

# **School of Pharmacy**

# **Annual Research Day**

**Dec. 1, 2023**

**ABSTRACTS**



PHARMACY

# **Undergraduate Abstracts**

## **Review of the diversity in patient cases in the pharmacy curriculum in comparison to the population of Newfoundland and Labrador**

*Choi, Wooje<sup>1</sup>; Bugden, Shawn<sup>1</sup>; Davis, Erin<sup>1</sup>*

<sup>1</sup> School of Pharmacy, Memorial University of Newfoundland, St. John's, Canada

**Introduction:** The new accreditation standards set by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) put a bigger focus on equity, diversity, and inclusion (EDI) in pharmacy education. Currently, it is unknown whether MUN School of Pharmacy's curriculum represents the diversity seen in the Newfoundland and Labrador's (NL) population. This presents an opportunity to evaluate the diversity of patients seen in the pharmacy curriculum and determine whether it is representative of society.

**Methods:** Non-evaluated cases (learning or practice cases) were analyzed for their diversity in four key demographic areas: physical, clinical, social, and academics. Each patient demographic was then calculated as a proportion of all cases (N=115) and/or defined cases, where defined cases exclude unreported data in its calculations. When available, each demographic was compared to the data of the NL population, which were extracted from government sources (e.g., Statistics Canada and NL Chronic Disease Action Plan).

**Results and Discussion:** Most demographics were representative of the NL population; however, there were certain points of concern within the results. The race/ethnicity of the non-evaluated pharmacy curriculum failed to report any indigenous patients, which is under representative of NL's 9.3% indigenous population. Additionally, six of the nine demographic categories had at least one-third (up to 90.4%) of the cases listed as "undefined" – which conform to the pattern of previous work at Dalhousie and other institutions and may contribute to the "hidden curriculum" to reinforce biases and stereotypes.

**Conclusion:** Many non-evaluated cases failed to report the patients' demographics – and works needs to be done to define the patient's demographic where it is appropriate. To determine its impact, further work is needed to evaluate how ambiguity may reinforce a student's biases and stereotypes by leaving the patient's details up for interpretation. In addition, a comparison of non-evaluated cases to evaluated cases may be beneficial in determining if the evaluated content is reflective of the diversity seen in classroom settings.

# Reducing Harms Through Youth Cannabis Education: A Survey of Educator Perspectives

*<sup>1</sup>Downey, Molly; <sup>2</sup>Bishop, Lisa; <sup>2</sup>Donnan, Jennifer; <sup>1</sup>Rowe, Emily; <sup>1</sup>Harris, Nick*

<sup>1</sup>Department of Psychology, Memorial University, <sup>2</sup>School of Pharmacy, Memorial University

**Introduction:** Cannabis use is common among Newfoundland and Labrador (NL) youth and may negatively affect their health. There is a lack of cannabis education in NL schools and educators may be unprepared to teach students about this newly legalized substance. This study explored educator attitudes about teaching harm reduction substance use education to youth.

**Material and Methods:** An online survey explored NL educator perspectives toward teaching cannabis education to students in grades 4-12. The survey asked educators about their 1) attitudes toward harm reduction, 2) needs for facilitating cannabis education and 3) preferences for receiving educator training and curriculum materials. Data analysis included descriptive statistics to evaluate demographic variables, ANOVAs to identify subgroup differences (e.g., age, gender), and inductive thematic analysis to establish themes from open-ended responses.

**Results and Discussion:** The survey was completed by 170 educators, of whom 59% worked as classroom teachers. Sixty-one percent of educators felt uncertain about how to respond to student cannabis use. Eighty-nine percent expressed interest in receiving training for reducing cannabis-related harms, particularly interactive training (70%) and instructor-led lessons (51%). Qualitative analysis revealed several themes, including the need to challenge the stigma around cannabis use and the importance of considering equity, diversity and inclusion while providing substance use education.

**Conclusion:** Educators expressed considerable support for harm reduction substance use education, but many felt unprepared to address this topic with students. The findings identified a need for educator training on harm reduction substance use education, so that educators can help students make informed choices around substance use, thereby promoting youth health and safety.

## **Addressing the taboo: Understanding why consumers purchase cannabis from illicit sources and how to incite motivation for change**

*<sup>1</sup>Donnan, Jennifer<sup>1</sup>; <sup>1</sup>Howells, Rachel; <sup>1</sup>Farooq, Sylvia; <sup>2</sup>Maillet, Myles*

<sup>1</sup>School of Pharmacy, Memorial University of Newfoundland; <sup>2</sup>Government of British Columbia, Cannabis Secretariat

**Introduction:** Following the legalization of Cannabis, it is estimated that a large portion of cannabis consumers continue to use illicit sources. Shifting cannabis consumers to the legal market can improve public health and safety. This study aims to examine the current understanding of cannabis consumers illicit purchase decisions and to explore factors for transitioning to the legal market.

**Methods:** The current study used a qualitative approach to explore cannabis purchase decisions in British Columbia using semi-structured interviews. Participants were recruited primarily through an online recruitment platform called ReachBC and online forums. Thirty-three illicit cannabis users from across British Columbia were interviewed between June and August of 2023. Each interview lasted between 26 to 78 minutes and were transcribed verbatim. Codes were derived inductively from the transcripts and then themes were extracted using applied thematic.

**Results:** The identified themes include: 1) product characteristics; 2) retailer characteristics; 3) social influences; 4) personal values; 5) consequences of legalization.

The findings of this study demonstrated that many cannabis consumers recognise the benefits of regulated cannabis (safety, quality, and accessibility). However, these individuals voiced their concerns about the many barriers that discourage the transition to regulated sources. Key barriers include price, promotions and discounts, product variety, limitations to product purchase quantities, accessibility, and inclusivity.

**Conclusion:** Overall, many cannabis consumers have a positive outlook regarding the regulated cannabis market. However, there are many barriers that contribute to individuals supporting the illicit market. Identifying these obstacles is important for comprehending consumer choices in the illicit market and exploring routes to better assist consumers in the legal cannabis market.

## **Development of the FACE Decision-Making Model for Youth Health Education**

*<sup>1</sup>Heath, Megan; <sup>1</sup>Waghmare, Nitara; <sup>1</sup>Torraville, Bethany; <sup>1</sup>Donnan, Jennifer; <sup>1</sup>Bishop, Lisa*

<sup>1</sup>School of Pharmacy, Memorial University

**Introduction:** Health education programs that incorporate skill development increases healthy behaviours amongst students. Social and emotional learning is an essential competency for responsible decision making; however, decision making models for youth lack the integration of emotional reflection. The purpose of the study was to evaluate existing decision-making models to inform the development of a novel decision-making model for elementary-aged youth.

**Methods:** A literature review was conducted using Pubmed and broader internet searching to identify and evaluate decision-making models for youth. Models were compared and contrasted to identify core constructs. After comparing the various models, a novel model was created that 1) incorporates social emotional learning, and 2) is developmentally appropriate for elementary aged youth. This was an iterative process, whereby stakeholders, youth, educators, and experts reviewed and provided input into the final model.

**Results and Discussion:** The literature review identified the following core constructs: assessing risk, making a choice, and evaluating the results of the decision. These constructs, along with self-monitoring of emotions and feelings, were integrated into the novel FACE Decision-Making model: 1) (Feel) How does this situation make feel? 2) (Assess) What are my options? 3) (Choose) What is the safest option for me? and 4) (Evaluate) What do you think about your decision?

**Conclusion:** The FACE Decision-Making Model uses components of social and emotional learning to help students make decisions regarding their health. Students can use iterations of this model as they transition to adulthood and in various situations. FACE will be piloted to collect feedback from educators and students.

# PC 12 Cells as A Model for Studying Parkinson's Disease and Treatment

*Liu, Kaiwen; Skinner, Taylor C; Weber, John T*

*School of Pharmacy, Memorial University, Newfoundland and Labrador*

## **Introduction**

Parkinson's disease is a neurodegenerative disorder associated with degeneration of dopaminergic neurons. This *in vitro* study is aimed at investigating the toxic effects of glutamate and 6-hydroxydopamine in a rat PC12 pheochromocytoma cell line that is known to differentiate into dopaminergic neurons upon exposure to nerve growth factors.

## **Material and Methods**

Rat PC12 pheochromocytoma cells were cultured in DMEM media followed by the introduction of nerve growth factor (NGF) to promote differentiation into dopaminergic neuron phenotype for 2 days. The cells were subsequently incubated with glutamate or 6-hydroxydopamine (6-OHDA) with different concentrations for 24 hours. On day 4, the cells were stained with propidium iodide (PI) and DAPI and observed under a fluorescence microscope.

## **Results and Discussion**

After 2 days of incubation with NGF, some cells showed certain morphological changes (e.g. neurite growth, cell size increase). This indicates the effectiveness of NGF. After the cells were challenged with glutamate or 6-OHDA with different concentrations, PI staining showed increased cell death in glutamate or 6-OHDA treated cells compared to the control group while DAPI staining showed less cell survival in treated cells.

## **Conclusion**

Although only some PC12 cells showed morphological changes upon NGF incubation, this does not affect how they respond to glutamate or 6-OHDA challenges. The cytotoxic effect of glutamate and 6-OHDA on the PC12 cell line certainly make it an ideal model to study potential treatments for Parkinson's disease *in vitro*.

## Perceptions of Cannabis Consumption During Pregnancy and Lactation: A Patient-Informed Survey

<sup>1</sup>*McMahon, Isobel*; <sup>2</sup>*Donnan, Jennifer*; <sup>2</sup>*Lee, Tiffany*; <sup>3</sup>*Codner, Robyn*; <sup>1</sup>*Harris, Nick*

<sup>1</sup>Department of Psychology, Memorial University of Newfoundland, <sup>2</sup>School of Pharmacy, Memorial University of Newfoundland, <sup>3</sup>Patient partner

**Introduction:** Cannabis is one of the most frequently consumed substances among Canada's pregnant and lactating population, and the reported prevalence has increased in recent years. Perinatal cannabis consumption may be associated with impairments to various health domains for the developing fetus.

**Methods:** We used an experimental vignette survey to assess Canadian parents' risk perception of cannabis consumption in the perinatal period. Participants were recruited through Angus Reid. Five sets of vignettes were developed to examine risk perception based on various factors (i.e., perinatal stage, frequency, cannabinoid, reason for use, and method of consumption). Participants responded to questions about the risk to the fetus or an infant's physical, cognitive, and emotional development, as well as the birthing parent's health and their level of approval.

**Results:** Our sample included a total of 821 participants (birthing parents,  $n = 417$ ; partners,  $n = 393$ ; or both,  $n = 11$ ) who were primarily well educated (mean 17.5 years, SD 3.1) and employed full-time (73.5%). Participants viewed the risk of cannabis consumption in pregnancy and lactation to be high and riskier than the formula feeding control; no differences were observed across frequency, composition, or method of consumption.

**Discussion and Conclusion:** Previous research reports higher rates of perinatal cannabis consumption among individuals with lower socioeconomic status and education levels. Given the demographic characteristics of our sample, we may not have adequately captured our population of interest. Moving forward, we plan to replicate this study with a community sample recruited through social media and community-based organizations.



**Directed Education on Cannabis for Youth Decision Empowerment (DECYDE):  
Using A Mixed Methods Approach to Inform the Development of a  
Substance Use Lesson Map for Grades 7-9**

*Waghmare, Nitara; Donnan, Jennifer; Heath, Megan; Bishop, Lisa*

School of Pharmacy, Memorial University

**Introduction:** There is a gap in substance use education in NL schools. A harm-reduction, substance use education strategy for school-age youth was developed, called Drug Education Centered on Youth Decision Empowerment (DECYDE). DECYDE was informed by stakeholders such as youth, educators, addiction specialists, and people with lived and living experience. The primary objective of this research was to gather relevant information and insights to inform the design of a lesson plan map for grades 7-9 that is engaging, relevant, and provides youth with crucial health-based skills to support their health and wellbeing.

**Methods:** Two methods were utilized: a document analysis and a youth public engagement session. Documents reviewed included policy, curriculum outcomes, and other public documents published by the NL Government Department of Education. Outcomes pertaining to substance use, decision-making, and social and emotional learning were extracted. Youth (aged 13-18) from across NL were invited to participate in a virtual engagement session where they shared their experience with and suggestions for substance use education.

**Results and Discussion:** Data from both sources were integrated into a substance use lesson map for grade 7-9. This was an iterative process with feedback from stakeholders. Proposed lesson plans use a skills-based health education approach and align with curriculum outcomes. Activities within the lesson plans focus on building skills for maintaining health, such as reducing substance-based harms and utilizing effective decision-making.

**Conclusion:** Using a mixed methods approach, this substance use lesson map was developed to address a gap in substance use education outlined by youth. Full lesson plans will be developed and pilot tested with educators to collect data to inform future modification and development.

# **Graduate Abstracts**

## **Effects of Dual Smoking on Smoking Behaviours and Mental Health: A Machine Learning Approach**

*<sup>1</sup>Ahmed, Nadia; <sup>1</sup>Nguyen, Hai*

<sup>1</sup>School of Pharmacy, Memorial University of Newfoundland

**Background:** Dual smoking of cigarettes and e-cigarettes offers smokers the opportunity to lower their cigarette consumption. However, with the high nicotine content in e-cigarettes, dual smoking may increase the total nicotine intake, aggravate nicotine dependence, impede smoking cessation efforts, and affect mental health. Research on the effects of dual smoking is inconclusive. In this study, we investigated these effects using a machine learning-based method accounting for confounding and a nationally representative sample.

**Method:** We used regression analyses to compare dual smokers and exclusive cigarette smokers on nicotine dependence, smoking quit intentions and self-rated mental health. Two outcomes of nicotine dependence were examined, namely, the number of cigarettes smoked per day as well as on seven days a week and the time between waking up and smoking the first cigarette. We used a machine learning technique to control for self-selection into dual smoking status. Sub-group analyses by age were also conducted.

**Results:** Compared to exclusive smokers, cigarette consumption on weekdays was lower among young dual smokers, but not among adult dual smokers. Dual smokers were found to smoke their first cigarette after waking up much sooner than exclusive smokers. Although dual smokers had a greater intention to quit smoking, they reported lower mental health conditions than exclusive smokers.

**Conclusions:** While dual smoking is associated with lower cigarette consumption among youths and a higher intention to quit, it does not lower nicotine dependence nor improve mental health compared with exclusive smokers.

**“I’d prefer to go to the pharmacy. There’s a couple procedures there eliminated right from the get go” - Characteristics of Pharmacy-Based Hepatitis C Testing of Importance to People Who Inject Drugs**

*Balsom, Catherine*

School of Pharmacy, Memorial University

**Background:** There are barriers to the multi-step process of accessing standard Hepatitis C (HCV) testing for people who inject drugs (PWID). A pharmacy-based testing model has been proposed to improve access to testing for sexually transmitted and blood-borne infections (STBBI). Pharmacies are ideally positioned to offer point-of-care testing for STBBI because of their accessibility and widespread availability in most communities. Pharmacists can increase awareness of HCV risk by providing education and advice to those who receive injection supplies and opioid agonist therapy. Pharmacist testing models include providing education about the infection and treatment options, in addition to offering testing, interpreting/explaining results and linking people with reactive screening test results to confirmatory testing, care and treatment. Since pharmacies provide care for a variety of reasons there may be a sense of discretion from getting tested in pharmacies that is different from accessing testing through a needle syringe program or addictions center. However, whether pharmacies are seen favourably and are an attractive venue for testing among PWID is uncertain.

**Purpose:** This qualitative study aimed to determine what features of a pharmacy-based testing program for HCV would be important to people who inject drugs.

**Method:** Between June and August 2022, eleven PWID were interviewed using semi-structured interviews. Data were transcribed verbatim and reflective thematic analysis was performed.

**Result(s):** Five themes representing aspects of pharmacy-based testing that were appealing or of concern are presented: Ease of pharmacy testing, Confidentiality is important to attract people to testing, A fast result is often valuable, less invasive testing is appealing to some, and the relationship with the pharmacy and pharmacist affects willingness to be tested.

**Conclusion(s):** This study describes factors that are important in developing screening programs for PWID and reasons why they may or may not be interested in receiving HCV testing at a community pharmacy. To make progress towards HCV elimination efforts it will be important to address these factors to improve access and uptake of HCV testing programs for PWID, to increase case-finding and connect people with care and treatment.

**Declared Keywords:** hepatitis C, people who inject drugs, testing, pharmacy

## Comparative Analysis of Usability Studies on PRIMS: Insights and Implications

<sup>1</sup>*Bridges, Bronwyn*; <sup>2</sup>*Taylor, Jake*; <sup>1</sup>*Weber, John*

<sup>1</sup>School of Pharmacy, Memorial University of Newfoundland

<sup>2</sup>School of Exercise Science, University of Victoria

**Introduction:** Parkinson's Disease (PD) affects ten million people globally, necessitating objective remote monitoring systems. PragmaClin's Parkinson's Remote Interactive Monitoring system (PRIMS) was developed for detailed patient condition tracking. This research evaluates PRIMS through a usability study conducted in Summer 2022 and 2023, leading to system redesign.

**Materials and Methods:** The study aimed to assess and compare PRIMS' functionality, usability, and user experience for Parkinson's patients. Evaluation methods included interviews and field notes. Time to complete the PRIMS system motor examination, and number of skipped tests were also recorded.

**Results and Discussion:** The old PRIMS system had an average completion time of 67.66 mins, while the new system reduced it to 16.26 mins, resulting in fewer repeats, software bugs, and skipped tests. Thematic analysis revealed a preference for video instructions and confusion with written instructions. The updated version addressed issues identified in initial usability testing, delivering a user-friendly product tailored to patients' needs.

**Conclusion:** The investigation's data serves as a valuable reference for future researchers and developers working with digital systems for individuals with Parkinson's. The updated PRIMS version successfully addressed usability issues, providing insights for enhancing digital tools in Parkinson's care.

## **RSV-P? Inviting New Products for Respiratory Syncytial Virus Prevention to Canadian Practice**

*<sup>1</sup>Bugden, Samara; <sup>2</sup>Mital, Shweta; <sup>1</sup>Nguyen, Hai Van*

<sup>1</sup>School of Pharmacy, Memorial University of Newfoundland, St. John's, <sup>2</sup>College of Pharmacy, University of Manitoba, Winnipeg

### **Introduction:**

Respiratory syncytial virus (RSV) is the leading cause of acute lower respiratory infection (ALRI) in young children. Children in the Canadian Arctic are especially vulnerable to severe RSV infection requiring hospitalization. New products for RSV prevention include nirsevimab, a long-acting monoclonal antibody, and Abrysvo, a vaccine that can be given to pregnant women. There is limited research on potential cost-effectiveness of these new RSV prevention products in the Canadian context.

### **Methods:**

An age-stratified dynamic transmission model within a cost-effectiveness framework was developed using TreeAge Pro 2023 R1.2 software. Four strategies will be compared: administering nirsevimab to infants under six months, administering nirsevimab to infants under twelve months, administering Abrysvo™ to pregnant women, and no intervention. Modelling will be stratified for the geographical regions of Nunavut, Nunavik, Northwest Territories, and the remainder of Canada. The model will examine infectious spread throughout the population and be calibrated to Canadian RSV incidence data. Modelling infection risk will incorporate RSV seasonality, the number of infected individuals in the population, and the average number of daily contacts between susceptible and infected individuals. The study horizon is ten years with a weekly time cycle. Cost-effectiveness will be assessed using a Canadian health care system perspective. Costs will be accrued in 2023 Canadian dollars, and effectiveness will be measured in quality-adjusted life years (QALYs).

### **Results:**

Results are pending model completion. Incremental cost-effectiveness ratios (ICERs) will be reported for each strategy. In addition, the numbers of infections, hospitalizations, and intensive care unit admissions averted will also be reported.

### **Conclusion:**

Evaluating the cost-effectiveness of these new RSV prevention strategies will help inform public policy decisions regarding their coverage and adoption in Canadian practice.

## **Pandemic Preparedness Planning: Exploring Community Pharmacists' Roles during the Closure Stage of COVID-19 in Newfoundland and Labrador**

*<sup>1</sup>Farooq, Sylvia; <sup>1</sup>Donnan, Jennifer; <sup>2</sup>Matthew, Maria; <sup>3</sup>Lukewich, Julia; <sup>1</sup>Lee, Tiffany*

<sup>1</sup>Memorial University School of Pharmacy; <sup>2</sup>Western University Schulich School of Medicine and Dentistry; <sup>3</sup>Memorial University Faculty of Nursing

**Introduction:** Pandemic preparedness plans have historically focused on creating surge capacity in the hospital. They have yet to account for the need to sustain the delivery of primary health care (PHC), including services provided by community pharmacists. This study explored community pharmacists' roles in the delivery of PHC in Newfoundland and Labrador during the COVID-19 pandemic and the facilitators and barriers they faced.

**Method:** We interviewed 12 pharmacists who provided direct patient care during the COVID-19 pandemic as part of a larger case study. Interviews were completed virtually over 1-2 hours and were transcribed verbatim. Codes were derived inductively from the transcripts and themes were developed using applied thematic analysis. Data presented here focus specifically on the closure stage, from March and May 2020.

**Results:** Four themes were developed: 1) pharmacists' leadership in continuity of care; 2) pharmacists as medication stewards; 3) pharmacists as a source of COVID-19 health information; and 4) the personal toll of COVID-19 on pharmacists' mental health and well-being. The first three themes describe the key roles of pharmacists, including coordinating care, prescribing, providing advice on COVID-19 symptom management, and protecting the medication supply. However, several barriers were reported by participants (e.g., unclear and limited scope of practice, limited support from government). Facilitators included access to a delivery service, swift regulatory changes, and support from colleagues.

**Conclusion:** Pharmacists played a critical role in ensuring the continuity of PHC services during the closure stage of COVID-19. The findings of this research highlight the essential elements of a strong PHC pandemic plan that is inclusive of community pharmacists. Future should focus on improving communication strategies, mental health support, and access to resources.

## Examining patient acceptability of a national community pharmacy-based blood pressure screening program

<sup>1</sup>Makedenge, Sharon; <sup>2</sup>Tsuyuki, Ross; <sup>3</sup>Kippenhuck, Garreth; <sup>1</sup>Lee, Tiffany

<sup>1</sup>School of Pharmacy, Memorial University of Newfoundland; <sup>2</sup>Faculty of Medicine and Dentistry, University of Alberta; <sup>3</sup>Citizen Partner, Newfoundland and Labrador

**Introduction:** Hypertension is a major risk factor for cardiovascular and stroke related events and mortality. Screening for high blood pressure (BP) is an important first step to raise awareness about high BP and identify cases of hypertension. In collaboration with Hypertension Canada and the May Measurement Month (MMM) Organization, my master's supervisory committee and other national and international researchers are planning a pan-Canadian community pharmacy-based BP screening project, called the Pharmacy May Measurement Month (PharMMM) Project. PharMMM is comprehensive of all five pillars of the quintuple aim. My research will focus on assessing the acceptability of community pharmacy-based BP screening from the patient perspective.

**Methods:** My project will use a convergent mixed-methods design, consisting of: (i) a quantitative survey; and (ii) one-on-one qualitative interviews with individuals (18 years+) who have consented to take part in PharMMM 2024. Situated within the *Theoretical Framework of Acceptability*, constructs to be explored include affective attitude, burden, perceived effectiveness, ethicality, intervention coherence, opportunity costs, and self-efficacy. A validated patient acceptability questionnaire will be used to collect quantitative data. Semi-structured interviews will be audio-recorded and transcribed. Qualitative and quantitative data will be analyzed separately, findings compared, and then integrated in the determination of results.

**Impact:** My research will generate new knowledge that can be implemented into daily community practice to produce continual improvements in healthcare by increasing access to BP screening in a way that is feasible and acceptable to patients. This project will also inform the planning of the MMM campaign in other countries throughout the world.



## **The Effectiveness of Thrombosis Service Model on Economic Outcomes of Patients with Venous Thromboembolism – A Systematic Review**

*<sup>1</sup>Mpinganzima, Roxanne; <sup>1,2</sup>Lee, Tiffany; <sup>1</sup>Nguyen, Hai; <sup>1</sup>Bonsu, Kwadwo O;  
<sup>3</sup>Farrell, Alison; <sup>1,2</sup>Young, Stephanie*

<sup>1</sup> School of Pharmacy, Memorial University, St. John's, NL, Canada, <sup>2</sup> Pharmacy Program, Eastern Region, NL Health Services, St. John's, NL, Canada, <sup>3</sup> Health Science Library, Memorial University, St. John's, NL, Canada

**Introduction:** Venous thromboembolism (VTE) is a major cause of cardiovascular-related mortality and morbidity worldwide. The clinical and economic burden of the disease remains substantial, as VTE and its treatments are associated with short- and long-term complications. Specialized thrombosis or anticoagulation management clinics have been shown to improve patient outcomes compared to usual care (i.e., normal or routine care received outside or in the absence of a specialized service). However, little is known about the cost-effectiveness of these specialized care models.

**Methods:** We conducted a systematic review (SR) to identify differences in economic outcomes for specialized care models for acute VTE management versus usual care. A comprehensive search of four databases (PubMed, Embase, Cochrane Library, and CINAHL) from inception to October 9th, 2023, was performed. Two independent reviewers screened titles and abstracts using predetermined inclusion and exclusion criteria. Full text screening is ongoing. Data extraction and quality assessment will then be performed. Reporting will adhere to the PRISMA 2020 Checklist, and the CHEERS Checklist will be used for quality assessment.

**Results:** There were 18,734 articles identified, and 2,877 duplicates were removed. A total of 15,703 articles were removed during title and abstract screening, leaving 154 articles for full-text review.

**Conclusion:** This SR will provide healthcare providers and administrators with valuable information to assess and plan resources for VTE care in NL. It will also inform an economic analysis of a current thrombosis service model of care.

## Quantification of Neurovasculature Changes in a Post-Hemorrhagic Stroke Animal Model

*Perry, Olivia<sup>1</sup>; Doschak, Michael<sup>2</sup>; Daneshtalab, Noriko<sup>1</sup>*

<sup>1</sup>School of Pharmacy, Memorial University, St. John's, NL, Canada, <sup>2</sup>Faculty of Pharmacy & Pharmaceutical Sciences, University of Alberta, Edmonton, AB, Canada

**Purpose:** Hemorrhagic stroke (HS) mortality reaches an astounding 65% at one-year. Defining cerebrovascular changes associated with HS is pivotal for the development of novel pharmacological treatments. Our objective is to use high-resolution imaging technology and vascular perfusion casting to study the neurovascular network differences in stroke.

**Method:** Stroke-prone spontaneously hypertensive rats (SHRsp) were divided into pre-stroke (n=12) controls and post-stroke (sampled at physical signs of stroke; n=12). Evan's Blue (EB) was infused through the femoral artery prior to infusion of Vascupaint (MediLumine™), a novel bismuth vanadate latex casting compound used to opacify microvasculature. 3D visualization of the neurovascular network was achieved using micro-CT imaging and data was analyzed using bundled Skyscan 1176 software (Bruker). Additionally, optical fluorescence imaging (GE/ART Optix) was performed to examine the relationship between EB dye extravasation and alterations in surrounding vasculature.

**Results:** Post-stroke animals exhibited EB dye extravasation and decreased Vascupaint perfusion macroscopically, compared to pre-stroke brains. The 3D-rendering of brain vasculature post-stroke indicated decreased percent vascular volume, connectivity, and branching. Further, the EB fluorescence intensity data macroscopically correlated with stroke site and severity. Our study has established a standardized method for the preparation, imaging and measurement of rat cerebral blood supply through use of fluorescent and radiopaque contrast agents, coupled with preclinical imaging.

**Conclusion:** Our study used a novel casting compound, preclinical micro-CT and fluorescence imaging in a unique stroke-prone animal-model for the quantification of cerebrovascular anatomy. Advances in visualization of cerebrovascular changes in HS is critical for the potential development of new treatment strategies.

# **Autoethnography and Philosophical Assumptions of First-year PhD Students**

*Pevida Hernandez, Ary; Abdalla, Faisal Mohammad Ali*

School of Pharmacy, Memorial University of Newfoundland

## **Introduction:**

The philosophical foundations influence what we identify as researchable problems and the methods we choose. However, the concepts that underpin our worldviews can seem mysterious and intimidating to PhD students.

The purpose of our study was for two PhD students to examine their worldviews and how their philosophical assumptions influence their research interests and methodologies.

## **Method:**

- **Researcher Participants:** Two PhD students, one PhD instructor
- **Design:** Autoethnography, self-study, and narrative inquiry
- **Reflexivity:** Part of validity
- **Data:** Two autoethnographies, three narratives, and one discussion
- **Analysis:** Holistic coding complemented by narrative coding

## **Results:**

Theme 1. Explicitly teaching the philosophical foundations of research is essential for PhD student learning.

Theme 2. Writing an autoethnography provided an opportunity for students to think about their worldviews.

Theme 3. Students linked their worldviews with religion and childhood experiences and thought autoethnographic writing brought these relationships to the fore.

## **Conclusions:**

Writing autoethnography provides opportunity for doctoral students to articulate lived experiences in a scholarly manner.

PhD students need to learn to value their own beliefs and interests.

We recommend that PhD students be taught about the philosophical foundations of research. Professors of research methods should consider this pedagogical approach.

## Exploring Stigma towards Cannabis Consumption in Canada with Consideration of Age and Gender Differences

*Rowe, Emily<sup>b</sup>; Coles, Ashlee<sup>b</sup>; Harris-Lane, Laura<sup>b</sup>; Harris, Nick<sup>b</sup>; Bishop, Lisa<sup>a,c</sup>;  
Howells, Rachel<sup>a</sup>; Donnan, Jennifer<sup>a</sup>*

<sup>a</sup>School of Pharmacy, Memorial University of Newfoundland, St. John's, NL, Canada,

<sup>b</sup>Department of Psychology, Memorial University of Newfoundland, St. John's, NL, Canada,

<sup>c</sup>Faculty of Medicine, Memorial University of Newfoundland, St. John's, NL, Canada.

**Background:** Despite cannabis legalization in Canada, stigma towards cannabis consumers remains strikingly evident, particularly toward younger cannabis consumers. Our study examined how stigma towards a young cannabis consumer differs by age and sex. Additionally, we explore impacts of the participants' age and gender identity on their perceptions of stigma.

**Methods:** Canadian residents, ages 18 years and older, were randomly assigned to read one of six vignettes depicting a cannabis consumer that varied by age (14, 21, and 28 years) and sex (male, female). Participants completed the Social Distance Survey as the dependent measure of stigma. Two factorial ANOVAs were conducted to assess the impacts of the vignette character's age and sex, as well as participant's age and gender identity on stigma.

**Results:** Participants ( $N = 1,114$ ,  $M = 4.42$ ) displayed more stigmatizing attitudes towards adolescent consumers (14-years-old) compared to young adult (21-years-old and 28-years-old) consumers. Additionally, older participants (70+ years) displayed more stigmatizing attitudes than younger participants (18-29 and 30-39 years old). There was no difference in stigmatizing attitudes toward male and female cannabis consumers. Finally, participants who had not consumed cannabis within the past 6-months displayed more stigmatizing attitudes than those who reported any cannabis use frequency.

**Conclusions:** Our findings indicate that stigma remains a concern, particularly toward younger cannabis consumers, despite perceptions of increased acceptance and normalization towards cannabis. Understanding stigma can help inform researchers, healthcare professionals, and policy makers on targeted knowledge translation efforts toward populations susceptible to stigma.

## Study 1

### **Insights from the Ground: A Qualitative Investigation of the Challenges and Opportunities Facing Cannabis Retailers in Newfoundland and Labrador**

*Wright-Brown, Tanisha; Gaid, Dina; Newell, William; Cooper, Thomas; Schwartz, Elizabeth; Najafizada, Maisam; Donnan, Jennifer*

**Background:** Legalizing recreational cannabis in Canada has opened up new opportunities for retailers in Newfoundland and Labrador. However, opening and operating a cannabis retail store is not without challenges. This study aims to identify the barriers and facilitators of cannabis retail in Newfoundland and Labrador (NL) as perceived by licensed and unlicensed retailers.

**Methods:** Using a qualitative research design, we conducted in-depth semi-structured Zoom interviews with eight licensed and nine unlicensed retailers in NL. The interview guide and analysis were informed by our newly developed Comprehensive Cannabis Retail Framework (CCRF). We transcribed the interviews verbatim and used thematic analysis to identify themes within the CCRF and emergent themes that reflect the barriers and facilitators experienced by cannabis retailers in NL.

**Preliminary Results:** Our study revealed eight key themes influencing cannabis retail in NL, including government rules and regulations, legal and economic factors, technological and socio-cultural factors, competitors, suppliers, and consumers. Some of these themes can potentially facilitate or hinder cannabis retail operations.

**Conclusions:** The barriers and facilitators identified in this study will have important implications for developing the cannabis retail market in Newfoundland and Labrador. Public health practitioners and policymakers should work to address the barriers that hinder the development of a safe and responsible cannabis market. By creating a supportive environment for cannabis retail stores and their customers, NL can realize the economic and public health benefits of a legalized cannabis market.

## **Study 2**

### **Framing the Barriers: A Qualitative News Media Content Analysis of Private Cannabis Retailers in Canada**

*Wright-Brown, Tanisha; Blackwood, Michael; Bishop, Lisa; Najafizada, Maisam; Cooper, Thomas; Schwartz, Elizabeth; Newell; Donnan, Jennifer*

**Background:** Since the legalization of non-medicinal cannabis in 2018, licensed and potential private cannabis retailers have met several barriers. Understanding these barriers is critical to achieving the government's goal of protecting public health and safety. Drawing on agenda-setting theory, this study analyzed the news-media framing of these barriers and how they have been portrayed to the public.

**Methods:** This study combines a framing analysis approach by Robert Entman with qualitative content analysis of Canadian news articles from 2017 to 2022. Articles were selected from Nexis Uni and Eureka databases if they referenced at least one barrier to private cannabis retail stores. Data extraction was performed using Covidence, and coding was conducted with Excel Spreadsheets.

**Preliminary Results:** The study analyzed 307 articles out of 9371 and found that news media portray barriers faced by cannabis retailers in Canada differently. These barriers are often associated with government rules and regulations, suppliers, and the unlicensed market. The preliminary results also revealed that the news media tends to frame these barriers in terms of political, economic, and social impact, with some articles focusing on the benefits of cannabis retail stores while others highlighted the potential negative consequences.

**Conclusion:** The news media play a crucial role in shaping public opinion on cannabis retailers in Canada. This study will provide insight into how the barriers have been presented to the public. The findings of this study can inform policymakers and industry stakeholders on how to address these barriers and improve public perception of cannabis retail stores.