 RN prescribers who completed a College of Nurses of Ontario (CNO)-approved prescribing program captured demographic data and employment experiences. Quantitative analysis included descriptive statistics, bivariate tests, and hierarchical regression. Fifteen participants completed semi-structured interviews, which were analyzed thematically. Quantitative findings indicated generally positive employment experiences, with higher satisfaction associated with supportive colleagues and management. Unrealistic employer expectations and lack of familiarity with RN prescribing scope were identified as barriers. Qualitative analysis revealed four themes: (1) value of prior RN experience, with most participants recommending 2–5 years before prescribing; (2) mentorship as a catalyst for role transition, and physician mentorship was most common; (3) colleague support and organizational culture as critical facilitators; and (4) role clarity and system-level barriers. Participants emphasized that although education prepared them to prescribe, workplace readiness and clear role expectations were essential for building confidence and ensuring safe practice. Successful implementation of RN prescribing requires more than education; structured mentorship, supportive organizational culture, and standardized policies are vital. These findings inform strategies to strengthen RN prescribing integration and improve access to care.

**Learning Objectives:**

- (1) Reflect on the importance of research to shape policies and practices.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

### ***B-2: From Bench to Bedside: Transforming Diagnostics & Therapies***

**Moderator:** Swati Mehta, University of Windsor

**LEARN Moderator:** Alexandra Shoust

## ABSTRACT O31

### IMPLEMENTING TMS PROGRAMMING AT HÔTEL-DIEU GRACE HEALTHCARE: A MIXED METHODS STUDY

**Bailey Csabai**<sup>1,2</sup>, **Leslee Ward**<sup>1,2</sup>, Melissa A Paré<sup>3</sup>, Stephanie Heredi<sup>1</sup>, Patrick Kolowicz<sup>1</sup>, Brendan Bedard<sup>1</sup>, Russian Abouhassan<sup>1</sup>, Jennifer Grbevski<sup>1</sup>, Frank N Mazza<sup>1,4</sup>, Jennifer Voth<sup>1,2</sup>, DJ MacNeil<sup>1</sup>

<sup>1</sup>Hôtel-Dieu Grace Healthcare

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**Category:** Health Service Research

In Windsor-Essex, approximately 10% of individuals experience depression, and an estimated one-third do not achieve adequate symptom improvement with first line treatments, resulting in treatment-resistant depression (TRD). Transcranial magnetic stimulation (TMS) is an evidence-based, non-invasive neuromodulation treatment targeting brain regions involved in depression and has emerged as an effective option for individuals with TRD. However, Hôtel Dieu Grace Healthcare (HDGH) is currently the only provider of TMS services in the Windsor-Essex Region. To evaluate the early implementation of TMS at HDGH using clinical, quality of life, and participant-reported outcomes. Participants completed a seven-week protocol (five sessions/week). Depression and quality of life were measured pre-and post-treatment, with post-treatment semi-structured interviews capturing satisfaction and perceived effectiveness. Twenty adult participants (M age = 58 years, SD = 9.5; 57% female) have consented to the study, with a completion rate of 70%. Results indicate a significant difference in symptom severity pre- and post-treatment with a reduction of depression symptoms (Mdiff = -8.21. 95% CI [-12.48, -3.95], t(13) = -4.2,

$p < .001$ ,  $d = -1.11$ ) and an increase in quality of life ( $M_{diff} = -2.64$ , 95% CI [-5.19, -0.09],  $t(13) = -2.2$ ,  $p = .043$ ,  $d = -0.59$ ). Interviews revealed that participants commonly reported positive TMS outcomes, positive experiences with staff, and concerns related to maintenance of their symptom improvement. To continue participant recruitment and explore standardization of maintenance programs and strategies for integrating follow-up care into our existing program structure.

**Learning Objectives:**

- (1) Describe the clinical rationale and evidence base supporting transcranial magnetic stimulation (TMS) in mental health care.
- (2) Interpret quantitative and qualitative findings related to feasibility, acceptability, patient outcomes, and program sustainability.

**ABSTRACT O32**

**SCREENING CANCER CELLS FOR BIOMARKER PROTEINS WITH IMMUNOPLASMONIC NANOPARTICLES**

**Scott G Harroun<sup>1</sup>**

<sup>1</sup>Department of Chemistry and Biochemistry, University of Windsor

**Category:** Biomedical Research

Screening tumour cells for biomarker proteins is important for cancer diagnosis and for determining patient eligibility for immunotherapy. Cytology samples are less invasive than biopsies, but they lack tissue architecture, resulting in standard staining methods not being able to reliably identify cells. Immunohistochemistry can be used to detect specific biomarker proteins in cytology samples, but multiplexed biomarker detection remains challenging. Plasmonic nanoparticles bioconjugated with antibodies targeting specific biomarkers provide an alternative immunostaining strategy. These nanoparticles scatter different colours of light depending on their size, shape, and composition. Side-illumination darkfield microscopy enables high-resolution optical detection of this scattered light while minimizing interference from cellular components. Quantifying the number of nanoparticles bound to the cells can then be related to protein expression. This presentation will discuss the use of immunoplasmonic nanoprobe with controlled orientation antibodies to screen lung and breast cancer cell lines for biomarkers such as CD44, PD-L1, and HER2, and will outline opportunities for extending this approach in collaborative translational research.

**Learning Objectives:**

- (1) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

**ABSTRACT O33**

**REAL-WORLD CARBOPLATIN USE IN THE NEOADJUVANT TREATMENT OF ER/PR-NEGATIVE, HER2-POSITIVE BREAST CANCER: A SINGLE-INSTITUTION EXPERIENCE**

Isha Suri<sup>1</sup>, Laurice Arayan<sup>2</sup>, Alfred Mina<sup>2</sup>, Rong Luo<sup>3</sup>, Caroline Hamm<sup>1,2,3</sup>

<sup>1</sup>Schulich School of Medicine and Dentistry

<sup>2</sup>Windsor Regional Hospital

<sup>3</sup>University of Windsor

**Category:** Clinical Research

The role of carboplatin in ER/PR-negative, HER2-positive breast cancer remains variable in routine clinical practice, particularly in the neoadjuvant setting. Evidence from real-world cohorts describing treatment selection and associated outcomes in this molecular subtype is limited. We performed a retrospective cohort study of patients with ER/PR-negative, HER2-positive breast cancer treated at a tertiary cancer centre, specifically Windsor Regional Hospital. Patients were classified according to receipt of a carboplatin-containing regimen. Baseline clinicopathologic characteristics, treatment sequencing, pathologic response, relapse-free survival (RFS), and overall survival (OS) were compared. Survival outcomes were estimated using Kaplan–Meier methods and compared with log-rank testing. Eighty-five patients fit the inclusion criteria, of whom 39 (45.9%) received carboplatin. Patients treated with carboplatin were younger (mean age 54.6 vs 62.9 years,  $p=0.014$ ) and more frequently received neoadjuvant therapy (82.1% vs 45.7%,  $p<0.001$ ). Tumor grade, nodal status, and HER2 expression were otherwise similar between groups, although larger primary tumors were more common among carboplatin-treated patients. Rates of pathologic complete response following neoadjuvant therapy were comparable. Relapse rates were similar between groups (15.4% vs 17.4%,  $p=0.804$ ). No statistically significant differences were observed in RFS ( $p=0.485$ ) or OS ( $p=0.284$ ). In this real-world cohort, carboplatin use was closely associated with neoadjuvant treatment selection but not with improved relapse or survival outcomes. Interpretation is limited by confounding by indication, treatment sequencing, low event rates, and residual confounding inherent to retrospective single-centre analyses. Larger multicentre studies are needed to better define the role of carboplatin in this population.

**Learning Objectives:**

- (1) Describe current clinical considerations for carboplatin use in ER/PR-negative, HER2-positive breast cancer, particularly in the neoadjuvant setting.
- (2) Summarize real-world treatment patterns for carboplatin-containing regimens in a tertiary cancer centre population.

**B-3: Inside the Cell: Molecular Mechanisms & Genetic Discovery****Moderator:** Andrew Hubberstey, University of Windsor**LEARN Moderators:** Jim Fair & Garry Loeper

## ABSTRACT O34

**ACCURATE, LONG-READ GENOME SEQUENCING CORROBORATES EXISTENCE OF AN ENDOGENOUS BARCODE OF SHARED MUTATIONS IN RHAMM-DEFICIENT LUNG METASTASES**Joseph Butler<sup>1</sup>, Audrey Goddard<sup>1</sup>, Cornelia Tolg<sup>2</sup>, Eva A Turley<sup>2</sup>, Kathleen A Hill<sup>1</sup><sup>1</sup>Department of Biology, Western University<sup>2</sup>Department of Biochemistry, Western University**Category:** Biomedical Research

Breast cancer (BrCa) has high genetic heterogeneity with both high intra- and inter-tumor clonal diversity, and is classified into multiple subtypes differing in therapeutic strategies, treatment resistance, disease recurrence and prognosis. Due to factors like somatic mutations contributing to genomic instability, tissue microenvironmental, and tumor cell plasticity, primary tumors and metastases have high genetic heterogeneity, impacting clonal dynamics. Rhamm loss in MMTV-PyMT mice, a model of luminal B subtype BrCa was associated with reduced clonal heterogeneity in primary tumors and lung metastases as detected by microarray genotyping of tumor and metastatic tissue. Across three mice, 19 single nucleotide variants (SNVs) were dominant in Rhamm<sup>-/-</sup> metastatic lung tissue. This dominant clone with shared SNVs across mice can serve as an endogenous barcode for measurement of clonal homogeneity, useful for gene therapy and targeted treatment. Long-read whole genome sequencing for bulk tissue offers variant detection with highest resolution and broadest capture. Variant calling of SNVs and indels from PacBio data revealed a 1.6-fold higher mutation burden in lung samples with metastases for Rhamm<sup>-/-</sup> compared to Rhamm<sup>+/+</sup> mice (average of 23,159 vs. 14,349 variants, respectively;  $p=0.002$ ). Rhamm<sup>-/-</sup> samples had low inter-animal variation; variants exclusively shared across all Rhamm<sup>-/-</sup> mice totaled 4078 of which 83% were  $VAF \geq 0.8$  (mean  $VAF=0.94$ ). Only 269 variants were uniquely found to be shared across all Rhamm<sup>+/+</sup> mice with wider VAF distributions (36% were major clones,  $VAF \geq 0.8$ ). These data confirm a role for RHAMM in promotion of genetic diversity and suggest a BrCa cancer therapeutic approach capitalizing on RHAMM deficiency.

**Learning Objectives:**

- (1) Compare and contrast different methodologies used in health research studies and determine which methodologies could be applied to support their own evidence-based practice.
- (2) Assess the potential of emerging technologies to advance their research or improve patient outcomes.

## ABSTRACT O35

**EPIGENETIC REGULATION OF INJURY-INDUCED NOCICEPTIVE HYPERSENSITIVITY IN DROSOPHILA MELANOGASTER**Jeffrey S Dason<sup>1,2</sup>, Dunya Y Assaf<sup>1</sup>, Gwen Haslam<sup>1</sup><sup>1</sup>Department of Biomedical Sciences, University of Windsor<sup>2</sup>WE-SPARK Health Institute**Category:** Biomedical Research

Most people are affected by pain. Treating pain is a major challenge and a greater understanding of the underlying mechanisms is needed. Growing evidence suggests that epigenetic mechanisms are involved in the development of pain. Epigenetic mechanisms cause increases or decreases in gene expression without altering DNA sequences. Common epigenetic mechanisms include changes in DNA methylation, histone methylation, histone acetylation and histone phosphorylation. Here, we examined the role of the histone methyltransferase G9a in *Drosophila* nociception. We found that G9a null mutants exhibited nociceptive hypersensitivity compared to their genetic controls. G9a has previously been shown to methylate promoter regions of the foraging gene, which encodes a cyclic guanosine monophosphate (cGMP)-dependent protein kinase G (PKG). Western blots revealed that PKG protein levels, specifically the PKG P1 isoform, were elevated in the absence of G9a. Additionally, G9a, foraging null double mutants displayed impaired nociceptive sensitivity similar to foraging null mutants,

suggesting that G9a acts upstream of PKG in regulating nociception. Overexpression of PKG in nociceptors phenocopied the nociceptive hypersensitivity seen in G9a null mutants. Furthermore, ultraviolet (UV) injury induced a nociceptive hypersensitive response in control genotypes. However, this injury-induced nociceptive hypersensitivity was blocked in the absence of foraging null mutants, indicating that PKG is required for injury-induced nociceptive hypersensitivity. Collectively, our findings demonstrate that the histone methyltransferase G9a negatively regulates nociception and PKG P1 protein expression.

**Learning Objectives:**

- (1) Analyze current trends in health research and apply relevant findings to their own research or practice.
- (2) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (3) Identify health challenges and related solutions, trends, emerging issues and gaps.

**ABSTRACT O36**

**SPHINGOLIPIDS IN SKELETAL MUSCLE: HEALTH & DISEASE**

**Matthew P Krause<sup>1</sup>**

<sup>1</sup>Department of Kinesiology, Faculty of Human Kinetics, University of Windsor

**Category:** Biomedical Research

Sphingolipids are bioactive lipids increasingly recognized for their roles in health and disease. Diabetic myopathy is characterized by reduced muscle mass, fiber atrophy, and impaired regenerative capacity, and sphingolipid imbalances are hypothesized to contribute to this pathology. Using the Akita mouse model of Type 1 Diabetes Mellitus (T1DM), we investigated sphingolipids in injured and non-injured muscle. Despite elevated intramyocellular lipid accumulation post-injury, we observed no uniform changes across ceramide species. However, specific ceramides (e.g., 18:1, 24:1) were reduced, while others (22:0, 24:0) increased in non-injured diabetic muscle. Notably, sphingosine-1-phosphate (S1P), a pro-myogenic sphingolipid essential for muscle regeneration, was significantly reduced in T1DM, particularly following injury—a critical deficit that may impair repair mechanisms. Conversely, ceramide-1-phosphate (C1P) was markedly elevated in both injured and non-injured diabetic muscle, though its functional implications remain unclear. These findings suggest a disrupted "sphingolipid rheostat" in diabetic muscle, where diminished S1P signaling may tip the balance toward impaired regeneration. In a parallel human study, examining plasma from type 1 diabetics and comparing to age, weight, and sex-matched controls, plasma S1P was lower in T1DM with ceramide trends showing similar alterations. Together, these data highlight sphingolipid metabolism as a potential therapeutic target in T1DM and diabetic myopathy.

**Learning Objectives:**

- (1) Analyze current trends in health research and apply relevant findings to their own research or practice.
- (2) Compare and contrast different methodologies used in health research studies and determine which methodologies could be applied to support their own evidence-based practice.
- (3) Assess the potential of emerging technologies to advance their research or improve patient outcomes.
- (4) Identify health challenges and related solutions, trends, emerging issues and gaps.

**ABSTRACT O37**

**LOSS OF CALCIUM-BINDING PROTEIN FREQUENIN RESULTS IN NOCICEPTIVE HYPERSENSITIVITY THROUGH CHANGES IN NOCICEPTIVE CIRCUIT EXCITABILITY**

**Alexandria St. Louis<sup>1</sup>, Wing Lam Yu<sup>1</sup>, Jeffrey Dason<sup>1</sup>**

<sup>1</sup>Department of Biomedical Sciences, University of Windsor

**Category:** Biomedical Research

Pain is difficult to treat due to a lack of understanding of its molecular mechanisms; however, one cause is calcium dysregulation. Targeting calcium-binding proteins may provide a promising approach to treat pain as opposed to targeting calcium directly. We used a *Drosophila* thermal nociception model to screen mutants of various calcium-binding proteins; of the 13 tested mutants, only loss of Frequentin1 (Frq1) or Frequentin2 (Frq2) resulted in nociceptive hypersensitivity. We hypothesized that loss of Frq results in hypersensitivity either through a change in nociceptor structure or in excitability throughout the nociceptive circuit. We used CRISPR-Cas9 to tag the endogenous frq1 and frq2 genes with a flag epitope and found that both are widely expressed in the nociceptive circuit. Loss of Frq1 or Frq2 resulted in no change in the structure of the nociceptor itself; thus, we are currently exploring if loss of Frq results in changes in ascending excitability by performing calcium imaging at the nociceptor axonal endings of Frq mutant and control larvae. Using a split GAL4 approach, we also determined that Frq is expressed in descending GABAergic neurons, suggesting that Frq is modulating the nociceptive response through a change in descending inhibition. Additionally, we used CRISPR-Cas9 to generate an endogenous Frq1 or Frq2 conditional knockout to target Frq in specific subsets of neurons in the nociceptive circuit. Collectively, our data demonstrates a novel functional role for Frq1 and Frq2 in nociception through changes in excitability of the nociceptive circuit.

**Learning Objectives:**

- (1) Reflect on the importance of research to shape policies and practices.
- (2) Identify health challenges and related solutions, trends, emerging issues and gaps.
- (3) Determine the role of calcium dysregulation in pain sensitivity and how the introduction of chemotherapy medications as a means of treating cancer can result in alterations in nociception.

**B-4: Lives in Context: Social Forces That Shape Health**

**Moderator:** Jackie Fong, INSPIRE

**LEARN Moderator:** VeRonica Mitchell

ABSTRACT O38

**HOW SOCIAL CAPITAL AND COVID-19 IMPACTS ARE ASSOCIATED WITH LIFE SATISFACTION: FINDINGS FROM A NATIONALLY REPRESENTATIVE CANADIAN STUDY**

Alena Auchynnikava<sup>1</sup>, Nazim Habibov<sup>1</sup>, Yunhong Lyu<sup>2</sup>, Lida Fan<sup>3</sup>

<sup>1</sup>School of Social Work, University of Windsor

<sup>2</sup>Trent University

<sup>3</sup>Lakehead University

**Category:** Social, Cultural, Environmental, and/or Population Health Research

This study attempts to address two specific research questions: (1) Which dimensions of social capital have the strongest and weakest association with life satisfaction? And (2) Which dimensions of social capital have a stronger and weaker association with life satisfaction vis-à-vis COVID-19-related factors? To answer the posted research questions, this study used microdata from the Mental Health and Access to Care Survey (MHACS), which was conducted by Statistics Canada. The survey aimed to gather data on the quality of life of Canadians and the impact of COVID-19 on their changes over time. The outcome is life satisfaction that is measured in MHACS by the Index of Life Satisfaction. Dimensions of social capital are represented in MHACS by social interactions, trust, community belonging, and social networks. Impact of COVID-19 is measured by the Index of COVID-19 impact that encompasses a wide range of pandemic-related issues, such as deterioration of physical health problems, difficulty in accessing healthcare services, and loss of job or income or financial. Ordinary Least Squares (OLS) regression is employed to examine the relationship between dimensions of social capital and pandemic-related characteristics with life satisfaction. All dimensions of social capital are associated positively with life satisfaction. However, the most significant association among the dimensions of social capital is observed between community membership and social networks, followed by social connections, whilst the least significant correlation is demonstrated by social trust.

**Learning Objectives:**

- (1) Reflect on the importance of research to shape policies and practices.
- (2) Identify health challenges and related solution, trends, emerging issues and gaps.
- (3) Explain the importance of collaboration in addressing health problems.

ABSTRACT O39

**COULD HOUSING AND NEIGHBOURHOOD CHARACTERISTICS BE PROTECTIVE FACTORS FOR LIFE SATISFACTION AGAINST THE ADVERSE EFFECTS OF COVID-19-RELATED FACTORS**

Nazim Habibov<sup>1</sup>, Alena Auchynnikava<sup>1</sup>, Yunhong Lyu<sup>2</sup>, Lida Fan<sup>3</sup>

<sup>1</sup>School of Social Work, University of Windsor

<sup>2</sup>Trent University

<sup>3</sup>Lakehead University

**Category:** Health Services Research

The purpose of this study is to evaluate whether various housing and neighborhood characteristics serve as protective factors for life satisfaction against the adverse effects of COVID-19-related factors. The data for this study come from the Canadian Housing Survey (CHS), conducted by Statistics Canada. The Ordinary Least Squares is estimated. Life satisfaction is regressed by COVID-19-related factors and subjective and objective household and neighborhood characteristics, while controlling for a set of covariates. The strongest influence on life satisfaction is observed for subjective housing and neighborhood characteristics. Their influence is higher in magnitude than that of COVID-19-related factors. The positive influence of housing and neighborhood characteristics on life satisfaction offset the pandemic's negative effects. Hence, housing and neighborhood characteristics serve as a protection against the detrimental influence of COVID-19. This is the first study that directly

compares the influence of objective and subjective housing and neighborhood characteristics with the influence of COVID-19-related adverse factors to find out whether housing and neighborhood can serve as protection against the pandemic.

**Learning Objectives:**

- (1) Discuss the implications of health disparities and identify actionable steps to address these disparities in their own research or practice.
- (2) Reflect on the importance of research to shape policies and practices.
- (3) Identify health challenges and related solutions, trends, emerging issues and gaps.

ABSTRACT O40

**OBESITY, AGE, AND THE PREVALENCE OF DIABETES AND HYPERTENSION AMONG CANADIAN ADULTS**

Dingding Li<sup>1</sup>

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

This paper investigates the role of obesity and age in shaping the prevalence of type 2 diabetes and hypertension among Canadian adults, using data from the 2014 Canadian Community Health Survey. In 2014, 6.05% of adults reported having diabetes and 16.11% reported hypertension. Among obese individuals, prevalence rates for both conditions are notably higher for males than for females. Females tend to develop diabetes at younger ages than males, while the age of onset for hypertension is similar across sexes. The risk of both diseases increases sharply with age and is disproportionately concentrated among lower-income populations. Unhealthy lifestyle behaviours, including smoking and physical inactivity, are also strongly associated with higher disease prevalence. From a policy perspective, these findings underscore the importance of early and targeted prevention strategies that address obesity and lifestyle-related risk factors, particularly among adults aged 30 and older and socioeconomically disadvantaged groups. Public health interventions promoting physical activity, healthy diets, and smoking cessation—combined with community-level and structural policies that reduce barriers to healthy living—can play a critical role in reducing the burden of diabetes and hypertension. Cost-effective obesity prevention policies may also generate substantial long-term savings by lowering chronic disease incidence and associated healthcare expenditures. Ongoing work extends this analysis using data from the 2022 Canadian Community Health Survey to assess whether these patterns persist over time.

**Learning Objectives:**

- (1) Describe the association between obesity, age, and the prevalence of type 2 diabetes and hypertension among Canadian adults.
- (2) Identify demographic and socioeconomic groups with a higher risk of diabetes and hypertension, including differences by sex, age, and income.
- (3) Understand how lifestyle behaviours such as smoking and physical inactivity relate to chronic disease prevalence.
- (4) Interpret population-level evidence from the Canadian Community Health Survey to inform discussions on chronic disease risk patterns in Canada.

ABSTRACT O41

**LIVED EXPERIENCE OF 2SLGBTQ+ RECREATIONAL SPORTS CLUB MEMBERS IN CANADA**

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**Category:** Social, Cultural, Environmental, and/or Population Health Research

Two-spirit, lesbian, gay, bisexual, transgender, and queer (2SLGBTQ+) individuals face systemic barriers to participation in sports, including discrimination, harassment, and violence. Following the Stonewall Riots of 1969, the first 2SLGBTQ+ recreational sports clubs were created to offer safe space for queer athletes. Existing research on 2SLGBTQ+ recreational sports clubs have investigated participants' motives for joining these groups but fewer have focused specifically on the impacts of membership and ongoing experiences as members. Moreover, many existing studies have also targeted only certain population subgroups within the 2SLGBTQ+ umbrella (e.g., queer women) or specific sports (e.g., softball leagues). The objectives of this study were to better understand the motivations, experiences, and impact of 2SLGBTQ+ sports club membership in an inclusive sample of 2SLGBTQ+ Canadians. Semi-structured interviews were conducted with 19 members of Canadian 2SLGBTQ+ sports clubs. Transcripts were analyzed using reflexive thematic analysis within a social constructivist lens. Five themes were identified by a team of analysts: (1) Finding a Safe, Inclusive Space, 2) Reclaiming and Transforming my Relationship with Sports, 3) Cultivating Wellbeing and Personal Growth through Sports, 4) Living Empowered as 2SLGBTQ+, and 5) Expanding Inclusivity

and Support in Queer Sports Spaces. Findings underscore the importance of 2SLGBTQ+-specific sports spaces in fostering wellbeing, community connection, and empowerment in the community. As global threats to 2SLGBTQ+ rights intensify, the role of affirming sports clubs becomes increasingly vital.

**Learning Objectives:**

- (1) Outline an innovative adaptation that addresses the current needs of the community.
- (2) Discuss the implications of health disparities and identify actionable steps to address these disparities in their own research or practice.
- (3) Reflect on the importance of research to shape policies and practices.
- (4) Identify health challenges and related solutions, trends, emerging issues and gaps.

# **THANK YOU**

Thank you to all the registrants, speakers, students, sponsors, and community members for joining us for the 2026 Health Research Conference. It was through your support, commitment, and participation that we were able to hold the third health research conference in Windsor-Essex. We look forward to connecting at future events and highlight the positive impact of health research in our region.

