



CASCH
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STUDENT ORAL PRESENTATIONS

1:30-3:00PM

ROOM: MAPLE LEAF 2-050

#1 SOCIAL STUDYING AND LEARNING AMONG MEDICAL STUDENTS: A SCOPING REVIEW

Daniela Keren*, BScH; Jocelyn Lockyer, PhD; Rachel H. Ellaway, PhD.

University of Calgary

Background: Medical students study in social groups, which influence their learning, but few studies have investigated the characteristics of study groups and the impacts they have on students' learning.

Objective: A scoping review was conducted on the topic of informal social studying and learning within medical education with the aim of appraising what is known regarding medical student attitudes to group study, the impact of group study on participants, and the methods that have been employed to study this.

Methods: Using Arksey and O'Malley's scoping review principles, MEDLINE, EMBASE and CINAHL were searched, along with hand-searching and a targeted search of the grey literature. 18 peer reviewed and 17 grey literature records were included.

Results: Thematic conceptual analysis identified a number of themes, including: the nature of group study; the utility and value of group studying including social learning facilitating student engagement, social learning as a source of motivation and accountability, and social learning as a source of wellbeing; and student preferences related to group studying, including its homophilic nature, transgressiveness, and effectiveness. Despite these emerging factors, the evidence base for this phenomenon is small.

Conclusions: The findings in this scoping review demonstrate a clear role for social interaction outside of the classroom, and encourage us to consider the factors in student networking, and the implications of this on medical students' academics. We also highlight areas in need of future research to allow us to better situate informal social learning within medical education and to enable educators to support this phenomenon.

#2 A CURRICULUM AND LITERATURE REVIEW ON THE INTEGRATION OF GERONTOLOGY IN HEALTH RELATED PROGRAMS IN ALBERTA AND IN CANADA.

Maria Manese*, RN, MN, GNC.

Athabasca University

Background: Recent research on Canadian health and social service education (Boscart, et al., 2016) indicated that “(o)verall, gerontological education remains insufficient” (p. 1). Similarly, the team of researchers from the National Seniors Strategy (2015) stated that “a fundamental mismatch exists between . . . current training provisions and the fact that older Canadians are becoming the greatest users of our health care system” (p. 1).

Objective: This paper explored the curriculum of Canadian postsecondary health programs to establish a baseline of how and what gerontological concepts are integrated in the curriculum and answer the research question, “What health and social gerontology concepts and skills need to be integrated in the area of gerontology for related courses?” The purpose of this research is to determine the gerontological concepts currently taught in Alberta and in Canada, and compare them with established interdisciplinary gerontological education standards. The results of this first phase of research will be validated by a second phase, which involves interviews and focus groups with nurses and health care aides in gerontologic settings, as well as older adults/adults caring for older adults, to determine gaps between formal gerontologic education with gerontologic competencies needed in the workplace.

Method: A literature search using Cumulative Index of Nursing and Allied Health Literature (CINAHL) and EBSCO was conducted. A Google search of Canadian health professions curricula in Alberta, British Columbia, and Ontario, was done.

Results: Studies reporting the outcomes of continuing education courses in gerontology both in Canada and the US indicated that concepts relating to assessment, recognition, and management of geriatric syndromes, as well as skills related to interdisciplinary communication and leadership are the most relevant. Gerontology is integrated in most programs, while a few programs with a standalone gerontology course focus on the macro implications of aging in society, and the complexity involved in transitions as a family member ages. Key topics in social gerontology include demography, sociology of aging, psychology of aging, and social policy.

Conclusion: In order to prepare nurses and health care aides to care more effectively to seniors, concepts such as assessment, recognition, and management of geriatric syndromes, maintaining optimal functional independence of seniors, and interdisciplinary communication need to be integrated and emphasized in the curriculum.

#3 A SYSTEMATIC LITERATURE REVIEW OF PEER MENTORING IN MEDICAL RESIDENT EDUCATION.

Helen Pethrick*; Lorelli Nowell, PhD; Elizabeth Oddone Paolucci, PhD; Liza Lorenzetti, PhD; Michele Jacobsen, PhD; Tracey Clancy, RN, MN; Diane L Lorenzetti, PhD.

University of Calgary

Background: Many medical residents suffer from burnout and a lack of social support from their colleagues. This can present a barrier to their mastering professional competencies, including communication, collaboration, and professionalism. Peer mentoring could provide residents with psychosocial and career-related support to alleviate burnout and develop core professional competencies. However, to date, there has been no systematic review of peer mentoring in medical residency education.

Objective: This review explores how peer mentoring and peer support relationships relate to medical residents' psychosocial wellbeing and their development of professional competencies during residency education.

Methods: We searched six databases (MEDLINE, EMBASE, PsychINFO, Academic Research Complete, ERIC, Education Research Complete) using search terms related to peer mentoring and medical residents. We included studies that reported outcomes associated with formal and informal peer mentoring among medical residents. Data extracted from the studies included study and program objectives, program structure, and reported outcomes.

Results: Of the 339 studies identified, 14 studies were included in the review. The studies reported on a variety of beneficial outcomes of peer mentoring in the context of medical residency education and professional development. Peer mentoring was most associated with the development of communication skills, supportive peer relationships, academic and medical skills, and improved psychosocial wellbeing.

Conclusions: While this review suggests that peer mentorship can be beneficial for medical residents, especially in their development of professional competencies, evidence is lacking on the effectiveness of specific informal or formal program structures, or factors that could enable successful peer mentoring relationships. There is a need for further research on the effectiveness of peer mentoring, and evaluations of initiatives to enhance medical residents' access to supportive peer relationships.

#4 THE EVOLUTION OF COLLABORATIVE PROCESSES IN KNOWLEDGE TRANSLATION PLANNING FOR INNOVATIVE ENVIRONMENTAL HEALTH RESEARCH.

Osnat Wine*, MES; K. Kovacs Burns, MSc, MHSA, PhD; M. van Manen, MD, FRCPC, PhD; J. Spiers, MN, PhD; A. Osornio- Vargas, MD, PhD.

University of Alberta

Background: The DoMiNO project (2013-2018) investigates complex spatial relationships between adverse birth outcomes with industrial emissions, using new data-mining methodology. The innovative and interdisciplinary nature of the project requires an integrated Knowledge Translation (iKT) approach in which constant input from interdisciplinary researchers and knowledge users facilitates Knowledge Translation (KT); an integral goal of environmental health research.

Objective: We present major components of the DoMiNO project collaborative process that enabled the evolution and development of our KT plan.

Methods: We use the DoMiNO's iKT process as a case study, in a qualitative evaluation of the ongoing research collaboration (experience and learnings). Here, we focus on how the KT plan evolved following team engagement (e.g. meetings, informal interactions). Participants include all 24 DoMiNO team members and data was collected through interviews, focus groups, and surveys. Participant observation added to the cumulative understanding of the collaborative research process and the KT plan evolution. All data were coded and analyzed using constant comparison and triangulation.

Results: Current findings highlight the components of building capacity to support research, co-learning and co-production progress alongside KT plans development. These components include the project's inter/transdisciplinary nature, building relationships and trust, interdisciplinary literacy, motivators and challenges. Interestingly, KT plan mainly evolved through "spontaneous" ongoing processes besides dedicated discussions. Early KT plans were vague. However, as the research progressed, main messages, and attainable KT goals were identified. Also, KT roles of knowledge users and researchers were outlined, and the KT plan was articulated identifying audiences and strategies.

Conclusions: Developing KT plans in this complex context is an ongoing iterative process that in the case of DoMiNO required four years to evolve and mature. It built on the original perspectives from different disciplines and sectors and matured as the team acquired literacy in the research and KT processes. Future exploration will include the outcomes of the KT plans.

#5 EVALUATING THE EFFECTIVENESS OF AN EDUCATIONAL VIDEO ON SAFETY KNOWLEDGE IN SCHOOL-AGED SKIERS AND SNOWBOARDERS

Tatum Mitra*, BKin BSc; Sheharzad Mahmood; Maya Djerboua MSc; Hollie Cressy; Chris Lane; Alberto Nettel-Aguirre PhD; Carolyn Emery PhD; Brent Hagel PhD.

University of Calgary

Background: Public health advocates believe that education can be a key strategy to help prevent injuries in youth. However, more information is needed on educational video interventions within skiing and snowboarding, which are two of the leading causes of sport-related injuries in youth.

Objective: The primary objective was to examine the change in scores on a knowledge questionnaire after being exposed to an intervention or control video within ski and snowboard school programs; with the hypothesis that the intervention video would be effective in increasing safety knowledge more than the control video.

Methods: This was a blinded cluster (school) randomized controlled trial. Participating elementary or junior high schools were randomized into either the control or intervention group (labelled as group A or B). In order to measure changes in knowledge (hill etiquette, protective equipment use, etc.), students took a 15-question baseline test about safety before watching the intervention or control video and completed the same test after watching their assigned video. The control group followed current standard protocol for the ski and snowboard school programs, which included an orientation video, while the intervention group received a video that had a built in injury prevention component based on current literature and focus group research. The difference between the pre- and post-intervention tests was calculated for intervention and control groups.

Results: Preliminary results show the mean pre and post-test score difference was 0.1 for group A between and 1.91 for group B. The mean pre-test scores were 11.62 for group A and 11.82 for group B. The mean post-test scores were 11.72 for group A and 13.73 for group B. Next steps include taking into account school level clustering and identifying specific knowledge gaps (ski hill etiquette, proper protective equipment use, etc.).

Conclusion: Given the popularity of skiing and snowboarding, implementing and evaluating an intervention that can increase safety knowledge can be effective at ensuring safer health outcomes on the hill. More information is needed about safety knowledge retention and how knowledge can indirectly reduce injuries during the school program outing through changes in actions and for their future participation in these winter activities.

#6 KEEPING YOUTH SAFE AND ACTIVE: EVALUATING THE EFFECT OF AN EDUCATIONAL VIDEO ON RISKY BEHAVIOUR IN SCHOOL SKI AND SNOWBOARD PROGRAMS.

Sheharzad Mahmood*; Tatum Mitra, BKin BSc; Maya Djerboua, MSc; Kelly Russell, PhD; Claude Goulet, PhD; Carolyn Emery, PhD; Alberto Nettel-Aguirre, PhD, PStat; Hollie Cressy; Chris Lane; Brent Hagel, PhD.

University of Calgary

Background: Ski and snowboard-related injuries continue to be one of the leading causes of sports injury in Canadian youth. Analyzing the role of risk-taking behaviours that may contribute to injury risk is essential for gaining a comprehensive understanding of injury prevention in these sports. Limited evidence exists to support the use of preventive interventions such as educational videos to reduce risky behaviour; therefore, continuous efforts to reduce the burden of ski and snowboard-related injury in youth is necessary.

Objective: The primary objective was to determine if exposure to an educational intervention video reduces the incidence rate of risky behaviour seen at the ski hill in children and adolescents. The secondary objective was to evaluate the reliability of the Risky Behaviour and Actions Assessment Tool, an original form developed to identify and capture various risky behaviours on the ski hill.

Methods: This was a blinded cluster randomized controlled trial with students (n=2348) ages 6-15 from Calgary schools (n=18) who were enrolled in school-sanctioned ski and snowboard programs. Schools were randomly assigned to intervention or control status, but due to the blinded nature of the study they will be referred to as group A and B. The Risky Behaviour and Actions Assessment Tool was used by the primary rater to observe and evaluate risky behaviour of participants at an Alberta ski hill. These observations (n=407) were used to estimate the incidence rate of risky behaviour. To assess reliability and evaluate agreement, a second rater also recorded observations on a subset (n=227).

Results: Preliminary results suggest that the incidence rate of risky behaviour observed on the ski hill in group A was 23.3/100 person-runs and 22.9/100 person-runs in group B. The most commonly observed risky behaviours were skiing too close to other skiers/snowboarders and near collision with an object or person. Inter-rater reliability indicates substantial agreement with a kappa score for any observed risky behaviour of 0.776. Next steps include further analysis of the results by intervention status.

Conclusion: The results of this study will allow us to evaluate the effectiveness of the educational video in reducing risky behaviour on the ski hill. This will act as a critical transition point for informing future school ski and snowboard safety protocols.

ROOM: AURORA 2-051

#7 ADVANCED PHYSIOTHERAPY PRACTICE: A QUALITATIVE STUDY ON THE POTENTIAL BARRIERS AND CHALLENGES TO THE IMPLEMENTATION IN GHANA.

Andrews Tawiah*, PT, MSc; Alan Borthwick, PhD; Linda Woodhouse, PT, PhD.

University of Alberta

Background: Different health professionals currently perform tasks which were previously within the exclusive domain of doctors. Nurse practitioners prescribe medicines and physiotherapists perform injection therapy and order diagnostic imaging. These roles were developed to address the rising prevalence of chronic diseases, increasing aging population, increasing expectation of patients to be treated on time and cost containment. No study has examined the challenges and barriers of introducing this new model of care into a clinical setting in a developing country.

Objectives: To identify the potential challenges and barriers to the implementation of Advanced Physiotherapy Practice (APP) in Ghana.

Research questions:

1. What do physiotherapists in Ghana perceive as potential barriers and challenges to the implementation of APP?
2. What is an orthopedic surgeon's view on the barriers and challenges to the implementation of APP?

Methods: A basic interpretive qualitative study design was conducted, with a semi-structured focus group comprising 8 physiotherapists and a one-to-one interview with the director of orthopedic surgery in the second largest hospital in Ghana. Participants were sampled purposefully to ensure they had a clear understanding of APP. Discussions were audio recorded, transcribed and coded, and thematic analysis was performed.

Findings: Four key themes were identified as the potential challenges to the implementation of APP in Ghana.

Theme 1 Jurisdictional Disputes: Physiotherapists believed doctors will not accept the practice, while the doctor interviewed was willing to accept the practice.

Theme 2 Management Support: Support from management was identified as a potential barrier to APP implementation due to workplace culture and liability.

Theme 3 Changes in Law and Policy: APP could be hindered if there is no legislative support and policies in place.

Theme 4 Post-graduate training: This was identified as key to the implementation of APP, since there is no such level of training in Ghana.

Conclusions: This study aimed at identifying challenges and barriers to the implementation of APP in Ghana. Barriers to health care programs are often not identified and addressed prior to their implementation in developing countries, leading to program failure. These challenges if addressed could ensure effective implementation of APP in Ghana.

#8 OWNERSHIP VERSUS OPERATION OF THE BIOSAND WATER FILTER: EXPLORING TRADITIONAL HOUSEHOLD AND COMMUNITY POWER DYNAMICS IN NORTHERN RURAL TANZANIA.

Marissa Nahirney*; Mairead Whelan; Jeffrey McLean; Elias C. Nyanza, MPH; Jeremiah Seni, MD, MMed; Karin Orsel, DVM, MSc, PhD; Frank van der Meer, DVM, PhD; Jennifer Hatfield, MAPPSci, PhD; Lise Hovden, MPH; Tina Paasche, MPH; Sheri Bastien, PhD.

University of Calgary

Background: In rural Tanzania, such as the Ngorongoro Conservation Area (NCA), soil-transmitted helminth and protozoal infections in Maasai community water sources have been reported as top causes of diarrheal disease. Therefore, In 2014, the University of Calgary and Catholic University of Health and Allied Sciences developed Project SHINE (Sanitation and Hygiene Innovation in Education) to address water, sanitation, and hygiene issues in the NCA. One focus for SHINE is the biosand water filter (BSF) as a low-cost, low-tech water treatment option. As such, 110 BSF were installed in the NCA in May-October 2016.

Objective: to evaluate traditional household and community power dynamics experienced by BSF users in the NCA during the first year of BSF roll-out and how these dynamics influence clean water access.

Methods: Eighteen households with BSFs were randomly selected and interviewed to understand diverse perspectives on the BSF. Initial interviews were analyzed for common themes, then subsequent interviews were probed with theme-related questions. Each interview was assessed independently and as part of the collective set of interviews for challenges and opportunities for further roll-out.

Results: Households complained that there was excessive communal use of one available filter, at the expense of the BSF user. The user would be responsible for collecting water, only to have the majority used by others in the community. Additionally, there was a noticeable discrepancy between ownership and operation of the BSF. While women were often primary users of the BSF, the male head of the household was perceived as the owner and primary decision maker. Fear of breaking the BSF when the owner was absent and inadequate knowledge when the user was absent both resulted in the consumption of unfiltered source water by the rest of the household.

Conclusion: The BSF is a promising water treatment option in the NCA. However, more research is required to determine how multiple households can access clean water. Relatedly, household and community power dynamics influence equitable access to the BSF. This follow-up study demonstrates that BSFs are important for many communities, though unintended consequences related to ownership and operation should be carefully considered prior to expansion.

#9 FROM BENCH TO BEDSIDE: ANALYSIS OF CAUSES OF DIARRHEA AND ANTIBIOTIC RESISTANCE AMONG CHILDREN IN RURAL TANZANIA

Cara van der Merwe*; Jacqueline Bowal; Frank van der Meer, DVM, PhD; Jennifer Hatfield, MAPPSci, PhD; Karin Orsel, DVM, MSc, PhD; Elias Nyanza, BSc ,MPH; Jeremiah Seni, MD, M, Med.

University of Calgary

Background: Diarrhea is among the leading causes of childhood mortality in Tanzania. Despite the introduction of a Rotavirus vaccine and availability of antibiotics, diarrhea prevalence remains high. Further, antibiotics are commonly administered with inadequate diagnosis, potentially accelerating the development of antibiotic resistant pathogens.

Objective: The objective of this pilot project was to determine the causes of diarrhea in children under five and to test for antibiotic resistant bacteria in these patients. The secondary aim was to increase laboratory capacity at Endulen hospital (EH) to improve diagnostics.

Methods: Stool samples were collected from children under five that presented to EH in the Ngorongoro Conservation Area with diarrhea, and cultured on MacConkey agar and Salmonella-Shigella Agar to detect *E. coli*, *Salmonella* spp and *Shigella* spp. Oxidase and Sulphur-Indole Motility identification tests were used to confirm these bacterial species. A drug susceptibility test was conducted with seven commonly used antibiotics.

Results: Ten patients enrolled in the study over two weeks. Of these individuals three tested positive for Rotavirus, irrespective of vaccination status. Of the seven samples that were fully processed, all had *E. coli*. All processed isolates were resistant to trimethoprim-sulphamethoxazole, six were resistant to ampicillin, and six were resistant to tetracycline, an antibiotic used to treat domestic animals. One isolate exhibited multi-drug resistance by producing extended spectrum beta lactamase (ESBL). Moreover, *Entamoeba histolytica* was recovered in two children and one child had *Ascaris lumbricoides*. This project improved laboratory capacity at EH by providing an incubator for bacterial culture, rapid immunochromatographic kits for viruses and other reagents for the diagnostic tests. The staff was also trained so that diagnostic testing may be incorporated in routine practice. Future investigation will be conducted to complete analyses of the remaining samples, determine pathogenic *E. coli* strains among 10 isolates recovered, and enroll more patients.

Conclusions: The extensive presence of antibiotic resistance found in this pilot study indicates that further work is warranted so that proper treatment is administered and surveillance systems are developed so that antibiotic resistance is monitor and prevented. These findings highlight the importance of the capacity building that was initiated through this project.

#10 ANCESTRAL STRESS ACCELERATES AGE-RELATED MENTAL AND PHYSICAL HEALTH DECLINE IN A SEXUALLY DIMORPHIC MANNER.

Mirela Ambeskovic*, MSc; Yaroslav Ilnytsky, PhD; Igor Kovalchuk, PhD; Gerlinde A.S. Metz, PhD.
University of Lethbridge

Background: Biological age is determined by the rate of mental and physical health decline. Prenatal stress can increase stress sensitivity and promote the risk of premature aging and earlier onset of health decline and disease. Recent literature has demonstrated that this impact of prenatal stress may even accumulate across multiple generations and compromise the chances of healthy aging in unexposed offspring.

Objective: 1) Investigate age-dependent changes in depression-like behaviours, stress response and epigenetic regulation by microRNA (miRNA) expression; (2) investigate whether ancestral prenatal stress accumulated across multiple generations accelerates aging in terms of mental and physical health via epigenetic regulation.

Methods: F4 generation male and female offspring were derived from a lineage in which their ancestral mothers (F0-F3) were stressed during pregnancy. A non-stress lineage served as control. Depression-like behaviours were assessed at the age of 6 (young), 12 (middle aged) and 18 (aged) months using a forced swim task. Behavioural outcomes were related to plasma corticosterone levels and cortical miRNA profiling via deep sequencing to identify epigenetic regulatory pathways. Morbidity and mortality were also recorded.

Results: Our findings indicate that aging increases the incidence of depression-like behaviours, which was further exacerbated by ancestral prenatal stress. Ancestral prenatal stress down-regulated cortical expression of miR-124 in males and upregulated it in females. MiR-124 is known to play a role in major depressive disorders. Moreover, aging and stress synergistically disturbed the stress response and accelerated age-associated decline in overall health and longevity with sex-specific disease incidence.

Conclusion: These findings suggest that ancestral programming by stress is a significant determinant of lifetime mental health trajectories and risk of common age-related diseases through altered epigenetic regulation. Disease incidence may be regulated by sex-specific pathways. MiRNAs may represent predictive biomarkers of age-related diseases.

#11 BRUCELLOSIS OUTREACH TO PRIMARY SCHOOLS IN THE NCA OF TANZANIA: CREATING HEALTH EDUCATION RESOURCES THROUGH TEACHER CONSULTATIONS

Logan Haynes*; Lydia du Toit, PhD; Camille Adams, BSc; Becca Bodenham, MSc; Jennifer Hatfield, PhD; Frank van der Meer, DVM, PhD; Karin Orsel, DVM, MSc, PhD.

University of Calgary

Background: The Ngorongoro Conservation Area (NCA) of Tanzania is predominantly inhabited by the Maasai people, whose pastoralist lifestyle places them at increased risk for zoonotic diseases. Brucellosis is endemic to the region and often misdiagnosed as malaria due to similar febrile symptoms. This project focussed on translating local research findings into practical health prevention knowledge by exploring the use of educational resources at the primary school level.

Objective: This project aimed to: i) Identify the current state of knowledge surrounding brucellosis among primary school educators in the NCA; ii) improve local understanding of the disease through health education resources; and iii) receive teachers' feedback to guide the development of revised educational materials.

Methods: Six primary schools with longstanding relationships with the University of Calgary Field School were visited, and teachers were shown a poster and lesson plan on brucellosis. Group discussions were used to clarify teachers' understanding and assess the current state of knowledge in schools. Teachers were also asked to provide feedback and complete an image selection exercise for poster visuals, with the ultimate goal to provide the schools with revised educational materials based on this feedback.

Results: Many teachers reported to have heard of brucellosis, but there were clear gaps in knowledge of symptoms and transmission. Brucellosis was reportedly absent from school curricula, but teachers showed interest in sharing newly acquired knowledge with students and receiving revised educational materials. Through the image selection exercise, teachers indicated a preference for realistic photos over cartoon images, stressing the importance of visuals that fit the local cultural context. Teachers also identified the importance of written lesson guides in Kiswahili to ensure they can make the best use of the educational materials.

Conclusions: This project demonstrated that primary school teachers in the NCA are receptive to health education outreach that translates local research findings on endemic diseases. Furthermore, it highlights how educators can be included when designing educational resources in order to ensure their suitability to the local context. Access to health education may enable children to protect themselves against brucellosis through increased knowledge of healthy behaviours.

#12 EVALUATING THE SUSTAINABILITY OF BIO-SAND FILTER TECHNOLOGY IN MAASAI HOUSEHOLDS: FINDINGS FROM A PILOT INTERVENTION STUDY IN RURAL NORTHERN TANZANIA.

Mairead Whelan*; Jennifer Hatfield, PhD; Lise Hovden; Jeffery Mclean; Marissa Nahirney; Elias Nyanza; Karin Orsel, DVM, PhD; Frank van der Meer, DVM , PhD; Jeremiah Sani, MD; Sheri Bastien, PhD.

University of Calgary

Background: Water scarcity and water quality are significant issues for rural Tanzanians. Any available water is often contaminated with fecal matter. This project is investigating water sanitation alternatives for the Ngorongoro Conservation Area's (NCA) most vulnerable population, the Maasai people. To investigate low-cost, low-tech water treatment options in rural areas, 110 Bio-Sand filters (BSF) were introduced into households in the NCA from May-October 2016. Follow-up evaluation occurred in May 2017, approximately one year after initial BSF roll-out.

Objectives: 1) To explore the perceived benefits and challenges of the BSF with a focus on sustainability; 2) To engage in dialogue with the community to identify potential strategies to ensure sustainability.

Methods: In-depth interviews, approximately 45 minutes in length, were conducted with 18 households owning BSFs. One think tank was organized to discuss the BSF in the community with 12 community stakeholders, including traditional leaders and birth attendants, BSF owners, and school teachers.

Results: Households who had BSFs installed reported reduced incidence of diarrheal episodes and that the BSF saved resources, time, and money previously spent on boiling water. Interviews revealed that many people preferred the smell, taste, and clarity of the filtered water. As such, some BSF-owning households report feeling strained by extraneous demands for their water. A major theme was that many people in the community wanted a BSF but did not know how to build their own or where to buy one. Issues with the BSF included maintenance difficulties and breakage, coupled with a limited number of trained technicians to provide support in such cases.

Conclusions: There is a perceived improvement in the quality of life among the households using the BSF. An expansion of the project is needed to bring these benefits to more community members, and relieve houses already owning BSFs from the provision of filtered water to their neighbors. For future scale-up of the BSF project, community members suggested that there is a need to train more technicians and increase access to maintenance services. To ensure sustainability, a social entrepreneurship model in which people are trained to build and sell their own filters should be explored.

ROOM: PRAIRIE 2-053

#13 PREGNANT WOMEN WITH INFLAMMATORY BOWEL DISEASE ARE MORE LIKELY TO BE VITAMIN D INSUFFICIENT THAN PREGNANT WOMEN WITHOUT INFLAMMATORY BOWEL DISEASE.

Sangmin (Sarah) Lee*, MSc; Amy Metcalfe, PhD; Yvette Leung, MD, PhD, FRCPC; Raman Maitreyi, MD, MSc, FRCPC; Fariba Aghajafari, MD, MSc, PhD, FCFP; Nicole Letourneau, PhD; Remo Panaccione, MD, FRCPC; Gilaad G. Kaplan, BSc, MD, MPH, FRCPC; Cynthia H. Seow, MSc, MBBS(Hons), FRAPC
University of Calgary

Background: Inflammatory bowel disease (IBD), consisting of Crohn's Disease (CD) and Ulcerative Colitis (UC), is defined by chronic inflammation of the gastrointestinal tract that changes one's ability to digest and absorb food. Previous studies show that 22-83% with CD and 15-55% with UC are vitamin D insufficient. This may be a result of gastrointestinal inflammation, malabsorption or decreased intake. Vitamin D insufficiency is associated with adverse pregnancy outcomes such as preterm birth and small for gestational age infants. As vitamin D insufficiency is preventable with dietary supplements, there is an importance to studying vitamin D status in pregnant women with IBD.

Objective: To assess the prevalence of vitamin D insufficiency in pregnant women with and without IBD.

Methods: A cross-sectional observational study was conducted on pregnant women (without IBD=574 CD=61, UC=41). A chi-square test and logistic regression was used to examine the prevalence of vitamin D insufficiency. Covariates of maternal age, ethnicity, income, education and season of blood work were included. Adequate vitamin D supplementation as recommended by the current guideline of 400 IU/day for all pregnant women was assessed.

Results: The prevalence of vitamin D insufficiency ($25\text{-OHD} \leq 75 \text{ nmol/L}$) in those without IBD was 17.4% (95% CI: 14.6-20.8%) compared to 50.8% (95% CI: 38.4-63.2%) with CD or 60.9% (95% CI: 45.3-74.7%) with UC. Women with IBD were more likely to be vitamin D insufficient even after adjusting for maternal age, education, income, ethnicity and season (CD: aOR=5.44, 95% CI=3.06-9.69; UC: aOR=8.61, 95% CI=4.30-17.2). Despite inadequate amount of vitamin D supplementation of 400 IU/day, 78.7% (95% CI: 74.7-82.9%) of pregnant women without IBD were vitamin D sufficient. However, 72% with CD and 80% with UC had adequate vitamin D supplementation of 400 IU/day, but 32.3% (95% CI: 17.8-51.2%) with CD and 58.3% (95% CI: 37.1-76.9%) with UC were vitamin D insufficient.

Conclusion: Pregnant women with IBD are more likely to be vitamin D insufficient than those without IBD. The current guideline for vitamin D supplementation is not appropriate for women with IBD. As vitamin D insufficiency is associated with adverse pregnancy outcomes, optimal dosage of vitamin D supplementation should be recommended.

#14 PALLIATIVE CARE AT HOME: A SYSTEMATIC REVIEW AND META-ANALYSIS OF INTERVENTIONS, THEMES, AND OUTCOMES.

Mark Hofmeister*; Ally Memedovich; Laura Dowsett, MSc; Laura Sevick, MSc; Tania Stafinski, PhD; Devidas Menon, PhD; Tamara McCarron, MBA; Tom Noseworthy, MD MSc; Eldon Spackman, PhD; Fiona Clement, PhD.

University of Calgary

Background: The goals of palliative care focus on relief of suffering, quality of life improvements, and meeting needs of patients. Frequently, patients may choose to receive palliative care in the home (PCH). However, the current body of knowledge of effectiveness of PCH remains unknown. To our knowledge, there are no systematic reviews synthesizing knowledge of effectiveness of PCH interventions.

Objective: To establish the effectiveness of palliative care provided in the home on patients, caregivers, the health system, and resource outcomes.

Methods: A systematic review was completed. The search identified articles using terms like “palliative care” and “home care services/trends”. All abstracts and full-texts were considered independently and in duplicate. Inclusion criteria included 1) care was provided in the “home of the patient” as defined by the study, 2) outcomes were reported, 3) peer-reviewed publications, and 4) reported original data. Thematic analysis was completed a-priori, and used to categorize identified studies. Each study was classified by intervention components into 5 themes: 1) accessibility of healthcare, 2) caregiver support, 3) individualized patient centered care, 4) multidisciplinary care provision, and 5) quality improvement. Data were extracted describing country, methods, objective, and primary outcome.

Results: 1941 unique citations were identified. Of those, 454 proceeded to full text review. Fifty-three studies formed the final data set. Seven randomized controlled trials, 13 comparative quantitative studies, 17 non-comparative quantitative studies, and 10 qualitative studies were included. Quality improvement was the least common theme, occurring in five interventions. Individualized patient centered care was the most common theme, occurring in 33 interventions. Palliative care provided in the home generally resulted in increased the number of home deaths, satisfaction and quality of life, while decreasing resource use, cost and symptom burden/No quality improvement studies examined quality of life or symptom outcomes.

Conclusions: Across all themes and all outcomes, palliative care provided in the home was effective. However, findings are limited by heterogeneity of interventions, outcomes measured, and study quality. Future research might focus on understanding the effectiveness of individual components of palliative care interventions delivered in the home.

#15 ETHICAL ISSUES IN CONDUCTING QUALITATIVE RESEARCH WITH INSTITUTIONALIZED ELDERLY.

Saleema Allana*, MScN.

University of Alberta

Background: Conducting research with vulnerable populations requires being mindful of the potential ethical issues that may arise during the course of the research; institutionalized elderly are one such vulnerable populations. Qualitative research being more flexible further adds to the possibility of ethical issues being encountered by the researchers. Many public health and clinical based research is done with elderly participants; therefore, it is important to reflect over and to recognize these ethical issues so that we may prevent them from the potential risks involved in research.

Objective: The purpose of this paper is to analyze the ethical issues encountered during a qualitative study with institutionalized elderly.

Methods: This paper is an analysis of the author's reflections based on her research experience with elderly participants from retirement homes. The author conducted focus group discussions with elderly, who were qualitatively interviewed for about 45-60 minutes about their experiences, while living in the retirement home. After the interviews, the researcher reflected over the research process to identify the ethical issues playing their part in the process of interviewing these institutionalized elderly.

Results: Analysis revealed several ethical issues pertaining to the participants' age and being institutionalized. These included: risk of coercion for participation in the study, risk of harm if they revealed any negative experiences. The power relation between the elderly and the staff and management of retirement homes was quite much in play; we as researchers wondered if it affected the consent process and the participants' descriptions of their experiences. Another important ethical issue was dealing with the emotional outbursts of elderly during the interview. Also, maintaining a balance between keeping some of their experiences confidential versus communicating those to address the issue, was difficult. While seeking informed consent, the participants' level of comprehension was important, and to ensure that they have understood the information fully to be able to consent, required consideration.

Conclusion: Researching with elderly is important; however, elderly being a vulnerable population, the researchers must be cognizant of the potential ethical issues and how to deal with those, so as to protect elderly from any potential risks associated with the research process.

#16 SPATIAL-TEMPORAL HOT SPOTS – HOW DO THE PATTERNS COMPARE FOR SUBNORMAL BIRTHWEIGHT AND OUTDOOR POLLUTANTS?

Charlene Nielsen*; Alvaro Osornio-Vargas PhD; Carl Amrhein, PhD; Jesus Serrano Lomelin; Osmar Zaiane, PhD.

University of Alberta

Introduction/Objectives: Disorders related to short gestation and low birthweight are the 2nd cause of infant death in Canada and have been increasing, especially in Alberta. Individual maternal risks are important but environmental exposures during pregnancy may restrict fetal growth. This contributes to small for gestational age (SGA).

Methods: We aggregated postal code locations of mothers' residences from the 2006-2012 birth registry in to space-time bins to analyze emerging hot spots. We applied the space-time pattern analysis on 70 industrial chemical emissions from the National Pollutant Release Inventory (NPRI) in estimated three month intervals. Then we statistically associated the classified patterns of SGA/LBWT with the pollutant patterns using the kappa statistic to determine how much the hot spot categories agree. The difference between kappas indicated which trimester would be more important for which chemical.

Results: There was an increasing trend for SGA (consecutive hot spots) and for LBWT (sporadic hot spots) in major urban centers. There was an increasing trend for 15 chemicals (varying hot spots). 28 chemical patterns had a kappa index greater than 0.2 with SGA or LBWT patterns. Although there is poor agreement between the space-time patterns, the maximum kappa values occurred mostly with LBWT and during the last trimester.

Conclusions: Patterns of chemicals identified in published literature (e.g. particulate matter, CO, and SO₂) agreed more with timing around conception; however, there were additional pollutants with maximum kappa during the birth trimester. Our research is moving us toward a better understanding of the spatial-temporal link between environment and early health.

#17 EXPERIENCES OF CELIAC DISEASE IN A CHANGING GLUTEN-FREE LANDSCAPE

James King*, BA; Gilaad G Kaplan, MD, MPH, FRCPC; Jenny Godley, PhD.

University of Calgary

Background: Celiac disease is an autoimmune disorder triggered by the ingestion of gluten. The past decade has seen a considerable rise of gluten-free (GF) products available in Canada, with many non-celiac disease individuals subscribing to a GF diet. Given the sociological perspective that some illnesses can be socially constructed, it is worth studying if and how this cultural change in dietary patterns has impacted the way in which celiac disease is experienced and understood.

Objective: The aim of this study was to investigate how the recent proliferation of the GF industry has affected celiac disease patients, with a primary focus on how patients' social lives and relationships have been impacted.

Methods: Interpretive phenomenology was utilized for study design and analysis in order to gain an in-depth understanding of how celiac disease patients experience and make sense of this changing GF landscape. Thus, semi-structured interviews were conducted in Calgary with seventeen adults diagnosed with celiac disease. Interviews were audio recorded and then transcribed for interpretive phenomenological analysis.

Results: Overall, the growth of the GF industry has acted as a "double-edged sword" for participants – they are grateful for more palatable GF options in the marketplace but find themselves faced with frequent misunderstandings about the severity of celiac disease, due to many non-celiac disease individuals subscribing to the GF diet. This "double-edged sword" affected participants socially in several ways: they found certain social situations more easily manageable while others produced distress, they felt that may be perceived or even perceived themselves differently, and they developed and utilized strategies to help mitigate social ramifications of the GF diet.

Conclusions: These findings illustrate the experience of celiac disease as having been significantly impacted by the proliferation of the GF industry. Therefore, as the treatment itself produces many social challenges among patients with celiac disease, it is important to develop strategies or additional treatments that minimize these types of burdens.

#18 SCREENING EXAMINATION FOR RETINOPATHY OF PREMATURETY IN PRETERM INFANTS AND FEEDING INTOLERANCE.

Zoya Punjwani*; Amuchou Soraisham, MD, DNB, DM, MSc, FRCPC, FAAP; Majeeda Kamaluddeen, MD, MRCP, FAAP.

University of Calgary

Background: Retinopathy of Prematurity (ROP) is a proliferative disorder of the developing retinal blood vessels and may lead to poor visual acuity or blindness. ROP occurs in 50% of preterm infants and 8% develop a severe form of the disease; therefore, preterm infants are regularly screened for ROP with eye examinations. The procedure for this examination includes the administration of mydriatic eye drops that may be absorbed systemically and impair gut motility. Eye examinations may be associated with stress, pain and adverse physiological effects.

Objective: The objective of this study was to monitor and analyze the relationship between feeding intolerance 24 hours before and 24 hours after the screening examination for ROP in preterm infants.

Method: A retrospective audit was conducted in preterm infants undergoing ROP examinations. Detailed feeding history 24 hours before and 24 hours after eye exams were recorded in addition to any interventions that took place. Physiological changes occurring 24 hours before and 24 hours after the exam were also recorded, including: apnea, pre-feed aspirate, abdominal distention and abnormalities in stool. Data was collected directly from daily audits, medical records and nursing notes.

Results: A total of 18 preterm infants (mean birth gestational age=25.4weeks \pm 1.5 weeks, mean birth weight=799g \pm 290g) with 57 eye examinations were included. A significant increase ($p<0.05\%$) was observed in feeding intolerance in the form of pre-feed aspirate (5.2% before eye exam versus 23% after eye exam) and suspension of feed (0% before eye exam versus 5.2% after eye exam). Two preterm infants were kept nil per oral following the eye examination. There was no significant change in occurrences of apnea and abdominal distention.

Conclusion: Eye examination for ROP screening was associated with feeding intolerance in preterm infants. Clinical implications of this study include careful monitoring during and after ROP examinations and continued research on interventions to prevent adverse physiological effects.

ROOM: GLACIER 2-055

#19 CARDIAC SURGERY IN CIRRHOSIS: A RETROSPECTIVE COHORT STUDY.

Sheela MariaXavier*, MBBS, DCH; Colleen Noris, PhD; Amanda Ewasiuk, BSc; Jim Kutsogiannis MD, MHS; Sean Bagshaw MD, MSc; Derek Townsend MD; Constantine Karvellas MD, SM.

University of Alberta

Background: Patients with cirrhosis and concomitant coronary/valvular heart disease present a clinical dilemma. Cardiac surgeons often are reluctant to operate in this high-risk population, potentially diminishing survival/potential for liver transplant. This study aimed to identify associations between the severity of cirrhosis and post-cardiac surgical outcomes.

Methods: Retrospective cohort analysis of all patients undergoing cardiac surgery at the University of Alberta Hospital from January 1992 to July 2012 with an underlying diagnosis of cirrhosis prior to cardiac surgery (n=74). The relationship between severity of liver disease, medical comorbidity and surgical factors on survival to hospital discharge was evaluated.

Results: Among 74 subjects, in-hospital mortality was 36%. Median Modified End-stage Liver Disease (MELD) score in the overall cohort was 11 (8-19). In comparing survivors (n=47), non-survivors (n=27) were older (mean 57 vs 49 years) and were more likely to have alcoholic cirrhosis (37% vs 17%, p=0.05 for both). Non-survivors were more likely to have ascites (41% vs. 17%, p=0.02), higher mean Charlson Comorbidity Index (CCI, 3.4 vs 2.0, p=0.0005), and also higher median creatinine (108 vs. 82 µmol/L, p=0.008) and MELD scores (14 vs 10, p=0.12; trend). Non-survivors underwent more valve procedures (44% vs 29%, p=0.20) although not significant. Non-survivors had longer median lengths of stay in ICU (9 vs 5, p=0.002) and in hospital (32 vs 11, p=0.0001) and were more likely to be on renal replacement therapy (37% vs 4%), p=0.0002) post-surgery. After adjusting for covariates (multivariable logistic regression), increased CCI was independently associated with increased mortality (Odds Ratio 1.78 per unit (95% CI 1.24-2.54), p=0.002).

Conclusion: Among cirrhotic patients undergoing cardiac surgery, mortality rates were high (36%). Non-survivors had more complications of liver disease (ascites, AKI) and medical comorbidity (CCI) prior to surgery and required more medical services and organ support post-operatively.

#20 REDUCED GROWTH OF PATIENT DERIVED XENOGRAPTS IN VIVO WITH DOCOSAHEXANOIC ACID DIET IN CONJUNCTION WITH DOCETAXEL CHEMOTHERAPY.

Marnie Newell*; Miranda Brun, PhD; Lynne Postovit, PhD; Catherine J. Field, RD, PhD.

University of Alberta

Background: Docosahexaenoic acid (DHA) has been shown to reduce growth of breast cancer cell lines in vitro and in vivo. Docetaxel (TXT) is a chemotherapy drug used in breast cancer therapy that binds to microtubules, inhibiting mitotic cell division, leading to cell death. Our lab has shown that pre-treatment of MDA-MB-231 cells with DHA prior to chemotherapy results in decreased cell growth, cell cycle arrest at the G2M phase and a decrease in protein expression of cell cycle markers including Cyclin B1, cdc25c and Wee1 in vitro and in vivo.

Objective: Immortalized cell lines do not represent the heterogenicity seen in human tumours, therefore we sought to confirm this work using patient derived xenografts (PDX).

Methods: NSG (NOD/SCID/IL2 γ - receptor null) mice (6 week old female) bearing subcutaneous triple negative PDX tumours (of 100 mm³) were randomized to one of two nutritionally adequate high fat diets (20% w/w \pm 5% DHA). Half the animals in each group were treated IP twice weekly with TXT (5mg/kg) for 6 weeks (n=6 in each of the 4 groups).

Results: Extracted tumours from the DHA+TXT diet group were significantly smaller than the Control+TXT tumours (1.7 \pm 0.1g vs. 5.2 \pm 0.5g). Phospholipid content of tumours in the DHA+TXT group had 5.5 \pm 0.0% DHA of total phospholipid compared to 2.6 \pm 0.3% in the control tumours (p <0.05). Immunohistochemical staining of tumours for Ki67 confirmed reductions in proliferation in the DHA+TXT tumours (p<0.05).

Conclusions: This study confirms, for the first time in patient derived xenografts, that feeding a diet supplemented with DHA increases the content of DHA in cell membranes and facilitates the anti-cancer effect of TXT. This is consistent with our work in vitro in MDA-MB-231 cells and the results suggest the effects, including reduced tumour size, could be due in part, to reduced proliferation.

#21 TARGETING BRAIN CANCER METABOLISM: A STRATEGY FOR OVERCOMING THERAPEUTIC RESISTANCE.

Jeehan Kaiser*, BHSc; Bo Young Ahn, PhD; Stephen M. Robbins, PhD; Donna L. Senger, PhD.
University of Calgary

Background: Glioblastoma (GBM) is the most common and deadly primary brain cancer. Despite treatment, people diagnosed with GBM on average live less than 15 months. Diversity between and within patient tumors makes this disease challenging to treat and can confer resistance to current therapies. Although this cancer is thought to preferentially utilize glucose for its growth, a population of highly motile tumor cells preferentially utilize glutamine. Preliminary data found that the interaction between the cellular protein, p75NTR, and its binding partner, PDLIM1, accompanies a shift from glucose consumption (glycolysis) to glutamine (glutaminolysis). Thus, strategies that exploit tumor cell metabolism may be effective for the treatment of patients with GBM.

Objective: To investigate the role of the cellular protein p75NTR, and its binding partner, PDLIM1, in tumor cell metabolism and therapeutic resistance in human brain tumors.

Methods: Human brain tumor cells (U87) that express p75NTR, or p75NTR proteins that are unable to bind PDLIM1, were grown in glucose- or glutamine-deficient environments and assessed for effects on cell survival. In addition, pharmacologically available inhibitors (BPTES, a glutaminolysis inhibitor, and DCA, a glycolysis inhibitor) were assessed for their effects on brain tumor cell survival.

Results: Tumor cells expressing p75NTR that has been crippled (mutant-p75NTR) for its ability to bind PDLIM1 showed decreased cell survival in glucose-deficient conditions, whereas p75NTR-expressing tumor cells showed decreased cell survival in glutamine-deficient conditions. Similarly, treatment of tumor cells expressing mutant-p75NTR with the glycolysis inhibitor, DCA, resulted in decreased tumor cell survival while cells expressing p75NTR showed decreased cell survival in the presence of the glutaminolysis inhibitor, BPTES. Consistent with these observations, p75NTR expressing tumor cells established from surgical samples (patient-derived brain tumor initiating cells) were protected from DCA induced-cell death.

Conclusions: Expression of p75NTR in brain tumors mediates a switch in tumor cell metabolism from glycolysis to glutaminolysis, a mechanism that is mediated via its interaction with the protein PDLIM1. Future studies will focus on how therapies can target cellular metabolism in order to improve outcomes for patients with GBM.

#22 Differentiation of glioblastoma cell lines by measuring vibrational profiles using optical tweezer force microscopy

Jack Du*, BSc; Jared Topham*, BKin; Irene Shkolnikov* BSc; Salim, Ghandorah, PhD.
University of Calgary

Background: Diagnostic methods including neuroimaging and biopsy are essential in assessing tumor progression for determining treatment. With current technologies, problems arise when differentiating heterogeneous tumors. These problems can further complicate overall diagnosis and potentially delay treatments. To better differentiate tumor cells, we developed a novel method of measuring nanomechanical cellular oscillations (vibration) using the optical tweezer force microscope. The vibrations are reflective of internal cellular mechanisms such as metabolism, membrane fluidity, or other functions. Additionally, cells will exhibit unique vibrational profiles that can be measured and analyzed. In this study we hypothesized that analysis of distinct cell vibrations facilitated a reliable method to distinguish between various cells and cell types.

Objective: The primary objective of this experiment was to differentiate glioblastoma cell lines (BT53, BT48) from healthy human fetal astrocytes (HFA) by analyzing vibrational profiles.

Methods: Using optical tweezer microscopy, vibrational profiles of BT48, BT53, and HFA cells were recorded as force deflection over time signals. Data was analysed and compared based on Root Mean Square (RMS) propagation to measure magnitude of the vibrational signal. Fast Fourier Transform (FFT) to distinguish unique vibrational frequencies.

Results: The fast-growing BT53 cells exhibited significantly higher RMS values compared to slow-growing BT48 cells and the normal HFA cells ($p = 0.0001$ and 0.001 , respectively). While some vibrational frequencies were shared between all cells, select frequencies provided a fingerprint identification for specific cell types. Notably, at ~ 40500 Hz, BT48 and BT53 shared a common peak, but was absent in HFA, which suggested a relation to tumor-specific activity. However, a peak at ~ 44500 Hz was present in BT53 cells but not BT48, and may act as a marker between the strains. Cell fixation with 4% PFA significantly reduced and/or abolished peaks and further reduced the magnitude of RMS. This evidence shows certain vibrational frequencies and RMS can be used to differentiate between cells.

Conclusions: This evidence shows that vibration peaks were cell and cell type specific. The results confirmed the hypothesis that specific cell types are identifiable by their vibration patterns and can potentially lead to the development of future clinical and diagnostic tools.

#23 THE ASSOCIATION BETWEEN APICAL PERIODONTITIS AND CARDIOVASCULAR DISEASE: SYSTEMATIC REVIEW.

Yuli Berlin-Broner*, DMD; Maria Febbraio, PHD; Liran Levin, DMD.

University of Alberta

Background: The potential association between cardiovascular disease (CVD) and chronic inflammatory processes of endodontic origin (associated with infected root canals in teeth) or chronic apical periodontitis (AP) has been thoroughly reviewed. Although endodontic infections cause a local tissue response, there is compelling evidence that like periodontitis (gum disease), AP may not be exclusively a local phenomenon, and may contribute to systemic inflammation. To date, no systematic review with a quality assessment has been published to investigate studies into the association between CVD and chronic AP.

Objective: To conduct a systematic review of the literature for evidence of an association between AP and CVD in humans. Participants, Interventions, Comparisons, Outcomes, Study Designs (PICOS) questions were pre-determined in order to specifically address and achieve the aforementioned aims.

Methods: Studies published from the earliest date available until September 2015 were retrieved from the Medline, PubMed and Embase databases. The included studies reported the results from observational studies and assessed the association between AP and CVD. Independent researchers abstracted the study characteristics using the PRISMA standard protocol. The studies' quality was rated by the NOS criteria and the level of evidence was evaluated by the GRADE criteria.

Results: Nineteen epidemiological studies fulfilled the pre-determined inclusion criteria: 10 case-control studies, 5 cross-sectional studies and 4 cohort studies. Due to the limited availability and the heterogeneity among the studies, meta-analysis was not attempted. Most of the included studies (n=13) found a significant positive association between apical periodontitis and cardiovascular disease, although 2 showed significance by univariate analysis only. One study reported a negative association and the remaining (n=5) did not reveal significance.

Conclusion: To date, most published studies (13 out of 19) reported a positive association between AP and CVD, however, the quality of the existing evidence is moderate-low. A causal relationship between AP and CVD cannot be established as of yet due to lack of longitudinal studies.

#24 THE IMPACT OF SODIUM REDUCTION IN CANADA

Hena Qurehi* BSc, BA; Fiona Clement, MSc, PhD; Colin Weaver, BSc; Norman Campbell, MD; Kerry McBrien, MD, MPH.

University of Calgary

Background: The average Canadian sodium intake is double the amount recommended . Excess dietary sodium consumption is a risk factor for the development of high blood pressure (BP) , estimated to cause about 30% of hypertension and 17% of cardiovascular disease (CVD) . The cost attributable to high dietary sodium intake in Canada is unknown.

Objective: Mathematical modeling can be used to explore the potential health and economic impacts of a population-wide reduction in dietary sodium .

Methods: The Canadian Cardiovascular Disease Policy model (C-CVDPM) is a computer simulation state transition model, which simulates CVD events, costs and health consequences from a public payer perspective for the Canadian population . It can be used to evaluate the economic impact of population health interventions. Using the CVDPM and a 50-year time horizon, we examined the health and economic impact of a population-wide reduction in dietary sodium of 1730mg/day from the current average sodium intake of 3800 mg/day. Sensitivity analyses were conducted using modest dietary sodium reductions of 900 mg/day and 1437 mg/day.

Results: Reducing dietary sodium by 1730 mg/day is projected to reduce the annual number of new cases of coronary heart disease by 4,651, stroke by 2,333, and myocardial infarction by 2,511, and to reduce the annual number of deaths from any cause, including CVD by 1,985. Overall, the model projected a gain of 37,704 quality-adjusted life years (QALYs), and a savings of \$648 million, annually. Modest reductions in dietary sodium intake were also cost saving.

Conclusion: A population-wide reduction in dietary sodium could substantially decrease healthcare costs and improve health outcomes. The results of this work may be useful to policy makers in revising Canadian sodium regulation and policy.

POSTER PRESENTATIONS

10:00-11:30AM

ROOM: WILD ROSE 2-003

#1 - DEVELOPING A SCHOOL-BASED INTERVENTION TO REDUCE WEIGHT BIAS

Alexa Ferdinands*, RD, BSc.

University of Alberta

Background: Weight bias refers to the tendency to make negative judgements about a person based on his or her weight. Ingrained in society, weight bias acts as a chronic stressor. Problems associated with weight bias include many negative physical, mental, and social health consequences. For example, “fat-shaming” can lead to depression, social isolation, and disordered eating behaviours. Little research to date has investigated weight bias reduction strategies, particularly with children. Given that overweight and obesity affect roughly one-third of Canadian children, this is a significant public health issue that warrants greater attention.

Objective: To evaluate the effectiveness of a comprehensive, school-based intervention in reducing weight biases held by students, parents, and school staff in Edmonton, Alberta.

Methods: Collaborating with the Edmonton school community, a participatory, mixed methods design will be used that integrates qualitative and quantitative methods. To tailor the intervention to the local context, a needs assessment is currently being conducted with key stakeholders. Proposed intervention components include a weight bias curriculum and school staff and parent education, although these are flexible to change depending on the results of the needs assessment. Resources will then be developed to support the intervention, which will be implemented over eight months (October 2018 to May 2019) in one pilot elementary school. Weight bias levels will be measured pre- and post-intervention in students, parents, and school staff using existing online tools. Results will be compared to control school findings. Afterwards, school staff will be interviewed to understand their experiences delivering the intervention to improve the content and design.

Results: Knowledge translation goals include informing policy change related to school curricula and guidelines, and increasing public awareness of weight bias as a social justice issue. These goals will be attained by presenting findings to the Edmonton school community and Alberta Education, in addition to publishing peer-reviewed manuscripts and delivering conference presentations.

Conclusions: Reducing weight bias in schools can foster positive social environments that promote the physical, mental, and social health of children. As a pilot study, this project can scale up to a sustainable population health intervention in schools across Alberta, and even Canada.

#2 - THE BACKBONE OF THE OIL INDUSTRY: THE AFFECT OF JOB-STRAIN ON OIL WORKERS' HEALTH AND WELLBEING

Alysia Wright*; Yannick Griep PhD.

University of Calgary

Background: Oil and gas extraction is a key economic driver of the Canadian economy, constituting more than twelve percent of Canada's gross domestic product in 2016, second only to manufacturing. Oil workers are vulnerable to exhaustive work environments, overwork, and maladaptive coping strategies that negatively affect their psychosocial wellbeing. While safety is a paramount concern for the oil and gas industry and millions of dollars are spent annually to ensure that oilfield workers receive the required safety certificates, occupational hazards and injuries may occur for a number of reasons including exhaustion, untreated mental health problems, substance use or toxic workplace culture.

Objective: The purpose of the study is to understand how workplace stress affects oil workers' physical, emotional and social wellbeing as well as workplace safety. The results of this project will inform recommendations to companies and field operators in order to improve overall employee health and wellbeing, reduce the risk of workplace incidents, and increase the long-term economic viability of the labour force in the oil patch.

Methods: We conducted an exploratory, mixed-method study using a purposive sampling strategy with interviews and surveys. Oil and gas workers were surveyed at safety training organizations and an electronic survey was sent out through the email networks of workers throughout the province. At the end of the electronic survey, respondents were asked if they wanted to participate in an interview; self-selected respondents were then interviewed one-on-one. The data were analyzed using SPSS and NVivo; the qualitative data will be analyzed using thematic content analysis and the results will be reproduced in a manuscript for publication.

Results: While the study is currently in progress, we anticipate that the results will be used to make recommendations to companies and safety organizations to improve the overall health of oil workers, including comprehensive access to benefits while on shift, increased employee satisfaction with their job demands, and provide a real-time snapshot of the experiences of oil workers in Alberta.

Conclusions: This is an exploratory study that has yet to be done in Canada. The authors anticipate that this work will supplement additional research in the area of psychosocial health and wellbeing of oil workers.

#3 - THE UTILITY OF CRITICAL CARE PROGNOSTIC SCORES IN DISCRIMINATION OF POST-TRANSPLANT SURVIVORS AND RECIPIENTS IN ACLF PATIENTS: A MULTICENTRE COHORT STUDY

Amanda Ewasiuk*, BSc; Thomas Lescot, MD; Peter Goldberg, MD; Michael D Sharpe, MD, FRCPC; Juan J Ronco, MD; Norman M Kneteman, MD, MSc, FRCSC, FACS, MS; Markus Selzner, MD; Demetrios J Kutsogiannis MD, MHS, FRCPC; Sean M Bagshaw MD, MSc, FRCPC; Sheela Maria Xavier MBBS, DCH; Constantine J Karvellas, MD, SM, FRCPC, MSc.

University of Alberta

Background/ Objective: Liver transplantation (LT) in cirrhotic patients with evidence of organ dysfunction poses significant challenges. This study investigated the relationship between the Sequential Organ Failure Assessment (SOFA) and a) 90-day post-LT mortality in critically ill cirrhotics receiving LT and b) the likelihood of receipt of LT from ICU.

Methods: Retrospective cohort study of critically ill cirrhotics (ICU) receiving LT (n=220) from 5 Canadian centres in discrete, continuous periods between 1990 and 2015 between January 2000 and December 2015 and critically ill patients receiving LT and those requiring ICU care who were listed, but died waiting for LT (n=109) from 2 Canadian centres.

Results: In critically ill cirrhotic patients receiving LT, compared to non-survivors (n=34), survivors (n=186) were significantly younger (53 vs. 56 years, p=0.0097). In LT recipients, mortality at 90 days was 15.5%. The most common etiology amongst survivors was hepatitis C (31%) and amongst non-survivors was alcoholic cirrhosis (29%). Multivariate analysis showed that age was independently associated with higher risk of 90-day mortality (OR 1.07 per year, 95% CI (1.02-1.13), p=0.009). Of patients listed for transplant (n=109), 44% died without receiving a LT. Multivariate analysis showed that a higher SOFA score was independently associated with decreased likelihood of receipt of LT at admission (OR 0.94, 95% CI (0.88-0.99), p=0.03) and at 48 hours (OR 0.85, 95% CI (0.79-0.92), p

Conclusions: In critically ill cirrhotics undergoing LT, increased age was independently associated with increased 90-day mortality post-LT. Higher SOFA score at admission and at 48 hours was independently associated with decreased likelihood of receipt of liver transplant in cirrhotics waiting in the ICU for LT.

#4 - A NARRATIVE INQUIRY OF FEMALE ATHLETES' EXPERIENCES OF RETIREMENT FROM ELITE SPORT

Andreea Mohora*

University of Alberta

Background: Being an elite athlete requires a lot of commitment and sacrifices from a fairly young age. Due to the extended involvement in sports, these people build their identity around their sport and are often ill prepared for life-after-sport. Existing research reveals that retiring elite athletes could face significant challenges to their physical, psychological, social, and occupational well-being, struggling with a loss of identity, depression, and even self-harm or suicide.

Objective: This qualitative study tries to further the knowledge we have around the retirement period by exploring the experiences of retired elite female athletes from different sports (both individual and team sports). The study is also looking at factors that helped and/or hindered the athletes' transition from elite sport.

Methods: An narrative inquiry approach was used to explore the in-depth experiences of 10 retired elite female athletes. The participants were over 18 years of age, English speakers, competed at national/international levels in different sports, and were at least 2 years into their retirement.

Results: Seven participants perceived their transition to be positive, or even smooth, even though they had to work on certain aspects of their life. Three participants experienced a difficult retirement, with a period of time filled with intense struggles. The retired athletes also identified certain skills and traits that were very helpful during their athletic life, yet some of those did not transfer well in life-after-sport.

Conclusions: The athletes' experiences were all unique. Retirement from elite sport is a complex issue with many aspects that depend on both the athletes as well as on their environment. The recommendations that these participants had could help better support athletes during their sport careers and prepare them for a healthy retirement.

#5 - RISK FACTORS FOR DEMENTIA IN PRIMARY CARE SETTINGS

Anh Pham*, MSc; Boglarka Soos, MSc; Cliff Lindeman, MSc; Don Voaklander, PhD; Neil Drummond, PhD.

University of Alberta

Background: Dementia is a long-term mental illness often resulting in loss of memory, reasoning ability, and changes in personality. Progressive dementias are especially concerning as they have no effective treatment and prevention. Research has found that cardiovascular disease (CVD) risk factors increase the risk of developing dementia. In Canada, there is little research into care for dementia in primary care settings despite it being the setting in which dementia is often initially diagnosed.

Objective: To determine the incidence of dementia among community-dwelling Canadian seniors attending primary care; compare the risk of developing dementia in seniors with and without CVD risk factors; identify the association between an index diagnosis of dementia and physical health indicators; recommend novel strategies in primary care for preventing and delaying the onset of dementia.

Methods: A 10-year (2008-2017) retrospective cohort study in patients aged 65 or older, using primary care electronic medical record data extracted by the Canadian Primary Care Sentinel Surveillance Network (CPCSSN). We require a sample of 3,945 incident dementia cases for 80% power (95% CI). In 2012, CPCSSN recorded 440,000 patients in total; 59,177 of those were aged 65 and above, 4,552 (7.7%) of whom were diagnosed with dementia. Currently, CPCSSN included 1.5 million patients. Assuming that the proportions in 2016 remain the same as those in 2012, about 15,300 dementia cases will be included. In southern Alberta, 50% of people with dementia have been recorded in CPCSSN for more than 5 years. Hence, I expect a minimum of 8,000 dementia cases with at least 5 years of follow-up data in the 2017 CPCSSN dataset.

Expected Results: We expect to find an association between the incidence of dementia and exposure to modifiable CVD risk factors, including time-to-dementia and demographic and comorbidity co-variables. We will report 95% confidence intervals and point estimates in our data analysis. This is the first study to explore causation between CVD risk factors and dementia incidence among seniors in Canadian primary care settings. Our findings should provide evidence to identify at least 23% of new dementia cases in the Canadian community which might be prevented if they are not exposed to CVD risk factors.

#6 - VARIATIONS IN DISEASE SEVERITY IN CHILDREN WITH EPILEPSY

Anita Brobbey*, MSc; Samuel Wiebe, MD; Meng Wang, MSc; Zhiying Liang, MSc; Shane Goodwin MSc; Mark A. Ferro, PhD; Kathy N. Speechley, PhD; Tolulope T. Sajobi, PhD.

University of Calgary

Introduction: Severity of epilepsy is a significant determinant of health outcomes in individuals with epilepsy. Knowledge of the trajectory of change in patients' disease severity can also help in identifying factors that influence the course of illness and aid clinical decision making process regarding disease management. It is often assumed that individuals with epilepsy have homogenous trajectories of disease severity. However, longitudinal studies investigating trajectories of data are often characterized by heterogeneous trajectories of disease severity. The variations in individual severity may be associated to differences in children or family characteristics.

Objectives: Severity of epilepsy has been associated with clinical outcomes in individuals with epilepsy. We investigate variations in neurologists' ratings of disease severity across time in children newly diagnosed with epilepsy.

Method: Data were obtained from the Health-Related Quality of Life in Children with Epilepsy Study (HERQULES), a multicenter prospective cohort study of 373 children with newly-diagnosed epilepsy. Severity of epilepsy was measured using the neurologist reported Global Assessment of Severity of Epilepsy (GASE) scale. Repeated measures latent class analysis (RMLCA) was used to characterize the longitudinal trajectories for severity of epilepsy over a two-year period. Multinomial logistic regression was used to identify predictors among the latent classes of trajectories.

Results: Descriptive analysis suggested an overall improvement in severity of epilepsy over the two-year period. RMLCA identified four distinct trajectories of severity of epilepsy; "Early Large Improvement" (12.9%), "Early Moderate Improvement" (46.3%), "Late Moderate Improvement" (26.6%), and "Unchanged" (14.2%). The identified latent classes were significantly different with respect to comorbid cognitive problems, seizure type, and school age.

Conclusions: RMLCA identified four distinct trajectories of severity of epilepsy, predicted by comorbid cognitive problems, seizure type, and school age. The knowledge of trajectories can aid development of prognostic models for predicting two years after health outcomes and health services utilization in children with new-onset epilepsy.

#7 - EVALUATION OF WORKPLACE BULLYING MEASUREMENT TOOLS

Anna Aishford*; Shu-Ping Chen, Ph.D; Cary A Brown Ph.D.

University of Alberta

Background: Healthcare professionals minimize and under-report workplace violence, which impacts their psychological and physical health. Workplace bullying is a form of workplace violence, and it is prevalent in the healthcare sector. Recent studies demonstrate a prevalence of between 4.0-41.2%. There is a discrepancy in the literature as to the range and prevalence of bullying. There exists a need to critically examine the differences in measurement tools used to study bullying, as the absence of a standard measurement method makes it difficult to compare the prevalence of workplace bullying between different studies. There is also a need for well-established bullying tools to determine outcomes of intervention studies.

Objective: The aim of this review is to identify, review, and critique existing measurement tools for workplace bullying.

Methods: A literature review used keywords through multiple databases to generate an overview of the status of workplace bullying in healthcare and to identify the current evidence-base specific to workplace bullying. Search terms used included: workplace bullying, workplace incivility, workplace mobbing, healthcare, psychological violence, verbal violence, work, and employment. Articles examining the prevalence of workplace bullying were examined to determine a comprehensive list of assessment tools. The quality criteria of workplace bullying measurement tools were assessed using the quality indicators proposed by Terwee et al. (2007). This tool was found to be the only instrument available to evaluate the quality of questionnaires.

Results: The findings from the literature review suggest that workplace bullying is measured using primarily five measurement tools. A variety of factors appears to impact the prevalence of workplace bullying. These factors include service provisions, shift work, gender, and type of work; as well as age, geographical location and tenure of the individuals. There are few instruments available to researchers with well-established and well-documented validity and psychometric measures.

Conclusions: There is a lack of empirically developed workplace bullying measurement tools. The most widely used workplace research instrument is the NAQ-R. There is a need for development and testing of workplace bullying measurement tools.

#8 - "GET YOUR CHILD IN ORDER": ILLUSTRATIONS OF DISABILITY STIGMA FROM FATHERS RAISING CHILDREN BOTH WITH AND WITHOUT AUTISM SPECTRUM DISORDER

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University of Calgary

Background: Our project brings together three important issues: 1- raising a child with Autism spectrum disorder (ASD), as ASD has a high prevalence in Canada, 2- experiences of fathers in parenting which have been understudied and, 3- illustrations of stigma, as stigma is immersed in the lives of people with disabilities.

Objective: Our project illustrates experiences of stigma among fathers' raising a child with ASD. We aim to answer this question: In what ways do fathers in our sample give evidence of experiencing felt and/or enacted stigma per Scamber & Hopkins (1986)?

Methods: We conduct a secondary analysis of interviews with 16 fathers raising at least two children; one with and one without ASD in Urban Alberta. In our thematic analysis, we focused on felt and enacted stigma together with "social comparisons" made by fathers as one way to identify the experience of stigma. Triangulation of investigators and peer-debriefing were used to increase our finding's credibility.

Results: Fathers in our sample discussed more instances of felt, rather than enacted, stigma and did not consistently compare their respective children with and without ASD. We developed four main themes: censorship, isolation (fear of public-eye and protecting child), guilt and defying stigma.

Conclusion: Fathers experienced felt stigma because of social norms related to masculinity/fatherhood and ASD. Our project contributes to the academic literature pertaining to ASD, fatherhood and stigma in Canada and can contribute to raising awareness and informing policy that is responsive to difficulties of stigma experienced by fathers of children with ASD and their families.

#9 - EXPLORING THE RELATIONSHIP BETWEEN WAIT TIMES FOR TRANSITION-RELATED MEDICAL CARE AND THE WELL-BEING OF TRANSGENDER INDIVIDUALS

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University of Calgary

Background: Whereas the Government of Alberta government has introduced gender-affirming guidelines of best practice and local media has recently started highlighting some of the issues that transgender Albertans face, little research has been done that considers the experiences of transgender people who are waiting for healthcare. While not all transgender people choose to go through a medical transition (which can include hormone therapy and surgery), for those who do, the wait to access care is long. In Canada, there are only a few facilities that specialize in transgender healthcare and in Alberta, wait-times to can exceed 18 months. Understanding the experiences of transgender people who have to wait for transition related healthcare is important to be better able to support the mental and emotional well-being of people during this time, and to consider how healthcare policies are or are not addressing the needs of the transgender population in Alberta.

Research Question: How does having to wait for medical-transition related healthcare impact the mental and emotional well-being of transgender patients in Calgary?

Objectives: To begin to understand the experiences of transgender individuals in Alberta who are waiting for medical transition related care; to contribute to scholarly literature about the needs of transgender people who are waiting for medical transition related care; to conduct a pilot study on which a larger research project can be developed.

Method: This study was an exploratory qualitative pilot project that used in-depth interviews to investigate the experiences of transgender individuals who were on a waitlist to access transition-related healthcare in Calgary, AB. Participants were interviewed using a semi-structured interview process, interviews were transcribed, and thematic analysis identified main and subthemes.

Expected Results: Our hypothesis is that long wait times to access transition-related care negatively affects the well-being of transgender individuals.

Study Impact: While other research has documented the types of barriers transgender individuals face in accessing medical care, to the best of our knowledge, no other Canadian study has focused specifically on the emotional impact of these barriers. This study will begin to explore this impact, and will begin to address the current gap in the literature.

#10 - BIMANUAL COORDINATION IN TEAM-BASED PRECISION CUTTING

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Background: Surgical skills within minimally invasive surgery requires precision and control from the surgeon, often involving bimanual coordination or help from an assistant. When completing complex surgical tasks requiring multiple hands, surgeons often have different preferences when it comes to execution. The surgeon is either performing the main task with his/her both hands, or actively seeking the help of the surgical assist in executing the main task. Currently, there are no clear guidelines or literature supporting the suggestion of one method of execution over the other. We believe that there is a negative impact on task performance when the surgeon gives up bimanual coordination, and actively seeks help from his assist in executing complex surgical techniques.

Objectives: To investigate the optimal coordination pattern when surgeons are performing complex surgical tasks requiring multiple hands, and quantify the difference, if any, when bimanual coordination is sacrificed during performance in FLS simulations of Precision Cutting.

Methods: Precision cutting from FLS (Fundamentals of Laparoscopic Surgery) testing was chosen as the surgical technique for this study. The surgical apparatus contains a 4x4 piece of fabric with a circle drawn as target. A rubber band is stretched across the circle, effectively disrupting direct access to the target. A total of 12 participants were chosen for the study and randomly paired with each other. One individual will be assigned as the “surgeon” and the other as the “assist”. Each pair will perform the same precision cutting task, but under two different conditions. Condition 1 requires the surgeon to perform the cutting, while the assist retracts the rubber band to allow access to the surgical site. Condition 2 requires the surgeon to both retract the rubber band and cut, while the assist aids with holding the fabric taut to allow for cutting.

Both groups will receive the same instructions before they enter the 20 minute performance session. Performance will be evaluated based on a common scoring system, where points are given according to time of completion of task and points are subtracted whenever the cut deviated from the circle.

Results & Conclusion: Pending.

#11 - DETECTION OF ANXIETY IN INDIVIDUALS WITH PARKINSON'S DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Anxiety is a common co-morbidity in Parkinson's disease (PD), with a prevalence of 31%. Anxiety results in poorer outcomes in these populations, including worsened cognition, quality of life, and disease progression. Anxiety is under-diagnosed and under-treated in PD. Screening tools may offer a convenient and accurate method of case-finding to address this problem.

Objectives: To examine diagnostic accuracy of anxiety detection tools compared with a gold standard in outpatient settings among adults with PD.

Methods: A systematic review and meta-analysis was conducted. Databases MEDLINE, EMABASE, PsycINFO, and Cochrane Database of Systematic Reviews were searched until April 7, 2017. Prevalence of anxiety and diagnostic accuracy measures including sensitivity, specificity, and likelihood ratios were gathered. Pooled prevalence of anxiety was calculated using Mantel-Haenszel-weighted DerSimonian and Laird Models.

Results: 6300 citations were reviewed; six full text articles were included for synthesis. Most studies were excluded due to lack of a gold standard. Six tools were validated with a gold standard (Diagnostic Statistical Manual of Mental Disorders) within PD populations (N=720). Tools included the Beck Anxiety Inventory (BAI), Geriatric Anxiety Inventory (GAI), Hamilton Anxiety Rating Scale (HARS), Hospital Anxiety and Depression Scale – Anxiety (HADS-A), Parkinson's Anxiety Scale (PAS) and Mini Social Phobia Inventory (Mini-SPIN). Anxiety diagnoses categories included: generalized anxiety disorder, any anxiety type, any anxiety type with mania, and social phobia. Age ranged from 55 to 66. Pooled prevalence of all anxiety was 30.1% (95% CI= 26.1% to 34.0%; I²=18.6% P=0.30). The GAI had the best-reported sensitivity, 0.86, with a specificity of 0.88. The observer-rated PAS had a sensitivity of only 0.71 but highest specificity, 0.91. The BAI, HARS, HADS-A, and Mini-SPIN had sensitivities between 0.67-0.86, with specificities between 0.5-0.79.

Conclusions: Of six tools validated for anxiety screening in PD populations, most were only validated in single studies. The GAI is brief, straightforward, with a good balance of sensitivity and specificity. The PAS was developed for PD, is brief and has self-/observer-rated scales, however it is not the most sensitive tool. Health-care practitioners involved in PD care need to be aware of available validated tools and choose one that fits their practice.

#12 - VALIDATION OF CAREGIVER-CENTERED DELIRIUM MEASUREMENT TOOLS IN HOSPITALS: A SYSTEMATIC REVIEW

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Background: Delirium is a state of severe confusion affecting over 30% of hospitalized patients. Delirium is associated with longer hospital stays, increased mortality, prolonged mechanical ventilation, and increased caregiver distress. Though delirium screening is often standard of care, over 30% of cases in hospitals remain undiagnosed. Caregiver-centered delirium measurement tools may allow for earlier and more accurate delirium detection and meaningful caregiver involvement, thereby improving patient and caregiver outcomes.

Objective: This study utilizes systematic review methodology to validate caregiver-centered delirium measurement tools for hospitalized adults and assess associated patient and caregiver outcomes.

Methods: MEDLINE, EMBASE, PsycINFO, CINAHL, and Scopus were searched from inception to May 15, 2017, with no restrictions. The study protocol was drafted according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and registered on PROSPERO. Two reviewers completed abstract, full-text review, and data abstraction independently, and in duplicate. Included studies were primary interventional or observational studies that reported on patient or caregiver outcomes associated with caregiver-centered delirium measurement in hospitalized adults. Study quality was assessed independently, and in duplicate using the Quality Assessment Tool for Diagnostic Accuracy Studies (QUADAS-2).

Results: 6056 titles and abstracts were screened, 170 articles were reviewed in full-text, and 10 articles met inclusion criteria. Six studies reported on caregiver-administered delirium measurement tools, and four reported on healthcare personnel-administered delirium measurement tools informed by caregiver interviews. Included studies reported on the following scales: FAM-CAM, I-AGeD, SQiD, Sour Seven, IQCODE-SF, family-interviews, and MMSE. Three studies reported on caregiver burden, including psychological distress and anxiety. Further analysis will quantitatively and/or qualitatively evaluate the validity of family centered-delirium screening tools and assess associated impacts on patients and families.

Conclusions: Existing caregiver-centered delirium measurement tools demonstrate potential for caregivers to improve delirium detection in hospitalized adults alongside validated healthcare personnel-administered delirium screening tools. Caregiver-centered delirium measurement tools may decrease caregiver distress by providing meaningful caregiver involvement.

#13 - INVESTIGATING THE ACCURACY OF ADMINISTRATIVE HEALTHCARE DATABASE CODES IN DIAGNOSING CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD): A QUALITY IMPROVEMENT STUDY

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Background: According to Statistics Canada, chronic obstructive pulmonary disease (COPD) is the sixth leading cause of mortality in Canada and is expected to increase to the third by 2020 due to continued risk factor exposure and ageing of the population. The Global Initiative for Obstructive Lung Disease characterizes COPD as persistent respiratory symptoms and airflow limitation due to airway and/or alveolar abnormalities. Previous studies identified that health administrative database codes (numbers used to classify diseases according to keywords entered in the database) are useful in investigating the epidemiology of COPD and aid in assessing longitudinal outcomes in COPD patients. However, these studies also emphasize the importance of investigating the accuracy of these database codes in diagnosing COPD before using them for research and diagnostic purposes. There is a need at Foothills Medical Centre (FMC) in Calgary to complete this for its administrative database codes related to COPD diagnosis. It is necessary to conduct this study at the FMC site specifically as previous research has indicated that different healthcare databases validate different algorithms to identify COPD and these may not be generalizable to other settings.

Objective: To determine and assess the accuracy of the administrative database codes at FMC in diagnosing COPD.

Methods: This project involves comparing SCM data vs. traditional chart data for all patients diagnosed with COPD from beginning of June 2017 until the end of August 2017. Only the patients admitted on Unit 36 at FMC (no other site) will be used for data collection. Charts would be reviewed within the vicinity of Unit 36 and will not be taken off site.

Results: This abstract represents research in progress. The results are expected to be available in August 2017 and will be fully presented at the conference.

Conclusions: In investigating the accuracy of the administrative database codes at FMC to diagnosis COPD, database codes may be used to investigate the epidemiology of COPD, create an unbiased cohort for surveillance/research and accurately identify COPD patients. Ultimately, this may aid researchers and clinicians in assessing long term outcomes of COPD and help to develop management/treatment strategies for this condition.

#14 - SECURE EMAIL IN PRIMARY CARE: A QUALITY IMPROVEMENT STUDY

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Background: In today's increasingly digital age, interpersonal interactions are shifting away from the classic telephone, and toward speedier, electronic communication. Compared to other professions, there are more barriers for physicians to use email communication with patients. Physicians can use insecure email to interact with patients, but this practice carries legal risk and is not recommended by the Canadian Medical Protection Agency. To be adequately secure, the Privacy Commissioner's Office in Alberta recommends that email take place in a secure portal and be encrypted on both ends of the interaction. Many primary care appointments are as quick as a medication renewal or a lab requisition, and could easily be done over secure email to save patients coming for an appointment. Despite increasing electronic communication in society, secure email in primary care is not prevalent and there are few studies exploring its impact.

Objective: To evaluate whether secure email communication between patients and health care team impacts clinic efficiency, patient convenience, and the quality of patient to clinic communication.

Methods: Over 200 patients at a primary care clinic were invited to use a secure email system. These patients were then invited to do a 4-question survey about their experience with system. The clinic also compared wait times and phone call volume before and after the secure email launch.

Results: When prompted with specific words about the email system, 84% of patients described it as "Convenient", 82% as "Easy", and 70% as "Time-Saving". Few patients negatively described the system, with only 4% agreeing it was "Awkward", 6% that it was "Tedious", and 1% that it was "Risky". When asked about their preferred method of communication for "obtaining results of a routine blood test or Xray", 76% said email. To "discuss a personal problem", 81% preferred a face-to-face office visit. Staff felt that clinic efficiency improved with the system.

Conclusion: The majority of patients had positive experiences with the secure email system. Anecdotal evidence from staff at the clinic found that clinic efficiency improved with the system.

#15 - DETERMINANTS OF PHYSICAL ACTIVITY IN A COHORT OF PROSTATE CANCER SURVIVORS.

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University of Calgary

Background: Prostate cancer is the most commonly diagnosed cancer among Canadian men. Physical activity has been shown to improve overall health, improve cancer outcomes and reduce all-cause mortality as well as prostate cancer specific mortality after diagnosis. Factors relating to participation in physical activity within prostate cancer survivors are largely unknown.

Objectives: The aim of this study is to identify factors related to changes in physical activity patterns from pre- to post-diagnosis in prostate cancer survivors. The primary objective is to determine which demographic (e.g. age, marital status, occupation), medical (e.g. tumour stage, treatment type, co-morbidities), quality of life related (e.g. physical and mental) and/or lifestyle factors (e.g. diet, smoking behaviours) are related to changes in physical activity patterns in prostate cancer survivors.

Methods: A prospective cohort of 830 prostate cancer patients who participated in a population-based case-control study between November 1997 and December 2000 in Alberta, Canada were followed continually for mortality outcomes to 2016. Cases were histologically confirmed, invasive cases of stage T2 or greater prostate cancer in men under the age of 80 years. All surviving cases from the case-control study were contacted for voluntary recruitment into the cohort. Interviewer-administered questionnaires were used to assess physical activity with the previously developed Lifetime Total Physical Activity Questionnaire at baseline to assess pre-diagnosis activity levels and then re-administered two years post-diagnosis to capture the activity done since diagnosis. Subsequently, the Past Year Total Physical Activity Questionnaire (PYTPAQ) was completed by the participants at two more time points between 2004 and 2007. Demographic, quality of life and environmental risk factors were also collected via questionnaires, while medical chart abstractions were performed to capture clinical variables as well as any disease progressions or outcomes. Logistic regression modelling will be used to determine which medical, demographic, quality of life and lifestyle factors are associated with changes in total physical activity from pre- to post-diagnosis as well as maintenance of physical activity after diagnosis. Relative risks and their 95% confidence intervals will be reported for unadjusted results, as well as adjusted results after accounting for covariates.

#16 - THE REALITY OF RISK ASSESSMENT: IDENTIFYING SUICIDAL CALLERS AT CRISIS HOTLINES IN CANADA

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Athabasca University

Background: Suicide is a critical Canadian public health issue. In Canada, approximately 4000 people die by suicide each year. Among First Nations people, the rate is 6 to 11 times higher than the general Canadian population. The Government of Canada's Suicide Prevention Framework lists crisis hotline services as a key suicide prevention tool. Crisis hotlines are widely used in most North American mental health systems. Alberta is no exception. In 2015, The Distress Centre, a crisis hotline in Calgary, Alberta, received 68,877 crisis calls, answered by over 400 trained volunteers. Crisis lines are a substantial facet of suicide prevention in Alberta, and merit critical examination.

Objective: Little is known about how Canadian crisis hotlines assess suicide risk. We seek to understand how Canadian suicide and crisis hotline lines assess risk, the current evidence for different risk assessment approaches and the effectiveness of such hotlines in preventing suicide. We hypothesize that risk assessment procedures vary greatly between crisis lines, and there is no single unified risk assessment utilized by telephone crisis lines.

Methods: We have completed a narrative review of the academic literature. Inclusion criteria were: English language; publication between 2007 and 2017; adults ages 18+; and conducted in the USA, Canada, the UK or Australia. Search terms were "hotline" or "help line"; "crisis" or "crisis intervention"; "suicide or "suicide prevention"; "volunteer"; "training"; "risk assessment"; "evaluation"; "outcomes"; and "effectiveness." A survey of major Canadian crisis hotlines will be conducted using grey literature and online resources. Practical applications of risk assessment protocols will be further examined in a detailed case study of Calgary's Distress Centre.

Results: Initially 53 studies were retrieved. Results were further limited to studies evaluating volunteer-operated crisis lines and excluding those examining smoking cessation, medical/primary care, and sexual assault hotlines; fifteen articles were selected for final inclusion. Preliminary analysis demonstrates effectiveness of standardized risk assessment procedures.

Conclusions: In Alberta, crisis hotlines answer thousands of calls, and form an invisible network of support for Albertans at risk of suicide. Critical examination of evidence-based risk assessment practices and procedures can serve to strengthen suicide prevention strategies both in Alberta and beyond.

#17 - VALIDATION OF SLEEP APNEA IN HOSPITAL DISCHARGE ABSTRACT DATA

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Background: Sleep disorders have been shown to be associated with increased morbidity and mortality. Sleep disorders are common with one of the most common being sleep apnea, occurring more often in men than women. From other studies, sleep apnea was under coded in administrative data, although frequently being present with other conditions.

Objectives: Our objectives are to identify how well administrative data captures sleep apnea in acute care hospitals in Calgary, Alberta, and identify the degree to which sleep apnea occurs with comorbid conditions.

Methods: A chart review was conducted by six nurses in three inpatient acute care centres in Calgary, with the intent to identify 50 health conditions, including sleep apnea. Inpatient visits for adults were randomly selected between January 1 and June 30th 2015. Obstetric visits were excluded. Patients with documented diagnosis of obstructive sleep apnea, central sleep apnea, and sleep related hypoventilation were captured. Data from this chart review were compared with data coded using the International Classification of Diseases tenth version (ICD-10-CA) in administrative data.

Results: Out of 2467 patients there were 1237 (50.1%) men and 1230 (49.9%) women with an average age of 61.77 (std.dev 18.79) and 159 (6.4%) had sleep apnea. ICD-10 data compared with the chart review produced a sensitivity of 17.6%, a specificity of 99.8% and a PPV of 87.5%. There was a statistically significant ($p < .05$) increase in diabetes; peptic ulcer disease; chronic pulmonary disease; congestive heart failure; alcohol abuse; obesity; hypertension; pulmonary circulation disorders; and arrhythmias in those with sleep apnea compared to those without.

Conclusions: These results demonstrate that in Calgary, Alberta sleep apnea is being under coded in hospital discharge abstract data compared with clinical chart review. With statistically significant relationships between sleep apnea and various health conditions, and prior studies reporting greater risk of adverse events with sleep apnea, this condition warrants further study. To understand the true prevalence of sleep apnea and the impact it is having on inpatient outcomes, it first must be appropriately captured in administrative data.

#18 - SUDDEN INFANT DEATH SYNDROME IN ALBERTA: A GEOSPATIAL ANALYSIS OF KNOWN RISK FACTORS IN ABORIGINAL AND NON-ABORIGINAL COMMUNITIES.

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University of Calgary

Background: Alberta population: 4.146 million; live births (2013) 56,078. All unexpected deaths, including infants, are reported to the medical examiner; investigation include scene visit. The rate of SIDS in Alberta has declined in the last 20 years. This decline has not occurred to the same extent in all populations. Specifically, the rate of SIDS in Aboriginal populations remains high.

Overarching Objective: to combine the epidemiology of specific known SIDS risk factors with Geographic Information Systems (GIS) technologies to understand how the variation of risk factors by geographical area in Alberta changes over time.

Methods: 2371 sudden and unexpected deaths in infancy were investigated by the Medical Examiner in Alberta, 1977-2013; 1955 (82.5%) cases were classified as SIDS, using a consistent definition. This data and specified risk factors and population characteristics were mapped to generate a visual spatial distribution pattern throughout Alberta. Exploratory spatial data analysis was performed using the Anselin Local Moran's I statistic. Data was analyzed using STATA 13 statistical package. Risk factors and/or population characteristics were compared using test of proportions (Chi-Squared).

Results: Maps displaying the spatial distribution of SIDS events in Alberta (1977-2013), specified risk factors and population characteristics were developed. SIDS collection points (postal codes) were aggregated to the community/neighbourhood level to explore spatial patterns of specified risk factors. There is noticeable geographical variation in SIDS incidence and specified risk factors within communities of Edmonton and Calgary. A comparison of community level SIDS outcomes and specified risk factors to overall SIDS outcomes revealed statistically significant clustering. Differences between areas of high SIDS numbers and those with lower numbers was significant, p

Importance: The use of GIS technologies provides a visual depiction of geospatial clusters of SIDS events at one point in time, and over time, and by integrating census information provides further analyses including socioeconomic status. Geospatial analysis of SIDS in Alberta permitted the identification of spatial clusters of SIDS events over time, which allowed for the exploration of several questions, specific to certain known SIDS risk factors of interest in Alberta. The use of GIS techniques provides insight to and allows for greater understanding of the epidemiology of specific known risk factors of SIDS within populations.

#19 - EXPLORING SLEEP COMPLAINTS AND ITS RELATION TO PERSONALITY, PSYCHOLOGICAL FACTORS, AND POST CONCUSSIVE SYMPTOMS IN YOUTH WITH CONCUSSION

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University of Calgary

Background: Although the majority of youth who sustain a concussion will recover by three months post-injury (Barlow et al., 2010), up to one-quarter will experience prolonged recovery of symptoms (i.e., post-concussive symptoms; PCS), which can include sleep disruption and insomnia. Researchers are starting to explore the role of sleep problems in prolonged recovery following a concussion, but little is known about how sleep complaints relate to other factors post-concussion.

Objective: The primary objective of this investigation was to examine the relation between sleep complaints and severity of PCS, anxiety, depression, and personality features in adolescents who have sustained a concussion.

Methods: Nineteen adolescents (13-18 years old) who were between 2-12 months post-concussion and complaining of sleep problems were recruited from the Alberta Children's Hospital. Adolescents completed the following questionnaires electronically: the Insomnia Severity Index (ISI) as a measure of sleep problems, the Health and Behaviour Inventory (HBI) as a measure of PCS, PROMIS anxiety, PROMIS depression, and the Big-5 Personality Inventory. Pearson's r correlations were utilized in analyses.

Results: Participants were 14.9 years old ($SD=1.5$), 3.0 months ($SD=1.5$) post-injury, primarily female (84%), and 100% (self-designated as at least partially) Caucasian. Mean ISI total score was 16.9 ($SD=3.6$), with 100% of participants meeting criteria for a potential sleep disorder (ISI total of 12 or higher). Sleep complaints on the ISI did not correlate significantly with PCS ($r=.45$, $p=.055$), depression ($r=.35$, $p=.14$), anxiety ($r=.14$, $p=.57$), or personality factors (all $ps>.33$), although some of the correlations were medium in size, and the analyses were likely underpowered. However, there was a significant correlation between PCS and depression scores ($r=.46$, $p=.048$).

Conclusions: Sleep problems in adolescents with a concussion may be related to the severity of PCS and depressive symptomology, although the small sample size hampered definitive conclusions. Sleep does not appear to be related to personality features. Due to the limited sample size, further exploration of the relationship between sleep, psychological factors, personality features, and PCS are needed to help improve the outcomes for youth who have experienced a concussion.

#20 - SYSTEMATIC REVIEW OF THE BARRIERS TO CARE FOR MENTAL HEALTH PRESENTATIONS AT PEDIATRIC EMERGENCY DEPARTMENTS

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Background: Mental health diagnoses in children have been steadily increasing. Approximately 13% to 20% of children suffer from a mental illness every year, and there is an overall prevalence of approximately 10%. Consequently, there is an increase in pediatric mental health (PMH) presentations in the urgent care settings in North America as hospital emergency departments (ED) are increasingly becoming the first point of contact for PMH concerns. However, it has also been reported that EDs are ill-equipped to meet this demand. Thus, it is imperative to investigate the nature of the obstacles and opportunities for effective care of these children in the hospital ED.

Objectives: To review recent literature to identify the barriers to providing optimal care of pediatric mental health patients presented to an ED.

Methods: Literature published since 2007 that appraised ED treatment of PMH patients from January 2007 to March 2017 was evaluated.

Results: Of the nine studies included, five studies reported on length of stay (LOS), two reported on laboratory investigations, two evaluated the effects of a program targeting increased psychiatric resources in the ED, one evaluated rates of psychiatric interventions, one examined the attitudes of ED staff, two assessed geographical distribution and three examined rates of admission. Our observations of the data suggest that this population faces definable barriers to receiving optimal care when presenting to the ED. Most significant among these is the extended LOS that is a consequence of ineffectual laboratory studies and delay in the transfer of care. However, it was also found that the addition of psychiatry and mental health resources as part of the ED care reduces the duration of the stay. Review of the literature also indicates that a lesser proportion of children labelled as suicidal received psychiatric intervention in the ED compared to those without a suicidal diagnosis, suggesting a critical barrier in the care of this population.

Conclusions: The evaluation of the recent literature identifies distinct barriers to providing optimal care of children who present with a mental health concern to an emergency care centre. The timely inclusion of mental health or psychiatric care providers, may in part, lessen this impact.

#21 - EFFECT OF ADMITTANCE TO THE SEIZURE MONITORING UNIT ON AGGREGATE HEALTHCARE RESOURCE UTILIZATION

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Background: People with epilepsy are high-volume users of the healthcare system. The Seizure Monitoring Unit (SMU) is a six-bed inpatient unit that provides specialized epilepsy treatment in Calgary. Patients are referred to the SMU by their epileptologist. Treatment in the SMU is costly, but the investigations and treatment provided should reduce the subsequent burden on the healthcare system by improving seizure and comorbid outcomes. A preliminary analysis by our group has yielded significant evidence of a decrease in the number of ambulatory visits after admission to the SMU. However, this analysis simply compared the trend in the number of ambulatory visits and did not consider the resource expenditures. Alberta Health Services (AHS) tracks ambulatory and inpatient administrative data in which it assigns a Resource Intensity Weight (RIW) score for each visit. The RIW score assigns a relative value to the expected resource consumption during an ambulatory or inpatient visit based on a number of factors including type of visit, expected diagnostic tests performed and type of physicians consulted. Pairing AHS data with SMU data allows for the tracking of patient-healthcare encounters before and after admission to the SMU.

Objectives: To compare trends in resource utilization for people with epilepsy before and after admission to the SMU.

Methods: A split time series analysis using random-intercept linear regression will be used to compare resource expenditures before and after admission to the SMU. This method will allow for a test of the immediate change or “jump” in resource utilization at enrollment, as well as a test for the change in slope or “trend”.

Results: Based on the preliminary analysis done by our group and due to the nature of the consultation, investigations, and education received during admission to the SMU, we expect to find a significant negative trend in resource utilization following admission.

Conclusion: The results of this analysis will illustrate the effect of the SMU on the economic burden associated with health care provision for people with epilepsy.

#22 - MUTATIONS IN THE D-LOOP REGION OF MTDNA AND THEIR AFFECT ON MTDNA COPY NUMBER

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University of Calgary

Background Information: Mitochondria are essential organelles that produce most of the cell's energy. They encode their own genome (mtDNA), which is distinct from nuclear DNA (nDNA) in many ways, such as having hundreds of copies per cell, coupled transcription/replication and a maternal inheritance pattern. Since mitochondria have multiple copies of DNA, the regulation of the mtDNA copy number is very important. mtDNA consists of three promoters (HSP1, HSP2 and LSP) which regulate the expression of the entire mitochondrial genome. The LSP, located in the D-loop region (regulatory region of mtDNA) is responsible for transcribing the entire mtDNA and creating an RNA primer for mtDNA replication. Thus, balanced transcription from the three promoters is important for both expression and replication of the mtDNA. A change in mtDNA copy number has been implicated in various diseases such as Ewing's sarcoma and acute myeloid leukemia. Though the replication mechanism of mtDNA has been previously outlined, regulation of mtDNA copy number is still not well understood. One of the problems hindering the field of mtDNA research is the lack of techniques to modify and manipulate mtDNA. Using a novel approach developed by the Shutt lab, we can deliver plasmid DNA directly into the mitochondrion, allowing us to overcome this hurdle. Thus, we can make specific mutations to a reporter plasmid, insert it into the mitochondria and test the functional consequences of the mutations.

Hypothesis: Mutations at the 16311 (T à C) and 16224 (T à C) locations, prior to the LSP region of the mtDNA play a role in the up/downregulation of mtDNA copy number due to its role in regulating mtDNA replication/transcription

Approach: These mutations will be introduced into a reporter construct containing a luciferase reporter protein (bioluminescent protein) and transfected into cultured cell mitochondrion. The changes in the luciferase expression can then be compared to a control plasmid without any mutations and be used to quantitatively measure the amount of mtDNA present in the cells. Therefore, this experiment will allow us to draw direct relationships between mutations within or around the LSP and the changes in mtDNA copy number of the mitochondria.

#23 - BUILDING CAPACITY IN AGING-FOCUSED RESEARCH, AND TRAINING OPPORTUNITIES AT THE UNIVERSITY OF CALGARY: FINDINGS FROM A SYSTEMATIC ENVIRONMENTAL SCAN

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Background: A first in Canadian history, the 2016 census has revealed that the proportion of seniors aged 65 years and older now exceeds the proportion of children under 15 years of age. This demographic shift highlights an aging population, and the need to ensure that communities are able effectively to support older adults' needs. The University of Calgary's Brenda Strafford Centre on Aging aims to contribute to this effort by facilitating inter-disciplinary age-related research and education, enhancing opportunities for community engagement, and informing public policy, so as to better meet the needs of the aging population. With the overarching goal of enhancing the lives of older adults, it is important for the Centre to assess and understand the University's current research and training environment.

Objective: The objective of this study is to systematically review all aging-focused research, education, community outreach, and policy-oriented activities currently taking place across the University as a whole. This review is intended to identify both opportunities and gaps, to strategically develop resources that will support the growth of UCalgary capacity in these four focus areas.

Methods: Data on UCalgary researchers will be collected through systematic web searches at the industry environment level, which will be followed-up with in-person interviews. This data will be supplemented by a systematic literature review using the University of Calgary as a delimiting term to search through publication dates, aging-focused topics, and key academic journals. Results will be synthesized via content analysis, using NVivo to assist with identification and aggregation of research topic areas, relevant coursework, funding agencies, key community partnerships, and any activities that suggest links with policy makers and policy development.

Results: Aggregate and descriptive results will be presented to identify key opportunities to facilitate inter-disciplinary research collaborations, to extend inter-disciplinary training, to highlight opportunities for community involvement; and to identify links between research and evolving policy related to serving the aging population.

Conclusions: This study will help the Centre on Aging to strategically allocate resources to grow UCalgary capacity in aging-related research and training while facilitating partnerships and engagement with agencies, governments, and with older adults themselves.

#24 - YOU CAN'T ALWAYS GET WHAT YOU WANT: EXPECTATIONS, OUTCOMES, AND ADHERENCE OF NEW EXERCISERS

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Background: Research has been unclear on how people's experiences of exercise adoption influence their outcome expectations of exercise, and how outcome expectations might relate to their continued exercise participation.

Objective: The purpose of this study was to explore the outcome expectations and outcomes perceived to have been realized by previously sedentary adults who completed a year-long exercise program.

Methods: A qualitative description approach was used to guide this exploration. Participants exercised three times per week at a private university fitness facility. Semi-structured interviews were conducted with 10 women and 8 men (49.9 ± 10.2 years), several weeks after the end of the exercise program. The interviews were audio-recorded, transcribed verbatim, and analysed using qualitative content analysis.

Results: Four primary themes emerged: (1) shifting focus from weight and appearance to living better, (2) gaining confidence through education and practice, (3) accountability/self-generated obligation to exercise for others, and (4) challenges to post-study exercise adherence. Even after completing the entire program, most participants did not continue to exercise at the same frequency or intensity despite intentions to do so.

Conclusions: The first theme suggests that it may be helpful for new exercisers to regularly reappraise their expectations and realized outcomes in order to maintain motivation for exercise. The other themes illuminate the need for exercise interventions to account for the potential difficulties of shifting from a structured program with built-in accountability to exercising on one's own. Together, these findings provide evidence for the complex relationship between expectations, outcomes, and motivation for long-term adherence.

#25 - PROTECTING THE PERINEUM: PROMOTING INFORMED DECISION-MAKING FOR PREGNANT WOMEN

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University of Calgary

Background: Pregnant women have access to a wide array of information from online resources, friends, family, and media sources. For some, this can be overwhelming and may actually hinder their ability to process information intended to promote informed decision making throughout their pregnancy. The information available regarding antepartum perineal massage is inconsistent and may be challenging for women to interpret. The disparity in research findings may also contribute to the variation in health care information provided in patient education.

Objective: The aim of this project was to review and critique the current literature on antepartum perineal massage for the purpose of developing an educational handout to be disseminated to pregnant women across Alberta. Our ultimate goal is to have consistent information provided to pregnant women to promote informed decision-making regarding this practice.

Methods: This review was conducted using four databases to identify peer reviewed journal articles from a variety of disciplines that were published between 2007 and 2017. The initial yield from our search terms was 452 articles. We then determined articles that were relevant according to our criteria. A critical appraisal was performed using the Mixed Methods Appraisal Tool (MMAT). A final yield of 13 articles were included in this review.

Results: The articles were analyzed and sorted into themes: teaching methods, technique, outcomes, and other practices. This information was summarized and formatted into an online handout as well as an instructional video to support knowledge of self-care options and build the capacity of pregnant women in Alberta.

Conclusion: We planned to support informed decision-making as a health practice and coping skills by providing evidence-based information about antepartum perineal massage. If individuals within the population decide to take up the practice of perineal massage, the handout and video will instruct them on how to do so correctly and safely. The likelihood of taking preventive health action is supported by cues to action such as advice from others and explanations from health care providers, which our handout and video will supplement.

#26 - ONEHEALTH FOCUSED NEEDS ASSESSMENT OF MAASAI PASTORALISTS IN THE MONDULI DISTRICT OF TANZANIA

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Background: Ongoing research of the University of Calgary with Tanzanian partners has been focused on the Ngorongoro Conservation Area of Tanzania for the past decade. To expand activities, the Monduli district of Tanzania was identified as a potential location for future projects. In collaboration with the Nelson Mandela African Institute of Science and Technology (NM-AIST) a needs assessment was conducted. Human and animal health concerns, sanitation and water availability/quality, and the structure of the health care system were assessed.

Objective: The objective was to evaluate the potential for developing outreach activities that relate to OneHealth in the Monduli District.

Methods: Relevant steps towards this Global Health goal included: Partnership building with the NM-AIST through meetings with the Dean, prominent researchers and post-graduate students. Potential locations were visited to meet with stakeholders. The locations included Monduli village, Mfereji and Salela. Stakeholders consulted include medical and livestock officers, district veterinary and health officers, veterinarians and health care workers. Translators attended to facilitate translation in Kiswahili and English.

Results: During meetings an informal discussion guided by animal and human health questions provided priorities for the region. Important themes for human health concerns included: lack of resources, deficiencies in education, limited understanding of health recommendations resulting in low compliance, and the importance of respiratory tract, waterborne, and zoonotic diseases. Discussion about animal health issues identified main concerns as: limited availability of resources, and anthrax and tick-borne diseases were presented as major production limiting diseases. The main concerns relating to water and sanitation were water scarcity during the dry season and sanitation related diseases like diarrhea and cholera. The health care system did not include disease surveillance, which was identified as a necessary addition to get a thorough overview of the health situation.

Conclusions: Partnership building is a priority during the development of research projects in low and middle income countries and expanding the consultation to include community members will be needed to develop OneHealth initiatives in the Monduli district. This consultation will provide deeper insight in the challenges that were presented by the relevant stakeholders.

#27 - UNDERSTANDING THE PAIN EXPERIENCE OF CHILDREN WITH LIMB INJURY AT THE ALBERTA CHILDREN'S HOSPITAL AFTER DISCHARGE

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Background: Limb injuries are one of the most common reasons for seeking emergency department (ED) care, accounting for 12% of visits to the Alberta Children's Hospital ED. Limb injuries can be associated with significant pain, and untreated pain can result in significant short and long term adverse effects. Currently, not much is known about pain experienced after ED discharge.

Objective: This project describes the post-discharge pain experience for a prospective cohort of children with soft tissue injuries and those who have fractures, and considers factors associated with parent and child dissatisfaction with pain treatment after their care in the ED.

Methods: The purpose of this project was to perform on-going quality improvement on pain management with limb injuries. Patients aged 4-17 years with acute limb injury and a minimum pain score of 4/10 at enrollment were asked to complete daily diaries recording pain scores, medication taken, and function disruption (activity, school, sleep) for three days after their discharge from the ED. Parents and children also completed questions about overall satisfaction, work missed, activities missed and on the third day to assess pain experience. Logistic regression was performed to assess predictors for satisfaction in pain management such as age, gender, and type of injury.

Results: A total of 731 patients with a mean age of 11.6 ± 0.3 years and an initial self-reported pain score of 5.5 ± 0.1 on a 10-point pain scale were recruited between August 2014 and April 2016. On day 3 following discharge 44.4% reported no pain, 29.1% reported mild pain, 23.3% reported moderate pain and 3.2% reported severe pain. The average self-reported pain score was 2.0 ± 2.3 on a 10-point pain scale after a 3-day period. Approximately 50.1% of patients missed regular activities including school (19.5%), and sports (36.5%). Patients reported sleep was disrupted on the night of injury (47.6%), the day after injury (33.6%), and the second night after injury (23.0%). Finally, 7.7% of parents and 8.3% of children were not satisfied with pain management at home. There were no differences between the pain, satisfaction, and activity disruption between those with soft tissue injuries compared to those with fractures.

Conclusion: This project examined the current post-discharge pain experience for children with limb injuries. The information provided can be used for future quality improvement initiatives in order to find more effective strategies for pain management at home.

#28 - "IT'S LIKE A FULL-TIME JOB": 'PATIENT WORK' IN THE CARE AND MANAGEMENT OF CHRONIC CONDITIONS

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University of Calgary

Background: The prevalence of chronic conditions is increasing globally, and these conditions are now the primary cause of death and disability in many parts of the world. To address the increased burden of chronic conditions on the healthcare system, the W21C (Ward of the 21st Century) received funding to develop an electronic patient centered care plan to support individuals with chronic conditions to manage their care.

Objective: To understand the needs of patients living with chronic conditions as they manage the multiple complexities and competing demands of their illness and to assist in the development of an innovative electronic patient centered care plan.

Methods: Patient and community engagement researchers (PaCER) conducted a series of focus groups and interviews with eighteen patients with chronic conditions to explore the patients' needs for managing and coordinating their care. All focus groups and interviews were audio recorded and transcribed. Thematic analysis was used to identify and code emergent themes within the text by the research team.

Anticipated Results: A salient theme that emerged in the data was the 'work' patients performed to be an active member of their care team. These patients, in addition to dealing with the psycho-social effects of chronic conditions, were tasked with additional administrative responsibilities as a result of their illness. Such burdens include: (a) disseminating medical data and test results across multiple health care providers; and (b) making sense of the often conflicting amounts of information available on their condition. This type of patient 'work' increases the impact of chronic conditions, and has the potential to create a divide between those who can carry out this work and those who cannot.

Conclusion: The examination of illness specific burdens on patients, or 'patient work', fell within the scope of a larger project aimed at creating an electronic tool to assist individuals living with chronic conditions to develop a care plan tailored to their medical needs, personal preferences, and timelines. Preliminary analysis revealed that patients were tasked with additional obligations as a result of their illness, and highlights the need for an integrated, electronic care plan to reduce the burden of chronic conditions on individuals and health systems.

#29 - DETERMINING THE MECHANISM OF FATTY ACID UPTAKE BY CD36

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Background: CD36 is a transmembrane glycoprotein found in a wide variety of cells including macrophages, platelets, endothelial, and muscle cells. It contributes to angiogenesis, immunity, inflammation, atherosclerosis, and lipid metabolism. There is a lot of evidence to support a role for CD36 in uptake of fatty acids (FA), but this is disputed due to CD36's structural differences compared to the family of FA transport proteins, and the possibility that CD36 initiates signaling for another molecule to uptake FA. Recent crystal structures of CD36 support the hypothesis that FA are transferred through a hydrophobic cleft spanning the length of CD36.

Objective: The purpose of this project is to understand how the hydrophobic cleft in CD36 interacts with FA by analyzing how specific mutations affect its function.

Methods: A CD36 mutant that is FA uptake dead but otherwise functions normally will be created to show that the transport occurs through CD36, not through signaling initiated by CD36. This mutant will be analyzed in different cell types that normally express CD36. Ultimately, this mutant will be expressed in a mouse to study systemic effects.

Results: Two out of a proposed eight mutants changing hydrophobicity, size, and/or charge at specific sites have been made and will be expressed in Hek293 cells to assess their functions. The results of this study will either support or refute the hypothesis that the hydrophobic cleft is responsible for FA uptake by CD36, but nevertheless contribute to understanding CD36's functions.

Conclusions: Uptake of FA is important for cellular oxidation, storage, structure, and signaling. Abnormalities in uptake can influence how a cell behaves and contribute to metabolic disorders including diabetes, obesity, and non-alcoholic fatty liver disease. A greater understanding of FA uptake by CD36 can shed new light on the development of these disorders and could propose new targets for pharmaceuticals.

#30 - DISPARITIES IN CAESAREAN SECTION RATES ACROSS WOMEN'S SOCIOECONOMIC STATUS— SO MUCH MORE THAN OBSTETRIC AND MEDICAL CONDITIONS AND MATERNAL AGE

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Rationale: Women with high socioeconomic status (SES) tend to have higher caesarean section (CS) rate than women from low SES; however, in which obstetric-groups, this disparity exists is not clear.

Objective: To examine variation in CS rates by maternal SES across diverse obstetric characteristics.

Methods: This study used the US Birth Certificate Data of 2015. Maternal SES was measured using mother's level of education and the source of payment. Women were classified into Robson's 10-groups based on the obstetric characteristics. Analysis: The CS rate stratified by maternal SES was calculated across the Robson's-10 groups classification. The association between SES and CS was assessed using log binomial regression analysis adjusting for obstetric conditions (diabetes, chronic hypertension, pregnancy-associated hypertension, and eclampsia) and maternal age.

Results: The overall rate of CS was 32.0%. The rate in Robson's-10 groups was constantly different by SES. In a group that comprises singleton, cephalic, and ≤ 37 weeks gestation, the rate was 30.2% (95% CI: 29.8, 30.6) for those who had <high school education and was 39.3% (95% CI: 38.6, 39.9) for those who had graduate-degree. In a group with breech delivery, it was 90.8% (95% CI: 90.3, 91.3) vs 97.9% (95% CI: 96.5, 97.2). Importantly, the association of CS with maternal education and health insurance stratified by 10 groups revealed relatively stronger associations, with varied magnitude and direction across 10 groups. For example, women in group 1 were more likely to have a CS (RR: 2.4, 95% CI: 2.3-2.4) if they had completed graduate-level education compared to those who did not complete high school. Whereas, for the strongly medically indicated obstetric condition for caesarean section? abnormal fetal lies (group 9)? women with graduate degree were less likely to utilize CS (RR: 0.7, 95% CI: 0.7-0.8) than those who did not complete high school education. Similar pattern of use of CS was found across health insurance status, being the lowest use of CS among those women who had no insurance.

Conclusion: The utilization of CS is inequitable across SES of women in both medically-indicated and low-risk circumstances. The SES disparity in the use of CS is unlikely to be due to the differences in the distribution of medical or obstetric conditions and maternal age across SES.

#31 - AN EVIDENCE-BASED ONLINE SELF-COMPASSION & SELF-REGULATORY SKILLS INTERVENTION FOR ADULTS WITH CELIAC DISEASE

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Background: Celiac disease is a chronic condition that can impact all aspects of an individual's life, and is prevalent in 1% of the North American population. Both self-regulation (SR) and self-compassion (SC) are key skills involved in (a) following a strict gluten-free diet (GFD) and (b) maintaining Quality of Life (QoL).

Objective: The main goal of the study was to develop and implement an online SC and SR skills intervention to improve adherence to a GFD (primary outcome) and QoL (secondary outcome) among adults newly diagnosed and/or struggling with celiac disease. It was hypothesized that compared to the WLC, participants who completed either intervention (SR and SR+SC) would report better adherence to a GFD and QoL.

Methods: Part 1 involved development, pilot-testing, and refinement of a 4-week online intervention, with 14 individuals completing the intervention, and 11 participating in focus groups. Part 2 involved a randomized control trial, in which participants were randomized to one of three groups (SR = self-regulation; SR+SC = self-regulation + self-compassion; WLC = wait-list control). The SR and SR+SC groups were asked to complete the corresponding 8-week online intervention and the WLC group was randomized to either SR or SR+SC after 6 months.

Results: Part 1: Participants wanted more content in each session, content to be tailored to newly or long-term diagnosed, and the modules to be offered bi-weekly versus weekly. In Phase 2 (n = 26), mean changes within group were noted: adherence to a GFD in SR (Mchange = 2.50; SD = 3.54), SR+SC (Mchange = -2.50; SD = 2.95), WLC (Mchange = -3.00; SD = 2.97); and QOL in SR (Mchange = .68, SD = .81), SR+SC (Mchange = 1.15; SD = 1.20), WLC (Mchange = .46, SD = 1.30). As this study is still in progress, we assessed effect sizes to examine hypothesized changes in the primary outcomes between groups'.

Conclusion: As hypothesized, individuals who completed the SR and SR+SC interventions self-reported higher adherence to a GFD and QoL. 19 individuals have completed the program to date, with future waves scheduled.

#32 - EXPLORING THE FACTORS CONTRIBUTING TO CONTINUED ALCOHOL CONSUMPTION AFTER PREGNANCY RECOGNITION

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Background: The current study examines factors affecting alcohol consumption by women after pregnancy recognition. Most women discontinue their alcohol use after they realize they are pregnant. However, some women continue to drink after this time, necessitating a different approach for harm reduction related to prenatal alcohol use and prevention of alcohol consumption in this group. Furthermore, much existing research does not often recognize the differences in women's alcohol consumption before and after they know they are pregnant.

Objective: To better understand the risk and protective factors around alcohol consumption after pregnancy recognition and to identify areas where collaboration can take place to improve service delivery.

Methods: This qualitative study, commissioned by a collaborative of Calgary-based FASD-serving organizations, interviewed women who self-identified as having consumed alcohol during pregnancy and service providers who work with pregnant women to examine the factors that impacted their choice.

Results: There is significant stigma around alcohol consumption during pregnancy, with the belief that it is related to poor, young, addicted women. However, there is evidence to show that higher income, more educated, older women are those who are more likely to drink after pregnancy recognition. For both of these groups, it is possible that prenatal alcohol consumption may be linked to addiction or alcohol use as a coping mechanism for underlying trauma or abuse. This study's results will explore these themes as well as other potential factors that impact prenatal alcohol consumption. This study aims to elucidate the factors affecting alcohol consumption after pregnancy recognition and to help provide a necessary perspective to inform future programming and supports for women who may consume alcohol during pregnancy.

Conclusion: This study will enable evidence-based decision-making and inform intervention strategies to help prevent FASD and to reduce harms around alcohol consumption during pregnancy.

#33 - INDIGENOUS CULTURAL COMPETENCY & CULTURAL SAFETY IN HOSPITAL EMERGENCY

DEPARTMENTS: A SCOPING REVIEW

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Background: National and international literature suggests that Indigenous patients experience differential care and report discriminatory treatment in Emergency Departments (EDs).

Objective: This research was designed to identify what is known regarding barriers and facilitators to improving Indigenous cultural competency and safety in hospital departments, focusing on the ED.

Methods: A research advisory committee of experts in Indigenous health, cultural competency, and emergency care was assembled to guide this research. Due to the exploratory nature of the research question, a scoping review methodology was utilized, enabling the team to gain a better understanding of what has been done in this field. Electronic databases were searched for published and unpublished studies, policy guidelines, toolkits, and other resources related to our key concepts: “Indigenous”, “Cultural Safety”, “Cultural Competency”, “Emergency Departments”, “Approaches/Interventions”, “Facilitators” and “Barriers”. Data from selected materials were extracted and charted into tables indicating factors facilitating Indigenous cultural competency and Indigenous cultural safety in the ED, and factors that were barriers.

Results: Clear consensus on clinical outcomes associated with enhanced Indigenous cultural competency / safety was not evident in the literature reviewed. Measurement primarily focuses on provider self-assessment and patient levels of satisfaction. Frequently cited facilitators include Indigenous cultural liaison programs and consultation and collaboration with local Indigenous communities. Cultural competency training had a dual role as facilitator and barrier, depending on the nature of the curriculum and method of delivery. Several factors impacted care delivery for other patient groups in addition to Indigenous patients.

Conclusions: Common facilitators and barriers towards Indigenous cultural safety in hospital EDs were identified in the literature and were mapped out in this review. Creating culturally safe EDs is a complex task, which requires broad support from ED health care providers, hospital leadership and Indigenous patients and communities. This work may serve as foundational evidence for hospital staff teams attempting to improve emergency care outcomes for Indigenous patients, and may lead to overall improvements in patient-centered care.

#34 - TRANS-AGING: A REVIEW OF THE CURRENT LITERATURE ON THE AGING OF SEXUAL AND GENDER-MINORITY PERSONS

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Background: Members of sexual and gender minorities – persons who are identified as gay, lesbian, bisexual, or transgender (LGBT) – are newly visible population of elderly persons. However, while there has been a recent spurt in addressing the needs of the elderly LGBT, much still remains to be both understood and implemented. Aging is a complex process, and particularly for the LGBT population, understanding its sub-processes requires examining aging across multiple and intricate domains of organization.

Objective: This research will review the current literature available on transgender aging, or trans-aging. Trans-aging as a growing discipline, I will argue, has important implications on health and social policy development that will not only impact the ever-increasing number of transgender elderly but the wider gender-minority population in general.

Methods: Data interview presented throughout were taken primarily from *Dr. Tarynn Witten's gerontological research on the LGBT population, relevant material from my own undergraduate honors thesis looking at a cross-cultural study (of the diverse experiences and histories of transitioning) of transwomen in Indonesia and the Philippines, and from my ongoing Master's thesis looking at transwomen and sexual reassignment surgeries in Singapore and Bali, Indonesia.

Preliminary Results, Conclusions, and Future Directions: Gender minority persons make up a growing but largely still epidemiologically invisible minority group within the worldwide elderly population. Quality of life is an important aspect of scholarship on behalf of older persons, and yet there has been little research attention paid to this aspect of aging among transgender adults. There is now a strong need for obtaining rigorous data on behalf of transgender and gender-variant older adults as they age. It is to hope that rigorous data – both qualitative and quantitative – on behalf of elderly transgender and other gender-variant older adults should (and must) be collected to better understand and support the complex aging processes of both the current and future elderly LGBT cohorts. Gender identity is a fundamental aspect of the human psyche, and persons of any gender group – women, men, persons with other gender identifications or who transition gender – should have the same rights to personal safety, dignity and opportunity throughout life, and peaceful existence in later years.

*Given that it is a fairly new discipline, only few researchers are working on the subject topic. Dr. Tarynn Witten has been working on transgender gerontological research from early 2000s to present.

#35 - LONG TERM NEUROPSYCHIATRIC OUTCOMES OF INTENSIVE CARE UNIT PATIENTS: A SYSTEMATIC REVIEW

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Background: There is limited research examining the long-term outcomes of intensive care unit (ICU) patients. Recent studies suggest that these patients may be at increased risk of developing neuropsychiatric illnesses, such as depression, anxiety, and post-traumatic stress disorder (PTSD), following a stay in the ICU. This risk may be attributed to the severity of illness experienced and the nature of therapies provided in the ICU. It is important to follow-up with ICU patients and provide appropriate resources to improve care post-discharge.

Objectives: Using systematic review methodology, examine the overall burden of neuropsychiatric illnesses (e.g., depression, anxiety, PTSD, and neurocognitive disorders) in adult patients following a discharge from a medical-surgical ICU.

Methods: Keywords and subject headings pertaining to the ICU and neuropsychiatric illnesses were searched in MEDLINE, EMBASE, PsycINFO, and CINAHL from 1980-June 16, 2017. A protocol was published a priori in PROSPERO following guidelines from Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)-Protocol. Two reviewers will independently, and in duplicate, screen abstracts, assess full-text eligibility, and extract data. Included studies will be observational and report on the prevalence or incidence of neuropsychiatric outcomes of adult patients following a stay in the ICU. If possible, random-effects meta-analysis will be performed as the population and conditions being examined are known to be heterogeneous. Heterogeneity will be assessed using the tau-squared statistic. Publication bias will be assessed visually using funnel plots and statistically using the trim and fill method and Begg's and Egger's tests. Each included study will be evaluated for potential biases using the Newcastle-Ottawa Scale (NOS).

Results: 4,342 titles and abstracts will be screened. Descriptive statistics will be presented on patient characteristics of the included studies. Prevalence and/or incidence estimates for each study will be collected or calculated using the raw study data and will be depicted visually through a forest plot.

Conclusions: This systematic review is the first in the field to summarize the literature on neuropsychiatric outcomes of ICU patients. Expected findings of this research will enhance current provider and patient knowledge around neuropsychiatric outcomes following a stay in the ICU.

#36 - DOCOSAHEXAENOIC ACID AND EICOSAPENTAENOIC ACID DECREASE CELL VIABILITY AND INCREASE EXPRESSION OF CELL DEATH RECEPTOR IN HUMAN BREAST CANCER CELLS

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Background: Breast cancer (BC) is the most common form of cancer in Canadian women. Fish and fish oils are rich sources of omega-3 long chain polyunsaturated fatty acids (n-3 LCPUFA), docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA). Fish and fish oil intake is associated with a decreased risk of BC; however, the mechanisms by which they reduce BC are unclear.

Objective: The objective of this study was to determine the effect of varying ratios of DHA and EPA on cell viability, membrane incorporation, and expression of the death receptor CD95 in the invasive MDA-MB-231 BC cell line.

Methods: MDA-MB-231 BC cells were exposed to control medium (40 micromolar oleic acid and 40 micromolar linoleic acid) for 3 days alone or combined with one of the following treatments at 150 micromolar: DHA; EPA; 1:1 DHA:EPA; 2:1 DHA:EPA. Cell viability was measured using trypan blue exclusion (n=3). Cell membrane phospholipid incorporation was assessed using gas-liquid chromatography (n=3) and flow cytometry was used to analyze cell surface expression of CD95 (n=2).

Results: All n-3 LCPUFA treatments decreased MDA-MB-231 BC cell viability relative to control (16-26% decrease, $p < 0.05$), to the same extent. DHA membrane phospholipid incorporation increased with DHA alone (74 fold increase, $p < 0.05$) and EPA incorporation increased with EPA alone (155 fold increase, $p < 0.05$), relative to control. The 1:1 and 2:1 treatments blunted incorporation of both DHA (57 and 36% decrease, $p < 0.05$) and EPA (15 and 40% decrease, $p < 0.05$). DHA, and to a lesser extent, EPA increased expression of CD95, compared to control (23% increase, $p < 0.05$ and 12% increase, $p < 0.005$). The effect of DHA on CD95 expression was blunted in the presence of EPA in 1:1 and 2:1 treatments (16% increase, $p < 0.0001$ and 21% increase, $p < 0.01$).

Conclusions: Our findings suggest that DHA or EPA decrease cell viability in MDA-MB-231 BC cells and have differential effects on membrane incorporation and increasing the surface expression of the death receptor CD95, suggesting they act through different mechanisms. Our ongoing work will allow us to identify these mechanisms and this will help in designing targeted n-3 LCPUFA recommendations.

#37 - DIGITAL HEALTH SOLUTIONS FOR OLDER ADULTS: INTEGRATED CARE PLANNING FOR CHRONIC DISEASE MANAGEMENT

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Background: By 2036 Canada's senior population (65 years and older) will make up 25% of the total population. These seniors will become more frequent users of the health care system as they age and develop complex care needs. Managing seniors' complex care needs may require transitions from hospital care to assisted living communities (ALCs). This is more than a physical transition: making this change will often require a shift in responsibility for the flow and management of health information, with the seniors and/or their family members ensuring that health information is up-to-date and accessible for health care providers. The aim of our study is to better understand how seniors currently collect, share and manage their health information. This will guide future recommendations for how integrated health information technologies can be used to make care planning more efficient.

Objective: The purpose of this study is to determine how the health information of seniors (ALC residents >60 years old) is collected, managed and shared.

Methods: Study participants will include residents (n~12), family members (n~12), care providers (n~9), and managers (n~3) within identified ALCs. Participant interviews will focus on how resident health information is managed by ALC care teams. The study team will also utilize contextual inquiry within each environment to identify potential gaps and barriers with the flow of resident information.

Results: This study will provide detailed information on the collection, management and sharing of ALC resident health information. This will identify gaps in the current management of health-related information and opportunities to improve information flow to support resident health. Study results will be used to identify possible solutions, such as the use of integrated health information technologies.

Conclusion: Study results will provide systemic recommendations for the collection, management and sharing of ALC resident health information. Data collected may also be used to inform potential health information technology partners on how to support this unique environment.

#38 - ASSOCIATION BETWEEN PATIENT-REPORTED OUTCOMES AND INDICES OF HEALTHCARE UTILIZATION IN CORONARY ARTERY DISEASE

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Background: Individuals with coronary artery disease (CAD) are known to report poorer health-related quality of life (HRQOL) and increased use of acute healthcare services than the general population. Risk prediction models that are commonly used for aiding disease diagnosis, evaluation of treatment options, and predicting health services usage are primarily developed based on patients' demographic and clinical characteristics. But these models don't often account for patient-reported HRQOL, which may modify subsequent health care utilization behavior.

Objective: The purpose of this study is to investigate whether disease-specific patient-reported measure of health status are predictive of mortality and subsequent health care utilization in patients with CAD.

Methods: The data for analyses were obtained by linking the Alberta Provincial Project for Outcome Assessment in Coronary Heart Disease (APPROACH), a population-based registry of individuals who received cardiac catheterization, with mortality data from the Vital Statistics Registry, and healthcare utilization data obtained from administrative databases including Hospital Discharge Abstract Database, Physician Billing Claims, and National Ambulatory Care Reporting System. Patient reported outcomes were collected using the Seattle Angina Questionnaire (SAQ), a cardiac-specific measure of HRQOL. Generalized linear regression was used to assess the relative contribution of SAQ to mortality, hospital length of stay, number of hospitalizations, number of emergency department visits, and number of readmissions.

Results: Of the 3202 patients included in this analysis, 614 (19.2%) were female, 920 (28.7%) received coronary artery bypass grafting, and 306 (9.6%) died within the first five years of receiving catheterization. The mean age of the CAD patients was 64.5 years, while the mean patient reported total SAQ score was 67.8. Preliminary results suggest that patient-reported angina frequency (p

Conclusion: This study is expected to demonstrate the prognostic utility of patient reported outcomes in predicting mortality risk and patterns of healthcare use in CAD patients. The result of this finding will inform the development of more accurate healthcare utilization risk adjustment models in CAD patients.

#39 - FOOD AS A GATEWAY: NOVEL STRATEGIES TO SUPPORT THE HEALTH OF MIGRANT WOMEN IN EDMONTON

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University of Alberta

Background: In Canada, the prevalence of low income and household food insecurity are greater among families that recently (< 5 years) immigrated to Canada. A large proportion of migrants are women who might experience pregnancy in Canada while being at an increased risk for food insecurity. In Edmonton, at-risk migrant women may receive additional perinatal support from the Multicultural Health Brokers (MCHB) Cooperative. MCHB is a collective of health brokers from diverse backgrounds who serve women and families in difficult life circumstances. In recent years, health brokers' holistic services have been overshadowed by food crisis situations where families lack immediate access to food. It is for this reason that MCHB has partnered with the ENRICH Research Program to develop novel strategies that can address food security among migrant women and families. One of these strategies – the Grocery Run Program (GRP) – entails collecting donated foods, and distributing them women and families with same-day food needs.

Objectives & Methods: The objectives of our project are to examine to what extent the GRP 1) meets same-day food needs of women, and 2) supports community-building and social action. Guided by a Theory of Change that includes short- and long-term goals, a Developmental Evaluation (DE) approach, with a mixed-methods research design, has been used to examine the implementation of the GRP, and guide adaptation to MCHB context.

Results: Of 213 women connected to MCHB programming in November 2016, 53% (n=112) lived in households that were severely food insecure. The GRP currently serves ~50 women and families weekly. DE preliminary results indicate that the MCHB-ENRICH partnership has been pivotal to early successes; whereas operational logistics and territorial issues within and between organizations have been barriers. A social enterprise that is embedded into municipal policy, and supported by University of Alberta Alumni, is being developed to ensure MCHB families' human right to food.

Conclusion: Improving migrant women's diets will require addressing migration as a risk factor for food insecurity. The GRP has the potential to not only address same-day food needs of migrant women and families, but also ignite social action among women at MCHB in Edmonton.

#40 - VARIATIONS IN SURGICAL ERRORS AND COMPLICATIONS FOLLOWING CAESAREAN SECTION.

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*This is a work-in-progress project so there are no results or conclusions to report

Objectives: To examine the variation in the incidence of surgical errors and complications following caesarean section (CS) in the United States and the association between individual and hospital level factors and surgical errors/complications following CS.

Methods: The 2014 Nationwide/National Inpatient Sample (NIS) will be used, which is a de-identified database that has information on 20% of hospital discharges in the United States. This database contains approximately 180,000 individual CS. Descriptive statistics will be used to characterize the obstetrical population and the specifics of each CS. The overall rate of surgical errors and complications following CS will be calculated. Bivariate analysis using chi-square and t-tests (as appropriate) will examine baseline differences in cases that were and were not affected by surgical complications or errors. Chi-square tests will be used to examine the bivariate association between surgical errors and complications in CS and potential covariates at the individual (i.e. patient) and group (i.e. hospital) level. Multi-level logistic regression models will be built to examine the impact of individual and hospital factors on surgical errors and complications following CS.

Significance/Impact: Over a quarter of a million women in the United States are affected by adverse surgical outcomes after CS. These adverse events after CS potentially contribute to increased Disability-Adjusted Life Years (DALYs) since the obstetrical population is on average younger than the general population. As patient safety is paramount in healthcare, this study has the potential to identify specific quality improvement initiatives to reduce the incidence of adverse maternal events following CS.

#41 - UNDERSTANDING SOURCES OF CONTAMINATION IN STORMWATER PONDS TO PROMOTE WATER REUSE IN ALBERTA

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Background: Harvesting stormwater provides Alberta with a strategy to address the growing demands on water resources due to climate change and projected population growth. However, stormwater reuse poses a variety of challenges due to the potential of this source to be contaminated with human and animal feces, and thus microbial pathogens such as *Campylobacter* spp., *Salmonella* spp., and pathogenic *E. coli*. Storm events are correlated with an increased prevalence of disease, likely due to the mobilization of pathogens in the environment leading to increased exposure and transmission risks. The contamination of water with human and/or animal excreta possesses significant risks to human health - albeit the risks associated with pathogens found in human wastes are greater than those associated with animal wastes. Several recent studies have demonstrated that human feces are commonly found in urban stormwater systems, and therefore, urban stormwater risks associated with its use must be better understood in terms of contamination sources.

Objective: To identify sources of contamination and bacterial pathogens present in various stormwater ponds located in Calgary, Airdrie, and Edmonton.

Methods: Throughout the summer 2017 stormwater season (May-September) over 500 samples will be collected from various stormwater ponds in Edmonton, Calgary, and Airdrie. DNA will be extracted from various samples from inlets and outlets of the ponds. Bacteriodes specific markers will be used to identify potential sources of contamination (Human, Dog, Muskrat, Ruminant, Birds, Canadian Goose) and pathogens present (*Arcobacter*, *Campylobacter*, *Salmonella*) through quantitative PCR. Additional culture based methods for *Campylobacter* spp. and *Salmonella* spp. will be used on select stormwater pond samples to further determine the risks. Routine testing of fecal indicator bacteria using culture-based (coliforms, thermotolerant coliforms, *E. coli* and *Enterococcus*) and molecular-based methods (qPCR *Enterococcus*) will be done to assess overall microbial water quality and for comparing stormwater quality against existing water quality standards (e.g., recreational water quality).

Expected Outcomes: This research will help to better understand the pathogen risks in stormwater within Alberta and contribute to ongoing risk models that will aid in the development of government regulations for water reuse.

#42 - GUIDELINE DEVELOPMENT FOR PERIOPERATIVE CARE IN NEONATAL ABDOMINAL SURGERY: ENHANCED RECOVERY AFTER SURGERY (ERAS) SOCIETY RECOMMENDATIONS

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Background: Enhanced Recovery After Surgery (ERAS) protocols are care pathways designed to improve functional capacity following surgery. These pathways are developed by critically evaluating evidence for perioperative care elements, and identifying evidence-based practices that are not routinely performed and have the potential to improve care within a generalizable protocol. ERAS protocols in colorectal, urology, and other surgeries have reduced complication rates and length of stay. Pediatric ERAS protocols have not been formally developed or studied. Pediatric-specific ERAS protocols are particularly important for neonates who have unique physiology and present unique surgical risks. Up to 10% of neonatal surgical cases suffer from preventable adverse outcomes and thus would benefit from an ERAS guideline.

Objective: We aim to develop an ERAS guideline for neonatal abdominal surgery.

Methods: We propose a collaborative approach to the development of a neonatal abdominal surgery ERAS protocol. Our team brings together an international collaborative of surgeons, anesthesiologists, neonatologists, and methodology experts. The scope of surgical procedures and topics to be covered will be reviewed and refined by the research team. Topics will subsequently be addressed through focused literature searches aided by a research librarian, with 'snowballing' of references from identified articles. Evidence supporting proposed practices will be presented to the ERAS team and reviewed. Expert opinion will supplement topics with limited evidence. The quality of the evidence supporting recommendations in the ERAS protocol will be assessed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system. The content of the protocol elements will be determined through consensus oriented decision making. The ERAS protocol will first be piloted with the neonatal population at the Alberta Children's Hospital (ACH), which with feedback will shape future iterations. This study represents the first stage in a large quality improvement (QI) initiative targeted at improving the quality and safety of neonatal abdominal surgery.

Expected Results and Significance: Our proposal for the development of a neonatal abdominal surgery ERAS protocol has been peer-reviewed and approved by the international ERAS Society. We anticipate that this knowledge synthesis project has strong potential to support improved clinical care for neonates.

#43 - OPIOID DEPENDENCY TREATMENT FOR OLDER ADULTS IN THE INNER CITY: BARRIERS AND FACILITATORS TO SERVICE DELIVERY

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Background: Substance dependence among Canadians aged 50 years and over is on the rise (Arndt, Clayton, & Schultz, 2011). “Older” is defined as greater than 50 years for street-affected people due to accelerated patterns of aging and multiple health problems (McDonald, Donahue, Janes, & Cleghorn, 2009). Recent evidence suggests that unprecedented numbers of older adults are entering publically funded opioid dependency treatment (ODT) (Arndt et al., 2011). However, service delivery recommendations have not been tailored to the unique needs of this population and may not be “age friendly” (WHO 2007) or meet expected quality standards. Issues related to mobility and health challenges that are compounded by age, poverty, and housing instability can be expected to impact addictions and mental health service delivery for older adults in the inner city.

Objective: To appraise ODT recommendations to:

- a. Determine service delivery barriers for older adults in inner city settings
- b. Inform policy and program changes to improve service delivery in Canada.

Methods: A systematic review informed by framework synthesis (Carroll, Booth, Leaviss, & Rick, 2013) be conducted to: 1) identify published frameworks, models, and theories to generate a data extraction and synthesis framework; 2) apply this framework to primary studies and clinical practice guidelines identified through systematic literature searching.

Results: Barriers to ODT service delivery, specific to inner city older adults, will be determined and synthesized across the identified literature to generate policy and program change recommendations. Preliminary literature review suggests multiple barriers exist related to requirements for: directly observed dosing, stable housing, random urine drug testing, and behaviour policing.

Conclusions: ODT service delivery should be tailored with the unique needs of inner city older adults in mind. It is anticipated that the literature will confirm ODT service delivery is not sensitive to the needs of older adults, resulting in inequitable health outcomes.

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#44 - THE IMPACT OF AN ELECTRONIC PERSONAL HEALTH PORTAL ON HEALTH CARE AND DECISION-MAKING: A STUDY OF CONCEPTUALIZATION, DEVELOPMENT, AND IMPLEMENTATION

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University of Alberta

Background: Electronic personal health record portals and other eHealth information systems have emerged as promising solutions to yearly increases in health care costs, and as potential platforms for development of accessible, integrated, and coordinated health care systems. In 2016, Alberta Health Services introduced an electronic personal health records portal called MyChart. This system is currently in a proof of concept phase and only accessible to patients in participating Edmonton clinics.

Aim and Methods: The aim of this study is twofold: (1) to conduct an historical research study of the conceptualization, development, and implementation of MyChart; and (2) to investigate the perceived barriers, enablers and value of patients, health care professionals, and health administrators in Alberta about the utility of MyChart as a vehicle for promoting integrated health care delivery through a qualitative comparative case study methodology.

Objectives: This study will focus on the 'socio-technological' impact of the portal in Alberta. In terms of perceptions, this study will investigate the barriers, enablers and value of this electronic personal health portal to the various stakeholders. Under technological functions, this study will explore components such as technology usability, health literacy of the stakeholders, privacy, access to care, policies, and clinical practices.

Discussion: This study will generate innovative approaches to healthcare delivery that will improve outcomes and patient experiences. The outcomes of this study will be assessed at multiple levels, from patient satisfaction, increase in health literacy, increase in information sharing between patients and health care providers, improvement in the health care shared decision making process, and ultimately to improvement of patient outcomes. These outcomes are desirable for the successful integration of MyChart in patient-oriented integrated health care system, and as a vehicle for promoting the health of Albertans. The dissemination planning will ensure that the conclusions are delivered to the decision-makers who play a crucial role in the implementation, health care providers who promote, and patients who can take advantage of electronic personal health records portals. eHealth technologies are here to stay but require proper implementation, and this study will contribute toward this identified need.

#45 - CLINICALLY RELEVANT EVIDENCE FOR HOME MONITORING OF VITAL SIGNS AND KEY METABOLIC PARAMETERS

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University of Calgary

Background: A significant increase in the proportion of adults over sixty-five is expected over the next two decades. These might result in rising healthcare costs, declining quality of care, and increased burden on caregivers. Aging-in-place initiatives aim to help seniors maintain good health and monitor their own well-being from the comfort of their home. Home monitoring of vital signs (ex. temperature, pulse, respiration rate, blood pressure) and key metabolic parameters (ex. blood glucose) could potentially allow seniors to manage ailments and track well-being outside of hospital or long-term-care environments. However, some clinicians find these devices of little medical value, as they do not trust the device to provide accurate measurement(s) sufficient to guide decision-making. The perception amongst clinicians is that many of these devices lack the necessary validation to be useful in the home environment. Properly validated devices will be more likely to be accepted as decision-making tools by medical professionals; hence providing a real value to seniors aging-in-place.

Objective: The objective of this study is to understand (1) how frequently and (2) by what methods home vital sign monitoring devices are clinically validated. In this study, clinical validation is defined as the precision, accuracy and reliability of the measurements recorded by the devices.

Methods: A search of Medline, Embase, and Compendex will be conducted to identify publications assessing the accuracy, precision and reliability of home vital sign monitoring devices. In addition, the methods used for validation will be recorded.

Results: A previous study performed involved an environmental scan of biomedical technologies to support aging-in-place and utilized multiple correspondence analysis to generate relationship plots. Results indicated lack of clinical validation and increased likelihood of validation for corrective action devices targeting cognitive and sensory assistance. This study involves a literature review that will identify the proportion of published studies reporting clinical validation of home vital sign monitoring devices, as well as the methods used to validate.

Conclusions: Clinical validation of home vital sign monitoring devices can be used to support aging-in-place initiatives. Understanding how these devices are validated has the potential to improve adoption of aging-in-place initiatives in the healthcare system.

#46 - RISK SCORES FOR CARDIOVASCULAR DISEASE IN PATIENTS WITH DIABETES: A SYSTEMATIC REVIEW AND META-ANALYSIS OF C-STATISTIC

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Background: Cardiovascular diseases (CVD) are the leading causes of death globally. Patients with diabetes are at high risk of CVD. Cardiovascular risk scores, an effective tool used widely to identify these high risk individuals to avoid adverse events and to help clinicians effectively implement preventive strategies. Many CVD risk scores have been developed both in diabetic population and in general population but their accuracy and consistency varies.

Objective: This study reviews the literature on available CVD risk scores specifically developed or validated in diabetic populations and performs a meta-analysis of C-statistic to assess their predictive performance.

Methods: We searched MEDLINE, PubMed and EMBASE and manually checked references of all identified relevant publications that developed or validated CVD prediction models in diabetic population. Random effects meta-analysis was used to pool C-statistics of models. Heterogeneity was explored using stratified analyses.

Results: We identified 40 articles describing 26 models predicting CVD. 13 models were specifically developed for diabetic patients and 13 models were developed in general population but validated in diabetic patients. 17 models were externally validated in 47 different diabetic population, of which 8 models had multiple validation and 9 models had single validation. 9 models never been validated. Among the models with multiple validation, 4 models were developed in diabetic population (validated in 9 different diabetic population) and 4 were developed in general population (validated in 29 different diabetic population). Framingham risk score (different versions) is the most validated risk score (validated in 23 study cohort). There was no significant heterogeneity in the discrimination of CVD prediction models (pooled C-statistic = 0.68; I²= 47.3%, Cochran Q-statistic p = 0.014) developed in diabetic population but significant heterogeneity in the models (pooled C-statistic = 0.65; I²= 77.4%, Cochran Q-statistic p < 0.0001) developed in general population. There was no difference in the discrimination of models developed in diabetic population compared with models that developed in general population (p = 0.68).

Conclusions: Overall, CVD risk scores identifies risky individuals reasonably well, however their performance varies between different models and populations. Care is needed to implement these CVD risk scores in clinical practice.

#47 - EXPLORING THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND GENERAL LIFE SATISFACTION

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Background: Existing research on the relationship of general life satisfaction and physical activity has been limited to small populations with specific comorbidities (Anokye, Trueman, Green, Pavey, & Taylor, 2012). General life satisfaction is an individual's personal perspective and assessment of their physical, emotional and social functions (Perales, Del Pozo-Cruz, J., Del Pozo-Cruz, J., & Del Pozo-Cruz, B, 2014). Anokye et al. (2012) suggest that physical activity improves social interaction, self-esteem and endorphin production.

Objective: The purpose of this poster presentation is to improve understanding of the relationship between physical activity and general life satisfaction. Therefore, our research question is: What is the relationship between frequency of all physical activity and satisfaction with life in general for adult Albertans?

Methods: This study utilizes self-reported data from adult Albertans (Age>18) in the 2005 Canadian Community Health Survey. A Spearman's Correlation was performed to analyze any relationship between the frequency of all physical activity and satisfaction with life in general.

Results: Spearman's Correlation showed a small, positive, statistically significant relationship between the frequency of all physical activity (n=11604) and satisfaction with life in general (n=11605), $r = +0.126$, $p < .01$

Conclusion: In adult Albertans, a higher frequency of all physical activity is correlated to higher scores in satisfaction with life in general. These findings support the literature, which suggests that the frequency of physical activity positively influences general life satisfaction in adult populations (Perales et al., 2014). The potential application of these findings includes the development and support of physical activity programs delivered by healthcare professionals.

#48 - THE ASSOCIATION BETWEEN SLEEP PROBLEMS AND PSYCHOSOCIAL ADJUSTMENT IN PEDIATRIC MILD TRAUMATIC BRAIN INJURY

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Background: Concussion, a form of mild traumatic brain injury (mTBI), affects many children and youth in Canada annually. Disturbed sleep is among the most common complaints of mTBI patients. A positive association between sleep quality and psychosocial functioning (e.g., school performance, quality of life) is well-established in other injury populations (e.g., burn survivors); however, this link has received less attention in pediatric mTBI. A greater understanding of the association between sleep and psychosocial adjustment may advance treatment of pediatric mTBI and foster improved psychosocial outcomes in pediatric patients.

Objectives: This ongoing study aimed to assess the relationship between sleep problems and psychosocial adjustment following pediatric mTBI and orthopedic injury (OI).

Methods: Participants included 143 children aged 8-16 (mTBI, n=90; OI, n=53) recruited to the Advancing Concussion Assessment in Pediatrics (A-CAP) study. Parents reported on children's pre-injury and 3-month post-injury sleep problems using the Child Behaviour Checklist (CBCL) sleep items, and rated children's psychosocial adjustment at 3 months post-injury using the Strengths and Difficulties Questionnaire (SDQ). The relationship of injury type and pre- and post-injury sleep to SDQ scores was examined using regression analyses.

Results: Together, pre-injury sleep, post-injury sleep, and injury type accounted for a significant amount of variance in 3-month post-injury psychosocial adjustment ($R^2=0.180$, $p<0.001$). Post-injury sleep ($\beta=0.317$, $p=0.001$), but not pre-injury sleep problems ($\beta=0.089$, $p=0.340$) or injury type ($\beta=0.137$, $p=0.091$), was a significant negative predictor of adjustment. Likewise, only post-injury sleep uniquely predicted the emotional, conduct, and hyperactivity subscale scores. On the peer problems subscale, both pre- and post-injury sleep, as well as the interaction of post-injury sleep and injury type, were significant predictors. The mTBI group displayed more peer problems than the OI group when post-injury sleep problems were above average, but not when they were below average. On the prosocial subscale, none of the predictors were significant.

Conclusions: Overall, increased post-injury sleep problems predicted poorer psychosocial adjustment, regardless of pre-injury sleep problems, and were associated with worse peer relationships specifically for children with mTBI. Post-injury sleep behaviour may be critical in the recovery of children following mTBI.

#49 - ASSESSMENT OF COMMUNITY CONTEXT FOR HPV IMMUNIZATION PRACTICE: A PROPOSAL FOR CASE STUDIES WITH ALBERTA FIRST NATIONS

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Background: Chronic infection with human papilloma virus (HPV) can lead to many diseases, most notably cervical cancer. HPV immunization, widely introduced in 2007, promises to bring great reduction in suffering associated with HPV disease. To ensure equity in these health benefits, it is essential that communities experiencing high rates of cervical cancer receive equitable access to HPV immunization. Indigenous women in Canada are known to experience high rates of cervical cancer and, though little research has been done, Indigenous girls in some jurisdictions have been found to have lower uptake of the HPV vaccine than non-Indigenous girls. The proposed research described in this abstract will be nested within a larger research project called EHVINA (Enhancing HPV Immunization with First Nations in Alberta). EHVINA is currently building partnerships with 6 Alberta First Nations to measure, explore, and improve HPV immunization.

Many theories and models related to public health recommend a socio-ecological approach to community practice. This approach facilitates the adaptation of programs to local community context. However, some practitioners may experience challenges to working “ecologically” in the practice setting.

Objective: The purpose of this research is to describe factors in three unique Alberta First Nations that enable or challenge public health nurses’ and community health representatives’ incorporation of local social determinants of health into the provision of HPV immunization. Participating communities are yet to be approached, pending engagement in EHVINA.

Methods: Comparative case study methodology, collecting qualitative data, will guide this research. Data collection methods will consist of: one-on-one interviews and practice diaries with health practitioners, and small group interviews and guided community observations with community members. A strengths-based approach will be fundamental. “Within case” analysis will occur through inductive thematic analysis. A community profile, describing strengths and best practices will be produced. Framework analysis will be used to highlight common themes between communities.

Significance: Communities participating in this work will benefit from the development of an EHVINA intervention tailored to unique community context. Other benefits of this work will be learning about the health systems implications of Indigenous understandings of the social determinants and sharing of existing best practices.

#50 - THE LANDSCAPE OF PRENATAL RISK ASSESSMENT ACROSS CANADA: WHAT FACTORS ARE BEING CONSIDERED?

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University of Calgary

Background: Risk assessment is an essential component to individualized and responsive prenatal care. Research evidence supports the equal consideration of medical, psychosocial, and lifestyle factors when identifying mothers at an increased risk for adverse perinatal outcomes such as preterm birth, labour complications, or poor maternal mental health. In Canada, each province and territory is responsible for developing a mandatory prenatal record form, which guides health care providers in delivering routine pregnancy care. These records vary in their content and inclusion of a prenatal risk assessment tool. Consequently, little is known about the breadth and nature of risk factors that are considered when caring for pregnant women in Canada.

Objective: The purpose of this study is to compare the content of risk assessment tools found in provincial prenatal records across Canada.

Methods: Prenatal records from each province and territory are being obtained through health authority websites and contact with perinatal health professionals. Each record is initially assessed for the presence of a section focused on risk assessment. Those records with risk assessment sections are undergoing content analysis to determine the type and frequency of indicated risk factors.

Results: This study is currently ongoing. To date, eight prenatal records have been obtained, six of which had sections focused on risk assessment. Preliminary results show that medical risk factors are more commonly indicated on prenatal records than psychosocial or lifestyle risk factors. The most frequently listed prenatal risk factors include smoking, alcohol use, pre-existing medical conditions (e.g., epilepsy, lupus), multiple pregnancy, gestational hypertension, and advanced maternal age.

Conclusions: This is the first known study to examine the practice of prenatal risk assessment across Canada. Results from this work will demonstrate how many provinces and territories have integrated risk assessment into routine prenatal care, as well as identify the most and least commonly indicated risk factors. Our results will be used by decision-makers to support the introduction of a comprehensive, evidence-based, and standardized risk assessment tool into Alberta's prenatal record. This tool will help optimize the care and support provided to every pregnant woman in Alberta, leading to improved health outcomes.

#51 - VALIDATION OF INSOMNIA IN ADMINISTRATIVE HOSPITAL DISCHARGE DATA

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University of Calgary

Background: Insomnia is increasingly common in patients with chronic conditions. The majority of insomnia cases present with one or more comorbid disorders, like depression. However, in acute care, insomnia is often considered a symptom or secondary diagnosis, rather than the reason for admission. Given these complexities, validation of the prevalence of insomnia in hospital discharge data is warranted.

Objective: The goals of this study were to a) validate the prevalence of insomnia in administrative discharge data, and b) identify the occurrence of insomnia with comorbid conditions.

Methods: Six nurses with the intent to identify 50 health conditions reviewed 2467 randomly selected patient charts from 3 acute care Calgary hospitals. Patients with an Albertan PHN, an age between and including 18 and 105, and an inpatient visit between January 1 and June 30, 2015 were included. Obstetric cases were excluded. Patients with insomnia were defined as “[having] a documented diagnosis of insomnia or prescription of a sleep aid on admission and discharge”. The same set of records was coded using International Classification of Diseases, 10th version (ICD-10-CA), and compared to chart review as the reference standard.

Results: Of 2467 patients there were 1237 (40.4%) men, average age 61.8 years (std.dev 18.8), 240 (9.7%) had insomnia, yet 0 cases were coded in administrative data. The comparison of insomnia prevalence between ICD-10 and chart review showed sensitivity 0%, specificity 100%, and NPV 90.3%. While ICD-10 codes exist for insomnia (G478, G479), insomnia tended not to be coded. There was a statistically significant ($p < .05$) occurrence of younger males rheumatic disease drug abuse psychosis depression peptic ulcer liver and aids in those with insomnia compared to without.>

Conclusions: Insomnia occurred less in coded data than in chart review data, and several chronic conditions occurred with insomnia. The clinical definition of insomnia used for chart review revealed a similar prevalence of insomnia to that in published data. Insomnia may not be accounted for if it is considered to be a symptom of a primary disease. Furthermore, insomnia may lack a specific medical diagnosis when sleep-aids and medications are prescribed.

#52 - A RETROSPECTIVE STUDY OF WOMEN'S REPRODUCTIVE HEALTH RELATED CALLS IN AMAN FOUNDATION TELE-HEALTH CALL CENTRE IN KARACHI, PAKISTAN

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Objective: The study aimed to determine the reproductive health related concerns among the female population availing the services of one of the call centers in Karachi, Pakistan. This study also intended to determine the, frequency of calls, self versus surrogate callers (husband or mothers in law calling on behalf of patient), the age of the callers, the level of care provided and the shift timings of the calls. Moreover, this study also aimed to identify the recommendations, advice, and triaging given to the callers.

Methodology: A descriptive, retrospective study was conducted to analyze women's reproductive health related calls received in two years from January 01 2012 to December 31 2013 at telehealth call center Karachi, Pakistan. Call records of the patients were reviewed; and women reproductive health related symptoms were then extracted from the list and the received data were analyzed using descriptive statistics.

Results: The analysis of data revealed that 303 calls were related to women's reproductive health symptoms, out of which majority of the calls were surrogate calls (60.1%). Moreover, most of the calls were received in the morning shift (46.2%) and the mean call duration was 12.25 minutes. This study also revealed that the highest frequency of calls were related to pregnancy (26.1%), followed by urinary incontinence (10.6%) and urinary tract infection (7.9%). The findings indicated that most of the calls were effectively answered by qualified nurses (73.6%) with the use of algorithms and disease summaries. The study findings showed that majority of the callers (73.9%) were provided self-care instructions or health information from the algorithms for women's reproductive health concerns.

Conclusion: The findings of the study revealed the common reproductive health issues amongst the female population availing the services of one of the call centers in Pakistan. It is well established from the study that pregnancy-related issues are predominant among the female population of Karachi. The health care providers particularly call center agents, health educators, policy makers, and researchers need to acknowledge that in the South Asian region, women's reproductive health concerns are highly prevalent and patients' access to call centers is increasing day by day.

#53 - EARLY DIAGNOSIS AND TREATMENT OF PSORIATIC ARTHRITIS: AN ECONOMIC EVALUATION

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University of Calgary

Objective: To estimate the value of different screening and treatment options for Psoriatic Arthritis (PsA), compared to current practice in Canada (no screening).

Introduction: Screening of PsA is expected to slow disease progression by identifying and treating patients at earlier stages of the disease and delay expensive biologic therapy. To date, there is no systematic screening strategy in Canada for PsA.

Methods: A Markov model was built to estimate the associated costs and Quality Adjusted Life Years (QALYs) of screening options for PsA for a target population of patients with psoriasis who have not progressed to treatment with Disease Modifying Anti-Rheumatic Drugs (DMARDs). Screening tools included were: ToPAS, PEST, PASE, and EARP. Health states were defined by disability levels as measured by the Health Assessment Questionnaire (HAQ); transition between states was modelled according to annual disease progression based on line of treatment. Screening strategies were assumed to be effective during the 2-year period before diagnosis occurred (HAQ=0.71). Incremental cost-effectiveness ratios were estimated based on health state-specific costs and utilities for each alternative. Monte Carlo simulations were conducted to account for parameter uncertainty.

Results: Screening with the ToPAS tool is associated with the best cost-outcome relationship with a total cost of \$30,706 and 17.291 QALYs. EARP and No Screening is more costly and less effective than ToPAS. PEST is more costly but more effective than ToPAS with every additional QALY gained from PEST costing \$312,398. PASE is extendedly dominated by PEST. Results are most sensitive to test sensitivity and specificity, HAQ progression, and average HAQ score at diagnosis. Results were robust to a scenario analysis with the lowest reported sensitivity and specificity values for ToPAS, PEST, and PASE. A scenario analysis tested screening efficacy for a 1-year period before diagnosis. ToPAS remains the cost-effective alternative.

Conclusions: Screening is cost-effective compared to no screening at the commonly used cost-effectiveness threshold of \$50,000. However, due to high uncertainty around test accuracy, it is not possible to determine which tool is the best alternative. Value of information analyses will be useful to determine the need to collect further information around test accuracy parameters.

#54 - USING PROBIOTICS TO REDUCE CLOSTRIDIUM DIFFICILE INFECTION IN HOSPITALIZED PATIENTS RECEIVING ANTIBIOTICS: IMPLEMENTATION CHALLENGES

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Background: Clostridium difficile Infection (CDI) is the most common cause of severe diarrhea in hospitalized patients. Increased risk of CDI is associated with antibiotic usage, as antibiotics disrupt the normal gut flora thereby allowing C.difficile to grow and proliferate. Other risk factors for CDI include age and length of hospital stay. When the length of stay is more than four weeks, the risk of C.difficile intestinal colonization increases to 50%. It's estimated that each CDI case costs Alberta a mean of \$20,000 per hospitalization, a total annual burden of \$12-28 million. Probiotics are live microorganisms that promote healthy gut flora, and have been studied as a primary prophylaxis measure for CDI. Effectiveness of the probiotic BioK+ was demonstrated in a Québec hospital, where the incidence of CDI decreased by 73%. A recent Cochrane review showed that probiotics reduced the incidence of CDI by 64%.

Objectives: The main objective of this initiative is to determine if there is decreased incidence of hospital-acquired CDI when probiotics are administered to patients over the age of 55 receiving antibiotics. Secondary outcomes include rates of antibiotic-associated-diarrhea and a cost-benefit analysis. A major challenge is to engage key stakeholders in the initiative to use probiotics to reduce the incidence of CDI.

Methods: The initiative will roll out in a step-wedge manner in all Calgary adult acute-care hospitals in 6-month intervals. The probiotic Bio-K+50Billion CFUs (two capsules) is administered daily to hospitalized patients on systemic antibiotics with administration within 24-hours of starting antibiotics. Probiotic use will be continued for five additional days after antibiotics are stopped. Education of end-users and an alert with e-order entry have been used. Stakeholder focus group interviews will be used to examine implementation challenges.

Results: Outcomes focus on the rates of hospital-acquired CDI, BioK+ orders, and regimen adherence measures. Focus group interviews to date have identified several benefits and challenges of the initiative and have provided insight for implementation at other sites.

Conclusions: This initiative aims to improve the quality of patient care by improving patient outcomes, reducing the clinical and financial burden, and to provide a cost-benefit analysis of expected savings.

#55 - ASSESSING CHANGES IN CLINICAL DISEASE ACTIVITY SCORES AND HEALTH RELATED QUALITY OF LIFE IN WOMEN WITH IBD DURING PREGNANCY

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Background: Women with IBD are at risk of flaring during pregnancy, which is associated with adverse maternal and neonatal outcomes. IBD disease activity is often assessed with clinical disease activity scores, but pregnancy may alter these scores independently of IBD disease activity. In addition, active IBD is associated with poor IBD-related quality of life, but whether pregnancy-related changes also influence IBD-related quality of life is unknown. Objective assessments of IBD disease activity include biomarkers (C-reactive protein and fecal calprotectin) and changes in IBD-related cytokines.

Objectives: To assess changes in the IBD clinical disease activity scores and IBD quality of life throughout pregnancy, and to correlate these changes with changes in objective IBD disease activity measures and changes in IBD-related cytokines.

Methods: Women enrolled in the existing Preconception and Pregnancy in IBD clinical research program include adult (>18years) women with Crohn's disease (CD) and ulcerative colitis (UC), and healthy volunteers who are followed preconception and each trimester of pregnancy. Participants are asked to complete the modified Harvey-Bradshaw Index (HBI) for CD and partial Mayo score for UC at each visit. A mHBI >5 and pMayo >2 indicates clinically active IBD. In addition, the Short IBD Quality of Life (SIBDQ) score, blood and stool samples, are collected at each visit. C-reactive protein and pro-inflammatory cytokines are analyzed from blood samples. Fecal calprotectin is analyzed from the stool samples (FCP >200 mcg/g is considered diagnostic of active IBD).

Results: We will analyze the correlation between clinical disease activity scores and objective measures of disease activity during preconception and pregnancy. We will analyze the correlation between SIBDQ scores and clinical disease activity scores, and SIBDQ scores and objective measures of disease activity at each time point. We will investigate for association of clinical disease activity scores, objective measures of disease activity, and SIBDQ, with changes in IBD-related cytokines.

Conclusion: We expect to find that IBD clinical disease activity scores and IBD quality of life scores will fluctuate independently of actual objective IBD disease activity during pregnancy, and that objective IBD disease activity during pregnancy will be related to pregnancy-related changes in IBD-related cytokines.

#56 - RISK FACTORS FOR DEVELOPING PREMATURE MENOPAUSE IN CHILDHOOD CANCER SURVIVORS AND METHODS FOR BUILDING RISK PREDICTION MODELS

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Background: Childhood cancer survivors are often faced with chronic conditions in their adulthood resulting from the toxicities of their cancer treatment. Female survivors are at an increased risk of developing non-surgical premature menopause (NSPM), defined as amenorrhea for at least 6 months before age 40. The proportion of childhood cancer survivors developing NSPM is estimated to be 9%, compared to only 1% in the general population. NSPM negatively impacts quality of life and can significantly reduce potential reproductive years, emphasizing the urgent need to properly counsel these survivors.

Objective: To determine the risk factors for the development of NSPM following cancer treatment completion and to identify prediction models that can be used to accurately estimate the absolute risk of NSPM.

Methods: A review was performed on the topic of 1) premature menopause in childhood cancer survivors; and 2) the relationship between cancer treatment and the development of late effects. Literature was also reviewed for survival analysis models and risk prediction methodology.

Results: Cancer treatment exposures, such as radiation therapy and exposure to alkylating agents used during chemotherapy, have been identified as main risk factors. Specifically, direct radiation to the ovaries and doses of radiation greater than 10 Gy have been linked to a high risk of developing NSPM, as have exposure to and increased dosage of alkylating agents. An older age at time of treatment is additionally associated with an increased risk. The review also identified risk factors for NSPM in the general population such as ethnicity and smoking status. Survival analysis methods such as the Cox proportional hazards model, accelerated failure time model, time-specific logistic regression model etc., are established as reliable risk prediction methods and can be used to model the risk of NSPM development.

Conclusions: Examination of relevant literature classified chemotherapy and radiation therapy exposures as major risk factors for NSPM and identified various methods for modelling the risk of NSPM. Future directions involve implementing the survival methods to develop and select a model that will accurately predict the individualized absolute risk for NSPM by pre-specified ages, which is a critical component for fertility preservation counselling.

#57 - EXPLORING PARENTAL VIEWS ON COMMUNITY WATER FLUORIDATION AND POLICY ALTERNATIVES IN THE CONTEXT OF FLUORIDATION CESSATION.

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Background: Dental decay is the most common chronic childhood disease in several countries including Canada. The Canadian Dental Association (CDA) has identified dental decay in Canadian preschool children as a growing concern despite advances in prevention. Community water fluoridation (CWF), the controlled adjustment of fluoride in public drinking water supplies to prevent dental decay, has been shown to be an effective and equitable strategy to reduce the prevalence of dental decay in children. Despite this, it remains a highly contentious issue. This has led to other countries implementing alternative preventive dental health policy options.

Objective: The purpose of this study is to explore perspectives on CWF held by parents of young children in the context of cessation of the practice in Calgary, Canada. In addition, this study investigates views on alternative policy options among this stakeholder group. Here, policy is defined as protocols proposed by a government that provide a definitive course of action to guide or determine present or future decision.

Methods: This study will use qualitative methods to answer the research question. The study is modelled on a published study that used similar methods to explore a different subject (stem cells). We will hold focus groups (n=4) and administer questionnaires prior to and following each focus group. The target population is parents of young children (0 to 5 years). The pre-focus group questionnaire will include questions on background knowledge about fluoridation and alternative policy options. During the focus group, four different policy approaches for preventive dental health to populations will be discussed, along with key strengths and weaknesses of each. Examples include: fluoridation as municipal decision, as state/provincial, universal dental programming, and salt/milk fluoridation. Data will be both collected and analyzed through a public health ethics lens.

Data will be analyzed using thematic analysis, informed by theories of public health ethics and public engagement with science. Descriptive statistics will be used to summarize the questionnaire data. Results will be shared with members of the dental public health community, who are able to discuss and potentially act on decisions around policy related to dental public health and fluoridation.

#58 - LOADING AND IMAGING THE RABBIT ACHILLES AND SUPRASPINATUS TENDON ENTHESES

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Background: Tendon/ligament insertions into bones, called the enthesis, effectively transfer load between a stiff bone and a pliable tendon/ligament over a very short distance. While being pulled, a stiff material connected to a soft material can pull out if the transition distance is small. We are trying to determine how the enthesis transfers load from the tendon to the thousand time stiffer bone within a very small distance (0.3 mm in the rabbit medial collateral ligament), with a very low failure rate. The knowledge of enthesis behavior may be helpful in creating tendon/ligament grafts. In modern grafts, enthesis structure and behavior are not fully replicated. The supraspinatus and Achilles tendon enthesis contain four zones, namely tendon, uncalcified fibrocartilage, calcified fibrocartilage and bone. The connection between calcified and uncalcified fibrocartilage is called the tidemark, and the tidemark is the location of our study.

Objectives: To determine how collagen fibers in the enthesis deform at the tidemark in the Achilles and the supraspinatus tendon, as the tendon and the bone are being pulled apart (tensile load).

Methods: The bone and the tendon will be attached to a loading jig, which can provide tensile load and track deformations. The enthesis area will be viewed under a dual photon microscope, so that the collagen fibres at the enthesis are visible. As the device pulls on the tendon, images of the deforming fibres will be captured. These images will subsequently be processed to see what changes occur with increasing load.

Expected Outcomes: It is expected that as the tendons are loaded in tension, the collagen fibres in the tendon substance will deform, creating a sharp angle with their continuation into the calcified fibrocartilage at the “tidemark” of the entheses. This expected outcome is based on observations from a similar experiment on the rabbit medial collateral ligament.

Conclusion: Knowledge of deformation of entheses under loading will provide better understanding of how soft tissues function and inform regenerative tissue strategies.

#59 - DEVELOPING AN ITEM-BANK TO MEASURE PERSON-CENTRED CARE

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Background: The person-centred care (PCC) model is a priority in Canada, practiced in almost all provinces and territories. PCC ensures that patients are actively involved in the planning, development, & assessment of their care. Measuring PCC is necessary for improving the quality of care. This current research is part of a larger study that aims to develop person-centred quality indicators (PC-QIs) that measure and evaluate PCC, to improve health and healthcare delivery. As there is no universally accepted set of PC-QIs, an item bank (PCC measures & items) can help to review existing PCC indicators and measures to identify & develop PC-QIs.

Objective: The goal of this project is to create an item bank of PCC measures & items that will be used to identify and develop PC-QIs for monitoring and assessing PCC practice both nationally in Canada and internationally.

Methods: Items and measures were identified through phase 1 of a larger program of research: including a scoping review, and an environmental scan of PC-QIs used by healthcare organizations in Canada, England, Sweden, Australia, and New Zealand. Initial sources for the measures included "Helping measure person-centred care", a government organization document which lists tools in specific PCC domains(1). Items were then drawn from the documents and measures identified. Items and measures from the item bank will then be classified according to the Donabedian model assessing quality of care into categories of 'structure', 'process', and 'outcome'(2).

Results: As of now, 308 tools measuring different concepts of PCC outlined by de silva have been extracted for the item bank (person-centred care=42; patient satisfaction=200; patient engagement=11; empathy=12; person-centred communication=39; supporting self-management=4). The item bank will be a live database, updated regularly, and can serve as a resource to researchers, healthcare practitioners, health quality organizations and managers.

Conclusions: Due to the vast diversity of measures and indicators for PCC, an item bank advances measurement of PCC by making measures and items readily available, to help identify and develop PC-QIs. Measuring the quality of healthcare from a PCC perspective ensures that patients truly receive the care they need.

References:

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#60 - LOCALIZED ELECTROMAGNETIC FIELD FOR NEURAL STEM CELL DIFFERENTIATION

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Regulation of stem cell (SC) fate, a decision between self-renewal and differentiation, is of immense importance in regenerative medicine. Electromagnetic field (EMF) has been proven to be a powerful stimulus regulating many cell functions influencing the SC fate. This study explores the interplay of intracellular electromagnetic (EM) exposure and the SC fate. Localized EM waves were generated inside neural stem cells (NSCs) to stimulate differentiation into neurons. Triphenylphosphonium functionalized gold nanoparticles (TPP-AuNPs) were used to actively target the mitochondria. Following laser irradiation of TPP-AuNPs-transfected NSCs, their differentiation to neurons was monitored by tracing the relevant markers both at the genetic and protein levels. The electrophysiology technique was further used to examine the functionality of neurons. The results confirm that EMFs have the potential to regulate cellular fate, although further investigations are still required to shed light on the mechanisms underlying the influence of EMF on cellular fate to design highly adjustable cell differentiation and reprogramming methods.

#61 - APPLYING A MULTILEVEL GOVERNANCE FRAMEWORK TO UNDERSTAND AND IDENTIFY POLICY LEVERAGE POINTS TO IMPROVE CHILDREN'S DENTAL HEALTH IN CANADA

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University of Calgary

Background: The study of multilevel governance informs our understanding of the complexity of public health issues in Canada. Dental health is a public health issue due to the high prevalence of dental caries that is not treated or prevented efficiently in certain populations. However, the study of dental health governance has been sparse and has yet to be utilized as a lens to understand the landscape of dental public health policies. Early childhood caries (ECC) is dental decay that occurs in children under the age of 6, spreads rapidly within the mouth, and is a key predictor of future dental decay. In Canada, ECC accounted for 31% of all day surgeries for children ages 1-5 between 2010 and 2012. Legislation, regulations, and policies that govern the prevention and treatment of dental caries need to be carefully studied in order to find entry points to policy changes that will decrease the prevalence of ECC.

Objectives: The objectives of this study are to 1) Examine the impact of multilevel governance arrangements on Canadian children's dental health policy and 2) to determine policy leverage points for children's dental health in Canada.

Methods: A systematic search of the grey literature is being conducted to determine key actors, legislation, regulations, and policies involved in children's dental health, focusing on Alberta, with specific attention to reports (from government, cities, NGO's, and dental associations) over the past 10 years. Using Horak's categorization schema of multilevel governance, we are mapping key policy actors (i.e., federal, provincial, and municipal governments, and local social forces, which include private and non-profit sectors) and their respective roles (i.e., resource provision, policy development, policy implementation, and advocacy).

Results: We expect that by populating Horak's matrix for dental public health, insights will be developed and leverage points identified.

Conclusion: By understanding the multilevel governance involved in dental health, as well as determining policy leverage points, we hope to further facilitate effective policy advocacy, development, and implementation to promote a decline in the prevalence and inequities of ECC in Canada.

#62 - TRAINING FUTURE CARDIAC SURGEONS THROUGH SIMULATION

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University of Alberta

Background: It takes years of dedicated practice to learn the skills necessary to become a cardiac surgeon. Traditionally, teaching in cardiac surgery has followed the apprenticeship model. This is where the learner does all or part of a procedure under the guidance of a senior surgeon. However, due to recent resident work hour restrictions and patient safety concerns, adjuncts to traditional training are needed. Simulation has been presented as a possible training modality as it allows for repetitive goal-directed practice of basic skills in a risk-free environment.

Objective: To create and validate a bench-top cardiac skills simulator for training fundamental skills necessary to become a cardiac surgeon.

Methods: There are three steps to this project. First, we identify the skills that are fundamental to cardiac surgery through structured interview of five cardiac surgeons. Second, we build a task simulator that closely replicates reality and allows repetitive practice of the skills identified as fundamental, such as suturing two blood vessels together. Third, we test the validity of our simulator by inviting four groups of cardiac surgeons with different levels of skill (inexperienced, junior, senior, and expert surgeon) to perform the simulated tasks. We will grade participants on their performance in each task, calculated by time to completion and precision of work. If our simulator with selected tasks is a valid tool for training cardiac surgery, senior surgeons should display a better performance score than novices do.

Results: We have completed step 1 and are currently working on step 2. Once we complete the simulator, we expect a marked difference in performance between skill groups will be recorded for the simulated tasks. The difference in performance based on the participants' skill level will help validate that our simulator is a close representation to the real-life task.

Conclusions: The creation of a valid cardiac skills simulator will provide a valuable tool in the training of the next generation of cardiac surgeons by helping to bridge the gaps between work hour limitations, patient safety and the time needed to master the skills necessary to become a cardiac surgeon.

#63 - IDENTIFICATION OF VALIDATED CASE DEFINITIONS FOR CHRONIC DISEASE USING ELECTRONIC MEDICAL RECORDS (EMRS): A SYSTEMATIC REVIEW

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Background: Primary care Electronic Medical Record (EMR) databases are being used for research, surveillance, and clinical monitoring. To broaden the reach and usability of EMR data, we must specify case definitions to identify and characterize important chronic conditions.

Objective: The purpose of this study is to identify all case definitions that have been validated in primary care EMR data for various chronic conditions. This work will provide a reference list of case definitions, together with their performance metrics, and will identify gaps where new case definitions are needed.

Methods: We performed a systematic search of Embase and MEDLINE to identify studies that describe case definitions for clinical conditions in EMR data and reported the performance of these definitions using validity metrics (specificity, sensitivity, positive and negative predictive values). We compared the performance of different case definitions for the same conditions and explored the influence of data sources, jurisdiction, and patient population. Two independent reviewers screened abstracts and full-text articles. The quality of the studies was evaluated using the QUADAS tool.

Results: The initial search produced 6664 articles after removing duplicates and 40 were selected for inclusion in the review. The majority were published between 2010-2016 (82.5%) and most took place in Europe (62.5%). Case definitions were identified for 47 acute and chronic conditions. There were multiple definitions for diabetes (n=8), colorectal cancer (n=2), depression (n=3), hypertension (n=6), chronic obstructive pulmonary disease (n=6), asthma (n=3), arthritis (n=3), and skin and soft tissue infections (n=2). The studies used International Classification of Disease version 9 (ICD-9) criteria and read codes along with laboratory values and medications for the algorithms. The most frequently used validity measure was positive predictive value (PPV). Most studies (70%) were found to have good quality (score > 3/6) using the QUADAS tool.

Conclusion: Our review of the literature found a significant number of validated case definitions with good accuracy for use in EMR data. Existing case definitions will serve as a starting point for the development of new case definitions and will enable better surveillance based on detailed clinical EMR data.

#64 - PERSONAL AND SOCIAL FACTORS INFLUENCING OLDER SOUTH ASIAN MEN'S HYPERTENSION

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Background: Undetected and prolonged hypertension (HTN) can result in serious health complications (e.g. cardio- and cerebro-vascular, renal disease) resulting a need for complex health management. Approximately 40% of Canadian adults are hypertensive; consuming 10% of total health care cost. Older people tend to have higher blood pressure and men are more prone to hypertension risk factors such as smoking and drinking. HTN management among South Asians (SA) residing in Canada is particularly challenging. SAs are 2.7 times more likely to be hypertensive and at a younger age (~10 years) as compared to European-Whites. SAs are the largest visible minority in Canada, however, little is known about factors influencing management of their HTN. A complex array of personal (e.g. cultural values, beliefs, perceptions, health behaviours) and social (e.g. minority status, migration stress, patterns of adjustment) factors may be contributing to SAs high rates of HTN in Canada.

Objective: We aim to undertake a systemic and in-depth qualitative examination of personal and social factors associated with management of HTN among 55 or older SA men.

Method: Grounded theory (GT) will be used to explain the patterns of personal and social factors influencing the management of SAs' HTN. Participants will be theoretically sampled from community-living hypertensive SAs until data saturation occurs. A sample size up to 50 participants is expected for theory development. Constant comparative methods will be used to identify codes and develop concepts and categories to understand the process of HTN management, and to further facilitate theoretical sampling. Ultimately a core category will be identified around which a theory will be developed.

Expected Outcome: This qualitative work will inductively generate a potentially testable model explaining patterns of personal and social factors influencing older SA men's management of HTN. Once the key factors are identified, interventions may be developed and targeted in a culturally appropriate manner to address this pressing problem in the SA community.

#65 - THE EFFECTS OF CAROTID CHEMORECEPTOR INHIBITION ON EXERCISE TOLERANCE IN PATIENTS WITH CHRONIC HEART FAILURE

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Background: Chronic heart failure (CHF) is a disorder where the heart is impaired and is therefore unable to maintain the circulation of blood, and is characterized by pronounced exercise intolerance (1, 3) in which the mechanism(s) is not well understood. CHF patients have increased carotid chemoreceptor (CC) activity/sensitivity at rest (2-4), which may contribute to exercise intolerance and the exaggerated ventilatory response to exercise; however, this has not yet been examined.

Objective: To examine the effect of CC inhibition on dyspnea, ventilation, and exercise tolerance in CHF. It is hypothesized that CC inhibition will improve exercise tolerance secondary to improvements in dyspnea, the ventilatory response to exercise, and oxygen delivery to the working muscles in CHF patients.

Methods: A double-blind, randomized, placebo-controlled crossover design will be utilized. Twenty clinically-stable CHF patients and twenty healthy age- and risk-matched controls will be recruited. Testing will be completed over 4 experimental days: 1) cardiopulmonary exercise test and pulmonary function test; 2) basal CC activity/sensitivity assessment; and 3/4) two separate time-to-exhaustion cycling exercise tests at 75% peak work rate with either low-dose intravenous dopamine (2µg/kg/min) to inhibit the CC, and intravenous saline infusion (order randomized). Exercise tolerance will be evaluated through time-to-exhaustion. Expired gas will be measured to determine minute ventilation and carbon dioxide production. During exercise, oxygen delivery will be evaluated using impedance cardiography, pulse oximetry, and venous finger blood samples (to estimate cardiac output, arterial oxygen saturation, and hemoglobin concentration, respectively). Local tissue oxygenation will be measured indirectly by near-infrared spectroscopy at the vastus-lateralis and 7th intercostal muscle. Resting peripheral CC activity/sensitivity will be characterized by the ventilatory response to transient hyperoxia and hypoxia, respectively.

Expected Results: Time-to-exhaustion, oxygen delivery, tissue oxygenation, and dyspnea are expected to improve with CC inhibition during exercise in CHF but not in controls; these improvements are expected to be related to the severity of CC activity/sensitivity.

Conclusions: This study will be the first to evaluate the effects of CC inhibition on exercise tolerance and exertional dyspnea in CHF patients during full body exercise, contributing to existing work on the pathophysiology of CHF.

#66 - HOW NURSES RESTORE AND MAINTAIN MOBILITY IN HOSPITALIZED OLDER ADULTS: AN INTEGRATIVE LITERATURE REVIEW

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University of Alberta

Background: Older adults make up the majority of healthcare recipients and they are at risk to experience significant decline in their mobility once hospitalized, resulting in longer hospitalizations or nursing home admissions. It is not well understood how nurses are maintaining and restoring hospitalized older people's mobility.

Objective: The purpose of the integrative literature review was to evaluate and summarize current research about how nurses can maintain and improve hospitalized older adults' mobility levels in acute care units.

Methods: The integrative literature review using key concepts related to hospitalized older people, mobility and nursing care will be conducted. Two reviewers will screen resources according to inclusion and exclusion criteria to identify included articles. Critical appraisal tools will be used to evaluate included articles using CASP and the McGill Mixed Methods Appraisal Tool (MMAT).

Results: work-in-progress.

Conclusion: Findings will highlight nursing approaches to improving hospitalized older people's mobility and identify gaps in knowledge about nursing practice with mobilizing older people.

#67 - RENAL DENERVATION ABOLISHES RENAL VASOCONSTRICTION IN RESPONSE TO MILD BUT NOT SEVERE INCREASE IN RENAL VENOUS PRESSURE

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University of Alberta

Background: Heart and kidney failure often occur simultaneously, leading to increased morbidity and mortality, which is poorly understood. This suggests a close connection between cardiac and renal systems. Increased pressure in the renal vein (renal venous pressure - RVP) is characteristic in this condition and may impair renal function. We hypothesized that increases in RVP lead to increased renal vascular resistance (RVR) which is mediated by the renal nerves.

Objectives: (1) Determine the effect of increased RVP (10 or 20 mmHg) on renal function, (2) Determine the role of renal nerves.

Methods: Blood pressure and RVP were measured in anesthetized rats (300-400g, n=38). FITC-inulin was infused i.v. and urine collected to calculate GFR; renal arterial blood flow (RBF) was measured. Rats were intact or underwent denervation of both kidneys (RD). Following baseline, RVP was increased to either 10 or 20 mmHg by partial occlusion of the left renal vein for 120 min or not changed (time controls).

Results: Mild elevation of RVP (1.1 ± 0.3 to 11.3 ± 0.4 mmHg, n=10) decreased RBF in intact rats with an associated increase in RVR (p).

Conclusions: Increased RVP alters renal hemodynamics, causing significant reduction of RBF and GFR as well as an increase in RVR. This seems to be mediated by the renal nerves at only mild increases of RVP, suggesting non-neural control of renal function at severe increases of RVP.

#68 - ANCESTRAL TRAUMA AND MATERNAL BEHAVIOUR AS PREDICTORS OF OFFSPRING HEALTH

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Background: Allostatic load (AL) is the wear on physiological systems due to cumulative stress. This model has been used to predict health trajectories in mothers and their offspring. Since maternal stress can be passed on to offspring, we aim to develop a reliable, multi-level measure of AL, which can predict maternal and offspring health.

Objective: Using a rat model, the objectives were to 1) create a maternal stress index (MSI) based on behavioural assessments that is sensitive to the effects of multigenerational and transgenerational prenatal stress on dams; 2) determine if this score is able to accurately predict developmental trajectories and health outcomes in the offspring.

Methods: The rat model involved the transgenerational prenatal stress (TPS) and multigenerational prenatal stress (MPS) female lineage. TPS rats received the gestational stress during the first generation, and MPS rats received gestational stress during each of four successive generations. Gestational weight gain and plasma glucose and corticosterone measurements were collected. After parturition behaviour of the dams was scored for behaviours inside the core nest area, latency of pup retrieval, and time spent in rotational behaviour. These markers of maternal stress were grouped together into a single stress index. For assessment of offspring health, pregnancy outcomes, litter size, and pup weight were also recorded. Offspring behaviour was assessed in open field exploration, risk assessment, sensorimotor integration, and play fighting. Biomarkers predictive of potential lifetime disease risk were identified based on hair elemental analyses.

Results: Results showed a trend for elevated MSI among MPS rats but not in TPS rats. MPS animals revealed shorter gestation and higher risk of adverse birthing outcomes, compared to controls. The TPS rats showed higher rates of fetal reabsorption during pregnancy, but longer gestation times and lower number of adverse birth outcomes overall.

Conclusions: Ancestral stress results in abnormal maternal behaviour in the MPS rats, which is associated with poor health outcomes in the offspring. The MSI may therefore provide a useful predictive and diagnostic tool to identify high maternal AL and offspring health risks based on cumulative exposure to ancestral stress.

#69 - THE INFLUENCE OF THE LUNG MICROBIOME ON INNATE PULMONARY IMMUNE CELL DEVELOPMENT

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Background: The colonic microbiota has been a widely researched topic for many years, but only recently have the other bacterial colonies around the body like the lung microbiome been studied. The lung has been shown to harbor a distinct populations of bacteria in the upper and lower respiratory tract.

Objective: This project aims to elucidate the effects of the changing lung microbiome composition through development, and its effects on the innate immune system population in the lungs of mice. We hypothesized, that as maturation of the lung microbiota occurs in mice, the pulmonary innate immune cell populations reflect these changes, allowing more rare and specialized cells to take over the function of basic immune cells. Furthermore, lung flora contributes to recruitment and genesis of pulmonary immune cells in these developing mice.

Methods: First the ages of the mice were selected cohort A (6 days old) neonates, cohort B (21 days old) adolescent and cohort C (3 months old) adults. Next, these three cohorts were studied via three different techniques: fluorescence cytometry and mass cytometry (Helios Cytof) to study the innate immune system populations and 16s rDNA isolation followed by genetic sequencing to better understand the differences in bacterial colonization in the lung of the three cohorts.

Results: With these approaches, a trend was determined in innate pulmonary immune system cells present in the three cohorts of mice. Noticeable differences in cell population were that Cohort A contained greater number of neutrophils but lower numbers of all other immune system types except alveolar macrophages and dendritic cells. Cohort B and C contained higher numbers of INKT cells, active INKT cells and NK cells than cohort A.

Conclusions: From this preliminary data we can conclude that different ages of mice do, indeed, have varying innate immune system cells thus confirming the first objective of our project.

#70 - DEVELOPMENT OF A RISK INDEX FOR PREDICTING ACUTE KIDNEY INJURY REQUIRING DIALYSIS AFTER NON-CARDIAC SURGERY

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Background: Acute kidney injury (AKI) is a serious post-operative complication. There are several validated prediction models for AKI following cardiac surgery, but no such tools exist for predicting the risk of AKI following non-cardiac surgeries.

Objectives: To develop and validate risk prediction models and a practical, integer-based risk index for AKI requiring dialysis following major, non-cardiac surgery using population based laboratory and administrative data.

Methods: All patients who received major, non-cardiac surgery in Alberta, Canada between 2004 and 2013 were identified from provincial administrative databases. Demographic features, preoperative laboratory measures, comorbidities, and type of surgery were evaluated as candidate predictors to develop and internally validate a series of logistic regression models and a novel risk index for predicting AKI requiring dialysis within 14 days of surgery.

Results: A cohort of 92,114 patients met the inclusion criteria for model development and 529 (0.6%) developed post-operative AKI requiring dialysis within 14 days of surgery. Age, sex, type of surgical procedure, pre-operative estimated glomerular filtration rate, haemoglobin concentration, proteinuria, history of myocardial infarction and mild or moderate/severe liver disease were consistently associated with the risk of AKI requiring dialysis in bootstrapped samples. A final model based on these variables showed equivalent discrimination to a full model (optimism adjusted c-statistic 0.89; (95% CI: 0.88 to 0.94). Further reduced models showed very good discrimination, but poorer reclassification of patients into high and low risk categories (range in net reclassification improvement of 4.5-23.8%). An integer-based risk index based on the final model produced predicted risks ranging from 0.01% to 96.1% and a comparable apparent c-statistic 0.89 (95% CI: 0.87 to 0.90).

Conclusions: We have developed and validated a novel risk index for AKI requiring dialysis following major non-cardiac surgery. This risk index shows strong performance and uses readily available pre-operative data, which can facilitate clinical implementation. Further work is necessary to externally validate the risk prediction models and risk index and to conduct an impact assessment for use in clinical perioperative risk stratification.

#71 - IMPACT OF A CD36 INHIBITOR ON PORPHYROMONAS GINGIVALIS MEDIATED ATHEROSCLEROSIS

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Background: Our previous work showed that CD36, a macrophage scavenger receptor, played an essential role in increasing atherosclerosis as a result of periodontal disease (PD) in the low-density lipoprotein receptor knock out (LDLro) mouse model. CD36 was found to co-operate with Toll-like receptor 2 (TLR2) in inflammasome activation by the human PD pathogen *Porphyromonas gingivalis* (Pg), thereby resulting in optimal Interleukin 1-beta (IL-1 β) production. In that study, CD36 function was abrogated through genetic deletion. To determine feasibility of targeting CD36 therapeutically, this study will determine if pharmacological inhibition of CD36, using the drug AP5055, can prevent the increase in Pg mediated atherosclerosis in LDLro mice.

Objective: To determine if AP5055 prevents the increase in Pg mediated atherosclerosis in LDLro mice by targeting CD36.

Methods: Male LDLro mice are orally lavaged with Pg every other day for 2 weeks to induce PD, and fed a Western diet for 16 weeks to induce atherosclerosis. Mice are treated with AP5055 or vehicle (10% DMSO) every other day. At sacrifice, aortic tree is dissected and stained with oil-red O solution for morphometric analysis, blood/plasma is collected to determine levels of markers of inflammation, including IL-1 β (cytokine array) and oxidative stress. Macrophages from treated mice are also obtained to determine if there are differences in CD36 and TLR2 expression and IL-1 β production.

Conclusion: We expect to observe reduced lesion burden along with reduction in markers of inflammation and oxidative stress in Pg induced LDLro mice treated with AP5055 compared with vehicle controls. These experiments may support development of drugs targeting CD36 for human disease.

#72 - DOES ADVANCED MATERNAL AGE AFFECT LONG-TERM NEURODEVELOPMENTAL OUTCOMES IN PRETERM INFANTS AT 3 YEARS OF AGE?

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Background: Advanced maternal age (MA) is associated with decreased fertility, chromosomal abnormality and multiple gestations, affecting maternal and neonatal outcomes. Several studies have demonstrated an association between advanced maternal age and perinatal deaths. Long-term outcomes of premature infants born at less than 32 weeks of gestation to mothers with advanced age in Canadian NICUs have not been reported.

Objective: To study long-term neurodevelopmental outcomes in preterm infants (≤ 28 weeks GA) at 3 years of age who were born to older mothers.

Methods: This was a retrospective longitudinal cohort study. Demographic and neurodevelopmental outcomes were compared between mothers of early maternal age (EMA: 2 SD below the mean, blindness or visual impairment, or deafness or hearing impairment. Fisher's exact test and Mann-Whitney U test were used to compare the two groups. Logistic regression was used to model the 3-year disability outcomes.

Results: A total of 716 infants were eligible for this study from a cohort of 918 live born babies. EMA (n = 688) and AMA (n=28) groups had a mean GA of 26.4 weeks (range 22-28) and 25.9 weeks (range 24-28) ($p < 0.05$), respectively. Infants in the AMA group required more prolonged duration of ventilation (median 35.5 d for AMA vs. 22 d for EMA, $p < 0.01$), and more blood transfusion (median 6 for AMA vs. 3 for EMA, $p < 0.01$). Of the 608 (85%) that were followed up at 3 years of age, there was no difference in neurodevelopmental disabilities (35% in the EMA group compared to 36% in the AMA group). In a regression model GA (OR 1.8; 95%CI 1.2-2.7), severe neurological insult (IVH \geq GR 3 and or PVL) (OR 18; 95% CI 14.9-22.0), ROP (\geq stage 3 \pm laser) (OR 2.0; 95% CI 1.3-3.3) and NEC (\geq stage 2) (OR 1.9; 95% CI 1.1-3.2) were the main predictors for the any type of disability.

Conclusions: Advanced maternal age had no effects on long-term neurodevelopmental outcomes at 3 years of age

#73 - PILOT STUDY TO DETERMINE THE CONSISTENCY OF SLEEP ACTIGRAPHY MEASUREMENTS COMPARING ALL FOUR LIMBS OF PATIENTS WITH PARKINSON'S DISEASE

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Introduction: Actigraphy has been widely used in pharmacological and non-pharmacological intervention research involving a range of medical and neurobehavioral conditions. Compared to overnight polysomnography study, actigraphy offers several advantages including feasibility and economy for use over extended periods of time (i.e. days to weeks), hence allowing collection of data about day to day variability in sleep patterns. Actigraphy also provides information about sleep and wake patterns in the patient's natural sleep environment. Literature indicates that 50% to 70 % of persons with Parkinson disease have sleep problems and the need for outcome research is significant. However, reliable actigraphy is potentially challenged by disease symptoms such as tremor and decreased mobility. There is limited research as to if, and to what extent, actigraphy readings are effected by limb placement in Parkinson patients.

Objective: To examine consistency of actigraphy findings in Parkinson patients when the monitors are simultaneous worn on all four limbs.

Methods: Participants will complete a baseline profile assessment (dominance, motor function scale, tremor) and then wear a sleep actigraph overnight on each limb for one week. Findings of the four devices will be compared to determine degree of consistency of sleep efficiency components (latency, duration, frequency and length of awakenings).

Results: Testing the protocol with healthy volunteers showed that although variables (eg sleep efficiency and wake after sleep onset) were collected simultaneously, they varied between limbs by as great as 30 %. Readings from left and right upper limb placement were more consistent and recorded more night-time awakenings. We are now data collecting with Parkinson's patients.

Conclusion: From initial data, we anticipate that the placement site of actigraphs are crucial and further study is much needed. This pilot data will allow us to refine the study protocol for a larger study of excessive daytime sleepiness in persons with Parkinson disease.

#74 - SOCIAL MARKETING THEORY AS A FRAMEWORK TO PROMOTE UPTAKE OF SLEEP-CONDUCTIVE MUSIC AS A NON-PHARMACOLOGICAL SLEEP INTERVENTION IN POST-SECONDARY STUDENTS

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Background: Sleep deficiency (SD) is a prevalent problem among post-secondary student (PSS) populations and has serious negative consequences for physical, cognitive, and psychological well-being. However, in a survey of 1,294 University of Alberta students, 31.3% reported listening to music four or more times a week as a non-pharmacological sleep intervention (NPSI) (1).

Objective(s): The purpose of this study is to measure the uptake of sleep-conductive music as an evidence-based NPSI in PSS populations. As influencing sleep behavioral change is not a straightforward process, we will also test the use of social marketing theory principles as a study recruitment and intervention delivery vehicle.

Methods: An online survey will be the selected method of data collection in this study, a fast, cost-effective tool able to reach a large sample size. Recruitment and intervention delivery will occur through posters, designed based on social marketing and graphic communication principles. A survey tool to measure the uptake of the intervention will be developed, and participants will complete the Pittsburgh Sleep Quality Index and the Epworth Sleepiness Scale, two standardized self-reported sleep questionnaires to measure sleep quality in participants, before and after uptake of the intervention.

Results: We predict that by using social marketing principles, it will offer an evidence-based approach to foster beneficial sleep behavior change. In addition, the use of sleep-conductive music among PSS with self-reported sleep concerns is predicted to be well received and relevant as many students at the University of Alberta already identify and use music as a sleep intervention.

Conclusion: The use of music to help facilitate sleep is a popular strategy identified by students and is a form of evidence-based NPSI. The challenge of this study is to influence students' behavior on a campus-wide level, to take up sleep-conductive music listening practices, and the use of social marketing principles appears to present an evidence-based approach to promote prosocial behavior change.

(1) Brown, C. A., Qin, P., & Esmail, S. (2016). Sleep? Maybe later...A cross-campus survey of university students and sleep practices. (Manuscript in review, contact cary.brown@ualberta.ca for more detail)