

501 Aging in Rural Communities: Exploring barriers and solutions to healthy aging in rural southern Alberta

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Background information: By 2036 likely one in five Albertans will be 65 years or older. Alberta's Continuing Care Strategy focuses on the concept of seniors "aging in place" and recognizes the medical system needs to focus on community-based chronic care rather than acute care. While this model aligns with the desires of Alberta seniors and makes fiscal sense, there are unique implications for the 23% of Alberta seniors who live in rural areas. **Objective:** This project's aim was to identify barriers to successful "aging in place" for rural southern Alberta seniors as well as solutions to these barriers. **Methods:** A critical review of a 2011 Keating et al paper, which summarized the social barriers to aging in rural Canada, was compared with reports of 11 key health care stakeholders in rural southern Alberta. An Embase MEDLINE search was performed on September 17, 2014, followed by a grey literature review between October 30 and November 6, 2014, to identify solutions to these barriers. **Results:** Nine barriers were identified from interviews: transportation/geographic isolation, social isolation, compulsory volunteerism, lack of services (health care and non-health care), housing, caregiver burnout, community uniqueness, and communication. Nine papers met the inclusion criteria and proposed solutions, yet they addressed only three of the identified barriers. The grey literature search revealed multiple small solutions to all identified barriers. **Conclusion:** Many solutions exist to mitigate barriers to successful "aging in place" in rural southern Alberta; however, the services are often small, fragmented, and lack supporting evidence and funding, leaving them vulnerable to collapse. Without a platform to streamline services, critically examine strategies, and share successful pilot projects, it is unlikely these solutions will grow to meet the demands of the future.

502 Addressing Population-Based and Individual Health Care Goals Through a Healthy Aging Group Educational Series

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Context: Group educational visits have the potential to deliver person-focused care in an effective yet cost-efficient manner. Health TAPESTRY is an intervention that includes the generation of population-level reporting of aggregated data on health goals and needs of groups of patients. **Objective:** To describe the development, implementation, and initial evaluation of a healthy aging group education series in a primary care setting. The series was delivered by an interprofessional health care team and focused on common patient-reported health goals. **Design:** This was a mixed-methods concurrent triangulation study. **Participants:** Health TAPESTRY clients, all of whom were 70+ years old and rostered with the McMaster Family Health Team (MFHT), participated in the study. **Intervention:** Based on aggregate health information and health goals collected in the Health TAPESTRY program, a four-part series was developed and implemented. This series included a robust introductory session in addition to interactive sessions on nutrition, fitness, and advance care planning. Interprofessional health care team presenters used evidence-based material and fostered engagement by using interactive learning opportunities in the sessions. **Outcome measures:** Evaluation was completed via a post-session and post-series survey including open-ended feedback and comments and rated items of content and delivery of the session. Feedback from presenters was also solicited. Expenses were recorded. **Results/findings:** Of 69 people invited, a range of 26 to 37 people attended individual sessions of the series. Ratings across all sessions were positive—the majority of attendees rated the information as relevant and new, and the presenters were rated as effective and engaging across all sessions. The series overall was rated positively with respect to meeting attendees' expectations, being well-organized, having a likable location and facility, and recommending the event to friends. Open-ended feedback supported these positive ratings in addition to suggesting it be run in different contexts (eg, retirement homes). Feedback from the presenters indicated the desire to run the program for rostered patients outside of Health TAPESTRY. **Conclusions:** The healthy aging series was a feasible and effective way to address health goals self-reported by a sample of older adult patients of MFHT. It was developed in a sustainable manner such that topics could be refined or added depending on health goals.

503 Prévalence et facteurs de risque de médicaments potentiellement inappropriés chez les 65 ans et plus

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Contexte : Les médicaments potentiellement inappropriés (PIM) chez les personnes âgées de 65 ans et plus sont un sujet d'actualité. On retrouve dans la littérature une prévalence de PIM se situant entre 23 % et 74,7 %, témoignant de l'importance du problème. **Objectifs :** Mesurer la prévalence de prescription de PIM dans un échantillon de patients suivis en clinique de médecine familiale, en utilisant les critères de Beers. Également, tenter d'identifier certaines caractéristiques des patients qui reçoivent des PIM et des médecins qui les prescrivent. **Type d'étude :** Il s'agit d'une étude non-expérimentale de type transversale. **Participants :** 296 dossiers de personnes âgées de 65 ans et plus ont été étudiés. Les visites à l'étude avaient lieu dans deux cliniques de soins de première ligne soit une unité de médecine familiale (milieu académique) et une clinique communautaire rurale (milieu non académique). **Intervention :** Les dossiers de visite sur rendez-vous entre le 1^{er} juillet 2014 et le 30 juin 2015 étaient révisés. On notait la présence ou l'absence d'une prescription de PIM ainsi que différentes caractéristiques liées aux patients et aux prescripteurs. **Résultats :** 72 patients ont reçu au moins une prescription de PIM, soit 24,3 %. Les types de PIM les plus fréquents étaient les benzodiazépines (53,2 %) et le zopiclone (16,5 %). Il existait une corrélation entre l'âge des médecins et la prescription de PIM (0,53 $p < 0,0001$). Pour chaque médicament additionnel sur la liste du patient, ce dernier avait plus de chance de se voir prescrire une PIM supplémentaire (RC 1,18; $p < 0,003$). Les femmes avaient plus de risque que les hommes de recevoir une PIM (RC 0,53; $p < 0,02$). La présence d'antécédent psychiatrique était également associée à un plus grand risque de PIM (RC 7,15; $p < 0,0001$). L'absence de comorbidité était associée à un plus faible risque de PIM. **Conclusion :** Les médicaments potentiellement inappropriés (PIM) constituent un problème réel dans notre pratique courante et certaines caractéristiques chez les patients et les médecins semblent s'associer à une augmentation du risque de prescription de PIM. Cette étude contribue à sensibiliser les cliniciens en vue de changements positifs dans leur pratique.

504 Advance Care Planning With Home-Bound Frail Elderly: How many conversations does it take?

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Discussing advance care planning (ACP) with patients is often challenging, and it is common for there to be discordant perceptions of both the content and occurrence of these discussions. **Objectives:** This study describes the utility of a Web-based application (the TAP-App) administered to a sample of frail home-bound seniors receiving home-based multidisciplinary primary care in Vancouver, British Columbia, for "getting on the same page" about ACP. **Context:** This was a mixed-methods study that used survey data and qualitative interviews to assess the effect and potential impact of the TAP-App among a sample of frail elder/informal caregiver dyads and their primary care providers. **Participants:** Participants were invited to participate if they had a requirement for activity of daily living support, one or more chronic diseases, and an involved family member/friend willing to participate. Thirty-nine home-bound frail elderly and 43 family members were included. **Intervention:** Participants were surveyed about patients' health, social lives, goals, quality of life, and ACP. Reports were later uploaded to the patients' electronic medical records (EMRs) and the primary care providers were notified. If a patient or family member answered yes to wanting to have an ACP conversation with their primary care provider, the system navigator immediately informed the primary care provider. At the end of the project a total of eight family physicians/nurse practitioners (FP/NPs) were interviewed about the process and asked about ACP in particular. **Outcome measures:** Qualitative interviews and surveys were used to explore the effect of the intervention. **Results/findings:** There was a disconnect between patients' and family members' recollections of having had an ACP conversation and the FP/NPs' understanding of having had those conversations. The end-of-life care conversations were not consistently recognized by the patient or family member as ACP. **Conclusion:** This pilot study indicates the importance of multiple end-of-life conversations, using the formal wording "advance care plan" with

patients and families to increase awareness in settings such as emergency room visits, and adding the plan to patients' EMRs.

505 CANCELLED

506 Improving Advance Care Planning in a Primary Care Unit

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Context: Advance care planning (ACP) is a process of planning for future medical care in the event an individual becomes unable to communicate and consent to treatment. The positive outcomes of ACP have been consistently demonstrated, including improved patient and family satisfaction with end-of-life care, less aggressive treatments near the end of life, decreased hospital and ICU admissions, and reduced costs to the health care system. However, the majority of Canadians have not discussed their end-of-life preferences with their health care providers. **Objectives:** The aim of the current initiative was to increase rates of ACP discussions between patients age 65 or older and their primary care providers. **Design:** This was a quality improvement study that was carried out through multiple Plan-Do-Study-Act cycles. Multiple interventions were tested, including: creating a custom form to help guide ACP discussions; involving other health care professions such as nurses and social workers; and implementing a variety of reminders including stickers, posters, and electronic alerts. **Results:** The baseline rate of ACP discussions was found to be 0.31%. After implementation of an ACP custom form, the rate increased almost 10-fold to 2.7%. Other interventions, including reminders and involving other health care professionals, did not further increase rates of discussion. **Conclusion:** By creating a systematic approach to ACP discussions through use of a custom form in an easily identifiable patient population, we believe that some of the barriers to ACP in the primary care setting can be overcome.

507 CANCELLED

508 Experiences of Close Family and Friends of Patients Who Request a Physician-Assisted Death

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Context: With the legalization of physician-assisted death in Canada on February 6, 2016, patients outside of Quebec had the right to be granted an assisted death for the first time without needing to travel to another country. **Objectives:** To explore the experience of close family and friends who supported their loved one through the process of requesting and preparing for a physician-assisted death. **Design:** This qualitative study involved semi-structured interviews with family and friends of patients requesting an assisted death. We used thematic analysis of the responses. **Participants:** People who supported patients who had a consult about assisted death through HemlockAID or other physicians in British Columbia providing assisted death. **Instrument:** Two family practice residents conducted semi-structured interviews with close family and friends of patients. These support persons were asked about the evolution of their thoughts and feelings over time, their hopes and fears about the process and death, ways they provided support, and their reflections after assisted or natural death had occurred. **Findings:** Some support people were able to accept their loved ones' decisions from the beginning, while others were initially opposed and upset but changed their perspectives over time. In every case, the support people felt empathetic about their loved ones' suffering and they respected their wishes. They did not mention caregiver burden as a factor in their support. **Discussion:** Due to the design of this study, unsupportive family and friends were not included. These subjects may have struggled initially with the decision but came to be supportive. **Conclusion:** This study explores the experience of physician-assisted death for the close family or friends of patients who pursue assisted death.

509 The Experience of Family Physicians With Patients Who Request Assisted Death

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Context: Physician-assisted death became legal in Canada on February 6, 2016, and physicians needed to respond to requests from their patients without having had training or experience. **Objectives:** To explore the experience of family physicians whose patients asked for an assisted death after it became legal in Canada. **Design:** Qualitative design, using semi-structured interviews and thematic analysis. **Participants:** Family doctors whose patients requested an assisted death, whether or not that patient had an assisted death and whether or not the doctor participated in any way. **Instrument:** Two family practice residents conducted semi-structured interviews exploring the discussions the physicians had with their patients, how the doctors felt about assisted death before and after the law changed, what their reactions to the patients' requests were and how the doctors supported the patients and their families through the process. **Findings:** None of the family doctors interviewed participated directly in an assisted death, but most were willing to refer the patient and write letters in support of the patients' wishes. The primary theme was that they each recognized the suffering their patients endured and appreciated the patients' perspectives. Some doctors mentioned concerns of medico-legal repercussions. Some talked about the discomfort they felt about the actual procedure. **Discussion:** These doctors were not talking about the issue of assisted death in general but about particular patients they knew well. **Conclusion:** The study explored the experience of family physicians who were involved in the care of patients who requested assisted death.

510 **Implementation of an Organizational Intervention to Promote Equity-Oriented Care in Primary Health Care Settings**

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Context: Enhancing primary health care (PHC) for marginalized populations is a key pathway to reducing health inequities. However, little is known about how to implement and operationalize strategies to enhance capacity for equity-oriented services in complex health care settings, or the potential impact on staff, organizational processes, and patient care. **Objectives:** In this study, we highlight the impacts of a complex organization-level intervention designed to enhance the equity orientation of PHC services. **Design:** We draw on findings from Canadian Institutes of Health Research-funded research conducted at four PHC clinics in Canada. We delivered a complex, equity-oriented intervention at each clinic and examined impacts for staff, patients and organizations using mixed methods. This poster focuses on impacts for staff and organizations. **Participants:** Staff members completed a structured survey at three time points over 2.5 years. The survey was completed by 88 staff members at baseline, 82 at 12 months, and 57 at 24 months. In-depth qualitative interviews were conducted with 35 staff members in clinical, administrative, and leadership positions. **Intervention:** The EQUIP Intervention was grounded in previous research that identified four key dimensions of equity-oriented PHC: 1) cultural safety; 2) trauma- and violence-informed care; 3) contextual tailoring; and 4) harm reduction. These elements were embedded in an intervention using two phased approaches: 1) staff education; and 2) organizational integration and tailoring. **Outcome measures:** Staff members were asked open-ended questions about their experiences with the intervention and any perceived impacts on their own practices or their organization. The staff survey explored knowledge, awareness, and confidence related to providing equity-oriented PHC. **Results:** Analysis of qualitative data revealed commonalities across sites in terms of processes and mechanisms of change, as well as perceived impacts. These included disruptions to the status quo, prompting and facilitating difficult conversations at the organizational level, surfacing and identifying practices and processes that were not working, and providing language and structure to address existing challenges. The staff survey results showed an increase in staff confidence over time related to various aspects of providing equity-oriented care. **Conclusions:** The EQUIP intervention shows promise in terms of impacts on staff. Ongoing analyses will examine impacts on patients.

511 Feasibility of Targeted Poverty Screening in a Large Primary Care Team

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We seek to understand whether targeted screening for poverty is feasible across a large, inter-professional primary care team. In Ontario, poverty affects up to 20% of families (Bloch et al, 2013) and is one of the strongest factors influencing the health of individuals (Brcic, 2011). An evidence-based tool for poverty screening and intervention in primary care has been developed (Bloch et al, 2013; Centre For Effective Practice, 2015). It is central to current screening recommendations in Ontario (from the Ontario College of Family Physicians). However, it can be difficult to implement routinely, as family physicians often have limited time. In some patient populations, it may be worthwhile to screen in a targeted way. We have done a 3-month pilot to screen patients living in postal code regions associated with the lowest Income Index Score and the highest Material Deprivation Score (based on publicly available data indices, Statistics Canada). Charts containing these postal codes were flagged in our EMR, creating targeted identification of patients who may be at higher risk. The pilot was done in four physician practices that cared for 4,000 patients. Results showed that 157 charts were flagged; 49 patients were screened at office visits; 12 patients were referred; and eight patients saw the team case-worker for help accessing income supports. **Next steps:** In 2016-17, our University of Toronto practice-based research network will assist us in expanding this across our 80-physician family health team, which serves 78,000 patients. Over time, we will evaluate sensitivity and specificity of the guideline-based screening question when used in conjunction with the Statistics Canada indices. Ultimately, we aim to evaluate the effect of our interventions on patient household income.

512 Health Status and Epidemiology of Newly Arrived Syrian Refugees in Toronto

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Context: Newly arriving immigrants and refugees often have health needs that differ from Canadian-born individuals. There is a scarcity of existing studies examining the health status among Syrian refugees and immigrants. For more than four years, the Syrian population has been displaced with varying access to health care. Furthermore, the Syrian refugee population is unique in that it is largely composed of children and adolescents, and the majority of incoming refugees are being resettled from other host nations.

Objectives: To develop a protocol to study the health status and epidemiology of newly arrived Syrian refugees in Toronto. **Design:** A descriptive, retrospective chart review to examine key demographics, migration patterns, and initial health status of newly arrived Syrian refugees assessed during the initial medical intake clinics at St. Michael's Hospital Academic Family Medicine Health Team, seven affiliated academic family health teams, and 24 community health centres. **Participants:** All newly arrived Syrian refugees presenting to the intake clinics between December 29, 2015, and June 1, 2016, will be included in the study. Non-Syrian refugees or those without a documented specified country of origin will be excluded.

Intervention/instrument: Data will be extracted from a health history form developed specifically for the Syrian refugee initial intake clinics; this form reflects screening practices and key health indicators that have been guided by the 2011 Evidence-based Clinical Guidelines for Immigrants and Refugees from the Canadian Collaboration for Immigrant and Refugee Health. **Outcome measures:** The prevalence rates of communicable and non-communicable disease within a population of newly arrived Syrian refugees in Toronto presenting to St. Michael's Hospital Family Health Team initial intake clinics as well as affiliated academic and community health care centres.

513 Evaluation of the Saskatoon Refugee Health Clinic Pilot Program

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Context: The Canadian government accepted 25,000 Syrian refugees into the country in response to an international crisis, with approximately 400 Syrian refugees arriving in Saskatoon since January 2016. As a result of this larger than usual refugee influx, the Saskatoon Refugee Collaborative (community stakeholders) established a temporary centralized primary health care clinic in Saskatoon. **Objectives:** To determine

whether a dedicated clinic for local Syrian refugees successfully improved access to primary health care services in an evidence-based, culturally sensitive and timely manner, including screening measures as preventive health care. **Design:** Pilot program evaluation. **Participants:** Inclusion criteria to identify participants to provide data for the evaluation included willing individuals who were involved in the Collaborative planning committee of the clinic; who worked in the clinic at any point during its pilot period; and who accessed services at the clinic. Approximately 50 individuals agreed to provide information for the evaluation. **Instrument:** Data were collected via specially designed clinical encounter intake forms, vaccination databases, and lab test tracking where all identifiers of patients were removed to maintain confidentiality. Satisfaction surveys were filled out by single refugee family members at the end of each visit. No names or identifying information were included in these surveys. Post-clinic surveys and interviews were conducted with members of the Collaborative and staff who wished to participate. Quantitative and qualitative data were collected to capture the extent of access to primary health care services, consistency with evidence-based guidelines, cultural sensitivity and awareness, and timeliness of services at and post-clinic. **Findings:** Analysis of data is currently ongoing. **Preliminary benchmark findings:** Four hundred Syrian refugees, both government-sponsored and privately sponsored, attended the clinic. Refugees accessed multidisciplinary services at the clinic in a timely manner and had health care follow-up in the community. Effective communication and collaboration were suggested as the keys to success. **Conclusions:** The preliminary data analysis suggests the refugee health clinic succeeded in improving access to immediate and ongoing primary health services for Syrian refugees in Saskatoon. A permanent refugee health clinic is needed to improve health care access and possibly health outcomes for all refugees in Saskatoon.

514 **Substance Abuse Among Immigrant Youths: A review of literature**

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Introduction: Substance abuse has become one of the biggest societal issues affecting youth. Immigrant youths seem to be more vulnerable to these issues when they move to a totally new country in the process of emigration. A comprehensive understanding of factors associated with substance abuse and the extent of the effects of substance abuse on these youths is required for effective policy-making and program planning. **Method:** We systematically searched databases (MEDLINE, PubMed, CINAHL, SocINDEX, and PsycINFO) for studies using a comprehensive list of keywords around the theme of “substance abuse,” “youth,” and “immigrant.” We limited our search to English-language publications. **Results:** We identified 458 articles after duplicate removal. After screening based on titles and abstracts, 40 articles were identified for full text read. Full text evaluation resulted in 26 articles for the synthesis. Immigrant youths with psychosocial problems, immigration stress, low socioeconomic status, and exposure to substance use through friends and social circumstances were more likely to engage in substance abuse. Communication gaps between immigrant parent and youth appeared to be the most important theme on substance abuse. Substance abuse led to psychological disorders, altered behavioural patterns, and negative health effects. **Conclusion:** This study illustrates the factors reported to be associated with substance abuse among immigrant youths. Also, highlights the effects of abuse on the social and health outcomes of the life of the youth. Substance abuse among immigrant youths is an important issue that needs to be addressed at the level of primary care with greater emphasis.

515 **Barriers to Breast Cancer Screening Among Immigrant Populations: A scoping review**

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Context: Breast cancer is the most common cancer among Canadian women. Although secondary prevention through screening may enable early detection and treatment and thus can reduce breast cancer mortality, the rate of breast cancer screening among Canadian immigrant women is still very low. **Objectives:** The objectives of this study are to: 1) summarize the current knowledge about barriers to breast cancer screening among immigrant and ethnic women; and 2) identify barriers reported for screening and future research opportunities. **Design:** We have done a scoping review of the literature following the five-stage framework proposed by Arksey and O’Malley (2005), which includes identification of the research

question, identification of relevant studies, study selection, data charting, and synthesis. We searched published articles in MEDLINE, Embase, CINAHL, and PsycInfo and the grey literature in Google, Google Scholar, ProQuest, OpenDOAR, HSO, TRIP, CIHI, PHAC, and Health Canada. After duplication removal, 1,115 articles were identified for review. We selected 192 articles based on titles and abstracts for a full text read. After the full text read, 33 articles were selected on cancer-screening barriers. Fifteen of these articles on breast cancer screening were selected for synthesis in this study. **Results:** We categorized the barriers into seven themes, including sociodemographic barriers, economic barriers, cultural barriers, communication barriers, health care system-related barriers, knowledge-related barriers, and individual-level barriers. Lack of education, lack of physicians' recommendations, preference for female physicians, inability to speak one of the official languages, and embarrassment were some of the common barriers identified. **Conclusion:** Based on existing literature, this study demonstrated the barriers to accessing cancer screening among immigrants and ethnic minority groups. It can be used as a source of information for policy-makers, health care providers, and researchers for deciding the future direction of research in this field.

516 **Exploring New Immigrants' Need for Mental Health Services in Regina to Improve Service Delivery**

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Context: Migration might be undertaken to find better political, social, economic, and health opportunities. However, adjustments to a new culture, stress of relocating, loss of social networks and supports, and changes in gender roles can have a detrimental effect on mental health and health in general of immigrants. **Objective:** This study was carried out to explore new immigrants' concepts of mental health and the need for mental health services in Regina, Saskatchewan, Canada, such that appropriate services can be developed to address those needs. **Design:** Thematic analysis. **Participants:** Thirty-seven participants (28 women and nine men) from 15 different countries. **Intervention:** The participants attended four 1-hour focus group sessions. A psychology resident facilitated the focus groups for men and a team consisting of family physicians, medical students, and a researcher facilitated the focus groups for women. **Results:** A thematic analysis of the focus group data revealed that all participants were able to define physical, mental, and spiritual health and mentioned the impact of mental health on physical health. Male participants, who often immigrated alone to gain increased financial support for families in their country of origin, identified the lack of familial support as a source of distress. A variety of strategies such as positive thinking, support from close family members, exercise, spiritual help, etc. were adopted by immigrant women to deal with everyday stress. Most male participants listed conversations with peers or a person of senior status in their community as the main source of coping. Only one male participant indicated that he has accessed mental health care through his primary care physician. None of the other male or female participants indicated the need for mental health services or had knowledge about where the same can be accessed in Regina. **Conclusion:** Irrespective of the country of origin, all participants have a holistic approach to health and emphasized the importance of mental health in maintaining overall health. Language abilities and lack of knowledge about mental health services were identified as the main challenges to accessing counselling or other mental health services.

517 **Addressing Social Determinants of Health: A role for a clinical decision aid in an Aboriginal context?**

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Background: The CLEAR toolkit is a clinical decision aid aimed at encouraging front-line health care workers to ask their patients about the social determinants of health, to refer these patients to local support resources, and to advocate for wider social change to improve health. Our study's objective was to assess the feasibility of implementing this toolkit in an Aboriginal context and to explore how to best adapt the toolkit to be culturally sensitive and to meet local needs. **Methods:** A mixed-methods study including an online survey, in-depth interviews, and focus groups was used to obtain the views of a purposive sample of health workers and community members on the common social causes of poor health in their community,

current approaches for addressing these issues in clinical practice, interest in using the toolkit, and ways of adapting it to the local Cree context. **Results:** Thirty-five front-line health care workers and community members participated in 24 individual in-depth interviews and five focus groups, and an additional 13 health workers completed the online questionnaire. Respondents considered that the toolkit would be helpful for initiating discussions around social challenges and better supporting patients in clinical practice. The toolkit was considered particularly appropriate for a Cree setting as it encouraged a holistic approach to health and may help overcome challenges related to the high turnover of health care staff and their consequent lack of knowledge of local resources and practices. **Interpretation:** Due to the highly intertwined nature of health and social challenges, a clinical decision aid can help health workers ask about the social determinants of health and provide concrete suggestions for supporting patients and guiding community level action. Knowing how to approach issues in a sensitive way and mapping out existing community resources and referral pathways are important prerequisites for implementation.

518 CLEAR Toolkit Advanced Pilot Study: Helping health workers address the social causes of poor health

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Objectives: To assess whether training family medicine residents to use a clinical decision aid (CLEAR toolkit) to help them ask about and address the social determinants of health in clinical practice improves health and social outcomes for their patients. **Approach:** We used a mixed-methods study design involving a pilot randomized controlled trial with nested in-depth interviews. First, a workshop with health workers and community organizations was used to create a version of the CLEAR toolkit adapted to the local context. Then, first-year family medicine residents at a large university training program were recruited to join the study following a core teaching session, and of those who agreed, half were randomly selected to receive further training in how to use the clinical decision aid (intervention group) and the other half had no further training (control group). A brief questionnaire was administered with their patients to measure differences in health and social outcomes, as well as any potential unintended harms, related to using the decision aid in practice. In-depth interviews were also conducted with patients, health workers, and community organizations to further explore how health workers helped patients in overcoming various health and social challenges. **Results:** The majority of first-year family medicine residents regularly came into contact with vulnerable patients in their clinical practice. While the family medicine residents understood the importance of asking about the social determinants of health of their patients, few obtained a detailed social history due to time constraints and feeling uncomfortable asking about sensitive social issues. Patients were more transparent and forthcoming regarding their social vulnerabilities during interactions with local community organizations where they often felt more comfortable sharing personal information. **Conclusion:** Health workers may understand the relevance of the social determinants of health at a cognitive level, but patients are unlikely to spontaneously raise these issues during a doctor's visit. Therefore, health workers need to help their patients: 1) feel more at ease in discussing their social challenges; 2) better understand their rights; and 3) navigate with greater ease through the health and social systems.

519 Evaluating the Efficacy of Varsity Docs, an Innovative After-School, Medical Student-Run Sports Program for Children in Vulnerable Urban Neighbourhoods

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Context: More than 30% of of Canada's youth are classified as overweight or obese and less than 10% meet new physical activity guidelines. With no community centre, children in Toronto's priority neighbourhood of Weston have few opportunities to engage in recreational sport activities and are particularly vulnerable to obesity. Varsity Docs, an after-school sports program run by University of Toronto medical students and varsity athletes, aims to increase children's sports access in low-income neighbourhoods and facilitate healthy childhood development. **Objectives:** This study implemented and evaluated the Varsity Docs pilot project at H.J. Alexander K-5 Community School in Weston. **Design:** Program evaluation of a 9-week intervention with five medical student volunteer leads per session. **Participants:** Eighteen Grade 5 students at H.J. Alexander and 26 medical students. **Intervention:** The inaugural program (6-7:30 pm, February to March, 2015) ran on Tuesday evenings and offered instruction in a variety of recreational sports. **Outcome**

measures: Program feasibility, acceptability, and efficacy were evaluated via observation, volunteer and parent surveys, and a 10-minute student focus group. **Findings:** Twenty-six out of 31 volunteers and six parents completed surveys. Fifteen of 18 Grade 5 students participated in the focus group. The program ran successfully as intended and was well accepted by volunteers (7.6/10), students, and parents (7.1/10). All 15 Grade 5 students felt they would sign up for the program again and many requested an increase in frequency and duration. **Conclusions:** The program was well received by volunteers, students, parents, and the school. Medical students appreciated having opportunities to participate in social advocacy and engage with the community. Volunteer feedback is shaping 2016/17 programs. Volunteers requested session outlines and a program handbook. To accommodate medical student schedules, sessions now run on Wednesdays. Developing funding for volunteer transportation remains a priority. Volunteer recruitment began earlier in 2016 to avoid scheduling conflicts. Achievement of funded University of Toronto Medical Society student club status ensures program sustainability. Varsity Docs has expanded to include a Weston hotel temporarily housing many Syrian refugee families; more than 40 children participate weekly there, and ongoing volunteer recruitment (especially of Arabic speakers) aims to increase capacity.

520 Integrative Review and Analysis of Psychometric Properties of Patient Satisfaction Tools Aimed at Primary Care

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Context: The quality of health care in clinical settings has a considerable impact on patients' security, quality of life, and mortality. Quality of care is known to be positively correlated with patient satisfaction in clinical settings. Several assessment tools for patient satisfaction have been developed, often as patient self-administered questionnaires; however, no review of these tools aimed specifically at primary care could be found to help identify those with the best psychometric properties. **Objective:** To perform an integrative review of patient satisfaction assessment tools aimed at primary care and to document their psychometric properties. **Methods:** CINAHL, Embase, MEDLINE, Web of Science, Scopus, and ABI/INFORM databases were searched for papers published in French or English from 1996 to 2016. Studies were considered if they met the following criteria: use of a patient satisfaction tool; evidence that this tool underwent psychometric assessment; and patient satisfaction tools used in a primary care settings. The study data were extracted according to the Consensus-based Standards for the Selection of Health Measurement Instruments. **Results:** More than 8,000 potentially relevant citations were identified, of which 36 met the inclusion criteria. From these studies, 26 different tools were identified. Most patient satisfaction tools were valid and reliable. Only eight of them were developed explicitly for primary care, among which two were specifically aimed at general practice in the United Kingdom, but none was intended to assess family practice in Canada. **Conclusion:** This review identified eight validated tools assessing patient satisfaction. Primary care researchers, hospital administrators, and accreditation bodies might wish to use this study results to choose the tool that is best applicable to their needs, based on content and psychometric properties. Further work should aim at modifying some of the tools to be more specific for family practice in Canada.

521 Patients' Perspectives of Block Fees: A qualitative analysis

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Context: Block fees are a way for physicians to charge for uninsured services. Proponents believe they are convenient, while opponents worry they may pose a barrier to equitable access to care. To date, no formal evaluation of patients' views on block fees has appeared in the published literature. **Objectives:** To estimate the prevalence of block fee-related complaints to the College of Physicians and Surgeons of Ontario (CPSO) and to determine patients' perspectives on block fees. **Design:** A two-part descriptive qualitative study. **Participants:** Ontario residents age 18 or older who speak English and have been asked to pay a block fee by a physician. **Intervention:** 1) The Public and Physician Advisory Services database of the CPSO was searched for entries on block fees and uninsured services between October 2009 and October 2013. 2) Ontario residents who had experience with block fees were selected at random to be interviewed to assess their views of block fees. **Outcome measures:** Descriptive thematic analysis was done with both phases. **Findings:** Eight-hundred thirty-five calls were flagged by the CPSO as being related to block fees. Of these,

63 were related to complaints about block fees, with the majority (23) expressing concern about not being able to opt out of paying. In the second phase, 24 interviews were conducted. Ontario residents were concerned about potential socioeconomic factors that may result in block fees being a barrier to accessing care for some. Many thought all services should be insured. Those who felt block fees were ethical felt that physicians should be compensated for services rendered. Most reported that the block fees were optional and their decision to pay or not pay did not affect their relationships with their doctors. **Conclusion:** While the absolute number of complaints is low, some Ontarians believed that block fees were mandatory. Patients' ethical and SES concerns are important to consider in block fee policy and communication. Future work should estimate the prevalence and costs of block fees, and compliance with CPSO policy, to provide additional context.

522 **My Patients Can't Afford Their Meds: Canadian primary care physicians' perspectives on prescription drug affordability**

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Context: Family doctors in Canada. **Objectives:** To better understand the human impact of medication unaffordability in Canada. **Design:** This is a mixed-methods study that incorporates both an online survey and semi-structured interviews. **Participants:** Family physicians in active practice who were members of the College of Family Physicians of Canada (CFPC) in 2015. **Instrument:** A link to an online survey was distributed via the CFPC e-newsletter. Respondents were invited to participate in follow-up interviews. **Results/findings:** There were 139 physicians who completed the survey. Of those who responded to the survey, 10 participated in the interview. Sixty per cent of family physicians are noticing the impact of cost-related non-adherence on patient health and on the health care system on at least a weekly basis. Family physicians are engaging in sub-optimal workarounds to try to obtain access to medicine for their patients, such as giving out free samples (90.5%) and modifying medication choice, dosage, or regimen (82.8%). From the thematic analysis, three themes became evident: 1) the current system of drug coverage in Canada is unfair; 2) the current system causes harm to the health of patients and creates avoidable downstream use of more intensive resources; and 3) physicians react to the unaffordability problem by creating suboptimal "workarounds" to try to get access to medicines for their patients. **Conclusion:** The absence of universal coverage for medically necessary prescription drugs is palpable in primary care in Canada. Physicians feel the current system is unfair and they observe health and system effects of that inequality. They try to mitigate harm to their patients by engaging in suboptimal activities. Stories along these themes emerge from every region of the country. Cost-related medication non-adherence in Canada has a human face.

523 **Why Frequent Emergency Medical Services Users Call 911**

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Context: Frequent users of emergency medical services (EMS) place a burden on the health care system, leading to misallocation of already limited resources. Understanding the health care needs and context of this population may lead to collaborative interprofessional interventions that can prevent frequent use of EMS. **Objectives:** This qualitative study investigated factors influencing Hamilton residents to call EMS frequently. Specifically, our objective was to understand patients' views, perceptions, and attitudes surrounding EMS and use this to guide health care interventions and design a quantitative survey of the larger population of frequent users. **Design:** This was a qualitative case study. **Participants:** Ten Hamilton residents who called EMS five or more times in the past 12 months, identified through the Hamilton Paramedic Service's database. **Instrument:** We used a mix of in-person and telephone key-informant interviews using a semi-structured interview guide. All interviews were audio recorded. **Outcome measures:** Qualitative interviews were transcribed and thematic analyses was conducted via open, followed by axial, coding. **Findings:** A significant portion of participants were elderly. Mobility limitation was identified as a

key theme, often leading to frequent falls. There was a lack of social support, which led to problems regarding loneliness and difficulty in accessing transportation to health facilities. Some callers had anxiety and social isolation problems, which appeared to foster an inclination to seek reassurance by calling paramedics. Different attitudes toward the role of EMS were also identified, with one extreme maintaining that EMS was a public service to be used however the person sees fit, and others believing that EMS should be reserved for absolute emergencies. Call frequency underreporting was also observed. **Conclusions:** This study identified several distinct characteristics and tendencies among frequent EMS users that can guide patient assessment. Our results have guided the generation of a survey tool to be mailed to a large sample of frequent callers to quantify the magnitude of issues identified in this study.

524 Using Clinical Encounter Information From an EMR as a Source of Needs Assessment for CPD

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Background: The Virginia Study, led by Dr Maurice Wood in the 1970s, studied the content and composition of family practice. Apart from work in the Netherlands, little has since been published on the content of family practice. The Canadian Primary Care Sentinel Surveillance Network (CPCSSN) allows access to rich patient and provider data for approximately one million Canadians. These EMR-based data might be a useful resource for needs assessment in continuing professional development (CPD) planning. **Objectives:** To assess the use of the CPCSSN database in terms of: encounter diagnosis type and frequency; how best to categorize the scope of ICD-9 codes entered in the database; medical provider demographics by gender and age; and the applicability, benefits, and challenges of using the data for needs assessment and CPD planning. **Methods:** Access to the CPCSSN database was applied for and granted. Ethics approval was obtained. Encounter data were extracted for the year 2014. A total of 463,393 patient encounters with 418 family physicians was assessed. ICD-9 codes were assessed individually and by diagnostic groupings. The data were analyzed (SPSS) for frequencies, percentages, and cumulative percentages of encounter diagnoses, and for patient and provider demographics. **Conclusions:** EMR data suggest that 25% of the reasons for patient encounters with family physicians involve either undifferentiated symptoms and signs, or for reasons related to general health care, counselling, prevention, and screening. Another 25% are related to mental disorders (overwhelmingly depression and anxiety), cardiovascular disease (overwhelmingly hypertension), and musculoskeletal conditions. This profile of what is happening in the practices of Canadian family physicians should be considered when planning CPD. EMR diagnostic coding may be an unperceived learning need for family physicians.

525 The Importance of Data-Cleaning When Reporting Aggregated Statistics from Electronic Medical Record (EMR) Systems Data

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Context: The percentage of Canadian primary care clinicians using EMRs continues to rise (~75%), yet differences in coding practices and format of data entered by users are problematic and can reduce the utility of these data for secondary use, such as research and evaluation of primary care services. To improve the use of EMR for research and evaluation, the Canadian Primary Care Sentinel Surveillance Network (CPCSSN) extracts data from 11 different EMRs, then anonymizes and standardizes data elements. As such, CPCSSN is a Pan-Canadian EMR data repository that is used to produce new knowledge about the quality and delivery of primary care. **Objective:** To demonstrate the value of standardization on extracted EMR data when reporting on aggregated statistics by comparing two variables (patient smoking status and lab results of HbA1c tests) before and after the application of standardization protocols. **Design:** Descriptive study comparing patient variables in EMR data before and after standardization protocols are applied. An aggregated report will be created for patient smoking status and total number of HbA1c lab results by physician. The data will then be standardized using the CPCSSN algorithms and the reports recreated on the now standardized data. The data pre- and post-standardization will then be compared for accuracy, consistency, content, and face validity. **Participants:** British Columbia (BC) CPCSSN. BC-CPCSSN receives data on approximately 50,000 patients from 37 family physicians. **Intervention:** EMR data standardization protocol. **Outcome measures:** Smoking status, HbA1c. **Results/conclusions:** Prior to the standardization

protocols, both smoking status and the HbA1c naming convention are inconsistent, ranging from 30% to 50% of the time. Using EMR data that have not been processed using standardization algorithms may not produce reliable or valid information. Once developed, these algorithms can be applied across the CPCSSN to enable cross-provincial comparisons of important measures related to primary care. Moreover, these data can then be used in more complex algorithms such as medical complexity and frailty, which could be of great interest to primary care physicians.

526 Responding to Health Needs of the Population: Striking a balance between generalists and specialists

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Context: The ratio of family physicians and general practitioners (FPs/GPs) to other specialists varies dramatically worldwide. This ratio has significant effects on the health of a population. **Objectives:** To understand the factors that influence the ratio of FPs/GPs to other specialists in Canada. **Design:** A mixed-methods approach with semi-structured interviews. **Participants:** Thirteen individuals with expertise in health human resources and medical education were identified through snowball sampling until data saturation was reached. **Intervention:** Quantitative data were collected to outline current and past trends regarding the numbers of FPs/GPs and other specialists in Canada. Additionally, data outlining the numbers of medical students and residents completing postgraduate training were gathered. Interviews were conducted by a research assistant using a standardized set of questions. Information was gathered on current and past trends contributing to the ratio of FPs/GPs to other specialists, including information looking at medical education and other factors that might influence the ratio. A thematic analysis of the interviews was done using a constant comparison approach. All interviews were coded, themes were identified, and a report was synthesized. **Findings:** Factors that have influenced the ratio of FPs/GPs to other specialists in Canada include: government policy, medical education (including the role of family medicine in teaching and the development of distributed campuses), the role of the College of Family Physicians of Canada, and a historical perspective that a 50:50 ratio has served us well. **Conclusions:** Canada has a healthy balance between FPs/GPs and other specialists but has to be attentive to the factors that can help maintain this ratio.

527 Project Facilitation in Primary Care

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Context: Recruitment to research projects in family medicine often fails. The University of Toronto Practice-Based Research Network (UTOPIAN) offers tools and support for primary care research, including practice facilitators. Practice facilitators enable researchers, primary care clinicians, and practices to answer important health care questions and translate findings into practice. **Objectives:** To determine whether providing direct support for research through engaging project facilitators increases the number of research projects and number of primary care professionals involved in projects within UTOPIAN. **Design:** Qualitative analysis of documentation and feedback from network members and researchers. **Participants:** Since 2012, UTOPIAN has been involved in more than 25 primary care research projects spread over 14 family medicine teaching sites and included approximately 1,400 faculty members. UTOPIAN has two practice facilitators available to engage in research projects. **Intervention:** Many primary care practices do not have adequate resources, skills, or knowledge to undertake essential research activity in their practice. Practice facilitators provide a wide range of supportive services in order to improve the quality of care delivered, patients' experiences with care, and patient outcomes. This support focuses on building organizational research capacity for continuous improvement within the practice and typically includes assisting with research ethics board applications, recruiting for studies on both family practice and patient levels, and conducting electronic medical record searches for/on behalf of the project team. **Outcome measures:** Factors that enable practice participation in research. **Findings:** Providing research support to family practices, by a process of facilitation, increases the number of research projects within the network, research project success, and willingness of practices to take part in primary care research. Support is particularly suitable for pilot and feasibility studies as these provide robust evidence for grant applications. **Conclusion:** Practice facilitation has allowed busy clinicians and researchers to execute research projects,

recruit specific sites and clinics, recruit patient populations, and establish realistic, workable processes to ensure the success of their studies. One major benefit to involving UTOPIAN practice facilitators is leveraging existing relationships between practices, hospitals, research ethics boards, and UTOPIAN to inform and generate participation among all parties involved, and to improve patient care.

528 Scope of Practice of Family Medicine Graduates Who Completed Rural Versus Urban Residency Program by Practice Location

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Context: Do site of residency training (rural versus urban program) and practice location influence scope of family practice? **Objectives:** To compare the practice patterns of Alberta family medicine graduates who completed the urban versus rural residency program by practice location. **Design:** Cross-sectional, mailout, questionnaire survey. **Participants:** Six-hundred fifty-one graduates who completed family medicine residency training at the University of Calgary or University of Alberta during 2006 to 2011. **Outcome measures:** Nineteen domains of care in four categories (types of care, clinical procedures, practice settings, and specific populations) were rated on a 5-point scale ranging from 1 (not part of practice) to 5 (element of core practice). Mean rating scores were compared between rural and urban program graduates by practice location. **Results:** Responses were received from 307 graduates (47%), of whom 173 obtained a residency position via the urban and 59 via the rural program. Mean scores for rural program graduates were higher ($P < 0.05$) than for urban program graduates for postnatal care, intrapartum care/deliveries, palliative care, office-based procedures, in-hospital procedures, emergency department care, in-hospital care, home care, work in long-term care facilities, and caring for rural/Aboriginal populations. Mean scores for rural program graduates in rural practice were significantly higher than for urban program graduates in rural locations for five domains of care. Rural program graduates in urban practice had higher mean scores for intrapartum care/deliveries than urban program graduates in urban practice locations. **Conclusion:** Alberta family medicine graduates who completed a rural residency program tend to have a broader scope of practice than urban program graduates, regardless of practice location.

529 Encouraging Careers in Family Medicine: Regionally distributed medical education in British Columbia

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Context: In 2004 the University of British Columbia (UBC) implemented a provincial model of regionally distributed undergraduate medical education. **Objective:** To determine the impact of UBC's distributed model on career choice and location of practice. **Intervention:** Students spent their first semester in Vancouver (VAN); 32 students then relocated to Prince George (PG) or Victoria (VIC) regional sites. PG has a mandate to encourage students to consider rural medicine and includes a supplementary admissions process that evaluates rural suitability. **Design/participants:** We studied a cohort of students admitted between 2000 and 2007. Logistic regression was used to compare the results of the pre-distribution (2000–2003) and post-distribution (2004–2007) approaches using two outcomes: likelihoods of selecting family and rural practice. The relationship between program sites at post-distribution was also examined for the same outcomes. We adjusted for sex and age in the models. Students still in training were excluded. **Outcome measures:** Data on practice specialty (family medicine, other specialties) and practice location (rural, urban) were extracted from the *Canadian Medical Directory* and other administrative data sources. **Results:** Of students entering medical school between 2000 and 2007, 70% ($n = 985$) were practising when data were retrieved. Half (50%) were family physicians and 77 (8%) were in a rural practice. Students from the post-distribution period were more likely to practise family medicine (OR 2.21, 95% CI, 1.70-2.87), compared with those from the pre-distribution period (59% versus 39%). At post-distribution, students who attended PG were more likely to practise family medicine (OR 2.08, 95% CI, 1.14-3.80) compared with VAN students (77% versus 55%), and females (OR 1.96, 95% CI 1.50-2.54) had higher odds of practising family medicine. For rural practice, there was no difference between pre- and post-distribution. However, VIC students were more

likely to be in rural practice (OR 3.24, 95% CI, 1.33-7.89) than VAN students (13% versus 4%), as were PG students (OR 8.90, 95% CI, 3.95-17.41) (30% versus 4%). **Conclusions:** Implementation of a distributed regional model is associated with more trainees choosing family medicine. Students in the PG site were more likely to choose family practice. Students from both sites outside VAN were more likely to choose rural practice. These early findings suggest that the context of training can influence both career choice and rural interest.

530 Perceptions and Experiences of Family Medicine Residents Regarding Prenatal Screening and Related Ethical Issues

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Objectives: To explore the experiences and perceptions of family medicine residents around ethical challenges related to prenatal screening among different Canadian religious and cultural groups. **Design:** Qualitative study using in-depth interviews at Western University. **Participants:** Nine family medicine residents from postgraduate years one, two, and three at St. Joseph Family Medicine Centre London. Seven of the participants were female and two were male. **Methods:** Using a qualitative approach, in-depth interviews were conducted. Perception and experiences with respect to several aspects of prenatal screening were examined. Study data were audiotaped and transcribed verbatim. Independent and team analyses were performed in an iterative and interpretive manner. **Results:** The study findings revealed two prominent themes that had an impact on the knowledge and perception of family medicine residents at the university: physician factors and patients factors. Physician factors included general understanding around prenatal screening tests, confidence in counselling patients, moral distress, communication challenges, gender of physicians, patient-physician relationship, and need for more training. Patient factors included age, invasiveness of tests, socioeconomic status and educational level of the patient, cultural background, religious background, and non-judgmental approach of counselling. Moreover, participants showed a keen interest in further learning different aspect of prenatal screening. **Conclusions:** Despite describing poor confidence, gaps in knowledge, and having challenges during counselling, the participants identified positive experiences around prenatal screening counselling and were well aware of having a strong patient-physician relationship by offering open discussion. Supporting these new learners and educating them on this sensitive topic will encourage family medicine residents to improve their confidence by increasing their competency in counselling patients and appropriately following patients with positive prenatal screening results in their practices.

531 Improving Family Medicine Residents' Knowledge of Deprescribing in the Elderly

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Context: Caring for elderly patients is often complicated by polypharmacy. Deprescribing is the process of titration/weaning and discontinuation of potentially inappropriate medications. However, barriers to deprescribing such as a lack of education prevent this process from occurring in daily practice. **Objective:** To determine whether an electronic module is an effective tool to increase knowledge and confidence in deprescribing and decrease perceived barriers in deprescribing. **Design:** A qualitative research study was undertaken. **Participants:** All family medicine residents at the Michael Garron Hospital were invited to participate; 26 of 37 residents agreed to participate. **Intervention:** Subjects participated in an anonymous survey and electronic module that presented principles of deprescribing. Multiple-choice questions based on the content were presented before and after the module to assess a change in score. Subjects were also asked to qualify their experiences using Likert scales. **Outcome measures:** The primary outcome of this study was to determine whether there was an increase in test scores after subjects worked through the electronic module. Secondary outcomes assessed subjects' confidence in deprescribing, their perceived barriers before and after the module, and their likelihood of using the Beers Criteria in the future. Statistical analysis was performed using SPSS. **Findings:** The mean increase in scores after the module was 12% (5.2%–18.9%, $P = 0.001$). Of those who did not have confidence in deprescribing, 93% versus 7% endorsed an increase in confidence after the module ($P = 0.012$). Fewer residents cited "fear of harming the patient" (22 versus 14, $P = 0.021$) and "medication started by a specialist" (25 versus 14, $P = 0.003$) as barriers to deprescribing after

the module, and 100% of subjects stated they would use the Beers Criteria in the future ($P < 0.001$).

Conclusions: The module may be an effective tool to teach deprescribing in residency and to decrease barriers to practising this in a clinical setting. The impact on deprescribing practices after the module was not studied in this project but merits further study.

532 **Environmental Health Attitudes, Knowledge, and Learning Needs of Family Medicine Residents: A multi-program survey**

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Context: Research has shown that family physicians feel unprepared to diagnose and manage illness resulting from environmental exposures. No previous studies have similarly examined residents. **Objectives:** To assess environmental health attitudes, knowledge, and learning needs among family medicine residents. **Design/intervention:** A questionnaire was developed using the Delphi method with 19 consultants: physician and non-physician experts in environmental health and family medicine program directors. Questions derived from the literature or suggested by these experts were rated in two iterations, with more than 74% rater approval of the final questionnaire. **Participants:** After obtaining ethics approvals, the Web-based survey was administered from November 2015 to January 2016 to 887 family medicine residents at four Ontario medical schools. Two-hundred three family medicine residents responded, resulting in 181 usable data sets. **Outcome measures:** Ninety-three items measured attitudes, knowledge, learning needs, and clinical practices regarding environmental health. **Results:** No significant ($P < 0.05$) differences were observed between programs in any environmental health components of the survey, and no differences in knowledge and skill levels were found between residents in PGY1 year versus those in senior years. Overall, 58% of residents were negative or neutral in their satisfaction ratings of current training in environmental health. Most family medicine residents (92%) were highly concerned about the health effects of environmental exposures but only 32% had specific training to take environmental exposure histories, and 48% believed these took too much time in office practice. Mould exposure from flooding was recognized as a climate change health effect by 55% and asthma from ground-level ozone by 34%. Residents felt most unprepared for the advocate and expert roles. Eleven per cent of residents believed their supervisors had a good understanding of environmental exposures. **Conclusions:** Family medicine residents reported the importance of assessing environmental exposures but identified a lack of knowledge, specific skill training, and mentorship to learn these skills. Our results should be useful to family medicine residency programs wanting to address perceived training gaps in environmental health.

533 **Assessing Exposure to and Education on Abortion During Training and Future Intention to Provide Abortion Among Canadian Family Medicine Residents**

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Context: The number of abortion providers in North America is in decline. Evidence shows that the decline in providers is particularly pronounced in rural settings. The amount of education that medical trainees receive on abortion, in addition to their intention to provide abortion, are the two strongest predictors of future provision. Anecdotal data suggest that family medicine residents receive little or no education on abortion provision during their training in residency. **Objectives:** To determine the quantity and type of education in addition to the exposure that family medicine residents receive on abortion during their training and whether this exposure and education are elective. **Secondary objectives:** To determine the intentions of family medicine residents to provide abortion during their future practice and the relationship between intention and attitudes, social norms, and logistical barriers. **Tertiary objectives:** To determine the knowledge of family medicine residents on abortion provision. **Design:** A 21-item survey based on a well-validated social psychology theory for the prediction of future behaviour, the Theory of Reasoned Action and Planned Behavior, was created in conjunction with content experts in the field of medical education and women's health. The survey was piloted with five family medicine residents, and areas of uncertainty were clarified. The survey will be administered online over a 1-month period. **Participants:** First- and

second-year family medicine residents at English-speaking universities in Canada. A convenience sample of schools with inter-university Research Ethics Board agreements with Ottawa will be used. Approximately 2,060 participants will be eligible. **Outcome measures:** 1) Number of hours of medical education receiving during residency on abortion; 2) nature of educational exposure, opt-in versus opt-out; 3) attitudes, perceived social norms, perceived difficulty of training in and providing abortion, and intention to provide abortion; and 4) percentage of knowledge-testing multiple-choice questions answered correctly. **Results:** The survey is currently being administered; results would be available at the time of presentation. Linear regression will be used to determine the impact of attitudes, perceived social norms, and perceived behavioural control on intentions. T-tests will be used to determine the impact of educational exposure on intention to provide abortion.

534 Exercise Medicine in Residency: Are we preparing future family physicians to prescribe exercise as medicine?

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Context: Physical activity (PA) is an important intervention in the prevention and treatment of chronic disease, yet few physicians prescribe exercise. Exercise medicine has traditionally been marginally represented in medical school and residency training programs. With the growing epidemic of chronic disease, the integral role primary care physicians can serve by discussing PA and providing exercise prescription to patients has been widely recognized and acknowledged as critical. **Objectives:** To assess residents' knowledge, skills, and competence in exercise prescription and their perspectives of training received in exercise medicine. **Methods:** All 396 family medicine residents registered at the University of British Columbia (graduating classes 2013-2015) were eligible to complete the 49-item cross-sectional survey. All variables were evaluated on a 7-point Likert scale. Data were analyzed using continuous and bivariate analysis, with statistical significance set conservatively to $P = 0.01$. **Results:** The response rate was 80.6% (319/396). Fifty-two per cent of residents correctly identified the Physical Activity Guideline for adults, 21.8% for children, and 29% for older adults. Residents recorded a low overall knowledge score 44.3% (95% CI, 41.3%-47.3%) and there was no difference between the knowledge scores of residents at different stages of training. Residents reported greater competence prescribing exercise to healthy patients compared with patients with chronic disease: 57.5% (95%CI,55.0%-60.0%) versus 45.9% (95%CI,43.3%-48.4%) $P < 0.001$. There was a small but significant increase in residents' perceived exercise prescription competence between residents at the beginning, midway through, and completion of training of 46.8% (95% CI, 42.8-50.8%), 51.9% (95% CI, 48.3%-55.4%), and 57.5% (95% CI, 53.6%-61.4%) $P = 0.001$, respectively, with an overall resident competence of 51.6% (95%CI, 49.3%-53.9%). There was, however, no difference in competence in any of the six individual exercise prescription skills assessed between residents at different stages of training. Overall, only 18.6% of residents felt they received adequate training in exercise medicine and 91% desired additional training in exercise prescription. **Conclusion:** Current medical training is not providing physicians with the adequate knowledge, skills, and competence to provide patient-centred exercise counselling and exercise prescription. In the context of the chronic disease epidemic, this underscores the need for enhanced curriculum development in exercise medicine.

535 A Novel Approach to Documenting Assessed Maternal and Newborn Care Competence

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Context: Our department developed a series of 11 expected antenatal plus postpartum competencies (APPC) and 10 intrapartum competencies (IPC) in family medicine obstetrics (FMOB). These were included on specialized field notes (FMOBFNs) to be completed by supervisors for our trainees and performance categorized based on the standard of a graduating resident: "Not applicable," "Does not do this," "Is starting to do this," or "Does this." They were implemented in widespread fashion on our electronic field note system (eFNS) in June 2014. In November 2014, we set explicit expectations regarding the number of FMOBFNs required and guidelines as to when competencies should be attained over the residency. **Design:** We retrospectively analyzed the FMOB data contained in the eFNS data over the academic years 2013-

2014 and 2014–2015. **Participants:** Fifty-three PGY2 and 31 new graduates in the 2014–2015 year.

Intervention/instrument: Using the data in the eFNS database, we reviewed reported competency for all 21 FMOB items. **Outcome measures:** Department of Family Medicine expectations stipulated that all residents would have a minimum of 12 FMOBFNs, and to have 73% APPCs and 80% IPC rated as “Does this” by the end of the PGY2 year. **Results/findings:** For the 53 PGY2s, the average number of FMOBFNs was 9.1 (zero to 26), the greatest proportion being intrapartum. The average number of FMOBFNs per resident was unpredictable based on site of training. Twenty-seven residents attained the expectation of 73% APPCs (average attainment: 53%). Thirty-four attained the IPC expectation of 80% (average attainment: 65%). To compare, the 31 new graduates had an average of four FMOBFNs (zero to 11), and only one attained the 80% IPC expectation (average attainment: 20%). **Discussion:** It was the first year of explicit, formalized expectations and the improvement in documentation of FMOB competencies is gratifying. As it appeared to be independent of teaching environment, the improvement is attributed to resident initiative. The “Does well” performance assessment does not guarantee competence, as it is still a subjective contextual assessment perhaps by one supervisor. **Conclusions:** Having introduced a clear policy and electronic process to gather information on performance, our department has driven residents to focus attention on acquiring FMOB skills and demonstrate competence.

536 Canadian National Survey on Point-of-Care Ultrasound Training in Family Medicine Residency Programs

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Context: Point-of-care ultrasound (PoCUS) has undergone rapid expansion of its application in the past decade. Although many advocate for its increased use in primary care, current perception and prevalence of ultrasound training in family medicine residency programs have not been established. **Objective:** In our study we aimed to assess the current status of PoCUS training in Canadian family medicine residency programs. **Design:** We carried out a cross-sectional survey evaluation of ultrasound education in accredited Canadian family medicine residency programs. The Web-based anonymous survey consisted of 27 multiple-choice questions and is scheduled to be completed over a period of 4 months in 2016. **Participants:** The population of study includes the 17 accredited Canadian family medicine residency programs represented by their program director or their proxy. Only one completed survey was to be accepted per residency program. **Intervention:** Our data are being collected using Fluid Surveys and data are being entered into an electronic database using Microsoft Excel. Using aggregated data, gap analysis and descriptive statistics were reported. **Results:** Currently, 70% of program directors have completed the study. Only 16.7% of respondents reported established ultrasound curriculum and 41.6% are in the process of establishing core ultrasound training. In contrast, 90% believed that PoCUS teaching should be integrated into family medicine residency. Barriers to establishing training included: lack of adequate equipment (58.3%), lack of instructors (58.3%), lack of available time in the curriculum (50%), and lack of funding available to support training (58.3%). The majority (66.7%) of respondents believe that PoCUS can be used in family medicine to alter clinical decision-making. Leading potential benefits associated with PoCUS use in primary care include: rapid diagnosis (83.3%), useful adjunct to physical exam (91.6%), and potential to reduce health care costs (66.7%). **Conclusions:** Although few Canadian family medicine residency programs reported an established ultrasound curriculum, the majority of program directors believe that PoCUS training should be offered to trainees and that ultrasound use can positively affect primary care practice. A growing number of residency programs are considering incorporating ultrasound training, but resource availability remains a major barrier to implementation.

- 537 Revisiting the Impact of Cultural Differences on Residency Experiences (ICDRE) Survey**
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Context: The growing number of international medical graduates (IMGs) arriving from medical schools abroad to undergo residency and begin clinical practice in Canada has increased the diversity in cultural influences, beliefs, and opinions about medical practice. With this comes the perceived risk by educators of cultural discordance with regard to communication, collaboration, and professionalism in IMGs, for whom these spheres may differ from the culture of Canadian medicine. **Objective:** The goal of the Impact of Cultural Differences on Residency Experiences (ICDRE) survey is to identify significant differences in underlying assumptions regarding communication, collaboration, and professionalism among both IMGs and Canadian medical graduates (CMGs) and to determine whether significant differences occur between the two groups. **Design:** Survey research program evaluation. **Participants:** Faculty and residents across the Faculty of Medicine at the University of Ottawa. **Instrument:** The ICDRE survey is a 48-item Likert-type scale that measures self-reported perceptions of a residency experience with regard to the concepts of: sense of hierarchy, individualism/teamwork, and risk tolerance. **Results:** In 2015, the ICDRE was completed by 86 residents and 14 faculty in 30 different specialties at the University of Ottawa. Seven items on the survey yielded significant differences between CMGs and IMGs ($\alpha = 0.05$). **Conclusions:** The ICDRE survey identifies differences in underlying influences between CMGs and IMGs that may lead to perceived problems with professionalism, collaboration, and communication among IMGs.

- 538 Feedback on Feedback: An innovative addition to electronic workplace-based daily assessment forms**
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Context: Assessment in competency-based medical education (CBME) is designed to support resident learning and competency decisions. Direct observation and formative feedback are foundational in CBME, and are used in daily low-stakes workplace-based assessment. Preceptors often lack opportunities to receive specific feedback about the feedback they provide residents. **Objective:** The purpose of this qualitative pilot study was to design an addition to electronic daily assessments that provides feedback to the preceptors about the feedback they provide to residents. **Design:** Phenomenological design was used, based on the residents' perspective of the feedback they deemed most useful. Participants were PGY1 residents in a Canadian family medicine training program. **Intervention:** Participants were invited to nominate documented feedback they identified as particularly useful in their learning and describe why. Eighteen entries from five competitions were included. **Results:** Five themes emerged from this pilot that indicate feedback was most useful to residents when it: changed and improved their practice; taught them something new; motivated them to learn more; confirmed they were doing the right thing; and promoted reflection. Based on the findings, the electronic assessment forms were changed such that residents can now identify feedback that was of particular value to them, giving it a "thumbs up" and including why from a choice of the five themes. Enabling residents to identify feedback that drives their learning and to identify why offers preceptors feedback on their feedback. The full study will validate the five themes and investigate the impact this information may have on preceptors. **Conclusions:** Daily workplace-based formative assessment supports residents to better understand their own learning needs. By indicating "thumbs-up," residents can give feedback to preceptors on what drives their learning best and should provide opportunities to inform preceptors about the impact of the feedback they provide learners, thereby increasing its effectiveness and usefulness for learners.

- 539 Enhanced Skills in Health Equity and Global Health: Guidelines for curriculum development**
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Context: Global Health (GH) is the practice, education, and research of health equity in international and domestic populations. Because the field is highly contextualized from one scenario to the next, some have

questioned the relevance of competencies, and postgraduate programs have taken a wide spectrum of approaches to GH training in primary care. **Objectives:** To determine consensus on best practices (regarding content, learning format, and assessment) for an enhanced skills program (ESP) in GH for family medicine residents. **Design:** The Delphi technique with three iterations of an online survey and opportunities for participant feedback. **Participants:** Fifty-seven Canadian family physicians with expertise in GH and medical education including faculty and recent graduates from all five Canadian ESPs in GH, with a balance of experience in domestic and international GH, were invited to participate. Fifty-two agreed to participate, and 42 completed surveys in the first round. **Instrument:** Online survey with items assessing the core topics for training in GH, as well as preferable modalities for teaching and assessment. **Outcome measures:** Survey items assessing opinions, perspectives, and preferences regarding the core topics and methods of teaching and assessment. **Results:** This work is in progress; final results will be available at the time of presentation. We anticipate reaching convergence of opinion (defined as a minimum of 75% agreement) on aspects of the overarching objective of a GH ESP, core content of the program, and preferred methods of teaching and learner assessment. **Conclusions:** Postgraduate medical education today places a strong emphasis on achievable competencies, yet there are currently no nationally recognized standards for postgraduate training in global health. This represents both a challenge to curriculum planning and an opportunity to make a national contribution to curriculum building in GH/health equity. This research will be used to build an innovative new medical training program at Memorial University of Newfoundland (a third-year ESP for family medicine residents in the area of GH/health equity). We will also create a “best practices” document for GH training in Canada.

540 **Competency-Based Assessment in Sport and Exercise Medicine (SEM) Enhanced Skills Resident Programs: A pilot project**

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Context: Competency-based assessment is required for Category 1 enhanced skills (ES) training programs, where a certificate of added competence (CAC) is to be awarded. **Objectives:** Evaluation of uptake/implementation of the Competency-Based Achievement System (CBAS) in Sport and Exercise Medicine (SEM) enhanced skills programs at three Canadian university-based clinics, over three academic years. **Design:** Mixed-methods prospective cohort study. **Participants:** Preceptors (n = 26), residents (n = 15), support staff (n = 1), and program directors (n = 4). Purposive sampling included all involved in the core ES SEM programs. **Instrument:** Semi-structured interviews and FieldNotes (observations). **Outcome measures:** Qualitative: Identification of barriers and enablers to CBAS implementation. Quantitative: Use of CBAS (numbers and range of FieldNotes collected). **Results/findings:** Initially, low uptake of CBAS suggested that resident and preceptor resistance was high. While the case for competency-based assessment was clearly accepted, the need for frequent, documented, formative feedback (ie, FieldNotes) was not. Residents resisted scrutiny and repeated verification of their competency, and pursuing preceptors for FieldNotes. In a fee-for-service environment, preceptors resisted the time burden of producing FieldNotes to evaluate residents. Program directors valued FieldNotes for early identification of at-risk residents, evidence to support summative assessments, and for tracking development of professional/clinical competencies. Over time, quantitative data analysis showed that entry of FieldNotes increased significantly per resident, per preceptor, and per study site. Resident and preceptor acceptance rose as minimum expectations were established and technical issues were resolved. Permitting residents to initiate and enter FieldNotes for preceptor sign-off reduced preceptor burden and increased resident ownership. Subtle changes in attitude included residents acknowledging feedback as beneficial rather than threatening, and viewing accumulated FieldNotes as transparent proof of competency. Similarly, preceptors saw the opportunities for “teachable moments” as opposed to judgment. Uptake and transition also improved when former residents trained in CBAS were integrated as new preceptors. **Discussion:** Initial resistance to CBAS gave way to acceptance as a result of changes in program implementation that increased ownership, reduced burdens, and reframed observations of competency as opportunities for feedback rather than judgment. **Conclusions:** Successful implementation

of CBAS required ongoing adaptations to address participant concerns and ease the transition to competency-based assessment based on formative feedback.

541 **Decision-Making Capacity Assessment Education for Physicians: Current state and future directions**

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Objective: The objective of this study was to examine the training needs of family physicians (FPs) regarding decision-making capacity assessments (DMCAs) and ways in which training materials, based on a DMCA model, might be adapted for use by FPs. **Design:** A scoping review of the literature and qualitative research methodology (focus groups and structured interviews). **Setting:** FPs practising in a variety of settings: primary care, day programs, home living, supportive/assisted living, long-term care, restorative care, geriatric clinic, and geriatric inpatient/rehabilitation units in the Edmonton Zone, Alberta. **Participants:** FPs who chose to attend a focus group on DMCAs. **Methods:** A scoping review of the literature to examine the current status of physician education regarding assessment of decision-making capacity, and a focus group and interviews with FPs to ascertain the educational needs of FPs in this area. **Main findings:** Based on the scoping review of the literature, four main themes emerged: increasing saliency of DMCAs due to an aging population, suboptimal DMCA training for physicians, inconsistent approaches to DMCA, and tension between autonomy and protection. The findings of the focus groups and interviews indicate that while FPs working as independent practitioners or on interprofessional teams are motivated to engage in DMCAs and utilize the DMCA model for those assessments, several factors impede them from conducting DMCAs. The most notable factors are a lack of education, isolation from interprofessional teams, uneasiness around managing conflict with families, fear of liability, and concerns regarding remuneration. **Conclusion:** This research project has helped to inform ways to better train and support FPs conducting DMCAs. FPs are well-positioned, with proper training, to effectively conduct DMCAs. To engage in the process, however, the identified barriers should be addressed.

542 **Digging Into Why Residents Fail the CFPC Exam: Examiners' narratives**

Shirley Schipper*, MD, CCFP, Edmonton, AB; Shelley Ross, PhD, Edmonton, AB; Carlos Brailovsky, MD, MA (Ed), MCFPC, Laval, QC; Judith Belle Brown, PhD, London, ON

Near the end of training all family medicine residents in Canada, including international medical graduates (IMGs), write the national certification examination. Candidates who fail the certification exam are not able to practise in some regions in Canada. To rewrite the exam is both stressful and expensive. Providing insight into failures may help residents and training programs in multiple areas: improving exam preparation activities, guiding curriculum change, or tailoring training for those who require it. This presentation goes over current research looking into the reasons why residents fail the oral portion of the College of Family Physicians of Canada's certification examination, specifically the Simulated Office Oral (SOO) portion of the exam. Scoring patterns were analyzed and examiners' comments were captured from the score sheets. The comments were also analyzed; themes and quotes were identified. Approximately 100 candidates failed the 2013 and 2014 spring and fall sittings of the exam. Of them, 52 candidates who failed the SOOs were studied. In both the written and oral parts of the exam, and across Canada, IMGs performed less well than Canadian-trained medical graduates. Candidates who fail are given quantitative data on their SOO performance; however, examiners often write narrative comments on the backs of score sheets, which are not shared. Candidates who fail often have similar performance issues noted by examiners. Some candidates who fail often have the same difficulty on subsequent exam attempts. The behaviours and comments on the narratives provide specific performance information, which would be valuable to resident candidates and residency programs. Knowledge of why candidates fail exams is essential feedback. Currently candidates receive global feedback, which indicates only how they scored. More specific feedback (such as missed cues, problems with communication) could be helpful.

543 Selected Specialized Activities in the Family Medicine Residency Curriculum at Laval University: A program evaluation

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Background: To meet the College of Family Physicians of Canada accreditation standards, the family medicine residency program at Laval University has developed Selected Specialized Activities (SSA) to help residents enhance their competencies in specific areas of expertise such as women's health, teen health, and musculoskeletal medicine. **Objectives:** 1) Assess the overall appreciation of the new SSA. 2) Evaluate the impact of the new SSA on family medicine residents' learning and skills regarding women's health, teen health, and musculoskeletal medicine 3) Identify the strengths and weaknesses of the SSA and ways to improve them. **Methods:** This mixed-method descriptive study used the Kirkpatrick Model for program evaluation (levels 1,2, and 3). Family medicine residents were asked to answer a pre- and post-SSA self-assessment questionnaire designed to determine residents' SSA appreciation, their perceived learning, and their sense of competence following SSA completion. Descriptive analyses were used to determine barriers and facilitators to the SSA. **Results:** Twenty-three out of 47 residents answered the pre- and post-SSA questionnaires regarding women's health, as well as 22 out of 35 for teen health and 14 out of 28 for musculoskeletal medicine. Residents were satisfied with the SSA, with an average appreciation of 8/10 (level 1, reaction). Most residents ($\geq 78\%$) indicated they achieved their learning objectives. Most residents reported an overall improvement in their knowledge and sense of competence following the completion of the SSA regarding women's health ($\geq 95\%$), teen health ($\geq 91\%$), and musculoskeletal medicine ($\geq 57\%$), except for the following themes: permanent contraception; induced abortion care, evaluation of bursitis, capsulitis, and subluxation; and infiltrations (levels 2 and 3, learning and behaviour). The main SSA points to improve were clinical lack of exposure during the summer period, underexposure to infiltrations, and need to transit between training sites. The main facilitators would be a full day dedicated to the SSA instead of a half day to increase patient output and to have access to training reference materials. **Conclusion:** Intensive learning activities that provide residents with the opportunity to delve into specific areas of expertise in family medicine is mostly appreciated by residents, seems to be associated with better self-assessed knowledge, and improves residents' sense of competence for most SSA themes.

544 Strengths and Weaknesses Found in Canadian Family Medicine Residency Programs During Accreditation Visits

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Context: The foundation for the College of Family Physicians of Canada (CFPC)'s process of accreditation of family medicine (FM) residency programs in Canada is the full, on-site external review at each school. A survey team spends almost an entire week meeting with program leaders, residents, and faculty to generate a report describing the program's strengths and weaknesses. These reports are shared only with the Accreditation Committee and the schools. This leaves many programs uncertain about what the more common areas of challenge are for programs in meeting accreditation standards, and potentially misses an opportunity to highlight where programs have been exemplary and sometimes quite innovative in meeting or exceeding training standards. **Objective:** This study aims to identify common strengths and weaknesses found during Canadian FM accreditation visits over the past 40 years. **Design:** The strengths and weaknesses in each of the external review reports over the past 40 years will be analyzed for content and frequency. The strengths and weaknesses will then also be categorized according to current accreditation standards. The analysis will include the accreditation status and follow-up on programs that resulted from each external review. All data will be anonymized and collated so no individual program's data can be identified. **Participants:** Accreditation reports and transmittal letters for all 17 FM 2-year residency programs over the past 40 years will be accessed. **Intervention/instrument:** Data will be gathered using a manual data-gathering tool listing identified strengths and weaknesses found during each external review. **Outcome measures:** The common strengths and weaknesses found during accreditation visits will be presented, as

well as the accreditation status of each program that resulted from the visit. **Results/findings:** The results will be available in the summer of 2016. **Discussion:** This will depend on the results, once they are available. **Conclusion:** This study will, for the first time, present and share information about the common strengths and weaknesses found during accreditation visits to Canadian FM residency programs. This will help programs consider their own ongoing quality-improvement processes and highlight the considerable areas of strength in postgraduate FM training in Canada.

545 Knowledge Translation of Pain-Reduction Strategies in Childhood Vaccinations Among Health Care Professionals

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Context: The advent of vaccines has drastically changed health care in terms of the incidence and mortality of many diseases of childhood. While vaccines are routine, there is no routine pain prevention plan associated with these needle injections, which is the main barrier to adherence. **Objectives:** To influence intent to change health care professionals' use of pain-reduction strategies during routine childhood vaccines at Stonechurch Family Health Centre (SFHC) in Hamilton, Ontario. **Design:** This is a two-stage knowledge-translation (KT) project. **Stage 1 objectives:** To understand barriers to uptake of pain-reduction strategies among health care professionals at SFHC. **Stage 2 objectives:** To develop a motivational and education intervention intended to change practice based on findings from Stage 1. **Participants:** Purposive sampling will be used to recruit representative stakeholder staff members (physicians, residents, receptionists, team assistants, and nurse practitioners) who are directly or indirectly involved in administering childhood vaccines and are influential in practice change within the clinic. **Intervention:** Stage 1: A focus group will be conducted using a structured Interview Guide based on the Theoretical Domains Framework that identifies barriers related to: knowledge, skills, professional role/identity, beliefs about capabilities, beliefs about consequences, motivation and goals, and environmental context and resources. Stage 2: Findings gathered from the focus group will be used to develop a facilitated workshop addressing main barriers to uptake of recent Canadian guidelines. **Outcome measures:** Stage 1: Themes of facilitators and barriers to using pain-reduction strategies will be identified. Stage 2: Evaluation of intent to change practice will be determined using the Nursing Practice Questionnaire. This survey quantifies readiness to change practice and will be administered pre-, immediately post-, and 3 months post-workshop. Scores will be analyzed for significant change over time. **Findings:** We anticipate possible barriers related to health professional awareness, belief in the intervention effectiveness, and scheduling limitations. We anticipate advancement in readiness to change as a result of our workshop intervention. **Conclusions:** Implications of this KT project may lead to a reduction of the gap between evidence and uptake of reducing pain during childhood vaccines, which may improve adherence to the childhood vaccine schedule.

546 Methodological Quality and Reporting in Pediatric Preventive Care Recommendations: Review of guidelines from English-speaking countries

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Context: Early childhood has a profound influence on physical, mental, and emotional health throughout life. Comprehensive guidelines have been developed internationally for child health promotion based on the best available evidence. **Objectives:** To assess the methodological quality and reporting of guidelines for pediatric preventive care. **Design:** A structured review and quality assessment of nationally endorsed guidelines for preventive care well-child visits in children 0–5 years old from English-speaking countries. **Target population:** Five guidelines and programs from major English-speaking countries were retrieved: Tamariki Ora (New Zealand), Healthy Child Programme (United Kingdom), Guidelines for Preventive Activities in General Practice (Australia), Bright Futures (United States), and the Rourke Baby Record (Canada). **Instrument:** We assessed the rigour and transparency of guideline development using the AGREE II international tool. Three independent reviewers allocated scores according to six domains: scope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, and editorial independence. We gave specific attention to examining the process for synthesizing the evidence, as well as

formulating and updating recommendations. Guidelines were further compared descriptively to identify any content differences. **Results:** There was a wide variation in scores across all domains, with each guideline exhibiting different strengths and weaknesses. Overall scores for rigour of development, for example, ranged from 33.3% (New Zealand) to 71% (United States). The one item that scored poorly across guidelines (score less than or equal to 3) was the description of how recommendations were formulated and updated.

Conclusions: Methodological rigour in the development of pediatric primary preventive care guidelines varied substantially across countries. All guidelines would be improved with explicit reporting of the recommendation development process.

547 Patient Characteristics and Beliefs Influencing Influenza Vaccination Uptake at SETFHT

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Purpose: The seasonal influenza vaccine is the most effective way to prevent influenza, yet only one-third of Ontarians receive the flu vaccine each year. The objective of this study was to identify patient characteristics and beliefs influencing influenza vaccine uptake with the goal of generating useful information that can be used to inform physicians and guide future flu vaccine campaigns. **Methods:** The front staff at the South East Toronto Family Health Team (SETFHT) recruited patients older than 18 years of age to participate in a paper survey regarding the influenza vaccine. The information collected was used to generate descriptive statistics, and Fisher's exact test was employed to determine the statistical significance of the data. **Results:** Of the 67 respondents to the survey, 59.7% had received the influenza vaccine for the 2015–2016 season. Individuals with postsecondary education were significantly more likely to receive the flu vaccine ($P = 0.014$). Similarly, individuals who had received the flu vaccine in the past were significantly more likely to receive the influenza vaccine ($P < 0.001$). The most commonly identified reasons for influenza vaccine refusal were: lack of efficacy, belief of being unlikely to suffer complications from the flu, and "other." **Conclusions:** Future flu vaccine campaigns should target individuals with less education and those who have never received the influenza vaccine. To address the most commonly cited reasons for influenza vaccine refusal, campaigns should focus on potential complications from influenza as well as the efficacy of the flu vaccine. Since the most commonly identified reason for receiving the influenza vaccine was recommendation from a health care provider, physicians should counsel patients regarding the flu vaccine and spend additional time counselling those who are unlikely to receive the vaccine.

548 A Scoping Review of the Benefits and Risks of Domperidone as a Galactagogue

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Background: Breastfeeding is best for baby, yet many women experience difficulties due to inadequate breast milk production. Domperidone is commonly used off-label as a galactagogue to promote breast milk production. Safety warnings regarding domperidone use have been issued by the US Food and Drug Administration and Health Canada. **Objectives:** To review evidence on the benefits and risks of domperidone as a galactagogue. **Method:** Scoping study (Arksey & O'Malley, 2005). A search protocol for databases (MEDLINE, CINAHL, Embase, OVID HealthSTAR) and grey literature (guidelines, point-of-care tools, breastfeeding websites and blogs) was developed with librarian input. No language or year restrictions. Two reviewers independently reviewed full texts and performed data extraction. PRISMA guidelines informed review reporting. Oxford critical appraisal tool was used to examine RCT quality. Data were charted, collated, and summarized. A consultation exercise included three interviews with breastfeeding experts and three workshops with family physicians and residents. **Results:** From an initial list of 552 citations, 35 articles were included: 12 randomized controlled trials (RCTs), one systematic review, one meta-analysis, case reports, and commentaries. Health Canada provided information on 291 adverse case reports between 1965–2015; 14 were life-threatening and 52 required hospitalization, and there was one reported case of death. Of the RCTs, 10 of the 12 were conducted in preterm infants. Domperidone doses in studies varied between 10 mg–20 mg TID with only one study using 20 mg QID. Two studies compared the effect of different doses and showed clinical but not statistically significant increases in milk production with higher dose. Treatment duration was 2 days to 6 weeks. Withdrawal symptoms with longer durations of domperidone were reported. Side effects of domperidone use were poorly recorded, and one

study suggested more side effects at a higher dose. The consultation exercise with the lactation experts and practitioners confirmed that current clinical practice is to prescribe domperidone for long periods of time, at up to 40 mg QID doses. Screening for cardiac disease varied greatly from no screening to screening with ECG. **Conclusion:** Use of domperidone for mothers of term babies, for longer than 6 weeks, or in high doses is not in accordance with existing evidence. There is a gap between research evidence and clinical practice.

549 **The Impact of Family Physicians' Prenatal Breastfeeding Counselling on Maternal Breastfeeding Practices in Calgary**

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Context: Exclusive breastfeeding for 6 months is considered to be optimal infant nutrition, yet many populations around the world fail to meet this ideal. Prenatal visits are an opportunity to influence women's knowledge, attitudes, and practices relating to breastfeeding, which may help improve breastfeeding rates. There are currently no studies in Canada examining solely patient-physician interaction in support of breastfeeding during prenatal visits. **Objectives:** We obtained mother and physician perspectives on the scope and relevance of breastfeeding counselling offered in the prenatal period and the extent to which it influenced postpartum breastfeeding practices. **Design:** This was a retrospective cohort study of postpartum women and a cross-sectional study of family physicians providing prenatal care using convenience sampling. **Participants:** Ninety-five English-speaking postpartum mothers of infants 6 months and younger and 32 family physicians were recruited through posters in low-risk obstetric prenatal clinics and academic family medicine teaching clinics. **Instrument:** Self-administered questionnaires. **Outcome measures:** To determine whether physicians' contact with mothers during the prenatal period had an impact on breastfeeding decisions and outcome. **Results:** The majority of mothers (80%) made the decision to breastfeed before becoming pregnant, and the strongest influence on mothers' decisions to breastfeed was friends and family. However, only about half (51%) of mother participants were exclusively breastfeeding when they were surveyed. Most mothers (60%) indicated that their physicians usually or always provided breastfeeding counselling/support at prenatal visits, and most (88%) found this to be useful. Seventy-eight per cent of physicians indicated they always recommended exclusive breastfeeding, with the majority of them (69%) providing breastfeeding counselling at all or most prenatal encounters. Mothers and physicians differed in how often they believed breastfeeding was discussed: Mothers recalled fewer discussions of breastfeeding during prenatal visits than reported by physicians. **Conclusion:** Family physicians should be reassured that women find frequent breastfeeding counselling helpful. Physicians should be supported with continuing medical education to increase their level of confidence with breastfeeding advice.

550 **Identifying Risk Factors of Concussion Injury Among NHL Players**

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Context: Concussion injuries among professional hockey players in the National Hockey League (NHL) result in enormous economic and functional burdens to professional teams. These preventable injuries often also result in serious and long-term neurological deficits. In the 2011–2012 regular season 1,700 man-games were lost due to concussions, despite improvements in safety equipment and rule changes. Current research on concussion injury among professional hockey players is scarce and there are no studies that have quantitatively evaluated the modifiable (eg, fighting, player position, goal scoring) and non-modifiable (eg, height, age) risk factors of concussion among NHL players. Identifying risk factors for concussion injury will highlight high-risk individuals and inform evidenced-based changes of modifiable behaviours to prevent future injury. **Objectives:** To identify risk factors of concussion injury in NHL athletes through analysis of modifiable and non-modifiable player characteristics. **Design/participants:** We extracted publicly accessible game-level data for 1,488 NHL players from four NHL seasons (2009–2013). Anthropometric and game data for each player (including concussion injury, penalty minutes, points, and time on ice) were collected for every game. A Cox proportional hazards model was used to determine associations between concussion injury, anthropometric characteristics, and performance-related behaviours. **Outcome measures:** Concussions sustained during NHL regular season games from October 2009 to April 2013. **Conclusions:** Our study is the first to empirically evaluate risk factors of concussion injury among NHL hockey players

using Cox proportional hazard models. Identifying anthropometric risk factors will allow physicians to identify athletes who may be at high risk for sustaining a concussion and prevent subsequent and exacerbating injury. Results from our study will also be beneficial for the prevention of concussion by identifying specific on-ice behaviours associated with the occurrence of these debilitating and preventable injuries.

551 **Concussions and the Need to Standardize Care: The Concussion Awareness Training Toolkit for medical professionals**

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Context: Concussion recognition, treatment, and management are crucial in supporting recovery and decreasing the risk of long-term brain damage. Long-term effects are often not recognized early enough to prevent post-concussion syndrome, resulting in an impact on social and professional lives. **Objectives:** To determine whether concussion knowledge, attitudes, and practices (KAP) are significantly improved among physicians following completion of the Concussion Awareness Training Toolkit (CATT) for medical professionals. **Design:** A pre-/post-intervention questionnaire designed to measure changes in physician KAP. **Participants:** Physicians working in emergency departments/trauma care facilities. **Intervention:** Based on established international principles, CATT is an online toolkit (www.cattonline.com) providing learner-directed concussion awareness training for medical professionals as well as assessment resources (SCAT3, Child-SCAT3), links to clinical resources, patient handouts, journal articles (including the Zurich Consensus Statement), related websites, concussion videos, and study cases. **Outcome measures:** Changes in physician KAP regarding concussion recognition, treatment, and management. **Results:** Forty-four physicians were recruited, with post-intervention questionnaires completed by 34 (77.3%) participants. Participants demonstrated a statistically significant positive change in concussion practices ($P = 0.001$). Change in knowledge was not significant, while attitudes had a negative change ($P = 0.041$). Positive change in knowledge was detected for those who typically see more than 10 concussions per year ($P = 0.039$). **Discussion:** CATT is effective in improving concussion practices among physicians, which will potentially minimize adverse concussion outcomes and lower health care costs among concussion patients. CATT also includes an evaluated toolkit for parents, players, and coaches, and evaluation of the CATT for school professionals is currently in progress. **Conclusion:** The need to standardize care is vital in preventing adverse concussion outcomes.

552 **Systematic Review of SCAT2, SCAT3 (Sport Concussion Assessment Tools) and King-Devick Tool Assessments of Concussions**

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Context: Sports-related concussions. **Objectives:** Systematic review (all cohort studies). Risk of bias assessed with Newcastle-Ottawa Scale. **Participants:** SCAT2 (4,211 athletes), SCAT3 (1,017). **Instruments:** SCAT2/SCAT3/King-Devick. **Outcome measures:** Symptoms, balance, standardized assessment of concussion. **Results:** There is marked disagreement on sports concussion incidence. Seven US studies published between 1999 and 2012 estimated 0.17–0.24 concussions/1,000 sports participations, but a Calgary emergency department study estimated four concussions/1,000 rugby games/practices (and slightly lower numbers for other sports). Health professionals' sideline observations of sports events/practices significantly underestimate concussion numbers. Decreased scores on the King-Devick test identify individuals with unobserved concussions. Concussion outcomes are poorly understood because concussed player follow-up at 1 and 6 months is usually less than 50%. Health professionals, coaches, and parents need to know that a concussion increases the risk of subsequent concussions; females have higher concussion rates in the same sports than males; and the number, duration, and severity of symptoms are associated with longer recovery. Studies show variability in players' scores and family physicians need to be alert to find those with adverse SCAT3 component changes. All athletes in contact sports should be assessed with SCAT3 before their seasons start because nearly all will have less than perfect scores due to symptoms (eg, headaches) and balance and concentration/memory problems related/unrelated to previous concussions. Elementary and junior high players have lower memory scores because of difficulties repeating

digits and months of the year in reverse. The most generalizable studies are single sports (eg, a study of 71% of professional Finnish ice hockey players), other single sports, or larger more homogenous samples. There are few SCAT studies of athletes post-concussion to guide therapy and return-to-play decisions. **Discussion:** The key manoeuvre for family physicians is to assess concussed players for changes from baseline to post-concussion for key SCAT3 elements (symptoms, symptom severity, neurocognitive function, and balance). There is no evidence to support using the total score (which could be due to different combinations of the components). **Conclusions:** The SCAT3 is an important tool in measuring player concussions, and family physicians can make a major contribution by using it, encouraging its use, and achieving high follow-up rates at 1 and 6 months.

553 Systematic Review of Therapy for Concussion/Mild Brain Injury

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Context: Concussed patients can have long waits for specialist therapy. Are there effective therapies that family physicians can recommend to their patients? And can simple forms of any of these therapies be recommended for partners or family members to initiate while waiting for specialist therapy? **Objectives:** To assess effectiveness of interventions used in randomized controlled trials (RCTs) for concussion. Risk of bias assessed with the Cochrane Risk of Bias Tool. **Participants:** Individuals with concussion/mild brain injury. **Intervention:** Forty RCTs were identified that addressed the areas of therapy identified by the INCOG review group as effective interventions for concussion. **Outcome measures:** Improvements in attention/information processing speed; executive function and self-awareness; cognitive communication; and memory. **Results:** Effective interventions are: 1) Attention and information processing speed: training to perform everyday functional activities with metacognitive strategies (eg, asking for repetition, replaying interactions, applying skills in situations of increasing complexity, and performing a cognitive exercise with a physical activity, such as walking). 2) Executive function and self-awareness: training to perform metacognitive strategies for everyday functional planning, problem-solving, and reasoning skills. Direct cognitive feedback to improve self-awareness of skills, errors, and contexts in which strategies should be used ought to be incorporated into every intervention. Participants should be taught to improve self-monitoring and incorporate feedback into future performance. Group-based interventions to remediate problem-solving and executive deficits are helpful. (3) Cognitive communication: Help patients identify goals to improve everyday social communication and rehearse communication skills. 4) Memory: Metacognitive strategies (visualisation, repeated practice, practice in retrieval, self-cueing, self-talk, smartphones, and notebooks) are helpful. Most RCTs are in the areas of improving executive function and self-awareness. **Conclusion:** The essential intervention in beginning simple interventions at home while awaiting specialist help is to identify a “communication partner” who can work with the concussed individual on everyday communications at home and the simpler skills essential for work. There is a need to develop knowledge translation to provide information with clear examples so a partner or family member can choose and implement some of the simpler strategies promptly after a concussion to help the patient make progress while waiting for specialist help.

554 Tobacco Control Research Trends From the Past Decade: Findings from a scoping review of reviews

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Context: Over the past several decades the volume of tobacco control (TC) research has grown. Diminishing tobacco use and exposure to tobacco smoke remain primary health care priorities globally. In 2005, the World Health Organization’s Framework Convention on Tobacco Control (FCTC) entered into force, strategically outlining strategies for reduction of demand and supply for tobacco. **Objectives:** To provide an overview of the breadth of research foci within TC research, obtain evidence regarding the FCTC action areas within the context of primary prevention, and identify research gaps. **Design:** We conducted a scoping review of TC literature (2003–2014); drawing on Arksey and O’Malley’s (2005) approach. **Participants:**

Reviews that address primary prevention within developed countries. **Intervention/instrument:** Five databases were searched using keyword strings relevant to: tobacco, FCTC strategies, interventions, efficacy, and review types. **Outcome measures:** Our multidisciplinary team iteratively produced a data extraction tool that was applied to eligible references. Two reviewers screened the initial pool of references (n = 5,022) and extracted data from eligible abstracts (n = 376); disagreements were resolved with a third reviewer. **Results:** Reviews often covered more than one strategy or population. The FCTC strategic areas were operationalized by seven actions; the majority of the abstracts (78%) focused on tobacco dependence and cessation, with fewer initiatives (18%) on increasing awareness and education. Marketing and sponsorship, exposure to tobacco smoke, packaging and tobacco products, pricing and taxation, and illicit sales and selling to minors are, together, addressed in less than 25% of the literature. Target populations for these strategies are described by eight categories. The majority of reviews involved individuals (68%). Reviews with strategies directed toward children, youth, schools, and families comprised 21% of the abstracts; society, health care, community, and workplaces were represented in 41.5%. **Conclusion:** This scoping review of TC reviews was a productive approach for mapping tobacco control research trends within the context of primary prevention. It reveals a significant base of evidence concerning tobacco dependence and cessation, which overshadows other important aspects of TC strategies. Exploring the breadth of this literature reveals translational challenges and ideas for future research.

555 A Critical Review of Effectiveness and Tobacco-Dependence Treatment Interventions: A scoping review study

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Context: Tobacco use has a significant impact on health. The World Health Organization's 2005 Framework Convention on Tobacco Control (FCTC) states primary care providers must support patients' cessation efforts. A vast body of research and practice guidelines inform the delivery of tobacco-dependence treatments. **Objective:** To review tobacco-dependence treatment initiatives in published reviews (2003–2014), map effectiveness measures, and critically reflect on translation into practice. **Design:** Addressing effectiveness within the tobacco-dependence treatment literature is part of a larger scoping review of published tobacco-control reviews, informed by Arksey and O'Malley's methodology (2005). **Participants:** A systematic search of five databases using keyword strings informed with the FCTC strategies. The effectiveness review focused on a subset of reviews addressing tobacco-dependence treatment. Selection of articles went through a two-step process of eligibility selection (n = 188). **Intervention/instrument:** A data extraction table iteratively developed by the team and used to extract data from full articles. **Outcome measures:** Researchers tracked measures of effectiveness across reviews and interventions. **Findings:** Interventions were grouped as: psychological/educational, pharmacological, alternative (eg, hypnosis or acupuncture), other (eg, peer support, financial assistance), or a combined therapeutic regimen. The effectiveness of interventions focused on smoking cessation measured by self-report or biological verification (point-prevalence or sustained abstinence) most commonly at 6 to 24 months post-intervention. Authors' suggestions for future research include: longer-term follow-up studies, clearer reporting, and more rigorous measurement of smoking cessation. **Conclusions:** Canadian data show fewer than 45% of current smokers received advice to quit from health professionals. The volume of cessation intervention reviews suggests this is an ongoing research priority. Our review and critical reflection on effectiveness were driven by questions of translation challenges. Critical review of effectiveness measures noted in this literature shed light on a gap between research aims and practice realities for addressing the complexity of tobacco dependence.

556 Using Trends in HbA1c Test Results to Predict Diabetes Onset

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Context: Between 2009 and 2011 diabetes associations around the world recommended using a hemoglobin (Hb)A1c of 6.5% or higher as a criterion for the diagnosis of diabetes. HbA1c testing is a more reliable tool for monitoring glycemic activity over time compared with incidental blood glucose readings.

This test has the potential to identify patients with increased risk of developing diabetes early on and providing necessary intervention. **Objectives:** The aim of this study was to use the data contained within electronic medical records (EMRs), made available through the Canadian Primary Care Sentinel Surveillance Network (CPCSSN), to evaluate how trends in HbA1c test results can predict the onset of diabetes. **Design:** A retrospective longitudinal database study. **Setting:** We evaluated more than 150,000 patients in eastern Ontario using primary care data extracted by CPCSSN. CPCSSN extracts data from multiple EMR vendors and amalgamates the clinical patient data in a central repository. **Participants:** The study population included any patients older than 40 years of age with a valid EMR entry for birth year and sex with at least two HbA1c test results. **Outcomes:** An equation to predict the onset of type 2 diabetes was developed using multiple logistic regression analysis that included the following covariates: age, sex, comorbidities, change in HbA1c results, first HbA1c test result. **Results:** In a logistic regression model, the risk of developing type 2 diabetes was 1.99 (95% CI, 1.57-2.52) for those with an increasing HbA1c compared with those with no change. Patients with decreasing HbA1c levels reduced their risk of developing diabetes by more than 35% (OR 0.677, 95% CI, 0.53-0.87). **Conclusions:** The change in HbA1c values over time should be considered when evaluating a patient's risk of developing diabetes. This is one of the first studies to use primary care data to evaluate how a change in HbA1c values over time can predict the development of type 2 diabetes.

557 **Barriers and Facilitators to Diabetes Care in Patients With Diabetes: A qualitative study**

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Context: Safe, efficacious, and cost-effective interventions for optimizing diabetes management in Canada are available but are currently underutilized due to a combination of patient-, provider-, and system-level barriers. A better understanding of barriers and facilitators to diabetes care is needed to increase resource utilization and develop new programs to assist diabetes patients, especially those with poor control (HbA1c \geq 10%). **Objectives:** To explore patient-perceived facilitators and barriers to good diabetes disease management in a qualitative study using open-ended questions. **Design:** Qualitative descriptive study. **Participants:** 1,217 patients with diabetes identified from the Calgary Laboratory Services database: 811 with HbA1c \geq 10%, and 406 with HbA1c between 7% and 8%. **Instrument:** A telephone survey that included two open-ended questions exploring patient-perceived barriers and facilitators to care. Patient responses were recorded verbatim. **Outcome measures:** We used thematic analysis of participant responses to summarize key information into themes and subthemes. **Findings:** We identified five major thematic categories that influence diabetes care, namely self-efficacy with disease management, general health and disease burden, accessibility and perceived quality of health care, social support, and financial factors. Within each, we identified factors that had both positive and negative influences on diabetes care. Examples of subthemes include: competing priorities, social stigma, self-motivation, patient knowledge, attitudes, self-discipline, general health and co-morbidities, medication burden, access to care and programs, perceived provider competency, financial burden of disease, and insurance coverage. **Conclusion:** Participants reported a number of factors that they perceived as either helpful or not helpful in their diabetes care. The broad range of reported barriers and facilitators indicate the importance of an individualized approach in helping patients overcome barriers to improving their diabetes control. Our findings have important implications for family medicine since family physicians are the front-line doctors for diabetes management. These findings will facilitate the development of programs and initiatives to improve diabetes care in Canada and beyond.

558 **HIV Sociodemographic Risks: Men who have sex with men and their attitudes toward pre-exposure prophylaxis**

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Context: In February 2016 Health Canada approved Truvada (emtricitabine/tenofovir disoproxil fumarate) for use as HIV pre-exposure prophylaxis (PrEP). Little research has investigated how sociodemographics affect attitudes toward PrEP use in men who have sex with men (MSM). **Objectives:** To determine whether

MSM are likely to decrease condom use if taking PrEP, based on sociodemographic risk factors. **Design:** Nationally distributed survey. **Participants:** HIV-uninfected MSM ages 18 years and older. **Instrument:** In August 2013, an anonymous survey was conducted through one of the largest US social and sexual networking sites for MSM. Sociodemographic data captured age, ethnicity, sexual identity, highest attained education, income, employment status, and health care insurance status. Questions asked how likely participants would decrease condom use for both receptive and insertive anal sex if using PrEP. Responses were on five-point Likert scales (Extremely unlikely; Unlikely; Undecided; Likely; Extremely likely). **Outcome measures:** Multivariable generalized ordinal logistic regression with partial proportional odds assessed the odds ratios of how likely participants would decrease condom use. **Results:** A total of 4,879 respondents completed the survey fully. Having a graduate or professional degree was associated with lower odds of decreasing condom use for receptive anal sex if using PrEP (adjusted OR [aOR] 0.74, 95% CI, 0.66-0.84; $P < 0.001$) compared with all lower educational attainment. Black/African-American MSM had lower odds of decreasing condom use compared with other ethnicities (aOR 0.71, 95% CI, 0.51-0.99; $P = 0.044$). Older age was linked to lower odds of reporting being higher than Extremely unlikely to decrease condom use for receptive anal sex (aOR 0.99 per year of increase in age, 95% CI, 0.98-1.00; $P < 0.001$), although this protection trended to non-significance at higher Likert categories. Lastly, those self-identifying as a sexual minority had higher odds of decreasing condom use for insertive anal sex (aOR 1.72, 95% CI, 1.08-2.72; $P = 0.021$). **Conclusion:** Sociodemographic disparities exist between PrEP use and attitudes among MSM, with different profiles for receptive and insertive anal sex. As PrEP use becomes more widespread, physicians and other health care providers should continue counselling on reducing risky sexual behaviour, especially for MSM with lower educational attainment and those identifying as a sexual minority.

559 Psychosocial Diagnoses Occurring After Patients Present With Fatigue

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Context: There is an association between psychosocial problems and fatigue. For Canadian patients who present to their family physician with a complaint of fatigue, it is not known how often a psychosocial diagnosis is made. Additionally, it is not known how often any diagnosis can be made. **Objectives:** To discover the frequency of psychosocial and other diagnoses occurring at the end of a visit when a patient presents to their family physician complaining of fatigue. **Design:** Cross-sectional study of patient-family physician encounters for fatigue. **Setting:** Ten family physician practices in southwestern Ontario, Canada. **Participants:** Two-hundred and fifty-nine encounters involving 167 patients presenting to their family physician between March 1, 2006, and June 30, 2010, complaining of fatigue. **Main outcome measures:** 1) The frequency of psychological and social diagnoses made at the end of the visit. 2) Whether diagnoses were made by family physicians at the end of the visit versus the diagnosis code remaining fatigue. We tested for associations between patient age, gender, fatigue presenting with other symptoms, or the presence of prior chronic conditions with the outcomes. **Results:** Psychosocial diagnoses were made 24% of the time. Among the psychosocial diagnoses made, depressive disorder and/or anxiety disorder/anxiety state were diagnosed more often in females ($P < 0.05$). Just under 30% of the time, the patient's fatigue remained undiagnosed at the end of the encounter. A diagnosis was made more often in males ($P < 0.05$). **Conclusions:** Fatigue frequently remains undiagnosed; however, when there is a diagnosis, psychosocial diagnoses are common. Therefore, it would be appropriate for family physicians to screen for psychosocial issues when their patients present with fatigue, unless some other diagnosis is evident. Depression and anxiety should be considered particularly among female patients with fatigue.

560 What's New in Infectious Disease? Top hits in 2016 in the Canada Communicable Disease Report

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Context: The *Canada Communicable Disease Report (CCDR)* is a peer-reviewed journal that publishes articles on infectious diseases for front-line clinicians and public health professionals including research, reviews, the most recent statistics on infectious diseases in Canada, and Advisory Committee statements with recommendations for clinical care. **Objectives:** To give family physicians a quick update on trending infectious disease issues in Canada by identifying and reviewing the five most high-profile articles published

in 2016. **Design:** Observational study that analyzes the number of hits to the *CCDR* website for all articles published in *CCDR* from January 7 to October 6, 2016. The top five will be identified for more detailed review. **Results:** Results will depend on the number of hits. This will be assessed closer to the time of Family Medicine Forum. Articles could include such things as the health status of Syrian refugees in Canada, Committee to Advise on Tropical Medicine and Travel recommendations for Zika virus, new advances in Lyme disease, or the effect of climate change on infectious diseases in Canada. The focus will be on summarizing the clinically relevant findings. **Conclusions:** *CCDR* is a source of interesting, timely, and reliable information on trending infectious disease issues for family physicians and contains pearls for clinical practice.

561 **Stool Softeners for Constipation: What does the evidence say?**

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Context: As many as one-quarter of all adults, an estimated three out of every four seniors living in long-term care, and almost everyone who takes opioids regularly for chronic pain experience constipation. Symptoms of constipation can be a minor annoyance for some but may be severely debilitating for others, having a huge impact on a person's quality of life. Stool softeners are often the treatment of choice for our patients with constipation. In fact, "bowel protocols" that include the routine use of stool softeners are in place in many hospitals and long-term care facilities across Canada. Stool softeners are safe, are well-tolerated by patients, don't tend to interact with other medications, and are low-cost. But do they actually work?

Objectives: This presentation will help answer the above important question by reviewing the evidence on the effectiveness of stool softeners (ie, docusate sodium or docusate calcium) and other constipation treatments. **Design:** Findings from a Rapid Response review of the evidence performed by the Canadian Agency for Drugs and Technologies in Health will be presented. The review assessed relevant evidence based on two systematic reviews, one randomized controlled trial, and two non-randomized studies. **Target population:** Medical practitioners who prescribe treatments for patients with constipation. **Findings:** The review indicates that docusate does not improve the symptoms of constipation for patients taking opioids or who are long-term care residents. There is no evidence on the effectiveness of stool softeners for other patient groups. **Discussion/conclusion:** The findings of the evidence review and how they may guide/inform decisions on the treatment of patients with constipation will be discussed.

562 **Genetic Testing of Patients with First Unprovoked VTE: No-brainer or no point?**

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Context: Factor V Leiden (FVL) and prothrombin gene mutations can lead to an increased risk of developing blood clots—a condition called thrombophilia. When patients experience a first blood clot such as deep vein thrombosis or pulmonary embolism in the absence of other risk factors, can testing help determine the risk of future recurrence and the appropriate clinical management? **Objectives:** This presentation will help answer the above important question by reviewing the evidence on the effectiveness and safety of FVL and prothrombin gene mutation testing for patients with a first unprovoked venous thromboembolic event (VTE). **Design:** The Canadian Agency for Drugs and Technologies in Health—an independent agency that finds and assesses evidence on drugs and other health technologies—conducted a systematic review of the clinical evidence and performed a health economic analysis comparing testing with no testing. An expert panel, which included family physicians, made recommendations on the use of these tests in patients who have experienced a first, unprovoked VTE. **Target population:** Medical practitioners who need to provide care for patients with unprovoked thromboembolism. **Findings:** The review of the evidence indicates that routine testing for FVL and prothrombin gene mutations in patients with a first, unprovoked VTE may have limited clinical effectiveness. **Discussion/conclusion:** The research findings and the recommendations for primary care practice will be emphasized in the session, allowing family physicians to readily use this knowledge in their practices.

563 The Prevalence of Coronary Artery Disease in a Saskatchewan Family Medicine Clinic

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Context: There is limited information on the prevalence of coronary artery disease (CAD) and its risk factors in southwest Saskatchewan. The unique population characteristic of the Cypress Health Region (CHR) (two-thirds older than 45 years, 14% Aboriginal, 6% Hutterite and largely rural) makes it necessary to understand the context of CAD in this region. **Objectives:** To determine the prevalence of CAD and risk factors in the largest family medicine clinic in CHR. **Design:** A cross-sectional retrospective chart audit was performed using electronic medical records at Associate Family Physicians Clinic (AFPC). **Outcome:** Diagnosis of CAD (ICD-9 diagnostic code 414) and its risk factors, including: hypertension, hyperlipidemia, age, sex, diabetes mellitus, family history, active smoking status, body mass index, and residence (rural/urban). Data were analyzed using descriptive statistics. **Participants:** All adults ages 40 years or older who received ongoing care at AFPC between January 1, 2013, and December 31, 2014 (N = 2,373). **Results:** A total of 357 charts met the inclusion criteria, with the prevalence of CAD at 15% (357/2,373). Average age of patients with CAD was 71 (± 11) years, and average BMI was 29.8 (± 5.8) kg/m². Up to 257 patients (71.9%; 257/357) had at least three risk factors. Hypertension was the most common individual risk factor (n = 310), followed by hyperlipidemia (n = 307), while smoking was the least common (n = 43). Each patient attended an average of 11 (± 6) clinic visits during the study period. Individuals who resided in the urban centre (Swift Current) had a significantly higher clinic attendance compared with people in rural areas ($P = 0.02$), but this did not significantly affect their outcomes (dead or alive; $P = 1.0$). **Conclusions:** There is a high prevalence of CAD risk factors in CHR, especially hyperlipidemia and hypertension. Given the unique population structure of CHR, it is important that clinicians should be diligent in screening at-risk individuals to reduce the prevalence of CADs. Interestingly, despite a significant Hutterite population, there was no CAD case among Hutterites who attended AFPC. Further research is required to study the distribution of CAD and its risk factors among specific population groups, such as Hutterites.

564 Preliminary Evaluation of an Intervention to Improve Supportive Care for Caregivers of Patients With Cancer

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Context: Family caregivers (FC) of cancer patients often report higher distress than patients. Many cancer centres have implemented distress screening programs, but they target only patients. **Objectives:** To assess the effectiveness of an intervention to support FCs of patients with lung cancer. **Design:** Randomized controlled trial. **Participants:** One-hundred twenty FCs and their relative with lung cancer, followed up in an oncology clinic in Quebec, randomly assigned to the experimental (exposed to intervention) or control group (usual care). **Intervention:** 1) Systematic distress screening and problem assessment; 2) privileged contact of FCs with an oncology nurse; and 3) liaison with the FC family physician (FP) for those reporting high distress (thermometer score ≥ 5 ; range 0–10) or problems relying on FP expertise. **Main outcome:** FC distress (Indice de détresse psychologique Enquête Santé Québec, or IDPESQ). **Preliminary results:** So far, 49 FCs have been recruited (24 experimental/25 control), with 73.5% female, average age 62. Some of their relatives with cancer did not want to participate, so 42 patients have been recruited (20 experimental/22 control), with 47.6% female, average age 67, and 78.5% with a good functional status (ECOG = 0–1). Many (70%) have metastases and 80% have received chemotherapy and/or radiation therapy. At baseline, eight out of 24 FCs in the experimental group reported high distress at the screening test and four needed to be referred to the psycho-oncologist. According to the IDPESQ, 45% of FCs from both groups had high distress (score ≥ 26.2) compared with only 14.3% of patients ($P < 0.0001$). **Conclusion:** The high proportion of FCs with distress at reinforces the relevance of addressing FC distress as part of routine cancer care. It also opens a good opportunity for collaboration between primary care and oncology care providers.

565 Shared Medical Appointments: An effective way to promote weight reduction and improve lifestyle choices

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Context: Obesity is a significant problem in New Brunswick, with 63% of adults being overweight or obese. One method physicians can use to support weight loss and lifestyle changes in their patients is shared medical appointments (SMAs). SMAs empower patients with education and self-management tools. The group setting and sharing provide time, inspiration, and peer support. **Objective:** Our objective was to determine the effects of an SMA program for weight management, supporting healthy lifestyle choices, and encouraging readiness to change. **Design:** The study included both the intervention of an SMA along with pre-study, post-study and 6-month follow-up questionnaires. **Setting/participants:** Patients from the St. Joseph's Community Health Centre in Saint John, New Brunswick, who were older than 18 and had a BMI greater than 30 were invited to participate in this study. **Intervention:** Ten participants were enrolled in an SMA program, which consisted of 90-minute group sessions once weekly for 10 weeks. Lifestyle and readiness to change questionnaires, measurements of body mass index (BMI), and systolic and diastolic blood pressure were completed prior to commencing the program, at the end of the 10 weeks, and 6 months after completion of the program. BMI and systolic and diastolic blood pressure were recorded at each weekly session. **Outcome measures:** Participants BMI, blood pressure, dietary habits, physical activity levels, and readiness to change levels were compared pre- and post-intervention, as well as at 6 months. **Results:** At the end of the 10-week intervention, all patients had dropped an average 4.4% from their baseline BMI, and all but two of the patients continued to lower their BMI an average of 1.7% during the 6-month follow-up period. Blood pressure levels were not statistically different from baseline to follow-up. Readiness to change physical activity changed over time, increasing at the end of the 10-week program but decreasing at the 6-month follow-up mark. **Conclusions:** SMAs are an effective approach to support people in losing weight. Readiness to change, which is an integral part of making positive behavioural changes, may need to be supported in an ongoing way to achieve long-term weight loss.

566 Beliefs and Experiences of Palliative Care Patients and Their Physicians When Using Cannabinoids for Care

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Context: There has been much media coverage of the use of cannabis and synthetic cannabinoids for numerous ailments, as well as debate on legislation and prescribing. Some physicians prescribe cannabis or synthetic cannabinoids at their patients' request; others may recommend their use as part of symptom management. **Objectives:** A study exploring the beliefs and experiences of palliative care patients and palliative care physicians when using cannabinoids in medical care. **Design:** A qualitative approach recorded the experiences of patients and doctors. A semi-structured interview was administered, and a thematic analysis of the data was conducted. Theoretical constructs were then conceived from the recurring themes. **Participants:** Patients receiving specialist palliative care and their treating physicians. Both patients and physicians were part of the End of Life Care Program for Fraser Health Authority. A total of eight patients and nine physicians were interviewed. **Outcome measures:** To understand the experiences of palliative care patients and palliative care physicians in the use of cannabis for treatment. **Results:** Twelve patient sub-themes and 14 physician sub-themes were identified. The themes identified from interviews with the patients were: patient level of perception; recasting the viewpoint; perception of others; drawbacks to treatment; symptom control; and perceived benefits. The themes identified from interviews with the physicians were: level of cognizance; recasting the viewpoint; perception of others; drawbacks to treatment; symptom control; and perceived benefits. **Conclusions:** Medicinal and recreational uses of cannabis need to be disentangled when considering evidence-based prescribing. Poor knowledge and misinformation have resulted in conflict between societal concerns and best medical treatment. Further studies are required on the use of medicinal cannabis in palliative care.

567 Mannitol Cream in the Treatment of Postherpetic Neuralgia: Randomized placebo-controlled crossover pilot study

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Context: Current treatments for postherpetic neuralgia are not very effective and, in the most-often-affected elderly population, have multiple side effects and addiction potential. **Objective:** Determine whether a cream containing mannitol can relieve the pain of postherpetic neuralgia. **Design:** Double-blind randomized placebo-controlled crossover pilot project. **Participants:** Eleven men and nine women who suffered from postherpetic neuralgia for a median of 54 months (5–252 months). Median daily worst pain 7/10, median daily average pain 5/10. **Intervention/instrument:** Participants were observed for 1 week, then received either the cream with mannitol or the same cream without mannitol randomly allocated in the second week. After a 3-day washout period, they received the other cream for one week. **Outcome measures:** Numeric rating scale for pain, 0–10. **Results:** On day 7, patients' pain scores improved a mean of 0.5 when using the cream without the mannitol, while the pain scores of those using the cream with the mannitol improved a mean of 1.15 ($P = 0.074$). One patient dropped out because she developed a rash when using the mannitol cream and two patients dropped out because they stated the mannitol cream increased their pain.

Discussion: Though the average improvement in pain levels was better with the cream containing mannitol, the difference was not significant. This is consistent with other studies on topical treatments for postherpetic neuralgia where the dropout rate is in the range of 40% and fewer than half of the participants find relief of their pain. It may be the trial period was too short, as most randomized controlled studies last more than 2 weeks for each treatment; because of this, a 3-month open label study follows the current study. The mannitol-containing cream is slightly granular, and rubbing it on participants' sensitized skin may have produced irritation that worsened symptoms and may have produced a rash. Menthol increases the skin absorption of mannitol by a factor of 100. One of the dropouts' pain was almost completely relieved by the same mannitol cream with menthol, 1.25% added. All further studies will be done on creams containing mannitol and menthol with a menthol placebo. **Conclusion:** One week of mannitol cream alone did not relieve postherpetic neuralgia.

568 Developing an Intervention to Improve Opioid Guideline Adherence Using a Behaviour Change Framework and Theory

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Context: Opioid prescribing varies widely and often deviates from current clinical guidelines. Implementation science can assist with the development of effective implementation strategies for opioid guidelines. **Objectives:** Our research aims to develop an evidence-informed, theory-informed intervention for improving family physician adherence to opioid prescribing guidelines for chronic pain. **Target population:** Family physicians treating chronic pain. **Instrument:** This phase of our larger research program focused on mapping potential facilitators and barriers to physician adherence to opioid prescribing guidelines to a behaviour change framework (Theoretical Domains Framework; TDF) and theory (the Capability, Opportunity, Motivation, and Behaviour model) to guide the development of an evidence-informed, theory-driven multifaceted intervention. First, we conducted a literature search to identify relevant barriers and facilitators to opioid guideline use. Then, three independent raters mapped the identified barriers and facilitators to behaviour change domains using the TDF. Next, we analyzed the components of a pilot intervention for opioid prescribers for coverage and gaps in addressing each behaviour change domain. Based on this analysis, we will modify the pilot intervention and will evaluate its effectiveness. **Outcome measures:** Outcomes of the mapping process included identifying barriers and facilitators to opioid guideline adherence, coding these according to the TDF behaviour change domains, and selecting evidence-informed, theory-driven implementation strategies to address each of the behaviour change domains. **Findings:** We found few articles directly investigated the barriers and facilitators to opioid guideline adherence. Among the most pertinent articles, barriers at the provider level included lack of education, complicated dosing calculations, and time-consuming assessments. The pilot program includes

educational and quality-improvement components. Gaps in addressing TDF domains include developing educational materials to address the provider-level barrier of role confusion as well as use of an opinion leaders or champions strategy to tap into barriers related to social influence. **Conclusions** Using a systematic, theoretical process grounded in implementation science methods may assist with developing effective interventions to improve adherence to opioid prescribing guidelines.

569 Measurement of Medication Discrepancies and Use of Medication Wallet Cards to Increase Patient Self-Efficacy

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Context: In Canada, 70, 000 preventable adverse drug events occur each year and 24% of these are related to medication errors, which include discrepancies between personal, physician, hospital, and pharmacy medication records. **Objectives:** 1) To quantify and compare rates of medication discrepancies between electronic medication records (EMR) at McMaster Family Health Team and community pharmacies. 2) To understand the impact of a Medication Wallet Card (MWC) tool on patients' self-efficacy regarding their medication and health management. **Design:** This is a two-part study. Part 1: Quantitative analysis of frequency of discrepancies between family physician EMR and community pharmacy medication lists. Part 2: Pilot randomized controlled trial comparing patients' self-efficacy scores in relation to introduction of a MWC, compared with usual care. **Participants:** One-hundred McMaster FHT patients older than 70 years on five or more medications were identified from a larger study, Team Approach to Polypharmacy Evaluation and Reduction (TAPER). **Intervention:** 1) Data collection based on requested medication lists from patients' pharmacies compared with physicians' EMR. 2) An MWC will be explained and provided to those randomized to this intervention group (n= 50). The comparator group will receive usual care (n = 50). **Outcome measures:** 1) Quantification of medication discrepancies including dosages and frequency, unidentified discontinued medications, and those prescribed by others not included in the FHT EMR. 2) T-test scores to detect significant differences between summarized patients' enablement scores among intervention and comparator groups. 3) Feedback from patients' regarding uptake and usability of the MWC will be solicited. **Results:** 1) We anticipate frequent discrepancies, most likely related to medications prescribed by other providers. 2) We hypothesize a significant increase in patient enablement for those receiving the MWC versus usual care. **Conclusion:** This study addresses common and critical problems related to medication prescribing in family medicine. It reveals the extent of the problem for family clinician prescribers. It also evaluates feasibility and potential effectiveness of a simple patient enablement tool (MWC) to empower patient medication management.