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Cover Art: Canadian Healthcare System Symptoms by Richard Ying Yu

Description: The Canadian Healthcare system is an efficient system that provides care for its patients. However, there are still many aspects of it that need to be addressed and improved, including Indigenous health, mental health, long wait times, and the current ongoing opioid crisis. I wanted to draw a cartoon that could encapsulate these broad aspects that need to be improved in a simple picture with minimal clutter. I decided that a sick Canada could represent that and the Schulich stethoscope represents our important role in addressing these health care disparities.
It is at times difficult to appreciate the full spectrum of knowledge translation. The CIHR considers knowledge translation to reflect the iterative process that includes synthesis, dissemination, exchange and the ethically sound application of knowledge to improve the health of Canadians. Knowledge Translation Canada, a network of Canadian experts in knowledge translation, defines this as one of the greatest challenges in healthcare. They have synthesized this to reflect the gap in applying the results of health research to the patient bedside. This is often called the translational gap and has been an area of great discourse over the last many years. It is often suggested that the clinician scientist is critical to the closing of this gap and as such, it is the gradual decline in the number of clinician scientists being trained that is viewed as one of the greatest risks for knowledge translation. It is a gap that we as a medical school have taken a lead role in attempting to understand and then rectify, a role that has led to the generation of Canadian consensus recommendations for the training of clinician scientists. While these recommendations cover a broad range of training paradigms, the goal is clearly to improve the health of Canadians through not only the genesis of new knowledge but its application at the bedside. In this light, it truly is the responsibility of all clinicians to understand knowledge translation and to apply its principles in patient management.

Many would argue that the existing definitions of knowledge translation may be somewhat restrictive. Increasingly, as we understand the complex relationship between health outcomes and fundamental cellular or molecular mechanisms of disease, the ability to effectively communicate our understanding of the disease process and then apply this to the bedside has become equally as challenging and complex. As we must move increasingly towards cost containment across virtually all developed nations who expend a significant proportion of their gross national product on health care, it is critical that the next generation of medical leaders be understanding of the barriers to knowledge translation and how overcoming these can improve health outcomes. As individual clinicians and as members of health care teams, it will fall increasingly to us to ensure that this knowledge is used to ensure a sustainable healthcare system. Quite simply put, the health care system in which we exist currently is not sustainable in its current form. It will be for your generation of health care providers to have a critical understanding of not only disease processes but also to be able to critically appraise biomedical innovations and emerging healthcare practices. It will fall to you to then integrate this understanding in a manner that ensures excellent healthcare for Canadians with cost containment. It would be fair to say that innovations brought into the healthcare arena today rarely are less expensive than their predecessors and indeed many of the more complex treatments for previously refractory diseases carry a tremendous financial cost. It will be up to this next generation of healthcare practitioners, including yourselves, to be able to critically appraise the literature of these advances and then help to influence not only their use at the bedside, but how that are integrated into a much broader Canadian healthcare milieu.

The UWO Medical Journal has a long and rich tradition of helping to foster the development of this skill set. Written and supported by students, often in the early stages of their career, this is an inspiring effort. I would encourage you to consider contributing to this journal by submitting articles which address this issue of knowledge translation. Not only is this a great benefit to your colleagues, but the exercise of undergoing peer review of manuscripts can be richly rewarding.

At a time when all aspects of science are under greater scrutiny, your ability to defend your decisions and particularly those that lead to alterations in the therapy of your patients, will be critical. The UWO Medical Journal is a key piece of this.

Michael J Strong, MD, FRCP, FAAN, FCAHS
Dean, Schulich School of Medicine & Dentistry
Distinguished University Professor
Indigenous access barriers to health care services in London, Ontario

The Engaging for Change Improving Health Services for Indigenous Peoples qualitative study

Stephanie McConkey
Faculty Reviewer: Lloy Wylie, PhD, MA (Department of Psychiatry)

ABSTRACT

Introduction: Indigenous peoples in Canada suffer higher rates of health inequalities and encounter a number of health services access barriers when compared to their non-Indigenous counterparts. Indigenous peoples experience social and economic challenges, cultural barriers, and discrimination when accessing mainstream health services.

Methods: In London, Ontario, 21 interviews and 2 focus groups (n = 25) with service providers were completed, each session spanning approximately 1 to 1.5 hours. Interviews were voice recorded and transcribed verbatim. Themes were identified using NVIVO 10 software.

Findings: Approximately 2 to 5% of clients are Indigenous in hospital-based services. There are a number of social factors that influence whether Indigenous peoples access health services. Indigenous peoples do not have access to adequate pain medications because physicians are reluctant to provide Indigenous patients with pain medications due to common perceptions of addiction. Indigenous peoples also have barriers accessing a family physician because physicians are reluctant to take on new patients with complex health needs.

Conclusion: Systemic discrimination is still alive in the health care system; therefore, there is a need for cultural safety training among physicians to increase awareness of access barriers and challenges that many Indigenous patients face when seeking health care.

INTRODUCTION

Indigenous peoples (First Nations, Inuit and Métis) face higher rates of adverse health issues than non-Indigenous people in Canada. Despite the high prevalence of respiratory and circulatory diseases, infectious diseases, injuries, obesity, diabetes, and some cancers, Indigenous peoples do not receive adequate health care and/or do not like to access conventional medical services because of common experiences of discrimination and racism, delivery of poor quality health care, and other access barriers.

Research has shown that Indigenous peoples do use traditional Indigenous approaches to medicine, however, most Indigenous peoples have to seek conventional medicine because that is all that they have access to due to issues of funding and availability of these types of services.

With the increase in urbanization among Canada’s Indigenous population, these issues have been more rapidly affecting the urban Indigenous population. This is problematic because today more than half of Canada’s Indigenous population live in urban settings. A main explanation for the increase in urbanization among this population is the need to relocate in order to access a range of health and social services. Those that do not relocate into the city often have to travel far distances to access health and social services in an urban area. Unfortunately, there are a number of challenges that Indigenous peoples face as a result of accessing mainstream services. Some of these challenges include financial challenges, transportation barriers, housing, racism and cultural barriers. The primary goal of this study was to identify the main health service inequalities that Indigenous peoples experience in an urban setting through exploring the attitudes, knowledge and skills of health care providers that work in hospital and/or community-based health centres.

METHODS

The Engaging for Change: Improving Health Services for Indigenous Peoples project received research ethics approval from both Western University and Lawson Health Research Ethics Boards. A literature review and discussions with local Indigenous health leaders were carried out to determine priority health research areas for the Indigenous population in London, Ontario prior to commencement of qualitative interviews with health care practitioners. From August 2015 to June 2016, 21 one-on-one interviews and 2 focus group interviews (2 participants per focus group) were completed, each interview session spanning approximately 1 to 1.5 hours. Interviewees included physicians, nurses, social workers, patient navigators, patient experience specialists and individuals in a leadership position (eg Department Director) working in a range of health care settings, such as hospitals, community health centres and specialized clinics. Inclusion criteria for participants were those working in a health care setting in one of the five priority services areas (emergency, mental health, maternity, diabetes and cancer) within the London and surrounding area.

Written consent was obtained prior to commencement of a structured interview or focus group. All participants were asked 20 in-depth questions regarding their experiences working with or providing health care to Indigenous peoples. Focus group participants would take turns responding to the interview questions. Questions touched on topics including access barriers, positive and negative experiences, policies and protocols surrounding Indigenous health, and communication, coordination and collaboration with other local community health and social services. A full-list of
Interview questions can be found in Appendix A. Qualitative interviews were voice recorded and transcribed verbatim by qualified research assistants. Afterwards, coding was completed using NVivo 10 Software to identify the main emerging themes.

RESULTS

Patient Population

Themes of qualitative interviews identified that hospital based programs noted that only 2 to 5% of patients and clients were Indigenous peoples, however, respondents identified that the percentage of Indigenous patients was higher in diabetes-related programs. Additionally, physicians believe that Indigenous peoples do not properly articulate their health issues to physicians, which could play a role in the low percentage of Indigenous patients and clients within the system.

Social Determinants of Health

Health care professionals understood that there are a number of reasons why Indigenous peoples may be reluctant to access health care services. While some physicians did express the need for patients to take individual responsibility, the majority of respondents acknowledged the social determinants of health that may hinder access to health care. Social determinants of health were discussed in the interviews included high levels of poverty and unemployment, low education levels, and other social issues that may influence an individual’s health and wellbeing. Transportation to health facilities was believed to be the main access barrier among Indigenous peoples living in rural and/or remote communities, such as reserves. For example, one physician responded,

“I would say that people living in the community that don’t have the resources or the support to come to London. I think they definitely struggle more with accessing services” (AB10P).

Another commonly emerging theme was that physicians believed that Indigenous peoples suffer from more co-morbidities than their non-Indigenous counterparts and admitted that there may be an issue with physicians being reluctant to take on patients with complex health care needs. A physician noted,

“so there is a new doc who you know, is setting up a shingle in town and a new office and they interview patients and they go ‘wow, you are pretty complicated I don’t really want to get involved with you’ and so that exacerbates the whole doctor shortage” (H23P).

This finding demonstrates the shortage of family doctors, but highlights the particular challenges for people with complex health needs, which is more common among Indigenous peoples.

Racism and Discrimination

A number of participants shared that they were unaware of traditional Indigenous practices and perspectives of health and well-being, however they acknowledged that these practices differed from conventional approaches to medicine. It was also identified that Indigenous practices and perspectives of health and well-being were not valued in the health care system. Findings also suggest that physicians are reluctant to prescribe pain medications to Indigenous peoples because of common perceptions of addictions and drug abuse. For example, one physician shared his beliefs about systematic discrimination within the health care system as,

“I would think that there are, that on our side there are some frequency of notions that they are all drug seekers. Which clearly isn’t true, but I think that if you lined up 10 patients with the same condition and how much pain meds would you give this person if they were Aboriginal, I would bet less, because the fear would be that they are there looking for pain meds to abuse or sell, so I think that as a group they are linked” (A04P).

This response signifies that physicians are aware that there are still discriminatory behaviours among physicians that may affect how an Indigenous patient is cared for.

Physicians also raised the issue that many of their Indigenous clients discontinue services. Physicians believe that this theme may be correlated to poor follow-up and/or lack of appropriate referrals, however, research has shown that it could be strongly related to the experiences of discrimination and racism that Indigenous peoples face within the system. Another explanation for lack of follow-up could be jurisdictional challenges. For example,

“I had several unfortunate patient situations when I worked in the emergency department specific to Aboriginal patients and that was around getting appropriate follow-up care and access to follow-up care because there were difficulties in having community care access get onto the reserve to provide care there. There were some barriers around that” (A03L).

This response provides evidence that there are jurisdictional issues that Indigenous peoples living on-reserve face which negatively influences the types of follow-up care they have access to.

DISCUSSION

The findings from this research show that there is a high need for mandatory Indigenous cultural competency and safety training among all providers working in the health care system so that they will be able to provide more culturally relevant and safe care. Research has shown that there is a lack of culturally appropriate health services, and our findings align with research that suggests that Indigenous peoples are still facing systemic discrimination when accessing mainstream health care services and programs. Racial misconceptions can strongly influence an individual’s health and wellbeing, and make them reluctant to access health care as a result. Therefore, health provider training should take on the biases and stereotypes that lead to the provision of poor standards of care for Indigenous patients. Participation in cultural safety training would be a means of reducing racist and discriminatory perceptions
about Indigenous peoples that are widespread within the health care system. Additionally, cultural awareness will be beneficial for care providers to support their understanding of the different perspectives of health and wellbeing among Indigenous peoples. Such knowledge would facilitate improved patient support and better communication and coordination with community-based services.

Supports need to be put in place to facilitate access to health care services. It is clear that transportation is definitely a barrier to those who do not reside in the city, because reserves do not have the same structural support that any given city would in regards to health care. Therefore, individuals need to travel to the city to get adequate access to health care.\textsuperscript{4,8} Funding for transportation for those living in rural settings would provide Indigenous patients and families the ability to access health services within and out of their community.

More awareness and communication between hospital programs and community supports (ie. Southwestern Ontario Aboriginal Health Access Centre, N’Amerind Friendship Centre, etc.) are needed to ensure patients needs are being met and proper referrals are being completed. Additionally, further research on continuity of care needs to be done to understand why it is lacking among the Indigenous population in London, Ontario.

Limitations of this study is that there was a small sample size ($n = 25$) and only health care provider perspectives were included in the research at this time. Additionally, ethnicity data is not collected in hospital-based services, therefore the number of Indigenous patients was an estimation based on the respondents’ recollection.

CONCLUSION

In order to improve health access for Indigenous peoples, health care providers need to be aware of the issues and challenges that many Indigenous peoples have surrounding primary health care, most importantly the social determinants of health. Physicians working in diabetes-related services should be aware of the higher percentage of Indigenous peoples in these services, and proper training should take place to ensure cultural needs are being met. It is evident that racism and discrimination are still alive in the health care system and it has strong influences on the health and wellbeing of Indigenous peoples. The next steps for this research is to understand the impact of cultural safety training on health care workers and to determine what other institutional supports are needed to transform practice and patient experiences. In addition, the project aims to understand patient perspectives and needs to identify how to ensure appropriate care is provided when they access hospital and community-based programs in London, Ontario.

APPENDIX A – Engaging For Change: Interview Questions

1. What is your position in your organization/unit and what type of services do you provide?
2. Approximately what percentage of your patients/clients are Aboriginal? Has their numbers changed recently?
3. How would you describe the current condition of Aboriginal access to health care in your service? Do all Aboriginal groups have the same level of access? What are the differences?
4. Briefly describe an experience with an Aboriginal patient that you feel was positive. Do your best to make clean and reflect upon what you think made it a positive experience.
5. Briefly describe an experience with an Aboriginal patient that you feel was negative. Do your best to make clean and reflect upon what you think made it a negative experience.
6. What do you think are the greatest challenges in providing care to Aboriginal patients?
7. What do you think are the greatest challenges facing Aboriginal patients?
8. Are their specific services offered to Aboriginal people? Which? Do you provide culturally appropriate resource materials? System navigation supports?
9. How do you provide for Aboriginal specific needs (eg. Spiritual practices etc.) in your institution (in the health care system)?
10. Are you aware of alternative healing practices that Aboriginal people use? If yes, are systems in place to facilitate incorporation of alternative practices into patient care plans?
11. What are some ways you think would ensure the provision of culturally sensitive services for Aboriginal patients?
12. What supports would you need to help you provide more culturally sensitive services for Aboriginal patients?
13. Are there Aboriginal employees in your organization?
14. Are your employees skilled in intercultural communication, Aboriginal cultural sensitivity? Do you provide on-the-job training in cultural competence/sensitivity/safety? If yes, how often?
15. Are you aware of any policies/protocols for facilitating inclusion of Aboriginal perspectives in or improving access to health services?
16. What types of policies/protocols could improve access and experiences of Aboriginal patients in the health care system?
17. Are you aware of community resources that could enhance both understanding of and service delivery with Aboriginal patients?
18. Which organizations do you collaborate with around health service provision for Aboriginal patients? Around referrals and discharge?
19. Do you think there is a need for improving coordination between your program and other services? What are some concrete examples of coordination that would improve continuity of care?
20. Does your institution engage the Aboriginal population for program feedback? If so, how is this done?
REFERENCES

Collegiality and career success
How one’s medical school learning environment can affect one’s sense of personal and professional fulfillment decades after graduation

Dr Gerald Schneiderman, MD (Class of 1958), PsychD, FRCPC, DLFAPA, DFCPA

ABSTRACT
Success in one’s career and life are subjectively determined. However, the presence or absence of regrets are good indicia of one’s sense of fulfillment. In the context of professional education, “learning environment” is a key predictor of one’s future sense of fulfillment. Collegiality, mutual support, and decency towards one’s classmates were considered by the author in this small-scale study to be important predictors of one’s later success in life and medical practice.

INTRODUCTION
Various large-scale retrospective studies have considered the relationship between academic success and subsequent career success. The opinion that success in one’s career is directly linked to one’s academic achievement fails to account for a far more important predictor: the individual’s learning environment. Learning environments that foster collegiality and decency is a key predictor of career success. In this small-scale study, the author surveyed 33 of his classmates from the medical school class of 1958, The University of Western Ontario. In the author’s own experience, his classmates fostered a positive learning environment defined by decency, collegiality, and valuing the collective over the individual. More than five decades later, the author surveyed his classmates, inquiring about their life and career satisfaction, advice to the younger generation, and also the presence or absence of regrets. 18 responses were received. From the responses, the author illustrates how the collegiality of his classmates continued throughout their lives, leading to greater success personally and professionally.

BACKGROUND AND METHODOLOGY
Previous studies examining academic achievement and subsequent career satisfaction have emphasized grades and academic achievement. Wingard and Williamson state, “In medicine many crucial decisions regarding the physician’s career development are based on traditional grades that often reflect little other than an ability to memorize isolated facts. The need to study both grades and performance is self-evident; the need to rethink the use of grades for crucial career decisions and training grant awards seems to be equally evident.”

1. Please describe what your work after studying medicine at Western was like. Did you remain in medicine? If so, did you practise? Research? Write? What else did you do? Did you receive accolades and/or awards? Are you willing to share a copy of your most up-to-date curriculum vitae?

2. Please describe your personal life to the extent that you are comfortable in doing so. Are you still working, fully retired, or partially retired? Do you have any relationships or family you wish to mention? What did you do that “defined” you beyond your work life (hobbies, passions, pursuits of any kind)?

3. If you were to give advice to your younger self, prior to going to med-school, what would you say? Would you want your younger self to know what lay ahead? Or would you want it to remain an unknown? Is there anything you would want to try to change, looking back?

18 responses were received, either by email or in hardcopy. Of those who responded, their answers were detailed, insightful, and emphasized the value of meaning in life, not just within one’s own aspirations, but also as a community.

THE AUTHOR’S IMPRESSIONS OF THE COHORT
The author had regarded his classmates as having wanted the best not just for themselves, but also each other. Collegiality was at the core of their collective aims. Each of them was ambitious in their own rights; despite everyone wanting to be singularly outstanding, such ambitions never undermined the collegiality and support that they provided one another throughout medical school.

SURVEY RESULTS FROM THE AUTHOR’S MEDICAL SCHOOL CLASS
The interactions amongst the author’s peers were defined by sincerity and decency and were aimed at elevating the group as a whole, rather than individuals at the expense of the group. The author’s classmates’ values of good will, civility, and collegiality were subsequently confirmed in their careers and personal lives. His classmates’ collective answers to the questionnaire, as a whole, pointed to a broader conclusion beyond any one individual response: decency and humanity lead to more fulfilling careers than selfishness and solitary ambition.

After excluding personal identifying information and personal anecdotes (such as shared memories and anecdotes), the author extracted from the survey responses comments of a more gener-
al nature that addressed each participants' sense of life and career success. Some of the responses were provided in response to each question, but most were provided in the form of narrative responses answering all questions globally. The author considered that the paucity of regrets is particularly noteworthy. Extracts from the questionnaire are presented below:

- “To start with, I would not change a thing in my life.”
- “I had a very busy medical and family life and I would not change any of it. I would even keep my medical school classmates.”
- “I did enjoy my 30 plus years in practice, but have to admit I don’t miss it.”
- “I am happily engaged with family and community.”
- “I have no regrets about my career path.”
- “I have lived a happy and blessed life.”
- “I would change nothing about my past. I am satisfied, happy, with moments of sadness about the passing of time, and I loved practising medicine.”
- “Advice to the young: Have faith in God; don’t listen to your agnostic professors. They know very little about life outside of a university.”
- “Practice virtue; be prudent, be temperate; be just; have courage; take prudent risks; love people, even the obnoxious and ignorant. [T]each them to be prudent and loving.”

Figure 1. Word cloud generated from survey response statements.

DISCUSSION AND CONCLUSION

One’s learning environment is central to his or her later career satisfaction. In one study of 3,324 Dutch university graduates, the authors observed that “… high-quality interactions between students, their peers, and faculty around intellectually meaningful subjects provides the most productive gains in terms of students’ learning outcomes.” The authors argued that the “… learning environment increases the motivation of students, which, in turn, increases their learning outcomes. Learning outcomes show a significant relationship with success in the initial phase of graduates’ careers. Furthermore, success in subsequent phases of one’s career is influenced by experience gained by students during their involvement in extra-curricular activities.” The authors concluded that the “…learning environment is important for students’ learning as well as their involvement in extra-curricular activities”, and “that these two elements of university education are determinants of career success”.2

Each of the 18 responses obtained in the author’s survey demonstrated the value that the author’s classmates had placed on helping others. Decency and humanity at the core of the individual and collective values. No regrets were expressed regarding the participants’ values of decency, collegiality, and humanity. Indeed, the only regrets expressed were that these doctors could not have helped others as much as they had already done so.

The entirety of the survey pointed to the value that all of my class placed on helping others. Decency and humanity at the core of the individual and collective values. No regrets were expressed regarding the participants’ values of decency, collegiality, and humanity. Indeed, the only regrets expressed were that these doctors could not have helped others as much as they had already done so.
In this much smaller scale study, the author was of the view that his classmates went on to enjoy satisfying careers and enriched lives. Although some expressed sadness over personal losses, none had regrets about what they valued or how those values would enrich their lives in the years that passed.

As with Lee and Ryu, in this analysis, the author considers pride and regrets to be self-conscious emotions only capable of qualitatively subjective measurement. Despite that some of the author’s classmates had suffered familial tragedies, or difficult times in their careers, not a single person expressed any serious regret about their personal or professional choices. The absence of regret, when considered in the context of the drive for meaning, suggests to the author that all of his classmates lived lives of deep meaning and value. A person’s survival in a career, family, or life in general, is tied strongly to the durability of one’s sense of meaning. Meaning in life revolves around one’s values.

The author’s view, as informed by his work on the Bereavement Research Team at the Hospital for Sick Children, is that a person’s moral values have a strong connection with that person’s sense of self: when someone’s values are egocentric, failure to attain one’s egocentric objectives will have a much more devastating effect on that person’s core identity. This, in turn, can negatively affect one’s resilience and ability to weather such defeats. On the other hand, as Wu et al posited: “[t]he existence of a moral compass or an internal belief system guiding values and ethics is commonly shared among resilient individuals.” Wu et al also observed that, “a study of 121 outliers diagnosed with depression and/or an anxiety disorder showed that a low or lack of purpose in life and less frequent physical exercise were correlated with low resilience, but low spirituality prevailed as a leading predictor of low resilience”; and “similarly, purpose in life was a key factor linked to resilience in a study of 259 primary care patients with a history of exposure to a range of severe traumatic events.”

Following Wu et al, resilience in the face of difficulties requires a strong sense of purpose, one which affirms itself regularly by humanity and decency. In the author’s view, those who live decently make decisions that are civilized, humane, and generous. Our actions themselves, in turn, affirm our sense of values: by acting decently, regardless of the outcome, we affirm rather than deny that which we value; and when our values are affirmed, we grow stronger and have a greater sense of purpose and accomplishment. Conversely, when we act only in the interests of ourselves, failure becomes much more intolerable, and growth is invariably stopped. Regrets pile up and become shame, shame that we are unable to part with unless we change our values.

Vermeulen and Schmidt argued that “the quality of the learning environment cannot express itself directly in the career success of its graduates. In the final analysis, it must be the behaviour of the students themselves, brought about by the learning environment, which leads to superior academic performance and, through this, to career success.” Defining career success is wholly subjective. Regardless, expressing one’s “regrets” about career choices is a good measure: a person who has no regrets feels that he or she has achieved what they wanted to.

If we value decency over ambition, and civility over narcissism, then events that affirm those values bolster us. It is, of course, important to one’s mental and emotional health to have ambition and to enjoy one’s successes. However, if those are our only values, then failure will not permit growth. Personal growth requires a stable set of values, and when decency lies at the core of one’s values, one grows with each act of decency. As we grow, we move away from shame, away from regret. Like the author’s classmates commented, people for whom decency and civility are key values, they have no regrets beyond not having given more to their communities. This is a very strong and positive affirmation of the learning environment of the medical school class of ’58 (University of Western Ontario).

ACKNOWLEDGEMENTS

The author thanks Brian Moher for his assistance in preparing this article.

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Collaborative care models for integrating mental health and primary care

A policy overview

Rachelle Maskell, Anna Rudkovska, Marisa Kfrerer, Shannon Sibbald

Faculty Reviewer: Gerald McKinley, PhD (Pathology and Laboratory Medicine)

ABSTRACT

Background: Mental health service demands in Ontario often result in long wait times and a lack of access to specialized services. As a result, primary care providers are frequently required to provide mental health care for patients with complex diagnoses despite a lack of support or sufficient training. To address these issues, a shift toward collaborative models of mental health care delivery is occurring. Objective: This paper aims to assess whether evidence-based policy recommendations to improve collaborative mental health care are addressed in the recent Patients First documents. Methods: To achieve this, a qualitative analysis was conducted using NVivo10©. Results: While many of the evidence-based policy recommendations were mirrored in the Patients First documents, very few addressed collaborative mental health care directly. Implications: More research is required to fully understand the effects of the implementation of Patients First on mental health systems and services.

INTRODUCTION

In recent years, there has been an increased focus on the need to reorganize mental health care delivery in Ontario and Canada. This focus on restructuring arguably comes as a response to an increase in patient demand coupled with long wait times or inability to access psychiatric services. These circumstances place increased responsibilities on family physicians to treat complex mental health conditions. A lack of support for primary care providers to adequately and effectively treat mental health disorders sparked a shift toward collaborative models of care delivery. Such models of mental health care integrate mental health services and primary care through the utilization of existing infrastructures and resources. Through these models, different health care providers are connected in a health service network which allows them to share resources and expertise. Studies of these models have demonstrated increased patient and provider satisfaction as well as significant reductions in treatment delays and costs.

COLLABORATIVE CARE

In 1997, a revolutionary position paper was developed by the Canadian Psychiatric Association and the College of Physicians of Canada on the topic of shared mental health care which generated wide-reaching interest and awareness. As a response to this paper, a working group was created to promote models of shared care which focused on encouraging coordination between family physicians and psychiatrists. However, in recent years much has changed including a shift from the focus on the physician/psychiatrist relationship to a push for collaboration between a wide range of experts including but not limited to providers of mental health services and primary care.

Collaborative mental health care emerged in Canada with the goal to address the rising needs of Canadians with mental health concerns as it is now understood that 1 in 5 Canadians experience mental illness in their lifetime. The objective was to increase the capacity of primary care to address issues related to managing mental health and addictions. At its core, collaborative mental health care is a patient-centred approach which relies on different specialties, disciplines, or sectors working together to offer services and support to individuals in need. Collaborative mental health care also leverages personal connections, supporting the unique and changing needs of individuals, as well as catering care to cultural and personal preferences. The collaborative mental health model often draws on local resources, skills, and interests of the participating partners. While there is no single model, collaborative mental health care is often operationalized through the use of effective communication, consultation, coordination, co-location and/or integration of mental health and primary care providers into one care team. Between 2003 and 2007, the Canadian Collaborative Mental Health Initiative (CCMHI), supported by the Primary Health Care Transition Fund, embarked on improving and promoting collaborative mental health care across Canada. Today, however, the incidences of mental health and addictions are still very high, and the heavy reliance on primary care providers to support individuals living with complex mental illness remains despite the lack of resources and inadequate training.

In 2011, Kates et al published a revised position paper to update collaborative mental health literature on lessons learned through research, areas and opportunities for improvement, as well as action items for change. They suggested that there are many changes that can be made at the policy and practice level to encourage improvement of and access to high-quality collaborative mental health care. Including patients and their families in care planning as well as focusing on early detection of mental illness were among strategies proposed. Despite growing evidence showing that collaborative mental health care contributes to reduced wait times and costs and improves overall patient and provider satisfaction, it is
not well-understood how these models have been incorporated into health policy. This issue, also known as the knowledge-to-practice gap, is a recognized problem in health research, as federal and provincial policies are often developed using insufficient evidence. This paper aims to provide a brief overview of the recent shift in Ontario health policy by assessing whether proposed policy changes adequately incorporate the current evidence and recommendations brought forth in Kates et al’s 2011 position paper.

**PATIENTS FIRST**

The *Patients First Act* is a policy initiative initiated by the Ministry of Health and Long-Term Care (MOHLTC) to improve the province’s health system. Outlined in four public documents, these proposed policy changes focus on four primary objectives: 12-15

1) Provide faster access to correct care,
2) connect services by providing better coordination and integration closer to home,
3) support families and patients through education and transparency to allow for more informed decision making, and
4) protect the universal health system by focusing on value, quality and sustainability.

The structural changes included in the *Patients First Act* are an attempt to develop a more integrated health care system which emphasizes quality of care and the patient experience above all other factors.12-15

**METHODS**

The 4 documents outlining these changes were collated and compared to Kates et al’s ‘Across the System’ and ‘Provincial and (or) Territorial Governments and Regional Health Authorities’ recommendations. Nvivo 10, a qualitative analysis software, was used by the authors to assess whether the noted policy recommendations were addressed in the Patients First documents. The content of the documents was categorized using the twenty-three recommendations included by Kates et al. The qualitative analysis software provided a visual overview of whether recommendations were addressed in Patients First and to what degree.

**FINDINGS**

‘Across the System’ Recommendations:

The *Patients First* documents were coded using the twenty-three Kates et al recommendations and were measured by frequency of occurrence (Table 1 and Table 2). The frequencies at which the ‘Across the System’ recommendations were mirrored in the *Patients First* documents were quite varied with 6 of 10 recommendations appearing in the public documents (Table 1). The recommendation most frequently mirrored reflected a focus on quality improvement, access, and efficiency. To a lesser degree, the inclusion of individuals, families, and caregivers in project planning and evaluation was also included. For example, in the *Patients First: Action Plan for Health Care* document, families were often discussed in planning and collaboration. Less frequently discussed recommendations include development of strategies to reduce stigma among providers, promotion of mental health and well-being as drivers for change, the use of technology for managing information and linking providers, and including individuals and families in their own care. Lastly, of the 10 Kates et al ‘Across the System’ recommendations reflected in the *Patients First* documents, only 2 directly addressed mental health care while several recommendations are not discussed at all.

**Table 1. Across the system recommendations from Kates et al**

<table>
<thead>
<tr>
<th>Kates et al. Across the System Recommendations</th>
<th>Health care as a whole</th>
<th>Specific to Mental Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Include individuals and their families and (or) caregivers as partners in their own care. Ensure that people with mental health problems have clear treatment or wellness plans, developed in partnership with the individual and based on their own goals. A copy of these plans should be provided to the individual.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Include individuals and their families and (or) caregivers in the planning and evaluation of collaborative projects. To a large extent, the development of new projects needs to be based on what we can learn from the stories and journeys of people with lived experience about where our systems are failing them and how care could be improved.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Develop strategies that will reduce stigma and discrimination among all health care providers, including those that will lead to a better understanding of cultural diversity</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4. Promote mental health, wellness, and recovery as goals of system changes.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5. Focus on quality improvement, access, and efficiency as drivers of system change.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6. Define competencies for all health professionals working in collaborative mental health partnerships.</td>
<td></td>
<td></td>
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<tr>
<td>7. Ensure that respective roles and responsibilities of all partners are clearly defined and understood.</td>
<td></td>
<td></td>
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<tr>
<td>8. Strengthen personal contacts by organizing events, such as joint clinical rounds, joint educational rounds, practice observation, and formal continuing professional development events, that bring together MH&amp;A and primary care clinicians and staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Use new technologies for managing information, including a common electronic medical record and evidence-guided algorithms to enhance collaboration and efficient data collection and analysis; registries to support proactive, population-based care; and telemedicine, which offers new ways to link providers, enhance collaboration, and provide consultation to underserved communities.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10. Build networks of providers, information technology experts, researchers, and consumers interested in collaborative mental health care to enable participants to exchange ideas, share experiences, and work together to develop new projects.</td>
<td></td>
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</tbody>
</table>

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‘Provincial and (or) Territorial Governments and Regional Health Authorities’ Recommendations:

Frequency of occurrence of provincial/territorial and regional health authorities’ recommendations was greater and less varied across all documents. Overall, twelve of the thirteen recommendations in this category were present in the Patients First documents with 6 directly pertaining to mental health care. There appeared to be a focus on meeting the needs of marginalized populations, addressing health resource shortages, and the development of strategies to ensure individuals with mental health and additions receive comprehensive primary care.

Table 2. Provincial, territorial governments, and regional health authorities recommendations from Kates et al

<table>
<thead>
<tr>
<th>Kates et al. Provincial and (or) Territorial Governments and Regional Health Authorities Recommendations</th>
<th>Health care as a whole</th>
<th>Specific to mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Give priority to collaborative projects that offer opportunities for;</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>a. Early detection and intervention, and ongoing monitoring of children and youth with mental health problems and their families and (or) caregivers</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>b. Early detection and intervention, ongoing monitoring and relapse prevention of seniors with mental health problems and the needs of their caregivers</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>c. Meeting the needs of populations that may be marginalized or have particular difficulty with access to services, including Aboriginal populations, people who are homeless, people from different cultures, and people whose first language is neither English nor French</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>d. Community-based intervention for the integrated management of crises</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>e. Access to interdisciplinary models of care when individuals or their families identify the lack of these services within their primary care services</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>f. Addressing shortages of health resources, including those created by geographic disparities</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>g. Supporting collaborative education projects, especially those that take place in the primary care setting</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>h. Mentoring and email or telephone support of family physicians by psychiatrists, as in the successful Ontario Collaborative Mental Health Project,65 which is now being extended to other specialties</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Test demonstration projects that provide data on how collaborative projects can help address common problems faced by health care systems, including</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>a. Meeting the needs of underserved populations</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>b. Serving people in isolated communities</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>c. Reducing waiting times and improving access to care</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>d. Improving physical health outcomes for people with mental disorders</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Develop strategies to ensure that people with mental illnesses and additions have access to appropriate and comprehensive primary health care, 32 including incorporating primary care clinicians (nurses, nurse practitioners, physician assistants, and family physicians) into mental health programs</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

DISCUSSION

Of the twenty-three recommendations discussed in Kates et al, eighteen (78%) were present in the Patients First documents; however, only 8 of the twenty-three recommendations (34%) addressed mental health care directly. Despite the absence of directed guidance for mental health care reform, there is a great deal of thematic overlap between Kates et al’s recommendations and the Patients First focus on patient-centredness, quality improvement and inter-disciplinary collaboration. More research is required to see if these policy changes translate into improved collaborative mental health care.

CONCLUSION

While the Patients First documents demonstrate substantial thematic overlap with Kates et al’s (2011) evidence-based policy recommendations, gaps remain as few directly address collaborative mental health care. However, it is possible that because there is considerable thematic overlap, these important policy changes will translate into improved mental health care. We support further research to understand the full effects of the practical implementation of Patients First policies on mental health systems and services.

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Racing for accessibility of a life-saving drug
A timeline of naloxone’s changing status in the midst of the opioid crisis

Sandra Botros  
Faculty Reviewer: Amardeep Thind MD, PhD (Epidemiology and Biostatistics)

INTRODUCTION

In recent years, the problem of addiction and misuse of opioid drugs has been on the rapid rise in Canada. Overdose deaths have increased dramatically, due partly to increasing availability of prescription opioids on the illicit drug market, and in particular a surge in the availability of the potent opioid fentanyl. In British Columbia, the hardest hit province, overdose deaths have doubled since 2012, and the involvement of fentanyl in these deaths has risen from 5% to 60%. Naloxone hydrochloride (sold in the U.S. under the trade name Narcan®) is an opioid antidote used to reverse the effects of opioid overdose in emergency situations. In a short time, Canada has seen rapid changes in regulation and availability of naloxone in a desperate attempt to reduce overdose deaths in what is being called a “public health crisis”.

A key change that has happened recently was the removal of naloxone from the Prescription Drug List (PDL), making it available over-the-counter in pharmacies. This article outlines the steps taken to increase availability and remove prescription status of naloxone in response to Canada's ongoing opioid epidemic.

TAKE HOME PROGRAMS

While naloxone has been around for many years, its use has historically been confined to hospitals and emergency rooms. As overdose rates continued rising, there were increasing efforts to increase public availability of the life-saving drug. In 2005, the Edmonton needle-exchange program Streetworks implemented Canada’s first take-home naloxone program. In 2011, Toronto similarly launched their POINT program (Preventing Overdose in Toronto), followed by a province-wide program through the Ontario Harm Reduction Distribution Program. British Columbia began a province-wide take-home naloxone program in 2012, operated by the BC Centre for Disease Control Harm Reduction Program. These programs typically provide opioid users with naloxone prescriptions and kits, overdose prevention education, and training on use of naloxone kits. Often, training sessions were also provided to family and friends of users, who may be present during an overdose.

THE ROAD TO PRESCRIPTION FREE STATUS

Prior to the lifting of naloxone’s prescription status, several provinces took steps to increase accessibility of the drug in overdose situations. Since 2015, for example, Manitoba and Nova Scotia made changes that allowed physicians to prescribe naloxone without having to see the patient; Saskatchewan began allowing physicians to prescribe naloxone directly to family and friends of opioid users; and BC and Alberta made it possible for registered nurses to prescribe naloxone.

Naloxone’s removal from Health Canada’s PDL was achieved in March 2016. This was the first step to allowing access in pharmacies without prescription. Health Canada proposed the amendment to the PDL on January 14, 2016 and shortened the normal 75-day public consultation period to 65 days to expedite the process. The amendment received overwhelming public support, and it was approved on March 22. Due to the urgent nature of the situation, Health Canada opted to bypass the usual six-month delay in implementation, making the amendment effective immediately.

After a change to the federal PDL, a drug’s status must be changed on the provincial drug schedules, which describe the legal conditions for its sale in the respective provinces. When a change is made in the PDL, The National Association of Pharmacy Regulatory Authorities (NAPRA) usually provides a common final recommendation to all provinces regarding drug scheduling, and the provinces generally follow NAPRA’s recommendations. Most provinces have a system of “scheduling by reference”, meaning they automatically implement all NAPRA recommendations, while some (BC, Alberta, Newfoundland) have additional approval processes in place, but still generally end up following the same recommendations. The urgency for naloxone access led to the BC government and BC College of Pharmacists bypassing this process completely and classifying naloxone as a Schedule II drug in BC on March 24, 2016. NAPRA made their final recommendation on June 24, 2016 to classify naloxone as a Schedule II drug, making pharmacies in most provinces, including Ontario, immediately eligible to dispense it.

REMAINING BARRIERS AND FUTURE DIRECTIONS

Removing naloxone from the PDL has been an important step in improving its availability. There are still several barriers, however, in ensuring adequate availability in practice. One concern is the difficulty of administering an injection drug. Currently, pharmacies provide training sessions on use of naloxone kits, but training isn’t standardized, and the skill can be difficult to master and recall during high-stress emergency situations. A nasal spray form of naloxone exists (Narcan® nasal spray in the U.S.), but until recently was not approved in Canada. The nasal spray form is far easier to administer and would likely prevent more overdoses. In an interim order termed “an emergency public health measure”, Health Canada authorized the nasal spray for import and sale from the U.S. in July 2016, pending an expedited review for its approval in Canada. This allowed it to be sold in Canada before being approved for manufacture in Canada. Following the review, the nasal spray...
was approved for non-prescription use in October 2016, allowing the manufacturer to begin steps to bring it to the Canadian market. In June 2017, Health Canada authorized a Canadian version of the nasal spray, to be transitioned into the market when the interim order expired in July 2017. It is being carried by RCMP, police officers, and first responders, but its availability in pharmacies is not well-documented and is likely still in transition. Unfortunately, a major concern with naloxone nasal spray is the high cost – at approximately $125 for two doses, it is much more costly than the cheaper injectable kits ($5-$20 per dose), which are free at most pharmacies.

Another important consideration is that although naloxone is an important harm reduction tool, it will not solve the opioid problem. The Canadian government recognizes that overdose prevention, although important, is just one part of the strategy to combat opioid abuse. Continuous improvement is also critically needed in curbing opioid prescription, educating the public, and treating addiction.

At this point, there has not yet been any formal evaluation of the effect that removing naloxone from the PDL has made on curbing overdose deaths. Further research is needed moving forward to determine if this much-publicized public health measure has succeeded and had its intended effect.

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Doctors without bricks (and mortar)
Akira and the emergence of mobile health services

Alistair D Scott

Faculty Reviewer: Robert John Petrella, MD, PhD, FACSM, FCFP (Department of Family Medicine)

For most of the twentieth century, if you wanted to talk to a friend who lived across the country, you would call them on a landline or you would write them a letter. If you needed a taxi, you could flag one down on the street or call dispatch and give them your location, and have limited options for payment. And if you wanted the answer to a complex medical question, you would have to search a library’s catalogue in person and find the relevant book or journal on the shelf.

Advances in technology and mobile communications in the last few decades have changed all of that. We now have devices in our pocket capable of performing all of these tasks with ease. Apps like Skype, Uber, and Google have each revolutionized our society and the way we interact with each other, and many are accessible from a small device we carry in our pocket.

Health is no exception. A large number of mobile apps are available for patients to manage their health. They can manage their diet with MyFitnessPal, log their routes with Map My Run+, and track their menstrual health with Flo Period Tracker. With the purchase of a minor accessory, patients can monitor their sugar levels with MyStar SMS or their blood pressure with Qardio. Furthermore, accessories such as Fitbit and the Apple Watch have also enabled patients to manage vast amounts of personal health data.

Despite these changes, much of healthcare that has yet to fully exploit the new mobile communication technologies available to patients and healthcare practitioners. Telehealth, the practice of providing healthcare virtually with the aid of videoconference or specialized equipment, has been employed in situations such as providing isolated or remote communities with access to specialty care or managing chronic disease but has not become fully mainstream. However, it is a provocative opportunity to modernize the way we provide healthcare, and may help address barriers to care such as appointment wait times. Two very strong predictors of patient satisfaction are the amount of time spent with the physician as well as the amount of time patients spent in the wait-room for their appointments.

Akira is a smartphone telehealth app that aims to address that barrier. Based in Toronto, Ontario, and available on both iOS and Android, Akira provides a platform for patients to access physicians’ opinions and diagnoses for common medical problems, all via a smartphone. Some of their services include providing prescriptions for simple medical problems such as uncomplicated urinary tract infections in women, oral contraceptives in otherwise healthy patients, medication renewals, mental health counselling, referrals for specialists, and sick notes. It is staffed by physicians licensed in Ontario, as well as registered nurses, nurse practitioners, social workers, and mental health councillors, who provide care via text and video chat. Setting up an account takes a matter of moments, and after a brief conversation with a nurse who establishes your initial health history, you are connected with the health professionals to address your issue.

The catch? The service is not covered by the Ontario Health Insurance Plan. It is available as a subscription for $120/year for individuals or $240/year for a family of two partners with unlimited children and covers an unlimited number of consults, though there is a pay-as-you-go option for $49 per consult.

Paying for healthcare is legal in Canada. While the Canada Health Act stipulates that medically necessary healthcare services must be covered by provincial health plans in order for provinces to receive federal transfer payments, it leaves most of the determination of what is medically necessary up to the provinces. Any service that is not deemed medically necessary may thus be provided for a fee. The College of Physicians and Surgeons of Ontario (CPSO) has published guidelines for physicians for how, and how much, they may charge patients for these services, based on recommendations outlined by the Ontario Medical Association, though these recommendations do not outline specifically how much should be charged for telehealth services. The CPSO also allows for the provision of telehealth by its members and has published guidelines which essentially state that physicians in Ontario are still governed by the same standards of care that they would have been seeing their patients in person.

Furthermore, the Canadian Medical Protective Association (CMPA) also allows for the provision of telehealth by its members and will cover a physician practicing telehealth, provided the patient resides in Canada and any legal action filed against the physician is initiated in Canada. Akira states on its website that its physicians adhere both the CPSO and CMPA standards, and that its nurses adhere the College of Nurses of Ontario’s respective guideline on telehealth.

Telehealth is not a new concept, and already exists in Ontario via the Ontario Telemedicine Network. It is however limited to only managing certain patients with chronic disease (such as heart failure or emphysema), and allowing certain patients in remote or rural communities to access specialists with the use of videoconference and specialized monitoring equipment.

Systematic and scoping reviews of telehealth have shown mixed results. Some show modest improvement in the management of chronic disease, doctor-patient communication, and encouraging health behaviour change. However, limitations in diagnostic accuracy compared to gold standard remain a challenge, and it does not appear to reduce healthcare spending.

Telehealth has the potential to vastly change the way that healthcare is delivered, both in Canada and globally. For Akira, the fact that the only physicians available currently are Family Physicians and Paediatricians will limit its widespread adoption for the
time being. It is possible that other specialties may become available in the future, but for the time being it will only be able to address uncomplicated medical concerns in primary care.

Mobile technology will continue to advance, and until healthcare delivery catches up, it is my impression that the general public will increasingly view healthcare as an ossified institution, stuck in the past.

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Availability of novel contraceptive methods in Canada

Polly Tsybina, Kyle Canton

Faculty Reviewer: Shannon Arntfield, MD, MSc, FRCSC (Department of Obstetrics and Gynecology)

Numerous contraceptive options are available in Canada, but studies show that Canadian women most often use the following three methods: condoms (54%), oral contraceptives (44%), and withdrawal (12%). Typical failure rates of these methods are 18%, 9%, and 22%, respectively. These statistics may be linked with the finding that one third of Canadian women have at least one induced abortion in their lifetime.

Contraceptive failure is lower among long-acting and permanent contraceptive options, primarily because user adherence is taken out of the equation. However, Canadian women appear reluctant to use long acting options such as intrauterine devices (IUDs), perhaps because of associated adverse events. For example, some 20% of women discontinue IUDs within the first year of use due to pelvic pain, irregular bleeding, or spontaneous expulsion. DMPA (Depo-Provera) is often discontinued because of weight gain commonly experienced by its users. Thus, there remains a need for novel contraceptive choices for women who are unable to use the formulations currently available in Canada.

One promising alternative not yet available in Canada is Nexplanon, an etonogestrel (progestin only) implant inserted into the inner, upper arm. In adults, its efficacy is higher than that of oral contraceptives and IUDs, at >99% (efficacy studies in women under 18 years of age are not yet available). Effectiveness lasts up to three years, and the approach for insertion is less invasive than IUDs. Side effects are similar to other contraceptive methods, with the most common being breakthrough bleeding, depression, and mood swings. Abnormal bleeding is the most common reason for discontinuation, but notably, more than three quarters of women retain their implant for two years or more. Nexplanon is also more cost effective than both OCP and hormonal or copper IUDs, as seen from a study in France. The combination of superior effectiveness, a simpler and less invasive insertion, and increased cost effectiveness makes Nexplanon a preferable alternative to contraceptive options otherwise available to Canadian women. However, the manufacturer of Nexplanon (Merck) recently failed to satisfy Health Canada's requirements for new contraceptive devices, and it is uncertain whether the company will re-apply for approval.

Another unavailable but promising contraceptive option is Cerazette, a progestin only pill (POP) that uses desogestrel as its active ingredient. POPs are important options among women who prefer or require a non-estrogen containing contraceptive, due to either medical contraindications to estrogen, patient preference, side effect profile, or physiologic states such as breastfeeding. Most POPs function by thickening the uterine mucus lining. However, Cerazette also prevents ovulation in 97% of cycles. What makes Cerazette truly stand out, however, is its margin for timing variabilities. Most POPs must be taken within a 3 hour window each day to ensure effectiveness, whereas Cerazette allows a 12 hour window. This offers women much greater flexibility without compromising efficacy.

It is clear that Cerazette and Nexplanon offer advantages over the contraceptive options currently available on the Canadian market. There is a wealth of safety data available for these formulations as they have been in use for some 20 years. Etonogestrel's safety has been demonstrated in clinical trials including over 2,000 women. Some 1,000 women have taken part in a clinical trial specifically looking at safety of desogestrel-only contraceptive pill. Also, there have been studies using desogestrel for treatment of other conditions, such as headaches and endometriosis. Moreover, there are numerous studies where desogestrel was combined with ethinyl estradiol, as it is also a part of several combined OCP formulations. Finally, many countries have a system for reporting and surveillance of adverse events (for example, FDA adverse event reporting system available on www.fda.gov), and neither desogestrel nor etonogestrel have raised concerns once approved for use. With a need for these contraceptive options and the abundance of research done to date, it seems surprising that these drugs are not available in Canada.

Health Canada approval process for contraceptives is notorious for delaying or preventing new contraceptives from entering the market. Troskie and colleagues compared the data for new hormonal contraception entering the market in Canada, USA, and UK. Canada approved fewer devices than the two other countries between 2000 and 2015, and it took significantly longer for Health Canada to approve new drugs: 30% longer than the corresponding regulatory agency in the US, and 50% longer than the UK. Approval times for contraceptives in Canada likely lag chiefly due to the stringency of the guidelines required by Health Canada. Namely, the guidelines dictate that clinical trials for new hormonal contraceptives to be introduced in Canada require 800-900 participants, 20,000 cycles of exposure, and multiple endometrial biopsies for multiparous women enrolled in the trial. Other regulatory agencies do not require endometrial biopsies, and the FDA, for example, sets the standard at 10,000 cycles with 200 women enrolled, unless the hormone is a new molecular entity.

One could argue that these guidelines are intended to protect consumers, and, as Health Canada explains, biopsies are important to distinguish uterine bleeding that is a side effect of the contraceptive from more insidious pathology. However, progesterone analogues are known to decrease risk of endometrial cancer, and are used to treat endometrial hyperplasia, so it remains unclear why endometrial biopsy is a requirement. For etonogestrel implants, there have been no reports of endometrial atypia or cancer as adverse events. Additionally, etonogestrel has been used in Canada...
for years as a component of another contraceptive device, NuvaRing, with no adverse effects on endometrial histology. It is clear that Canada lags behind in its approval of novel contraceptives, arguably due to barriers by Health Canada that appear unnecessary. This limits the options available to Canadian women, preventing access to more effective, less invasive, and more flexible contraceptives such as Nexplanon and Cerazette. In order for Canadian women to have the best available choices for contraception, policy should be amended to remove the unnecessary barriers and shorten the approval process. We invite readers to contact their members of parliament as well as the minister of health with requests to improve the availability of novel contraceptives to Canadian women.

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Applying health promotion theories to improve depressive symptoms through exercise

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ABSTRACT

Considering both the high monetary and emotional costs associated with caring for patients afflicted with depression, it is apparent that health professionals should find effective treatments to ensure that interventions are both cost effective and risk-reducing. While exercise is generally known to be important in maintaining general health and wellbeing, numerous studies have also indicated that it can play a critical role in moderating symptoms of mild to moderate depression. Globally, research continues to show a powerful reduction in depressive symptoms due to the benefits of exercise. This review article will highlight the growing perspective regarding the influence of exercise as a first-line treatment for depression over pharmacotherapy for patients with mild to moderate depression. Health promotion theories including the Theory of Planned Behaviour, Theory of Reasoned Action, and Motivational Interviewing will be applied.

BACKGROUND

In 2007, an article in Psychosomatic Medicine highlighted the impact of physical activity on depressive symptoms, suggesting that its effects may be comparable to antidepressants in a five-year prospective cohort study of 200 adults. Over the next few years, both a systematic review and Cochrane review suggested that exercise was as effective as pharmacotherapy, if not more effective, as a treatment method for mild to moderate depression. Various additional studies have found that a correlation exists between physical inactivity and depressive symptoms. Worldwide, approximately 340 million people are currently afflicted with depression. Given that depression is projected to be the second leading burden of disease by 2020, it stands to reason that a variety of approaches are required to best address this issue for patients and the healthcare system alike.

The benefits of exercise are diverse and numerous. The Public Health Agency of Canada (PHAC) recommends that Canadian adults be active for at least 2.5 hours every week, combining both aerobic and resistance training. PHAC also advocates that exercise provides secondary health benefits to patients with depression such as, but not limited to, substantially reducing the risk of chronic diseases and various cancers – and by extension, mortality. These findings are reflected in the literature and are applicable at all ages.

CONTEMPORARY ISSUES

The Canadian Health Measures Survey suggests that less than one quarter of Canadians are sufficiently active. More troubling is the finding that only 9% of children and youth get their minimum physical activity recommendations for optimal growth and well-being. Patients have often reported lack of motivation, commonly induced by their depressive symptoms, as one of the major barriers to actually engaging in physical activity. As such, this lack of patient motivation actually creates yet another barrier as physicians become reluctant to prescribe exercise, citing preconceived concerns about patient disinterest in engaging in physical activity on a regular basis.

A qualitative study on patient perceptions regarding the potential reduction of depressive symptoms due to physical activity suggested that patients who perceived exercise to be a positive force in reducing depressive symptoms actually enjoyed significant benefits. Furthermore, the study reported that exercise also helped to improve patients’ eating habits, social interactions, and sleep patterns – factors which indirectly improved their mood, and ultimately, reduced their depressive symptoms.

Taking all these factors into account, it is important to improve both the public’s perception of exercise and their motivation to engage in physical activity. This shift would theoretically help to relieve the reluctance of physicians in prescribing exercise, thereby allowing them to more successfully encourage patients to exercise in a way that improves depressive symptoms.

PHYSICIANS PLAY AN IMPORTANT ROLE IN ENCOURAGING EXERCISE BEHAVIOUR BUT COULD BE MORE SUCCESSFUL IN THIS TASK IF HEALTH PROMOTION PRINCIPLES WERE IMPLEMENTED.

LEARNING FROM HEALTH PROMOTION

The difficulties associated with encouraging the public to exercise are well-known and well-researched in the field of health promotion. This section will discuss and examine several theories and models that may work to encourage the public to engage in exercise as a means of reduce and prevent depressive symptoms.

The Theory of Reasoned Action (TRA), developed by Ajzen & Fishbein, helps one predict how an individual will behave by describing the components that lead to their behavioural decisions. Reasoned action refers to the thought process one goes through to in this task if health promotion principles were implemented.
further broken down to normative expectations (what others expect of an individual) and motivation to comply (the importance of doing what others expect). The theory was innovative for its emphasis on the importance of subjective norms such as social acceptance and perceived social support to complete a behaviour.

When applied to exercise, TRA suggests that peer and community supports (subjective norms) are essential contributors to an individual's desire to exercise. This directly relates to the challenge reported in a review done by Blake et al - that physicians were reluctant to prescribe exercise because their patients had preconceived notions about the importance of adhering to an exercise routine. In other words, the patients may not have the social support that the TRA says is essential to motivate them to exercise, as per physician recommendation.

To address the lack of social support to exercise or abide by physician requests, health education campaigns that portray exercise or abiding by physician requests in a positive manner should be implemented. Changing the general public's perception on this topic may indirectly promote social support to comply to the behaviour. These campaigns should focus on the importance of exercise and trusting physicians. Furthermore, they could be more effective if they promote healthy subjective norms of normative expectations and motivation to comply. Physicians can consider the principles of TRA while helping a patient understand that their actions of exercise are socially acceptable (normative expectations) or very important (motivation to comply). This can be done through displaying media that promotes physical activity to be more appealing, or counselling a patient about its significance for health and wellbeing.

Another relevant theory for health promotion is the Theory of Planned Behaviour (TPB), an adapted version of the TRA which adds an additional component into the process of modifying behaviour - a person's perceived control of the behaviour change. Planned behaviour describes the process one uses to plan and fulfills the actions they take. The theory identifies perceived opportunities, skills, and resources as important components of assessing control. The difference between an individual's perceived opportunities, skills, and resources and the amount they think is required to make a behaviour change is important to predict their chance of complying to a behaviour change request. This theory, then, purports the notion that in commencing an exercise regimen, it is paramount that patients feel they are able to participate in activities which would provide them with a sufficient amount of agency and enjoyment. Such a notion could come to fruition through a physician acknowledging the personal interests and preferences of patients, and by implementing these into their exercise plan so as to make it more palatable and enjoyable for patients.

Lastly, another key approach to health promotion is the Motivational Interviewing, which is defined as a "client-centered counselling style that helps people to explore and resolve their ambivalence regarding [behaviour] change." The key components of motivational interviewing are open-ended questions, affirmation (sincere acknowledgement of a patient’s concerns to validate their experiences), reflective listening (demonstrating understanding of a patient's communication by restating its meaning), and periodical summarization (distilling and reiterating select communications from a patient to acknowledge their ideas and to help guide them to move on). Motivational interviewing is different from traditional patient interviews because of its focus on a patient's ability to make their own choices through self-actualization. This is achieved through helping a patient identify discrepancies between their current position and where they hope to be, while promoting their perceived self-efficacy to achieve this goal.

Those attempting to incite any kind of behavioural change – namely, patient attitudes towards abiding by a prescribed exercise regimen – will be privy to individual needs through counselling sessions, during which counselors should: show empathy, listen respectfully, avoid conflict, and promote means of resolving a patient's ambivalence towards engaging in physical activity. A meta-analysis has already demonstrated motivational interviewing to be successful for inciting behavioural changes in a variety of contexts, and it is not so far-fetched to claim that it could also be effective in this particular context. A 2014 randomized control trial found that primary care physicians trained with principles of motivational interviewing were better able to encourage their patients with depression to be interested in treatment options and adhere to them.

CONCLUSION

Physicians play an important role in encouraging exercise behaviour but could be more successful in this task if health promotion principles were implemented. The Theory of Reasoned Action, the Theory of Planned Behaviour, and Motivational Interviewing are evidence-based strategies that have been applied successfully in a variety of contexts to incite behaviour change. More research in this area could be applied to find the best way to increase exercise as therapy for depression and reduce what could soon be the world's second largest burden of disease.

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What does ‘holism’ mean in Indigenous mental health?
A review of the literature and suggestions for healthcare professionals

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ABSTRACT

In Canada, suicide and depression rates are much higher among Indigenous populations compared to the general population. Colonial practices, cultural discontinuity, marginalization, and oppression have led to many of the mental health issues faced by Indigenous populations today. Recent literature emphasizes the importance of culture in the treatment and prevention of mental health problems among Indigenous peoples. Unfortunately, Indigenous perspectives on mental health or wellness in the peer-reviewed literature are often limited. This review aims to incorporate the grey literature produced by Indigenous organizations to better describe what ‘holism’ is as it relates to the wellness of Indigenous peoples, and to identify some practical implications of this understanding for healthcare providers addressing the needs of Indigenous patients and clients.

INTRODUCTION

Suicide and depression rates in Canada are currently much higher among Indigenous populations compared to the general population. Mental health inequities have been linked to the many effects of colonization, including the relocation of communities, forced sedentary living, and the resulting breakup of Indigenous family structures, social isolation, and poverty.

Recent literature has highlighted the importance of culture in the treatment and prevention of mental health problems among Indigenous peoples. However, the portrayal of Indigenous perspectives on mental health or healing practices in the peer-reviewed literature is often limited. Indigenous peoples’ understandings of health are typically described as ‘holistic’ and often refer to a Medicine Wheel model, balancing the physical, mental, spiritual, and emotional aspects of life. However, a deeper understanding of Indigenous peoples’ conceptualizations of mental health, what ‘holism’ might mean in the lives of patients, and suggestions for application in mental health practice, are needed.

Indigenous perspectives on mental health are more easily found in the grey literature produced by Indigenous organizations or research groups, using interviews and focus groups with Indigenous peoples, Elders, and service providers. The purpose of this paper is to incorporate this literature to better describe what is meant by ‘holism’ and to identify some practical implications of this understanding for healthcare professionals addressing the needs of Indigenous patients.

HOLISM AS ‘BALANCE’

Notions of well-being are holistic, integrating the spiritual, emotional, physical, and mental dimensions of health. Balance between these four dimensions and within each of these spheres is necessary to maintain not only the health and wellness of a person, but also their family and community. This understanding of well-being is often placed in opposition to ‘Western’ perspectives that tend to dichotomize mental and physical health.

Spirituality and spiritual balance were given significance among the literature. Spiritual wellness among First Nations is achieved through connectedness to beliefs, values, and identity. The First Nations Mental Wellness Continuum (FNMC) describes spiritual wellness as having ‘hope for the future’. FNMC is a Canada-wide framework addressing mental wellness among First Nations in Canada, built through collaboration of the Assembly of First Nations, Health Canada, and community mental health leaders. Among Métis women, well-being meant understanding the spiritual dimension, the importance of prayer, and traditional spiritual practices to gain inner strength and resilience. One study referred to the Inuit use of spirit possession as explanation for dramatic changes in individual behaviours.

Emotional balance was found to be important in interviews with First Nations Elders, healthcare providers, and clients, some of whom believed that loss of emotional control reflected mental health problems while others thought that it was important to be comfortable with emotional outpouring. Métis women spoke of the importance of living daily life while managing emotions, including releasing negative emotions quickly, being emotionally self-aware, and accepting of the need to express emotions.

In terms of the physical dimension of wellness, the FNMC describes how the physical self is affected by a person’s ‘way of being’, which includes daily activities such as employment and education, nurturing, and caregiving. For First Nations, taking care of one’s physical body as the ‘home of one’s spirit’ is important for physical wellness. Métis women linked physical wellness to healthy diet, being physically active, and being within a safe, clean environment.

Mental wellness is described by the FNMC as intuitive and rational thought and the understandings that are derived as a result of a balance between the two. Métis women identified intellectual and mental well-being as learning new things, being curious, and keeping an active mind. This intellectual and cognitive approach considered mental wellness to be related to having a sense of mean-
ing of life and thinking about one's place in the world, as well as having intuition or 'inner knowing'. Inuit have various terms for problems with a person's state of mind, including isumaaluttuq, meaning “having heavy thoughts”, “being preoccupied”, or “thinking too much”.

CONNECTIONS TO COMMUNITY

Well-being is not only an individual issue, but is typically connected to the community. This included the importance of having strong social networks within one's cultural or geographic community to maintain mental wellness. The feeling of belonging was identified as important for First Nations, as traditional community living typically included living with extended families and multiple generations. The FNMCW relates emotional well-being to the feeling of belonging and connection to families and communities. Mussell refers to the importance of “wholeness, balance, the importance of relationships with family, community, ancestors, and the natural environment”. Thus, well-being is not merely an individual concern, but a collective process whereby community members share in the responsibility of resolution and continual support during crisis. This is a marked difference to the Western concept of mental health, which focuses on dysfunction and individual coping strategies.

A significant part of this collective process is dependent on intergenerational learning – having Elders and other adults as role models and teachers for children and young adults. This was thought to occur naturally from traditional extended family and clan system ways of living. Stewart describes the importance of being able to rely on others, including family, relatives, co-workers and even other communities for promoting good mental health. Likewise, Inuit people mentioned the importance of family and kinship, including sharing time together, carrying out daily activities together, talking about problems, visiting Elders regularly, hugging, and ensuring family members were happy.

LAND, CULTURE, AND WELLNESS

Lack of well-being was seen as a result of disconnection from culture. Remedies for this lack of balance included returning to the land and taking part in the traditional way of life. Inuit Elders identified “going on the land, hunting, camping, eating country food, spending time with elders, making traditional tools, skin clothing, building an igloo, and Inuit beliefs and cosmology” as contributors to wellness.

Kant and colleagues identified the importance of land use for Indigenous well-being, along with traditional diets, community self-governance, and access to cultural sites. The inherent connection of traditional food with community is further highlighted by the FNMCW, which describes the nurturing from Mother Earth that is gained from consuming and sharing traditional food in feasts, which reinforces bonds between individuals, families, and communities.

WELLNESS AND INDIGENOUS IDENTITY

Among First Nations, communal and ceremonial events also allowed for the sharing of important values and customs, which were seen as important aspects of wellness. For youth, learning from Elders about history, language, culture, and stewardship of the land was seen as helping youth gain a sense of pride in their identity, and combating feelings of shame and inferiority resulting from colonial domination. Having cultural identity as part of one's personal identity was thought to contribute to mental wellness. First Nations Elders described the importance of knowledge about culture and heritage and their use in building positive self-concept. Community self-determination or self-governance were empowering for individuals to make decisions for their well-being with the help of their families, communities, Elders, and healers.

CONCLUSIONS FOR PRACTICE

This brief review provides some additional understanding of the meanings of “holistic” as it relates to the wellness of Indigenous peoples. Many of the sources described the fundamental connections between aspects of individual wellness and the importance of community, traditional culture and activities, traditional lands and waters, and pride in an Aboriginal identity as contributors to Indigenous conceptions of mental wellbeing. We draw three main recommendations for physicians working with Indigenous populations.

On a cautionary note, providers should be aware of the diversity of Indigenous populations, including differences in cultural approaches to health. There is a great deal of cultural and linguistic diversity among Indigenous populations, as well as variation in personal and community histories and degrees of cultural connectedness. Although the literature revealed some themes that are potentially important for healthcare providers, these will not apply to everyone equally. Given this caution, we suggest that healthcare providers start by firstly being willing to ask new patients/clients how they identify themselves. We think that doing so would not only help guide the healthcare provider, but also acknowledge to patients that their Indigenous identity is considered an important aspect of their lives.

Second, where possible, healthcare providers should consider not only the immediate issues that may be affecting their Indigenous patients’ mental health but also the historical, political, and social factors that can impact health. Recognizing the personal and intergenerational effects of colonization and the holistic nature of mental wellness is essential for healthcare providers. Furthermore, given the importance placed on intergenerational reliance and connectedness, whenever possible, opportunities to include families and Elders in healthcare discussions and treatment should be offered.

Finally, as outlined in the review, individuals can derive very real benefits from participating in traditional activities - spiritual prayer, ceremonies, or connecting with food and land of their ancestors. Considering this, we encourage healthcare providers with Indigenous patients/clients to make connections in their area of
practice with Aboriginal Health Centres, or local Elders and healers who can provide culture-based counseling or healing for their patients. More importantly, we recommend healthcare providers offer these connections to patients as a component of their overall care.

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The detrimental effects of obstetric evacuation on Aboriginal women’s health

Ann Marie Corrado

Faculty Reviewer: Debbie Laliberte Rudman, PhD, OT Reg. (Ont.) (School of Occupational Therapy)

ABSTRACT

In Western society, many colonial practices, such as the removal of Aboriginal women from their communities prior to birth, still detrimentally affects Aboriginal peoples’ lives. Health Canada’s evacuation policy for pregnant Aboriginal women living in rural and remote areas involves nurses, who are employed by the federal government, coordinating the transfer of all pregnant women to urban cities at 36-38 weeks gestational age to await the birth of their baby. The policy states that it is founded on concerns for the wellbeing of Aboriginal women, in an attempt to “curb First Nations’ child and maternal mortality rates”. However, there is a need to problematize the practice of obstetric evacuation given its colonial roots and its impact on Aboriginal women. The objective of this review paper is to explore and bring awareness to some of the consequences of Canada’s evacuation policy for pregnant Aboriginal women who live in rural and remote regions. More specifically, this paper, drawing on ethnographic research previously conducted with Canadian Aboriginal women on their lived experiences of prenatal care and birth, will examine the lack of social support, loss of control, and lack of culturally competent care that Aboriginal women face. The findings demonstrate an urgent need for policy makers to also consider the lived experience of Aboriginal women when making decisions that impact their health.

INTRODUCTION

Significant health disparities between Aboriginal peoples and the general Canadian population are well documented. Health disparities, such as lower life expectancy and higher rates of chronic diseases, are rooted in colonialism, whereby the oppressive policies of European settlers led to the forced assimilation of Aboriginal peoples. These policies included Aboriginal peoples being required to admit their children into residential schools and giving up their land. This paper focuses specifically on the obstetric evacuation policy as part of these practices.

Prior to colonialism, Aboriginal communities had developed approaches to supporting women to give birth in their communities, usually assisted by family members and midwives. Health care delivery to Aboriginal peoples started being formalized in 1867 through the British North America Act which granted the federal government authority over “Indians and lands reserved for Indians”. Nine years later, the Indian Act gave the colonizing forces control over the location and living conditions for Aboriginal peoples, and Indian agents were given the job of “ensuring First Nations people became ‘civilized’ enough to ‘assimilate’ into the broader Euro-Canadian society”. Eventually, the need to protect Euro-Canadians from the spread of communicable diseases led to the federal government assuming responsibility for delivering public health services to Aboriginals living on reserves.

The colonizers’ control over health resulted in an impactful shift in the way Aboriginal peoples received healthcare, whereby the government’s actions undermined culturally based concepts of health. In the late 19th century, for example, Inuit women began giving birth in newly established nursing stations, assisted by nurses or midwives employed by the federal government. Over time Aboriginal peoples’ traditional birthing practices and care providers in their communities were eliminated and “women’s bodies thus became a site upon which colonial goals of civilization and assimilation could be realized”. Existing research highlights the imperative need to examine how obstetric evacuation affects Aboriginal women’s health, particularly in relation to social support, control, and care that respects historical traditions.

SOCIAL SUPPORT

The lack of social support that Aboriginal women experience as a result of obstetric evacuation is related to separation from their families and communities, as well as a lack of support from medical professionals during labour and delivery. For example, in a study of two communities in the central Canadian Arctic, the most frequently identified stressor by women as a result of evacuation, is “the enforced separation from family...and the community”. Unfortunately, the lack of social support from partners, family and the wider community cause many women to experience stress, anxiety and fear leading up to birth. One woman from Bella Bella, a small First Nations community in British Columbia, shared “I really didn’t want to leave because my whole family is here and I wanted them to be around”.

The lack of social support Aboriginal women experience prior to birth is problematic as “neither the public nor care providers fully understand the long term, highly significant benefits of a well-supported birth”. In addition, researchers have consistently found that women who do not have social support have less positive experiences of birth, while those with social support “experience fewer childbirth complications and less postpartum depression”. Unfortunately, Aboriginal women have less social support from family members because of obstetric evacuation and they also perceive a lack of support from hospital staff.

Many Aboriginal women feel that health professionals are not
supportive during labour. For example, in the same study done in the Canadian Arctic, the women expressed getting very little support from the nursing staff during labour.7 Research examining continuous support during childbirth by a medical professional or family member suggest that social support results in more spontaneous vaginal births and women who are more satisfied with their birth experience.2 Therefore, it is critical that the evacuation policy places greater emphasis on the role urban hospital staff play in providing support to Aboriginal women as they may be the only ones present with these women during labour and delivery. Otherwise the policy must be modified to financially support the presence of family members during labor and delivery.

LOSS OF CONTROL

Research also demonstrates that Aboriginal women from the North often experience a loss of agency when they are given no choice in where and how they will deliver. Having agency is important for all individuals as “lack of control over important dimensions of living, in itself contributes to ill health”.11 Although quantitative data have supported the evacuation approach by showing reduced mortality rates among mothers and babies,5 critics have asserted that the use of specific statistics that show improvement is simply an attempt to support assimilation by discouraging Aboriginal birthing practices and emphasizing the superiority of the biomedical model.7

After the policy was put into place, fewer midwives were hired in relation to community nurses and the shift in staffing resulted in nurses no longer feeling prepared to provide care to women during labour and delivery;5 leaving expectant mothers with almost no choice but to deliver outside their community. One mother shared her thoughts about the lack of staffing in the community and its relation to safety when she stated, “when you are pregnant you want to hear that it’s going to be safe…I wasn’t hearing the things I wanted to hear so that’s what made me really scared to have my baby here”.9 The lack of choices and control women have over birth is problematic because it increases anxiety during pregnancy, which is associated with “shortened gestation and has adverse implications for fetal neurodevelopment and child outcomes”.11 Therefore, the mother’s mental health as well as the baby’s physical health will suffer with a lack of agency on where to deliver.

CULTURALLY COMPETENT CARE

Another consequence of the evacuation policy is that women often do not receive culturally competent care that is congruent with their culture.15 Some researchers found that many women experience “estrangement from larger cultural norms surrounding birth”10 such as traditional gatherings to honour the new baby after birth and elders wrapping a piece of umbilical cord in leather for the baby.16 It is imperative that urban centres and providers enhance cultural competence as “care that is congruent with the patient’s culture promotes not only the patient’s health but also the patient’s sense of well-being because well-being is a culturally determined phenomenon”.17 Thus, steps can be taken to respect the culture of Aboriginal women who do give birth in urban centres away from their homes through integrating traditions that are meaningful to women and thereby enhancing sense of well-being as they deliver their babies in an unfamiliar environment.

CONCLUSION

Canada’s obstetric evacuation policy for Aboriginal women has detrimental effects on health as mothers must travel alone to unknown cities, where they are not equal partners in the decision making regarding the birth of their babies and the care they receive does not honour their cultural traditions. While quantitative indicators such as infant mortality rates are important to measure and address, a more holistic policy approach would also attend to the lived experiences of women who undergo evacuation and the negative consequences these events can have on their health. An improved obstetric evacuation policy should address the need to enhance resources for local delivery so as to both minimize infant mortality and promote women’s well-being. Ideally, policy makers should focus on recruitment and retention of culturally competent staff in communities serving these women so that all women, regardless of culture, can have a well-supported birth that gives them the opportunity to meaningfully participate and incorporate their preferences.

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The ethical concerns of physician recruitment from Africa to the global North

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ABSTRACT

For decades, medical recruitment agencies have tried to deal with physician shortages in rural and remote areas of developed countries by recruiting physicians from areas of scarce health human resources in the global South. In South Africa alone, one-third to one-half of medical school graduates migrate to the global North every year, with the majority settling down in Canada, the United States, and the United Kingdom. This review paper aims to bring attention to the unethical practice of physician recruitment from Africa to the global North. In particular, it will explore how physician recruitment negatively impacts the donor countries’ economies, compromises the quality of care they can give their citizens, and provides only a short term solution to the recipient country. It is critical that this practice is prohibited and that countries in the global North look for sustainable solutions within their own borders to solve workforce shortages.

INTRODUCTION

Many foreign medical graduates choose to move to developed countries due to push factors, such as unsafe living conditions and famine, which cause people to want to move voluntarily. Ethically, the principle of respect for autonomy supports the idea that individuals have the right to make choices freely and, therefore, they should move if they desire. The ethical problem arises when physician-recruiting agencies capitalize on pull factors, which are circumstances in the destination countries, such as better remuneration and career opportunities, that are emphasized to entice physicians and motivate them to migrate. From an ethical point of view, this “selective and targeted ‘raiding’ of developing countries’ medical workforce by wealthier countries is not acceptable”.

In the 1990s, rural and remote regions in Canada experienced severe physician shortages since Canadian-trained physicians often avoid locating their practices in these communities. As a result, Canada began looking abroad for foreign-trained physicians who would be willing to practice in these areas. The recruitment efforts by Canadian provinces have resulted in 60 South African physicians migrating each year since the 1990s and primarily settling down in the Canadian prairies. These foreign doctors are able to bypass the normal barriers to accreditation and get their full license as long as they work in the assigned community for 3-5 years through a Return of Service agreement. In the coming years, it is expected that physician recruitment from Africa will continue as an aging population, coupled with changes in physician demographics (specifically age and gender) in developed nations, will result in doctors working fewer hours, and therefore, increasing the need for foreign doctors.

The World Health Organization (WHO) has recently stated that, “the world faces a global shortage of over 4.3 million doctors, nurses, and other healthcare professionals”. This lack of health human resources is one of the most urgent global health issues of our time, with the greatest burden being in developing countries. Although Canada and other developed countries actively recruit more physicians from India and the Philippines, the proportion of African-trained physicians is the highest. Moreover, any government that recognizes that their country has a large number of physicians, such as the Philippines, encourages those doctors to work in the global North to gain clinical skills, whereas governments in Africa, such as Kenya’s, do not encourage migration to the global North as they have extensive unmet health care needs.

IMPACT ON THE DONOR COUNTRY’S ECONOMY

Countries in Africa with scarce economic resources invest a significant amount of money into their medical students in order to provide them with free education. The justification for these states subsidizing the cost of medical education is to ensure that they are investing enough into the production of human capital, who will later serve the needs of their populations. When physicians are recruited to leave their country of origin, it results in a substantial economic loss to the country. For example, each time a doctor migrates from Kenya to the global North, it creates a pure economic loss of $517,931 to the economy. This loss of human capital is problematic as it violates the principle of distributive justice, which requires the fair distribution of scarce resources among all persons in society. Moreover, the principle of justice also requires that “each and every member of the community should receive an equal share of the benefits and burdens of the cooperative venture”. Physician recruitment is therefore unjust as it ignores the rights of patients in Africa, themselves taxpayers, who cannot benefit from the knowledge and skills that physicians have obtained with the state’s financial assistance.

Researchers have stated that the only individuals that benefit financially from the migration pipeline from Africa to the global North are the physicians who will earn higher salaries and patients in the recipient country. Currently, no requirement for countries in the global North, such as those in Canada and the United States, to compensate the African countries from which they have recruited physicians. As recipient countries’ economies are stimulated, they are able to solve their own labour shortages in rural areas, and they save money by not having to train these health professionals.
Critics have challenged the ethical concerns relating to the economic losses in African countries by asserting that these physicians will send money back home to their families. However, when considering the principle of non-maleficence, which supports that a procedure should not harm a patient or society, it is evident that physician recruitment is not ethical. Available evidence suggests that the harm done to the system is so significant that, even if doctors earn more in the receiving country and send money home, they cannot compensate for the damaging effects on the local health care system.

COMPROMISED QUALITY OF CARE

The quality of care patients receive is also impacted by shortages in staff, which leave existing staff with excessive workloads. Although the care patients receive is affected by the number of health personnel regardless of their country of origin, it is more concerning in Africa as Africans make up 10% of the world’s population but “bear 25% of the global burden of disease”. A lack of physicians results in patients receiving shorter appointments and doctors feeling stressed when attempting to meet the needs of those patients. On average, patients are only given 1-5 minutes for their first clinical encounter with the doctor and even shorter interactions at later appointments. These rushed meetings are problematic as they have been linked to more errors in diagnosis and treatment and as a result many patients die. When physicians are recruited by agencies in the global North, the principle of consequentialism, which is the view that the morally right action is the one that will have the best overall consequences, is violated. The specific consequence that results is the widening of health inequities between countries as citizens in Africa have a harder time accessing high quality, patient-centered care from physicians.

A counter argument to physician recruitment has been that doctors will one day return to Africa, with advanced skills and knowledge enhancing the quality of care they provide to patients. However, the WHO has claimed that the number of physicians who return is very small and in any year the net emigration of healthcare professionals, such as doctors, is much higher than the net immigration. In addition, when doctors do return, healthcare systems may not be able to utilize the skills doctors have gained because the technologies and health infrastructure in Africa is much less advanced than those in the global north.

LACK OF LONG-TERM BENEFITS

The benefits of physician recruitment to developed nations, such as Canada, have been described as ambiguous because physician recruitment from the global South provides only a short-term solution for rural and remote areas. After doctors obtain their full licenses and finish their Return of Service agreements, the majority move to urban centres in other provinces. This movement to larger cities, predominately in British Columbia and Ontario, demonstrates that recruiting doctors from Africa does not solve the workforce crisis in the developed world. Instead, this practice creates global disparities in health as it first shifts physician shortages to African countries that are the least suited to cope with a limited number of doctors due to the high burden of diseases. Moreover, from a utilitarian point of view, recruitment is not ethical. Utilitarianism is the ethical doctrine that finds the right action to be the one that promotes “the greatest over-all or average happiness”. This ethical framework makes it evident that physician recruitment should not be practiced as it deprives many people in Africa from accessing healthcare, in order to help rural areas in the global North for only a short period of time.

CONCLUSION

Although recruitment from Africa may be practiced with the intention of helping rural and remote areas of developed countries, it causes a significant amount of harm to the African economy and affects the quality of care that African citizens receive. Physician recruitment is problematic as it detrimentally impacts health systems as well as patient health, for only a short-term benefit in the recipient country. It is therefore imperative that this practice is stopped to ensure more equity in healthcare, so that all individuals can access good quality care regardless of their location. Countries in the global North must look within their own borders for sustainable solutions and create policies to support the retention of their own physicians in rural and remote areas.

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Moral distress in health care professionals

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ABSTRACT

Thousands of health care providers currently live and practice in Canada,1 and each day these providers are presented with new situations from their patients and clients. Many of these situations require much contemplation, and often both personal and professional judgment is used to come to a conclusion. In many cases, the decision-making process becomes difficult due to personal and professional beliefs, as well as institutional and legal requirements placed upon the health care provider. This phenomenon, known as moral distress, is “when one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action”2. This work provides a brief introduction to the topic of moral distress, the systemic factors that can lead to the development of moral distress, how it manifests in health care providers, and coping mechanisms used by health care providers to manage their moral distress.

INTRODUCTION

In the year 2001, more than 1.1 million (or one in ten employed) individuals worked in health care in Canada.1 These health care providers face a myriad of challenges in their day-to-day work, many of which require considerate and confident decision-making skills, as well as the ability to understand the short- and long-term implications of those decisions. First-line professionals must make important decisions about priority setting in their day-to-day work.2 The decisions they make are complex, as they must often consider a variety of factors, such as: the best procedure or treatment for an individual to undergo, both the present and future needs of the individual, and the social determinants of health that may largely affect this individual, such as their socioeconomic status.2 As a result of making these decisions, health care providers may experience moral distress, potentially further affecting their decision-making and causing a multitude of negative physical, emotional, and psychological effects.4,5

WHAT IS MORAL DISTRESS?

Moral distress has been described as one of the most substantial problems facing health providers.4 Over the years, a range of definitions have been used to define moral distress, resulting in a lack of conceptual clarity.6 Jameton presented the first definition of moral distress in 1984, stating: “Moral distress arises when one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action”.2 Raines later modified the definition by Jameton, and explained that constraints could be more than institutional in nature.7 From Raines’ definition, multiple works have outlined additional barriers such as internal barriers, including a lack of confidence, or external barriers, such as legal constraints and fear of professional reprimands.8–11

WHAT EFFECTS DOES MORAL DISTRESS HAVE ON HEALTH PROFESSIONALS?

Researchers have documented that a significant number of negative effects stem from moral distress, such as physical, emotional, and psychological symptoms. Moral distress manifests physically with symptoms such as headaches and diarrhea, and emotionally with symptoms such as excessive crying.1 In addition, health care providers have also experienced psychological symptoms, such as anxiety and depression, as a result of moral distress.4 As an example, in a study of nurses experiencing moral distress, many nurses reported that moral distress affected their personal relationships and manifested in ways such as a loss of self-worth, development of depression, and nightmares.4 These negative symptoms pose an issue for both health care providers and those that they care for, as they have the potential to interfere with patient care. This study also found nurses to be divided in believing that the care they were giving was better, worse, or the same while experiencing moral distress.8 However, it was speculated that the patients were more affected than nurses perceived them to be because (1) nurses perceived themselves as ‘good nurses’ and did not want to consider themselves as bad care givers, (2) when considering quality of care, they may have only considered physical aspects, and (3) they may have believed their quality of care was based on the amount of care they gave, rather than patient outcomes.5 As well, the participants in this study admitted that their personal and professional relationships and sense of self had been damaged as a result of experiencing moral distress.5

Additionally, to further illustrate how moral distress has a negative effect on health care providers, Lazzarin, Biondi & Di Mauro found that experiencing moral distress has previously caused individuals to leave their line of work.4 In their study, 13.7% of participants said they had changed their unit or hospital due to moral distress.4 In addition, 15.2% of participants said that they had thought about changing sectors due to moral distress stemming from institutional obstacles, such as lack of time, medical power, legal limits, and institutional policy, all factors that made it difficult for them to work in a more ethical manner.4 For example, health professionals encountered distress when they were unable to “act in agreement with their personal and professional values”.6 It is extremely problematic when professionals change sectors or move, as it disrupts continuity of patient care—that is, patients having consistency in the health care professionals that they see. Researchers have found that patients that had the most clinical continuity were less likely
to have future hospitalizations than those with low clinician continuity.  

Furthermore, while a large concern has been of professionals leaving their unit or hospital, in many cases, an even more concerning consequence of moral distress in health care is the number of individuals who leave the profession.  

This loss of health care professionals is problematic as we currently have an insufficient number of trained professionals practicing in Canada.  

It is therefore evident that more needs to be done to mitigate the negative effects of moral distress so that patients are able to access care from providers in the future.

**HOW DO HEALTH CARE PROFESSIONALS COPE WITH MORAL DISTRESS?**

Health care providers have been shown to cope with moral distress in a multitude of ways, including: breaking administrative rules, breaking the law, avoiding particular patients, and purposely avoiding specific duties. Wilkinson specifically found that nurses had 2 dominant ways of coping: deny responsibility for their actions, or act as if they had some control over the situation causing them stress.  

In a study conducted by Lievrouw et al., 17 oncologists and 18 oncology nurses from different departments (internal medicine, gastroenterology surgery, and day clinic) were interviewed and discussed how they coped with moral distress.  

While there was no difference in coping style based on the department they worked in, it was found that there were coping differences between physicians and nurses. In particular, it was found that nurses focused on their feelings and experiences while coping, while physicians used a rational approach.

**WHAT SYSTEMIC FACTORS LEAD TO MORAL DISTRESS?**

While the type of situation and coping style affects how an individual experiences moral distress, as previously stated, there are institutional constraints that, in many cases, lead to the development of moral distress in the first place. Although there are a variety of systemic factors that can contribute to the development of moral distress, this paper will specifically examine 3 of the most common factors that were brought forward in the literature: understaffing, lack of resources, and providing care for terminal patients.  

When speaking to staffing and resource management, it was found that many of the health care settings where participants worked were understaffed, leading to increased workloads, increased stress, and the inability to provide quality care to their patients. Additionally, workplaces with poorly trained staff also led to difficulty in ensuring quality patient care from these health care providers. Institutional constraints are also significant systemic factors that contribute to moral distress. Examples include budget cuts that lead to understaffing and longer work hours, and institutional requirements, such as administering life-sustaining treatment when it may not be useful. Also, in having no control over these institutional constraints, the stress of the staff can be compounded. Lastly, moral distress also frequently arises in caring for patients who have been deemed terminal. Wilkinson specifically found that performing unnecessary procedures, and unnecessarily prolonging a patient’s life were common causes of moral distress. These findings were also reflected in two other studies that found the greatest cause of moral distress to be the administering of aggressive treatment to patients who would not benefit from this care. Additionally, it was found that in caring for terminally ill patients, moral distress emerged when nurses had to manage pain symptoms, as they were concerned that the treatment they administered could potentially hasten death. Distress also emerged when communicating with patients about their impending death, as they did not want to deter their patients’ hope of recovery.

**HOW CAN THE HEALTH CARE SYSTEM MEDIATE THE EFFECTS OF MORAL DISTRESS?**

In order to mitigate the negative effects of moral distress, it is imperative that organizations provide staff with support resources to help them cope, as well as training in ethics. Researchers have advocated that health professionals should not try and ignore their moral distress, but instead they should acknowledge it and be offered support on the job to deal with their feelings in constructive ways. In addition, providing health care professionals with on-the-job training in ethics is critical. These training sessions will allow them to discuss the ethics around various patient situations and teach them about the different ways of reasoning. This knowledge is important as it could aid professionals to “understand better their own process of ethical decision making and create greater readiness for related situations.”

**CONCLUSION**

In sum, moral distress is a phenomenon that affects many health care providers in their day-to-day work. This paper has only discussed a small portion of the effects of moral distress and the factors involved in the development of moral distress, as well as how it can be mitigated. It is imperative to recognize that additional research is warranted to study this phenomenon, in order to fully understand the effect that it has on health care providers, how systemic factors contribute to the development of moral distress, and how health administration can develop and improve on supports and services available to health care providers.

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FEATURE ARTICLE

Healthcare systems within the Middle East

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ABSTRACT

Diverse health systems within the Middle East continue to experience a high degree of variability with regards to accessibility, capacity, and the quality of care provided within each individual country. This paper summarizes the unique challenges and achievements within the healthcare systems of six countries in the Middle East region. Additionally, the review aims to provide evidence for how healthcare systems in the Middle East are managed and sustained despite differences in wealth and infrastructure, as well as the presence of conflict in certain areas. Canada can play an important role in supporting these countries with unique healthcare needs, and in supporting populations arriving to Canada from these countries.

INTRODUCTION

Healthcare systems around the world are constantly evolving in order to adapt to new challenges presented by changes in the environment, disease patterns, demographics, and a myriad of other factors that may affect the delivery of healthcare services. Many factors have a direct impact on local health systems, including a country’s wealth, population size, human resource capacity, and exposure to conflict. This paper will illustrate the heterogeneity of healthcare systems across the Middle East by profiling six countries. The countries included are Oman, United Arab Emirates (UAE), Egypt, Lebanon, Palestine, and Yemen.

These countries share a similar two-tiered healthcare system structure, with both public and private streams of financing and service delivery. However, there is a great deal of variability of public and private insurance coverage within a given population, as well as the amount of cost-sharing that may be required for public health services. There is a significant range in amount of government funds allocated towards healthcare across the region. For example, Oman is considered to be at the higher end of the range, where the healthcare system is 82% government funded. Meanwhile, Yemen’s healthcare system is only 28% government funded. In terms of infrastructure and organization, health service delivery across the region varies greatly. Oman has a centralized system, whereas the remaining five countries are considered to have a decentralized service delivery organization.

As the world becomes more globalized and conflicts around the world cause vast migrations of people from one continent to the next, Canada can learn from international health systems such as those in the Middle East in order to prepare for the challenges that may arise abroad and at home. An awareness of the various vulnerabilities that can affect a citizen’s health is the first step towards building a resilient health system, and by observing others this awareness can occur much faster.

OIL WEALTH

The Persian Gulf states of the Middle East, including the relatively small populations of Oman and the UAE, acquire significant wealth from the oil industry. The wealth attained by these oil-producing countries allows them to allocate significant amounts of resources towards their healthcare systems, providing a means to further develop their physical infrastructure, healthcare training programs, and healthcare administration capabilities. Additionally, this wealth provides opportunities of forming partnerships at an international level. These conditions have allowed the UAE to strive to become a global leader in healthcare, whereby efforts to advance the current health system include improvements to information technology infrastructure and enhancing integration of services throughout the Emirates. These attributes are driving forces behind the creation of effective health systems within the Persian Gulf region, which will continue to play a role in improving the health of citizens living within this region.

Adequate Infrastructure and Social Determinants of Health

Countries with minimal financial resources and larger populations, such as Egypt and Lebanon, often have sufficient infrastructure, healthcare professionals, and other resources required to adequately support the delivery of health services in the population. Unfortunately, these healthcare systems often result in health service inequities due to the significant effects of the social determinants of health, including family income, insurance coverage, education, gender, and geographical location, which result in a wide array of negative long-term health outcomes. In Egypt, an individual’s ability to access health insurance and high-quality health services is heavily influenced by their financial status and income. Therefore, an individual who lacks financial resources will ultimately find themselves with a reduced quality of healthcare. This is the case for 55% of the population, whereby uninsured citizens must exclusively pay out-of-pocket when accessing healthcare services.

Many of these countries continue to face additional burdens on their healthcare system from the high influx of refugees fleeing from nearby conflict zones, as seen in Lebanon. An approximate 4.6 million residents live in Lebanon, including over one million Palestinian and Syrian refugees who have sought refuge from conflicts. This has led to significant instability within Lebanon, both structurally and socially, which has negatively influenced access to high quality healthcare services. With an already overstretched healthcare system, utilization of primary healthcare centers for maternal and child health-related services has increased by approximately 50% since the Syrian refugee crisis in recent years. Although there are ongoing international efforts in supporting the Syrian and Pal-
estinian refugees currently residing with Lebanon, contributions are far from being sufficient enough to provide coverage of healthcare services for all individuals residing within the country in an equitable manner.6

**WAR AND CONFLICT**

Countries that are currently involved in war or conflict experience unique and severe complications within their health system. Examples include Palestine and Yemen, although other Middle Eastern countries have also experienced similar effects since the Second World War.2 Conflicts in these countries have placed a great deal of stress on healthcare systems, affecting infrastructure, organization, financing, and human resources. For example, the civil war that has resulted in Yemen over the years has led to only 45% of the 3507 healthcare facilities within the country to be fully functional.7 Additionally, since only 28% of healthcare financing comes from government, Yemen cannot provide full health coverage to its citizens, resulting in cost-sharing and community health insurance initiatives.5 Within this region, hospitals and healthcare professions have often been the targets of conflict, thus resulting in a high degree of uncertainty regarding the safety of seeking healthcare services and their availability to citizens.8

The geopolitical context in Palestine results in limited freedom of movement and economic stability due to Israeli occupation. Such factors introduce major challenges for the maintenance of health for the Palestinian population.2 Additionally, a lack of political unity in Palestine leads to the exacerbation of inaccessibility to high-quality health care services, which already exist due to imposed territorial segregation.10 Due to years of political instability and conflict, large waves of Palestinian refugees have escaped to nearby countries. For the population that remains in Palestine, the UN Relief and Works Agency, the Ministry of Health, Hamas, NGOs, and private sector players have been responsible for administering healthcare services to Palestinians within Gaza and the West Bank regions.11

**CONCLUSION**

There are many important factors to consider when creating and maintaining a robust healthcare system within a country. The highest quality of care appears to be a direct result of sufficient finances, adequate infrastructure, exceptional governance, and social stability within the country. There will continue to be significant challenges to accessing quality care for populations throughout the Middle East as a result of politics, past and current conflicts, lack of financial resources, physical and social environments, and the negative outcomes that are derived from inaccessible medical treatments and healthcare services. These intersectional factors create unique and complex challenges to ensuring a high quality of life for residents. By addressing current issues at national and international levels, with particular focus on the governance, organization, and financing of health services, opportunities for successful interventions can be created and implemented.

In a similar manner to the Canadian context, anticipating evolving healthcare needs and appropriately planning and investing in the future of the system is vital. As stakeholders of the Canadian healthcare system, we must remain aware of the vulnerabilities that exist for incoming refugees that result due to previous exposures to war, conflict, social instability, and consequent unmet health needs. By adopting a health equity lens and working with the populations we serve, we must move towards reducing health disparities and improving overall quality of life for vulnerable individuals who arrive in Canada.

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The application of quality improvement methodologies in surgery

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ABSTRACT
Quality improvement (QI) practices were originally developed in the manufacturing industry to reduce unnecessary steps in a process, minimize error, and provide maximum benefit to the consumer. QI is defined as a formal approach to the analysis of performance and systemic efforts to improve it. QI methodologies have been adopted by industries outside manufacturing, including healthcare. In the healthcare environment, performance consists of many factors including patient safety, clinical results, and system efficiency. Given the publicly funded, limited resource environment in which the Canadian healthcare system operates, the practice of delivering safe, quality healthcare in an efficient and cost-effective manner is an important factor in promoting the economic viability and sustainability of the system. Surgical practice has been identified as an area in which QI methodologies can be applied, given its resource intensive nature and highly regulated environment. Current research supports the use of QI in surgery, with interventions showing improvements in non-operative time, on-time starts, and operating room patient volume. Limitations to the application of QI include the heterogeneity of interventions and variability in terms of procedures and patient factors. Further high-quality studies are required to support evidence-based applications of QI in the surgical setting as well as the greater healthcare environment.

INTRODUCTION
In Canada’s publicly funded single-payer healthcare system, the challenge of allocating limited healthcare dollars across a growing population with increasingly complex medical needs has healthcare leaders working to identify ways to improve system efficiency without compromising care. Increasing healthcare demands along with rising treatment and technology costs have led to growing funding concerns. The Canadian Institute for Health Information (CIHI) estimates health expenditures to reach $228 billion or $6,299 per person, representing 11% of Canada’s gross domestic product (GDP) in 2016. Hospitals make up the largest proportion of healthcare spending in Canada at 29.5%.

Funding challenges in combination with the need to provide high-quality patient care in a fixed resource environment has led to the increasing application of quality improvement (QI) methodologies from industry. In the healthcare setting, surgical practice is an area that presents opportunities for improved efficiency as it requires a regimented environment and is inherently resource intensive. Small, medium, and large-scale QI initiatives have been introduced in the surgical setting with the goals of reducing wait times, improving operating room (OR) efficiency, decreasing operative complications, limiting unnecessary costs, and minimizing hospitalization duration. The largest portion of surgical dollars is allocated to the OR, making it a high priority for QI initiatives. The purpose of this article is to provide a succinct review of QI methodologies and their application in surgery.

QUALITY IMPROVEMENT METHODOLOGIES
There are several QI methodologies adopted by healthcare from the manufacturing industry, with select examples listed below:

Continuous quality improvement (CQI) developed from statistical process control, a method of quality control using statistical methods. This management philosophy incorporates quality into processes at the outset, rather than addressing issues as they arise. CQI is used to reduce waste, increase efficiency, and boost internal and external satisfaction. Quality improvement is derived from continuously evaluating performance.

Total quality management (TQM) is a management approach to achieve consumer expectations through continuous improvement in the quality of products and processes. In TQM, everyone involved in the production or use of a product or service is responsible for quality and participates in improving processes, products and services, and workplace culture. TQM practices include consumer feedback, committed leadership, employee involvement, process management, and strategic planning.

Plan-Do-Check-Act (PDCA) or Plan-Do-Study-Act (PDSA) is an iterative process involving a four-step system to monitor the effect of a change over time. The initial “planning” step includes establishing the objectives and processes to deliver results aligned with the desired output. The second step, “do”, involves small-scale implementation of the new process. The third step, “check” or “study”, requires observing differences between the desired and observed outcome. The final step, “act”, involves analyzing the difference between expected and observed results and determining the cause of the disconnect. The process is then repeated.

Lean methods (“lean”) originated in the Japanese automotive manufacturing sector in 1990 with the Toyota production system. Lean aims to eliminate waste in a system by removing unnecessary steps in a process pathway while preserving steps that maximize value to the consumer. Other lean principles include reducing the time and resources required to generate results for the consumer and improving the system’s ability to respond to the changing
Six sigma was developed in 1986 by the Motorola Corporation and aims to eliminate defects in a system by reducing process variation through identifying and correcting the causes of errors. The methodology requires constant data collection and statistical analysis. The ultimate goal is to operate at a six sigma level, 3.4 defects per million opportunities (DPMO).1,3,8

Lean six sigma was created in the early 2000s and combines the waste elimination principle of lean management methods with the defect reduction focus of six sigma. The two methodologies are combined in the DMAIC (Define, Measure, Analyse, Improve, Control) toolkit.9

QUALITY IMPROVEMENT IN SURGERY

There are a variety of QI interventions that have been applied to the surgical setting. Depending on the scale of the initiative, the degree of human capital and hospital resource requirements vary. Small-scale interventions can be employed relatively quickly and require limited human capital.7 An example of a small-scale project is standardization of operating instruments, which has been shown to reduce set up time, counting time, turnover time, and operative costs. Medium-scale interventions require buy-in from a larger group of people, one example being an entire OR floor or group of practitioners. The concept of teaming, where surgeons work with fixed teams on similar procedures, can reduce OR time. Cases run more efficiently as teams have increased familiarity with instruments and surgeon preferences, as well as an increased ability to anticipate needs. An example of a large-scale intervention was studied at Massachusetts General hospital where an “OR of the Future (ORF)” was created to investigate physical space redesign on efficiency. In this study, induction and recovery rooms were adjoined to improve patient flow and patient beds doubled as gurneys, reducing patient transfers and improving throughput. The ultimate result of the ORF was increased capacity to perform two additional procedures daily.9 Lean processes and six sigma strategies, which aim to reduce waste and eliminate defects in a system, respectively, are two of the most recognized QI methodologies in the manufacturing industry and have been applied to large healthcare initiatives with positive results.

In 2013, the Veteran’s Health Administration (VHA) designed several pilot projects in collaboration with lean experts with the goal of decreasing wait times, improving access to care, and increasing scheduling efficiency though the implementation of lean processes.7 The Richard L. Roudebush Veterans Affairs Medical Center is a tertiary centre in Indianapolis that focused specifically on reducing surgical wait times within the general surgery service. Initial steps involved the meeting of a multidisciplinary group including surgeons, nurses, OR staff, administrators, and lean experts to identify and map out a value stream that included current inefficiencies, delays, and communication breakdowns. The team then created an idealized value stream and developed strategies to achieve this future state with the goal of improving access and reducing wait times. Specific areas targeted included standardizing work across surgical subspecialties, restructuring consultation methods, and improving interdepartmental communications. Results of the study demonstrated increases in patient volume both in general surgery clinic and in the OR.

Lean and six sigma strategies were also used during a 2008 initiative undertaken at the Mayo Clinic to enhance operating room efficiency.6 A global assessment of patient flow from the initial surgical consult to post-operative recovery was conducted. The initial step in this process was to create a value stream map of patient flow that detailed location, personnel involved, information technology requirements, and bottlenecks. Objectives were then identified by a multidisciplinary team and included reducing non-operative OR time, decreasing over and underuse of OR resources, reducing the redundant collection of patient information, and enhancing employee engagement. Strategies such as parallel processing to decrease non-operative OR time and working with information technology programmers to develop standardized data collection and terminology across electronic applications were employed. One of the largest barriers to the success of QI initiatives was employee engagement. This barrier was addressed by the creation of a multidisciplinary communication council that acted to resolve differences between various stakeholder groups and establish clear expectations for specific roles. Results from this project included improvements in non-operative time, improvements in on-time starts, and reductions in the number of cases past scheduled OR time.6

LIMITATIONS

There are several challenges in applying QI methodologies in surgery. The range of patient problems, procedures, and unexpected events make it difficult to apply QI initiatives that rely on minimizing variability. There can also be difficulty in conducting research into QI. The Hawthorne effect is a process where individuals modify their behavior due to their awareness of being observed. As applied to QI initiatives, the Hawthorne effect can result in increased productivity during the observation period that dissipates after the observation period is over, making it difficult to discern the true effects of the proposed intervention.5,6

Given the research conducted in the field thus far, there appears to be a role for QI in surgery. Although there are examples in the literature of successful QI initiatives in surgical practice, high quality studies are required to support evidence-based management for specific indications as current studies and interventions are heterogeneous and difficult to apply broadly.

CONCLUSION

Reducing system inefficiencies in the surgical setting is necessary in a publicly funded healthcare system with limited resources. Hospitals comprise the largest proportion of health care expenditures in Canada2 and OR activities tend to be the most resource intensive, thereby making it an attractive target for QI applications.
Given the economic climate both nationally and internationally, QI methodologies in surgery constitute an emerging practice that should be considered at all levels of healthcare organizations, as they contribute to the financial viability and sustainability of the Canadian healthcare system for future generations.

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Why can’t patients last the wait?
Decreasing substance abuse treatment waiting list attrition

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ABSTRACT
One million people in North America are currently waiting for publicly funded substance use treatment. Unfortunately, long waiting times have been listed as the number one reason for not seeking treatment for substance use problems. While it is possible that successful abstinence during the waiting period convinces patients that they do not need treatment at all, more emphasis must be placed on interventions that can bridge the gap between initial contact by patients for substance use treatment and treatment intake. Recommendations in this review include: (1) decreasing the length of time between a patient's initial contact for treatment and the pre-intake interview, (2) initiating regular phone contact with patients, and (3) decreasing resentful demoralization in patients who are ready for change but who are forced to wait for treatment.

INTRODUCTION
Treatment for substance use problems is critical for reducing and preventing drug-related harms. However, in North America waiting lists for substance use treatment experience a 50% attrition rate. Kaplan and Johri (2000) found that the average tolerance for waiting for treatment is one month, and that 40% of substance users will drop from a waiting list within the first two weeks of being on one. According to the Center for Substance Abuse Treatment approximately one million people are waiting for publicly funded treatment. Longer waiting times are consistently associated with a lower likelihood of treatment entry and are indicated as the number one deterrent from seeking treatment. In a 2009 study with 120 heroin users seeking methadone treatment, only 20.8% of those placed on a waiting list entered treatment four months later. The patients indicated that the idea: “I will have to be on a waiting list for treatment” was their greatest barrier to treatment entry. Similarly, the most frequently stated reason for not seeking help is the expectation of a long waiting time. Patients seeking substance use treatment also experience high psychosocial distress while on waiting lists.

Whether attrition occurs because of demographic, socio-economic, social support, substance related or mental health predictors, discovering how to prevent waiting list attrition could aid treatment facilities to designate treatment sooner and more efficiently. Some researchers argue that demographic factors can predict waiting list attrition. Socio-economic and social environment factors have also been considered as predictors for waiting list attrition. Substance related predictors such as: abstinence, harm reduction, past treatment, history of overdose, readiness for change and drug of choice have also been examined alongside mental health status, the number of suicide attempts, mental health diagnoses and past treatments attempts. Unfortunately, there remains no conclusive answers regarding who is the most at risk for substance use waiting list attrition and much of the current data conflicts. Therefore, current approaches should emphasize methods that can be used to decrease substance abuse treatment waiting list attrition in general, as opposed to identifying those most at risk.

WHY PATIENCE IS NOT ENOUGH
Various theories have been proposed to explain why patients disappear from waiting lists at such high rates. Redko, Rapp and Carlson (2006) hypothesize that the request for abstinence during the waiting period convinces patients that their successful abstinence is a sign that they do not require treatment at all. The researchers also suggest that the longer a waiting time becomes, the more opportunities patients have for other life events to arise that interfere with treatment entry. These authors further argue that if self-help groups are implemented during the waiting period, then patients show a decreased rate of attrition. Housing assistance, case management, regular phone contact, motivational interviewing and parental involvement for youth cases all decrease waiting list attrition. In contrast, research also suggests that too many demands or requirements of patients during the waiting period is a deterrent for waiting. In a pre-treatment survey, 16% of patients indicated that “I will have to go through too many steps to get into treatment” was a large barrier to entering treatment, along with the fact that they would have to be on a waiting list in the first place (34.3%). An inability to access substance use treatment is commonly associated with increased substance use.

RECOMMENDATIONS FOR BRIDGING THE GAP

Schedule Pre-Intake Interviews Immediately
Scheduling pre-intake appointment interviews immediately when new patients request them could have a profound influence on patient success. Patients are 33% less likely to arrive for intake appointments scheduled only 24 hours after an initial phone call requesting one. Therefore, these appointments must happen immediately to ensure patients make it into treatment. Albrecht, Lindsay and Treplan (2011) suggest that the length of time between placing a call to a treatment facility and the scheduled pre-intake interview is a significant predictor of pre-intake dropout. Initial appointments must be made as soon as patients seek them. When
patients are ready for change they need to be validated and assisted immediately. Research shows that if a patient indicates they are ready for change and are told they will be on a waiting list, the effect is detrimental.

**Initiate Weekly Phone Contact**

Patients on a waiting list must receive weekly phone calls from the treatment facility and must not be responsible for maintaining contact. When patients are called by the facility every week, they are 30-40% more likely to enter treatment when compared to situations where the patient is responsible for maintaining contact. In a study of 654 patients waiting for publicly funded drug treatment in Washington, D.C., 70% of patients successfully entered treatment when they were regularly contacted by telephone. Donohue suggests that reminder phone calls 2-3 days prior to patient’s first appointment also produce 30-40% higher attendance rates when compared with patients who did not receive reminder phone calls.

**Prevent Resentful Demoralization**

Patients must be treated as though their treatment has started even when they are on a waiting list. Evidence shows that patients who are ready for treatment and are placed on a waiting list use an average of 6 more drinks per week. Participants in a *Check Your Drinking* online intervention were asked to monitor and record their alcohol consumption habits. Two groups of alcoholics participated in this study, and for one group the mere act of being told they were on a waiting list while completing the online intervention caused them to drink an average of 6 more drinks per week, despite both groups being provided identical online interventions. The researchers termed this phenomenon “Resentful Demoralization”. It has profound implications for their treatment success. It also has implications for the language health care providers use with patients who are on waiting lists for treatment.

**CONCLUSION**

Preventing waiting list attrition is an important step in reducing and preventing substance-related harms. Recent research from Israel shows that there is significant threat to patients’ lives while they are on waiting lists. Of 608 patients seeking opiate treatment, only 60.2% were admitted to treatment. Of the 242 individuals remaining on a waiting list after two years, 24 died. The mortality rate was 10 times higher for non-treated addicts compared to those who were admitted to methadone maintenance treatment. For those patients who were not admitted to treatment, 47.9% were unable to be contacted, 18.2% reported newfound abstinence, 0.04% were rejected for violent behaviour and 5.4% of the patients on the waiting list died. This highlights the need for easily accessible, publicly funded substance use treatment. Therefore, a goal must be determining how to decrease substance use waiting list attrition. Scheduling pre-intake interviews immediately, initiating weekly phone contact and preventing resentful demoralization are excellent steps forward in the prevention of waiting list attrition.

**REFERENCES**

Vicarious trauma and secondary traumatic stress in health care professionals

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ABSTRACT

Three-quarters of Canadians are exposed to a traumatic event sufficient to cause psychological trauma in their lifetime. In fact, post-traumatic stress disorder is a global health issue with a prevalence as high as 37%. Health care professionals trained to provide mental health treatment for these individuals are at risk of developing vicarious trauma and secondary traumatic stress, both of which result in adverse symptoms for the health care provider that often mimic post-traumatic stress disorder (PTSD). Vicarious trauma develops over time as the clinician is continually exposed to their clients' traumatic experiences, while clinicians experiencing secondary traumatic stress begin to experience the symptoms of PTSD due to secondary exposure of the traumatic event. Both vicarious trauma and secondary traumatic stress cause mental, physical, and emotional issues for health care professionals that include burnout and decreased self-worth. Health care systems and administration should aim to develop training and professional education for health care providers. This review will emphasize what factors lead to the development of vicarious trauma and secondary traumatic stress, and what aids or supports can be implemented to treat the symptoms. The implications for policy development and training will be discussed.

Based on current statistics, 1 in 5 Canadians will experience a mental health or addiction problem in their lifetime, and 50% of individuals over 40 years of age will experience some form of mental illness. Mental illness is one of the leading causes of disability in Canada. There are a variety of health care professionals trained to provide mental health treatment to patients who seek it; however, these health care professionals may be vicariously affected by their clients while providing care. This paper will discuss the concepts of vicarious trauma (VT) and secondary traumatic stress (STS) in health care providers, what factors lead to the development of VT and STS, and what aids or supports can be implemented to assist individuals affected by VT and STS.

Vicarious trauma refers to negative changes that can occur in a health care provider that specifically alter their beliefs regarding themselves, others, and their worldview. VT results from exposure to individuals who have undergone traumatic experiences. The concept of VT was developed using constructivist theories which posit that learning is a constructive process where people actively construct their own subjective representations of subjective reality. Clinicians can experience VT when exposed to their patients' traumatic experiences which triggers negative beliefs about safety, power, independence, esteem, and intimacy. VT can also lead to “decreased motivation, efficacy and empathy”. Typically, VT develops over time as an individual is continually exposed to their clients' experiences, and often manifests mentally while presenting as symptoms that align with post-traumatic stress disorder (PTSD).

Secondary traumatic stress, often referred to incorrectly as “compassion fatigue”, describes a set of symptoms similar to those of PTSD, such as “exhaustion, hypervigilance, avoidance, and numbering”. STS can occur in health care professionals, family members, friends, and caregivers of individuals who have experienced traumatic events, and who often have post-traumatic stress themselves. Individuals experiencing STS do not experience the traumatic events first-hand; instead, due to secondary exposure of the traumatic event, they begin to experience the symptoms of PTSD.

Vicarious trauma and secondary traumatic stress have many similarities and while the two terms are meant to describe different experiences, they are often used interchangeably to represent the same phenomenon. However, VT and STS represent two distinct experiences and they apply to different populations. STS can be experienced by multiple sets of individuals, while vicarious trauma applies only to those individuals in direct care positions, such as first responders, health care providers, and social workers. STS and VT can be clearly differentiated by examining the length of manifestation of these two disorders. STS typically manifests for a shorter period of time compared to VT. For example, STS can occur in an emergency response worker or response team, who has a limited exposure time to the individual experiencing trauma, which differs from the development of VT and “the experience of a psychotherapist bearing witness to years of sexual abuse”.

Individuals who provide care or treatment for trauma-related incidents are at a significantly higher risk for the development of STS and VT, since the symptoms of these disorders present themselves after “exposure to traumatic experiences described by their clients”. There are risk factors specific to the development of VT and STS. Previous studies have reported that an individual's personal history of trauma is directly linked to the development of VT. Additionally, the amount of time spent with patients or clients who have experienced trauma, and the proportion of trauma cases that a health care provider treats, are predictors for the development of VT. Personal trauma history and the quantity of exposures to different patients and their traumatic experiences are significantly linked to the development of STS. Health care providers treat-
ing PTSD with cognitive therapies are at greater risk for VT and STS because many psychological treatment methods require patients to provide a detailed account of their traumatic experience. By providing therapy for individuals that can manage symptoms of their PTSD, the health care provider is at a greater risk of developing STS themselves.

Both secondary traumatic stress and vicarious trauma manifest in particular ways. In a study conducted by Baird & Kracen (2006), it was found that VT “is associated with disruptions to schemas” in five areas: (1) safety, (2) trust, (3) esteem, (4) intimacy, and (5) control, each of which represent a crucial “psychological need”. Schemas represent patterns of thought that organize categories of information. VT negatively affects these five important schemas, and can create a health care provider’s perception that there is a lack of safety in their own world. In contrast, STS often manifests physically as “exhaustion, hypervigilance, avoidance, and numbing” and is specifically associated with PTSD.

VT and STS can be mediated or prevented in multiple ways. Health care systems and administration can aim to develop training and professional education for VT and STS in health care providers, and seek to evaluate existing programs for efficacy and areas of improvement. Specifically, health care professionals need resources and improved clinical training, with additional resources and treatment availability for individuals who have been affected by VT or STS. Health administrators should take actions to decrease health care provider’s caseloads, increase leave time for health care professionals, increase supervision and staff support, and increase the development and provision of additional mental health resources. Health care providers should ensure that they are cognizant of the symptoms of VT and STS and that they are participating in their own self-care, maintaining their personal and professional obligations and activities, and reflecting on any cognitive or physical changes they may experience.

VT and STS pose many mental, physical, and emotional problems for health care professionals, including burnout, decreased self-worth and low morale. This can lead to higher staff turnover, as well as decreased productivity amongst health care professionals. Nevertheless, recent research suggests that in a small number of cases, health care providers affected by VT and STS may develop vicarious resilience in the form of strength, growth, and empowerment arising from an optimism for hope and change. This idea has implications for policy development and health care practices that encourage health care providers to share both positive and negative work experiences as part of the prevention and treatment of VT and STS.

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Parsing Anhedonia: A reverse-translational strategy for treatment of anhedonia in clinical populations and potential implications of conditioned motivators

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ABSTRACT
Anhedonia is defined as reduced interest or pleasure in activities previously considered enjoyable and is a cardinal symptom of many neuropsychiatric disorders including major depression, schizophrenia and substance dependence. Pleasurable experiences involve a variety of psychobiological components including learning, memory and motivation that influence engagement with rewarding events and can therefore impact affective responding. Despite the capacity to dissociate these processes in humans and nonhuman animals, contemporary preclinical animal models of anhedonia emphasize responses to immediately pleasurable stimuli including palatable food and drugs of abuse. This limits translatability to the clinic as human patients exhibiting anhedonia largely display normalized responsiveness to pleasurable stimuli and instead show deficits in responding for associative cues. Conditioned motivators can serve to bridge the gap between clinical and preclinical knowledge, as they can be dissociated into each independent component process associated with anhedonia. Following several distinct temporally-contingent associations with reward, neutral stimuli acquire meaning and become conditioned motivators, which can be uniquely manipulated to parse several component processes within a variety of tasks. Thus, the properties of conditioned motivators in anhedonia and the neural substrates underlying them will be critical in translating knowledge about these independent neuropsychiatric processes to the clinic. This review emphasizes the utilization of ‘reverse-translation’, integrating patient-based findings with preclinical animal models to experimentally parse component processes of anhedonia and develop holistic experimental models to measure it. Dissociating the independent, measurable component processes of anhedonia is critical for accurate representation in preclinical animal models and for acceleration of treatment strategies to the clinic.

INTRODUCTION
Healthcare systems have naturally relied on preclinical animal models to reveal potential indications of etiology and diagnosis, foster drug discovery, and guide treatment regimens in clinical populations. The term ‘translational research’ has been devised to describe this approach of exporting basic research findings into clinical practice.12 Although experimental animal models are indispensable in terms of informing future medical practice, clinical discoveries are evidently shaping the aims and directions of preclinical neuropsychiatric research.13,14 Indeed, evolving diagnostic criteria and insights into the nature of clinical phenomena continue to refine our understanding of psychiatric illness.4 This method of drawing on patient-based findings to develop assays that measure the fundamental characteristics of clinically relevant symptoms in preclinical animal models is known as ‘reverse-translational research’.5–6

Anhedonia presents as a fundamental symptom in many psychiatric disorders including major depression, substance dependence and schizophrenia, among others which affect significant portions of the population worldwide.6–9 Despite its prevalence, there has been limited success in developing novel treatments for anhedonia.9 One major reason for this dearth may be the lack of precision in preclinical animal models of anhedonia, the majority of which emphasize hedonic responses to primary reinforcers (rewards) such as palatable food, drugs of abuse, sex, and sociability.10,11 However, evidence suggests that human patients exhibiting anhedonia frequently display normal subjective reports of ‘liking’ for primary rewards.10,11 Rather, deficits in hedonic responding can be better characterized by responses to conditioned stimuli which have become associated with primary reinforcers through numerous contingent pairings, such as contextual or associative cues that signal reward.14–16 An example of a response engendered by a conditioned motivator would be that of an alcohol addict to the sight or presence of a beer bottle.

The following review emphasizes ‘reverse-translational’ strategies, integrating patient-based findings with preclinical models to experimentally parse component processes of anhedonia (see Figure 1) and develop holistic experimental models to measure it. Shortfalls from insufficient models are addressed and some existing examples of this strategy are highlighted including models that have provided insight into neurobiological mechanisms underlying anhedonia. Parsing anhedonia into its independent, measurable component processes is critical for accurate representation in preclinical animal models and for accelerating treatment strategies to clinical populations.

DISSOCIATING COMPONENT PROCESSES OF ANHEDONIA
Exposure to rewarding stimuli stimulates memory consolidation and increases the prospect that behaviours that lead to reward will be performed in the future.19 Rewarding stimuli can be categorized as 1) primary rewards that are instinctively and consciously...
pleasurable, including sexual intercourse, food, and drugs of abuse; and 2) secondary rewards—neutral stimuli that gain emotional value as they become reliable predictors or ‘cues’ of primary rewards through multiple contingent pairings.20,21 Despite pervasive assessment of primary rewards in preclinical animal models of anhedonia, responses to associative secondary rewards that require cognitive appraisal and specific learned behavioural responses may more accurately reflect the complexity of the human condition in ways that primary reward assays are not capable of capturing due to the nature of component processes underlying anhedonia.14,36,22

Despite more than a century since anhedonia was originally defined as an “inability to feel pleasure”23 and the proposal of copious preclinical animal models to characterize it,11,32 therapeutic interventions remain only partially effective.19 This may be due to discrepancies between clinical anhedonia and representations of anhedonic-like phenotypes in preclinical animal models.12,24,26 Indeed, anhedonic patients often display normal affective facial reactions and subjective pleasure ratings relative to healthy controls.13,14 However, rodent models that induce anhedonic-like effects reliably observe deficits in sucrose consumption and drug intake suggesting that primary reward measures are not ideal for research into translational anhedonia. Furthermore, these deficits are consistently reversible by administration of common antidepressant medications.11,13 which is paradoxical because as few as 30% of depressed patients with anhedonic features respond successfully to antidepressant drug regimens and treatment rates for substance abuse and schizophrenia are much lower.10,25

Alternatively, blunted behavioural and neural responsivity are consistently observed in anhedonic individuals when assessed in tasks measuring anticipation and attentional capacity for cues that predict reward.10-13,26,27 Preclinical models measuring behavioural and neurophysiological responses to associative cues have demonstrated similar distinctions between primary and secondary rewards and further identified brain areas regulating behavioural abnormalities characteristic of anhedonia such as the basal ganglia and various mesolimbic structures.28-29 Interestingly, anhedonia often presents comorbidly with substance abuse, obesity and obsessive-compulsive disorders which share the common feature of increased incentive salience towards cues associated with reward.22,30,31 Thus, it is evident that widely used contemporary preclinical animal models do not accurately portray the intricacies associated with anhedonia in clinical populations.

Indeed, recent clinical evidence implicates multiple features of reward processing in anhedonia.16-19 These features can be parsed into multiple distinct component processes including affect,7,32 learning and memory,12,23 motivation18,23,34 and psychomotor factors35,36 that are each characterized by diverse neuropsychological mechanisms (Figure 1). Thus, deficits in responding for primary rewards may be attributed to dysfunction in any of these components and not necessarily affect. Although these processes can be experimentally dissociated in humans and nonhuman animals,22,27,38 preclinical models of anhedonia routinely only measure affective responses to primary rewards such as consumption of palatable food or self-administration of drugs of abuse.31,32,34 Nevertheless, complex associative-learning and approach-based (psychomotor activating, motivational) criteria are often implicit in tasks measuring affective ‘liking’ as subjects must learn correct behaviours that lead to reward. Similarly, behaviours may be misinterpreted due to ubiquitous, but often overlooked facets of reward anticipation and expectancy.11,32 These factors can be accounted for by implementing conditioned motivators in preclinical models. Conditioned motivators are the product of emotionally relevant learned associations that evoke approach-based and anticipatory behaviours and are importantly involved in each component process of anhedonia.40-42 Thus, they represent a possible mediator for these theoretically independent mechanisms and an avenue for preclinical exploration.

**Figure 1.** Distinct component processes of anhedonia, their associated discrete neuropsychological mechanisms and possible behavioural measures for each.

**ROLE OF CONDITIONED MOTIVATORS IN COMPONENT PROCESSES OF ANHEDONIA**

Conditioned motivators are emotionally relevant associative stimuli that acquire meaningfulness from a previously neutral state because over multiple contingent pairings they come to reliably predict the presence or onset of pleasurable events.40,41 This transition involves affect, learned associations, as well as psychomotor and motivational components.40-42 In this way, conditioned motivators are inherently pleasurable, enhance memory consolidation and induce approach responses just as primary rewards do through increases in corticolimbic dopamine release.20,26,44-46 Consequently, conditioned motivators encompass the full spectrum of component processes pertinent to anhedonia, can be utilized in many available measures of reward processing and thus possess great translational potential.

Preclinical models of anhedonia demonstrate remarkable translatability when they use conditioned motivators in tasks that model symptomatology of human patients. For example, temporal and probabilistic reward tasks including fixed ratio or variable interval schedules of self-administration allocate ambiguity to associative cues by only occasionally reinforcing correct behavioural...
responses and can thus more appropriately distinguish changes in component processes as multiple domains of cognition and affect are involved.44–47 Additionally, responses for conditioned motivators in these tasks may more accurately reveal behavioural abnormalities of anhedonia due to the complex nature of learned associations between stimuli.14,16,22

Tests of conditioned approach including conditioned place preference and self-administration can similarly dissect many of the component processes underlying anhedonia using models of Pavlovian or instrumental conditioning.45–48 Using alcohol self-administration as a model, the drug can be deposited into a dish following successful responding and require additional approach responses to obtain the primary reward.49 Alternatively, alcohol can be directly infused intra-orally to dissociate flexible approach from uncompromising consummatory responses,50,51 or intracranially to reveal underlying neural circuitry or genetic changes associated with these responses. Moreover, cues such as a light or tone that predict reward availability can be integrated to further dissociate complex actions of conditioned motivators in anhedonia.45 As tasks assessing the multifaceted nature of anhedonia are more likely to translate findings to successful clinical treatments,14,16,22 and because conditioned motivators effectively comprise each component process of anhedonia, they represent primary importance in future preclinical and clinical research into the mechanisms underlying rewarded behaviour.

These similarities between conditioned motivators and primary rewards may underlie contradictory findings between preclinical animal models of anhedonia.51 For decades, the neurotransmitter dopamine was speculated to be involved in anhedonia exclusively through the processing of primary rewards.25,36,51 However, the function of dopamine has since been clarified to more accurately characterize its involvement in motivational, anticipatory and psychomotor aspects of reward processing.25,36,38,40,41,51,54 This has led to changes in the measurement of reward-related events, altered the scope of research into component processes of anhedonia and may help to more clearly interpret results across various preclinical laboratories.14,51,52

Accordingly, assessment of the properties of conditioned motivators in existing preclinical animal models of anhedonia will enhance the likelihood that convergent evidence proceeds efficiently to clinical treatment applications. Neuropsychological facets of learning and motivation must be integrated with affective measures to develop a more holistic view of anhedonia.

CONCLUSION

Translational strategies utilizing preclinical animal models are indispensable in realizing fundamental knowledge relative to neuropsychiatric care. Nevertheless, reverse-translational approaches are providing useful guidance to preclinical models, informing an increasingly comprehensive understanding of anhedonia and its dissociable component processes. Anhedonia can be parsed into multiple categories that conditioned motivators may fully encompass, and experiments exploiting subtle differences in responding for primary rewards vs. conditioned motivators may engender results directly relevant to complexities associated with the human condition. These conditioned motivators can be uniquely manipulated to parse several component processes within a variety of preclinical assays and thus will be crucial in effectively relaying knowledge between preclinical and clinical researchers in the future.

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Wait times for psychiatric care in Ontario

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ABSTRACT
Mental illness is a prevalent and costly health care issue. Lengthy wait times for psychiatric services in Ontario are a barrier to adequate mental health care for adults, children and youth. The objective of this paper is to highlight the current state of psychiatric wait times in Ontario by looking at provincial policies and comparing data to physical health services, as well as between provinces and other developed nations. The Ontario government has successfully implemented mandatory reporting of wait-time data for many medical and surgical services. However, such policies have yet to be implemented for psychiatric services. As a result, availability of current data for comparison is limited. Nova Scotia is currently the only province to government mandate reporting of wait times for mental health. Furthermore, The Organisation for Economic Co-operation and Development ranks Canada below average on measures related to accessibility of psychiatric inpatient services compared to other developed nations. While Ontario has implemented new initiatives to address the issue of timely mental health care, there is still insufficient evidence to determine if they are effective. Continued advocacy for mandatory wait-time reporting at the provincial level and further analysis of current initiatives worldwide are essential steps toward reducing wait times.

BACKGROUND
The impact of mental illness in Canada is staggering. While mood disorders, such as depression, and anxiety are the most prevalent psychiatric illnesses, other disorders such as bipolar disorder, psychotic disorders and substance abuse are some of the many conditions that lead to personal distress and functional impairment. One in five people in Canada will experience a mental health issue in their lifetime. Mental illness cost the Canadian health care system a conservatively estimated $48.6 billion in 2011. Based on the current trajectory, a cumulative cost exceeding $2.3 trillion is projected over the next 30 years. A significant portion of this cost includes productivity and work loss due to mental illness. Timely access to psychiatric services can therefore contribute to better economic and patient-related outcomes.

Wait-time monitoring is the responsibility of provincial governments. The province of Ontario has been successful in reducing wait times for many priority medical services, in part by implementing mandatory wait-time reporting standards. This paper aims to outline the current state of wait-time reporting in Ontario and highlight disparities between physical and psychiatric conditions. The literature suggests early mental illness intervention is an important factor associated with improved outcomes. Such outcomes can vary from increasing the number of opportunities for effective treatment in people experiencing mental illness to reducing the number of relapses and rehospitalizations for patients receiving first-time treatment for psychosis.

CURRENT POLICY
Government mandated legislation for the creation of benchmark targets, mandatory tracking, and reporting of wait times in psychiatry do not currently exist in Ontario. Meanwhile, wait-time targets have been in place for key health services including cardiac procedures, joint replacements, and numerous surgeries since 2005 when Ontario launched a wait-time strategy. The strategy called for mandatory tracking, reporting and publishing of wait-time data in a publicly accessible domain. Evidence-based benchmarks were created for target wait times in each of these areas. Shortly thereafter, similar strategies were employed by other provinces and data transparency allowed provincial providers and policy makers to compare and learn from one another. This has led to significant alterations in federal funding and consequently, the 2017 Ontario budget estimates that since 2005, approximately 322 million days of waiting have been saved for patients.

The only widely accepted benchmark data available for psychiatric wait times in Canada dates back to 2006 when the Canadian Psychiatric Association (CPA) and Wait Time Alliance developed target timelines based on analysis of clinical evidence (Table 1).

<table>
<thead>
<tr>
<th>CLASS</th>
<th>TIME TARGETS</th>
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<tbody>
<tr>
<td>Emergent</td>
<td>within 24 hours for first episode psychosis, mania, major depression, and postpartum mood disorders</td>
</tr>
<tr>
<td>Urgent</td>
<td>within 1 week for first episode psychosis, mania and postpartum mood disorders and 2 weeks for major depression</td>
</tr>
<tr>
<td>Scheduled</td>
<td>within 2 weeks for first episode psychosis and 4 weeks for postpartum mood disorders and major depression</td>
</tr>
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*immediate danger to life
* unstable situation with potential for deterioration
* situation involving minimal pain

Table 1. Wait time benchmarks for psychiatric illness
Some data regarding psychiatric wait times in Canada is available from the Fraser Institute, an independent research foundation. Waiting Your Turn is an annual report summarizing medical wait times for the fiscal year obtained by surveying physicians across specialties. In 2016, the overall response rate to the psychiatric survey was only 7.2% (compared to 21% for medical and surgical specialties). While this information may be useful for drawing rough comparisons; results must be interpreted with caution. Above all, the low response rate emphasizes the need for mandatory wait-time reporting.

PHYSICAL AND PSYCHIATRIC CONDITIONS

During the five years following the launch of Ontario's wait-time strategy, healthcare saw major improvements for cataract surgery (61% reduction), hip replacements (53% reduction), coronary angiography (51% reduction) and cancer surgery (22% reduction). As of September 2016, Ontario scored above average on reaching wait-time targets compared to countrywide averages for many of these procedures. For example, 85% of hip replacements and 81% of knee replacements occurred within their respective timeframes in Ontario compared to national averages of 79% and 73%, respectively.

The best available estimates currently suggest wait-time averages for various psychiatric services generally fall outside of the recommended CPA timeframes. For example, the average wait for adult mental health counselling and treatment services is 45 days. For adult mood disorders, the average wait for outpatient services is 57 days and inpatient services is 47 days, well beyond the suggested 28 day standard. Children and youth populations wait even longer. A recent survey conducted by Children's Mental Health Ontario looked at wait times for patients age 6-18 in need of long-term counselling and intensive therapy. Across the province, wait times vary from 3 months up to 1.5 years.

Furthermore, a recent study in Ontario reported only 63% of people who had been hospitalized for depression received a follow-up visit with a physician within 30 days after discharge, compared to 99% of people with heart failure. In those same 30 days, 25% of depressed patients either revisited the emergency department or were rehospitalized.

Moreover, wait-time data for specific mental illnesses, such as eating disorder services, are of limited use without predetermined benchmarks. For example, there is currently an estimated 71 day wait for adult inpatient treatment and 34 day wait for outpatient counselling and treatment for eating disorders in Ontario. It is difficult to determine the consequences of such values and provide recommendations for improvement without adequate targets.

COMPARING PROVINCES

The only province in Canada that government mandates wait-time reporting in any capacity for mental health services is Nova Scotia. Beginning in 2014, wait times are measured as the time between receipt of an elective patient referral to a community-based mental health service and the date of the first appointment. Bearing in mind the 28-day CPA standard, data from 2016 demonstrated that 50% of adults were seen within 33-42 days and 90% were seen within 97-106 days. Again, young people waited longer than adults as 50% of children were seen within 36-61 days and 90% within 109-127 days.

Open Minds, Healthy Minds: Ontario's Comprehensive Mental Health and Addictions Strategy is a multidisciplinary strategy that was launched in 2011 to improve mental health services for Ontarians. The plan specifies an approach for improving care by expanding mental health facilities, training healthcare workers, and targeting efforts in specific demographics, including children and Indigenous communities. Similar initiatives also exist in other provinces. However, until updated target wait times are established, data will continue to be insufficient to properly evaluate the success of such programs.

COMPARING COUNTRIES

According to data from the Organisation for Economic Co-operation and Development (OECD), Canada falls below average among developed countries with respect to access to inpatient psychiatric services. A 2011 report on number of psychiatric beds per 1000 population ranks Canada 27 out of 34 among OECD countries. Several European countries including the Netherlands, Germany, and the Czech Republic rank near the top. Australia and England also rank higher than Canada, although they too fall below the average.

Unfortunately, information regarding wait times for psychiatric care among OECD countries is not available. A 2014 report, Measuring and Comparing Health Care Waiting Times in OECD Countries, details numerous wait-time trends including joint replacements, cataract surgeries and multiple modes of medical imaging. However, there is no mention of psychiatric services in the report.

Like Ontario and other Canadian provinces, many nations are implementing unique strategies to improve timely access to mental health care. One example is England. The National Health Society and Department of Health put forth “Improving access to mental health services by 2020”, a publication aiming to ensure mental and physical health services are given equal priority in terms of timely access to care. The strategy provides guidance as to how new standards for mental health wait-time reporting can be implemented and is well underway. Currently, wait-time information for treatment of first episode psychosis and eating disorders is already available to the public. England’s approach uses clear goal setting and effectiveness tracking to achieve measurable improvements in quality and access to psychiatric care. Information regarding outcomes of this strategy as it becomes available may be beneficial for use by other countries, including Canada.

SUMMARY

Poor outcomes are associated with delayed treatment for psychiatric illnesses. The importance of addressing the issue of long wait times for mental health care in Canada is becoming increasingly apparent. The Ontario government has yet to mandate provi-
sional reporting of wait-time data despite significant success in this area for numerous medical and surgical services. Improving access to mental health care is a challenge for all Canadians; the importance of collaboration at all levels cannot be overstated.

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Medical smartphone applications
A new and innovative way to manage health conditions from the palm of your hand

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ABSTRACT

Smartphones have a variety of unique features including text-message communication, camera, sensors, and health applications (apps), which can be used to assist in monitoring an individual's health, diet, and exercise, as well as support goal-focused strategies personalized to user needs. Mental health and diabetes management apps are two prominent examples that have been shown to be effective in improving specific health outcomes. Mental health apps provide day-to-day patient care by teaching users how to reduce stress, focusing on strategies to enhance mental well-being. Apps such as Kokoro, Headspace, and PRISM have been demonstrated to reduce symptoms of depression and anxiety, and psycho-education apps have been demonstrated to reduce symptoms and to enhance concentration during specific tasks. Many diabetes apps are accessible by patients and physicians, and include tracking features for nutrition, fitness, and hemoglobin A1c levels. Specialized apps with text-messaging services and personalized support have been associated with improvements in blood pressure and blood glucose control. Social forums also provide patients privacy and the freedom to discuss their conditions with comfort. Health apps are easily accessible and available at low or no cost, and can be an effective tool for educating patients with chronic disease, supporting collaborative self-management, extending the impact of healthcare providers, and include response anonymity. There remain significant challenges including the protection of private health information and the development of regulatory frameworks to evaluate app quality, effectiveness, and absence of harm. Overall, the implementation of smartphone apps in healthcare systems may decrease demand in clinics, reduce healthcare costs, and lead to an improvement in patient health.

INTRODUCTION

Over one billion smartphones have been shipped worldwide to date and are expected to continuously increase in number.1 Since the introduction of smartphones, there has been continuous innovation allowing users to access a variety of functions, such as mobile health (mHealth) applications (apps) that provide consumers with disease information and monitor an individual's health, diet, and exercise. Smartphones have many features (camera, CPU, sensors, etc.) that work concordantly with various apps to attain goal-focused strategies that are personalized to a user's needs (weight loss, ways to decrease stress, etc.). The functional complexity and ubiquitous nature of smartphones combine to create the potential for the integration of mHealth apps into our health system.

Changes in population demographics, including the rise in senior populations, will result in an increased burden of chronic diseases and disorders, such as mental health, COPD, congestive heart failure, diabetes, hypertension, and HIV/AIDS. Health budgets cannot double to meet the anticipated increase in demand, so transformative health system innovation is required. In addition, accessibility to healthcare can be limited by geography and economics, which may cause individuals to avoid seeking medical attention when needed. As the world continues to be connected via increased access to the Internet, apps become extremely accessible to anyone. Many health apps are currently available at a low or no cost, enabling users to track progress of health plans, manage symptoms, seek support among other users, and bridge the communication gap between patients and healthcare providers.

Although there are thousands of health-related apps available for download, there is very little evidence available that demonstrates their efficacy. To date, the best evidence exists for mental health and diabetes management apps due to their high user rate and demonstrated effectiveness.

MENTAL HEALTH MANAGEMENT

It is estimated that one in five adults will experience issues associated with mental health in any given year,2 yet only 41% of those individuals seek medical treatment.3 Mental disorders, such as depression, anxiety, and bipolar disorder, are an increasing challenge felt worldwide and their prevalence has been rising at an alarming fast rate.4 Their presence poses significant economic, personal, and societal costs and are often more difficult to treat than physical illnesses.5 Given the broad spectrum of mental illness and the limited number of available psychiatrists accepting new patients, it is often a challenge for psychiatrists to diagnose accurately, schedule regular meetings with all patients, and to frequently access patient progress in order to tailor treatment options. Traditional psychotherapy and pharmacological interventions have been the standard care of practice for many years. However, certain therapies and their durations may not be readily accessible or affordable to certain patients needing routine clinical care.6

One affordable and convenient adjunct to present day treatment options are free, novel smartphone apps. Mental health apps provide day-to-day patient care by teaching users how to reduce stress and manage symptoms, focusing on strategies to enhance mental well-being. These mental health services support various elements of mental healthcare, such as rapid/open access, personalized treatment, convenience, establishing feelings of personal safety, preven-
tions, and behavioral supports for those who would like to refrain from taking pharmaceuticals. Apps like Kokoro, Headspace, and PRISM (Personalized Intervention for Stabilizing Mood), have been demonstrated to reduce symptoms of depression and anxiety in a variety of clinical trials.8-10 Psycho-education apps, which provide patients and their families the education, information, and skills to co-manage their mental illnesses, have been demonstrated to reduce depressive symptoms over a six-week period and have also enhanced concentration during specific tasks.11 In addition, they can serve as an adjunct to psychotherapy and pharmacotherapy in individuals classified as “treatment-resistant”, patients that do not experience changes with their regular treatment.12

To protect private patient health information, most apps have the option for patients to remain anonymous. The current stigma associated with mental health may result in many individuals that are hesitant to seek medical attention. The ability to remain anonymous enables patients to freely seek help at their own convenience as well as maintains patient anonymity for privacy purposes. With this in mind, patients are more likely to disclose symptoms related to mental well being as it may be stressful to talk to healthcare professionals with the fear of being judged.

DIABETES MANAGEMENT

Diabetes is estimated to affect 9.3% of Canadians, and for many people the responsibility, dedication, and attention required to live with this disease can be overwhelming.13 Diabetes applications with a focus on lifestyle, access to personal health records, text messaging, and wound care have improved diabetes management.

Diabetes is heavily influenced by lifestyle choices and management of these, including nutrition and exercise, can be supported by medical apps.14 A recent study compiled the top nutrition and fitness tracking apps available for smartphone users and assessed them by their food databases, logging options, and interoperability with other devices and apps.15 Some apps included additional features such as daily reminders and online communities to engage patients socially.

Personal Health Record (PHR) services are available on select apps, giving patients the option to manage and maintain their health records by themselves.16 These apps are synchronized with the hospital Electronic Medical Record (EMR) system and allow patients to monitor Hemoglobin A1c (HbA1c: glycosylated hemoglobin level), Low-Density Lipoprotein (LDL) and Blood Urea Nitrogen (BUN) levels. PHR services provide patients with a sense of responsibility and a substantial body of data for physicians and clinical researchers to integrate and analyze.17

Text-messaging services have also been studied as a way to provide important psychological and motivational support. Participants in txt4health, a large-scale, public health-focused text message program targeting type 2 diabetes, reported that 67.1% of users gave the app a satisfaction rating 8 on a 10-point scale. In addition, 88.8% of users found the app made them knowledgeable about their risk for type 2 diabetes and made them conscious of their diet and physical activity.18 In an alternate study, a nurse-facilitated, mobile phone-based clinical decision support system-enabled intervention in primary care was associated with improvements in blood pressure and blood glucose control.19 In a comparable study, patients in the TEXT ME intervention for smoking program received four messages per week for six months that provided advice, motivation and support, resulting in investigators reporting significantly lower LDL-cholesterol, systolic blood pressure, and body mass index in patients.20 These findings suggest that a similar program for diabetics could lead to improvements in health.

Diabetic wound care is a common problem that requires frequent hospital visits for inspection and cleaning. Researchers at Worcester Polytechnic Institute created Sugar, an app to assess chronic diabetic foot ulcers.21 The patient takes a picture of the wound, which is analyzed by a series of image processing steps. Image and colour segmentation are performed to measure wound area boundaries and healing progress, respectively. Sugar tracks the progress of the wound, reducing the number of hospital visits previously required. This unique feature gives patients a sense of responsibility and an active role in their wound care.

CHALLENGES AND BARRIERS INFLUENCING APP INTEGRATION INTO THE HEALTH SYSTEM

Smartphone affordability, operation and security, and app performance and effectiveness are challenges influencing app integration into the health system. Lower socioeconomic groups may struggle to afford smartphones, while senior populations may have difficulties operating app features. Online security and protection of private health information remains a concern.22 Mobile malware capable of accessing user information or making remote transactions (i.e. financial transactions) and on-line attacks are becoming more frequent. Medical apps must be required to ensure that transmitted data is strongly encrypted and anonymous, and regulatory frameworks are needed to certify app performance and security.23

Another challenge is whether the advice provided by apps is grounded in legitimate medical knowledge and demonstrates effectiveness and absence of harm. Websites such as PsychologyToday.com and PsychiatryAdvisor.com, have provided a short list of quality assured apps that have been developed by board-certified clinicians.24 As previously stated, early-adopted apps focused on tracking information.25 Initiatives such as the Mobile Applications Rating Scale (MARS) assess the quality of health apps and promise to provide patients and healthcare providers with the highest quality tools.26 Services like txt4health and apps like Sugar will continue to be developed and adopted by healthcare systems going forward.21,22 In addition, governments and healthcare systems need to develop a system to regulate and establish a set of standards against which an app can be measured voluntarily.

CONCLUSION

The impact of the changing demographics in our society demand more than incremental changes in our health system; transformative innovations are required. Failure to act may lead to increased demand for doctors, increased wait times, delayed diag-
nosis, and a health system with unsustainable costs. Smartphone apps provide patients and healthcare providers with an efficient and effective tool to communicate and manage symptoms and treatments. In addition, patients may feel more comfortable tracking progress and receiving support from the comfort of their homes as opposed to coming into a hectic and stressful clinic environment. All of these benefits may potentially lead towards decreased demand in clinics, a reduction in healthcare costs, and improved health. Research needs to continue to assess innovative opportunities that fully leverage the strength of this unique platform to deliver effective patient care in our health system.

REFERENCES


The current state of Health Links

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Faculty Reviewer: Amanda Terry, PhD (Department of Family Medicine)

ABSTRACT

Health Links is a model of care focused on integrating efforts across the spectrum of health and social service providers in the province of Ontario. Health Links is driven by government policy and has been implemented by leveraging a local, flexible approach. As a recent initiative, existing documentation on Health Links is comprised largely of fragmented organizational and procedural documents (often called grey literature). This paper aims to fill crucial knowledge gaps by introducing the Health Links approach to care, providing a high-level overview of key processes and stakeholders, and discussing the evolution of the Health Links approach.

INTRODUCTION

Health Links is an approach that aims to integrate the health and social requirements of patients with complex needs under one umbrella, in an effort to improve care and reduce costs. The Health Links approach is intended to embed tools and processes that allow for a deeper level of coordination within the existing health system infrastructure. Health Links is designed to bring together multiple clinical and social service providers to leverage a team-based approach, extend beyond organizational boundaries, and create care plans for individuals with multiple comorbidities and complex care needs. To decrease health care utilization, Health Links aligns patients with primary care providers and increases communication across sectors by facilitating relationships and providing information sharing tools. This approach is positioned at the forefront of Ontario’s commitment to transform patient care through a Patients First approach. The Health Links approach was first launched in December 2012 and has expanded to include 82 Health Links across Ontario. Early adopters have provided tangible knowledge and best practices that are being used to inform the evolution of this model.

TARGET POPULATION

Integrated care and coordinated care planning is most beneficial to individuals with complex care needs, who utilize an array of services from multiple providers. The Ministry of Health and Long-Term Care (MOHLTC) defined the Health Links target population as individuals with four or more comorbidities and/or those who are negatively impacted by the social determinants of health. This population accounts for 5% of Ontario’s populace and use 66% of all health care resources. Targeting individuals with four or more comorbidities strikes a balance between capturing current high-cost users and those who are at risk of becoming high-cost users of the health care system.

COORDINATED CARE PLANNING

The Health Links approach uses Coordinated Care Planning as the process to bring patients and their care providers together to articulate goals and develop a plan to achieve positive patient outcomes. Health Quality Ontario (HQO) described five steps of Health Links as: patient identification, patient invitation, initial patient interview, care conference, maintenance and transitions.

Patient Identification: Multiple avenues of identifying the target population are utilized with an aim to ensure equitable access to coordinated care. Currently emergency department and hospital admission data, Community Care Access Centres (CCACs) and primary care providers are common methods of identification.

Initial Patient Interview: After consent is acquired, an initial patient interview is held. The interview is led by a Lead Care Coordinator. The purpose is to understand the patient’s perspective. The goal is to have patients articulate their goals, and together with the Lead Care Coordinator, identify a Care Team.

Care Conference: The Care Conference provides an opportunity for the entire identified Care Team to come together and formulate a care plan that will enable the patient to meet their elicited goals.

Maintenance and Transitions: During this phase, the patient interacts with providers more efficiently. Established best practices in this phase of Coordinated Care Planning include; medication reconciliation, assessment of health literacy and patient learning initiatives. The Care Team remains connected through the Coordinated Care Plan, which is updated as necessary.

The main tangible output of the Health Links approach is the Coordinated Care Plan (CCP), which is a standardized tool that places the patient at the center of the approach. The tool has been adopted by 79% of Health Links across the province. As Health Links focuses on providing integrated, holistic care, the CCP is designed to address both health and social needs. It aims to identify a range of patient goals, coordination requirements and identifies the responsibilities of individual providers in the care team. Between patient identification and the care conference, a lead care coordinator is identified. The role of the lead care coordinator often falls to the health professional that is either responsible for the greatest amount of that patient’s care or is expected to be involved with that patient for the longest period of time. Ideally, Coordinated Care
Planning enhances collaborative relationships between providers and across sectors with the intent of transcending the individualized CCP, and leads to systemic transformation and a more integrated health system.14

Table 1. Organizational involvement in Health Links

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>ROLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOHLTC</td>
<td>• Devised the philosophy of care and launched the initiative in early 2012</td>
</tr>
<tr>
<td></td>
<td>• Outline the provincial direction for Health Links including the dissemination of best practices</td>
</tr>
<tr>
<td>Provincial involvement</td>
<td>• Establish evolution framework in response to experiential learning</td>
</tr>
<tr>
<td></td>
<td>• Provincial oversight of the initiative through reporting and third party evaluation</td>
</tr>
<tr>
<td>Health Quality Ontario</td>
<td>• Responsible for the evaluation and quality improvement initiatives surrounding Health Links across the province</td>
</tr>
<tr>
<td>LHINs</td>
<td>• Responsible for facilitating and overseeing the development of Health Links across corresponding jurisdictions</td>
</tr>
<tr>
<td>Regional involvement</td>
<td>• Report on performance indicators to the MOHLTC</td>
</tr>
<tr>
<td>Lead organization</td>
<td>• Responsible for the governance, establishment, operations and performance of their individual Health Link</td>
</tr>
<tr>
<td></td>
<td>• This includes engagement of local partners to support to implementation and spread and coordinated care planning.</td>
</tr>
<tr>
<td>Local involvement</td>
<td>• Attend provincial and regional Health Links meetings</td>
</tr>
<tr>
<td>Local partners</td>
<td>• Voluntary involvement</td>
</tr>
<tr>
<td></td>
<td>• Once involved, partners are required to declare their commitment and act as change agents across their organizational/sectoral representation</td>
</tr>
</tbody>
</table>

STRUCTURE AND COLLABORATING ORGANIZATIONS

The Health Links approach is supported by a cascading set of roles and structures that vary in level of breadth and engagement. Table 1 has been provided below to outline the roles of various collaborating organizations, as well as to provide a visual representation of how the Health Links approach has been embedded into provincial, regional and local structures. The scope of this integrated initiative requires numerous stakeholders with varying levels of involvement. For example, Health Links knowledge is experienced differently at the local level as local actors maintain a more intimate understanding of the application of Health Links processes. Thus, provincially, the MOHLTC and Health Quality Ontario (HQO) maintain a high-level or macro understanding of Health Links progress whereas lead organizations and partners maintain an intimate depth of knowledge at the local level.

EVOLUTION

The Health Links approach was introduced by the MOHLTC in 2012 as an innovative approach to Coordinated Care Planning for individuals with complex health and social needs. Initially a ‘low rules’ approach was taken by the MOHLTC to enable Health Links to align with local needs and contextual environments. This ‘low rules’ setting gave early adopters the flexibility to implement the approach based on their unique structures and contexts. By allowing for a locally-driven approach, early adopters identified and outlined best practices through experiential learning. While this latitude for flexibility and creativity encouraged innovation in early phases, it also led to wide variability in terms of governance and patient identification. In recognition of these limitations, and to minimize the resulting variability in processes between Health Links, the Ministry developed the Advanced Health Links Model in 2015. The Advanced Health Links Model aims to standardize and systematically embed the emerging best practices that are designed to support large-scale spread and sustainability. As the Health Links approach continues to spread throughout Ontario, the Advanced Model will act as a guide in translating the small-scale success experienced by early adopters into large scale sustainability province-wide.

CONCLUSION

Coordinated Care Planning is the central element of the Health Links approach to care. An increased understanding of this process enhances clarity of its use and deployment and increases awareness of the breadth of the Health Links initiative. Through Coordinated Care Planning, Health Links aims to initiate system transformation leading to a more efficient, effective and sustainable health system by targeting the 5% of the population who use the health system most frequently. A more integrated health system will enable providers to better support individuals with complex care needs. How-
ever, there remains a lack of rigorous empirical review, this coupled with the fragmented nature of available literature on the Health Links approach, produces large gaps in knowledge and understanding. Further evaluation is required at local, regional and provincial levels to better understand the impact of the Health Links approach to care.

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Approaches to incorporating indigenous health into the Canadian medical school curriculum

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Faculty Reviewer: Lloy Wylie PhD, MA (Department of Psychiatry)

ABSTRACT

In Canada, there are significant health status disparities that exist between Indigenous and non-Indigenous populations. Cultural competency among physicians is a probable way to address this large gap. The purpose of this article is to discuss the current challenges that exist in designing and delivering an Indigenous health curriculum in Canadian undergraduate medical school programs. This article will highlight the importance of cultural competency for improving the health outcomes of Indigenous populations. Additionally, it will explore potential approaches for better integration of Indigenous health into medical curricula.

INTRODUCTION

The Indigenous peoples of Canada represent a subset of the population with worse health outcomes than their non-Indigenous counterpart, demonstrating the prevalence of health disparities that exist among them. In response to the growing awareness of the differences in health status between Indigenous and non-Indigenous people, more undergraduate medical school programs are incorporating curricula surrounding Indigenous health and history. We present current challenges that exist in developing and delivering Indigenous health curricula in Canadian medical schools. Additionally, we will explore potential approaches to better train undergraduate medical students in Indigenous cultural competency.

First, we discuss the current mandates in place that emphasize the importance of cultural competency in Canadian medical school curricula.

UNDERGRADUATE MEDICAL SCHOOLS

In 2000, the Liaison Committee on Medical Education (LCME) set standards to ensure that all accredited Canadian medical schools would include mandatory cultural diversity education in the undergraduate curriculum. These standards aim to enhance the understanding of how health and illness are perceived across diverse cultural and belief systems. These standards also emphasize the need for medical students to be aware of their own biases, as well as the importance of providing culturally competent care.

CANADIAN FAMILY MEDICINE RESIDENCY PROGRAMS

Under the Canadian Family Medicine guidelines (College of Family Physician of Canada [CFPC]), Family Medicine residents and physicians are required to address the health needs of Indigenous populations. In 2012, the CFPC released new guidelines, the Triple C Competency-based Curriculum, which makes it mandatory for Family Medicine residents to incorporate Indigenous health issues in the curricula. The Triple C curriculum encourages the implementation of a curriculum that incorporates comprehensive care and education, ensures continuity of education and patient care, and emphasizes family medicine centered care. This curriculum encourages social accountability of medical schools to address “priority health concerns” among Indigenous populations through approaches like cultural competency education.

CURRENT CHALLENGES

Despite the guidelines that are currently in place, only 67% of Canadian medical schools provide some education on multicultural issues. Therefore, the incorporation of cultural diversity education and training in undergraduate medical curriculum remains insufficient. Additionally, there is lack of uniformity with regard to the concepts, structure, and formats taught in cultural diversity education, indicating an inadequate and standardized approach. Furthermore, cultural diversity education is more commonly provided as an elective during pre-clinical years, and rarely in clinical courses. Lastly, there are huge variations on the length of time allocated to cultural diversity education and training across different medical schools. While some medical schools provide comprehensive learning opportunities through field placements, community visits, and clinical rotations, others dedicate only few hours to teaching culturally competent care.

Overall, there is lack of clarity and consensus on the definition of cultural diversity and what it encompasses, in terms of the pedagogical methods, content, format and structure needed for medical school curriculum. This lack of clarity, even among the licensing and governing bodies, creates confusion on what should be taught in medical schools. Additionally, there are challenges among students themselves, whose perception of the importance of cultural competence education is low. Lastly, the lack of evaluation strategies to assess medical students’ cultural competence, or more broadly, to assess the effectiveness of existing cultural competence educational models, is highly problematic.

POTENTIAL APPROACHES FOR BETTER INTEGRATION OF INDIGENOUS HEALTH IN MEDICAL CURRICULA

Due to the existence of governing policies that continue to disempower Indigenous people, colonization is a critical determinant of health for Indigenous populations. As the mounting health concerns of Indigenous communities are largely perpetuated by historical attitude and structures that are ever-present today, chang-
FEATURE ARTICLE

es need to be made to address the ways that these inequities are continually recreated within the healthcare system. Ensuring that this knowledge is instilled among undergraduate medical students is one approach to foster the growth in numbers of doctors with Indigenous cultural competency.

In response to the inadequate coverage of Indigenous health in the medical school curriculum, advocates for Indigenous communities have advised medical schools on how to expand teaching time and resources dedicated to Indigenous health. To ensure that students acquire Indigenous cultural competency, medical school curricula need to allocate adequate teaching resources and time to Indigenous health. An understanding and acknowledgement of the residual effects of colonialism can help ensure that medical professionals can more effectively address the health inequities that disproportionately affect Indigenous communities. Medical students need to recognize the historical structures rooted in colonialism that continue to produce health disparities for Indigenous peoples, such as the Indian Act, the reservation system, and discriminatory practices in employment, education, and housing. In addition, medical students need to understand how their personal privileges can affect clinical practice, and how ignorance to the social contexts of Indigenous patients and families can lead to inappropriate recommendations for care. There are three key questions that need to be taken into consideration when incorporating post-colonial perspectives into Canadian healthcare training programs: (i) what content relating to post-colonialism and health should be taught; (ii) how this content should be taught, including teaching strategies and who should teach the content, and; (iii) why this content is being taught. Collaboration with Indigenous partners to answer these three questions is key in developing teaching strategies and training programs.

Various medical schools have taken novel approaches to enhance the knowledge, cultural competency, and commitment of medical students to Indigenous health. In particular, the incorporation of experiential learning has been shown to be effective for the Indigenous health curriculum. During years 1 and 2, the Northern Ontario School of Medicine (NOSM) incorporates clinical learning experiences with case-based modules that focus on Indigenous health topics. Additionally, medical students at NOSM engage in an Indigenous cultural immersion experience, where they continue their medical education through sessions in Indigenous communities, while also focusing on cultural activities and community learning. Currently, the success of this program can only be gauged in relation to the thoroughness of Indigenous health topics discussed in the curriculum and through the sustained commitment of Indigenous community partners. Similar cultural immersion programs implemented in New Zealand demonstrate significant shifts in students’ self-perceptions of their commitment and preparedness to improve Indigenous health.

Additionally, arts-based teaching programs are often incorporated into medical school curricula through various mediums, such as literature, drama, visual arts, and music. In one arts-based teaching program, medical students who attended workshops that explored healthcare issues worked to develop their professional skills in communication, self-presentation, and observation. Overall, students found that this arts-based teaching program was a valuable contribution to their education, with group work facilitating opportunities to learn new skills and engage with people of different backgrounds. When incorporating Indigenous health into the medical curriculum, arts-based teaching programs may be potential avenues to explore in order to increase student engagement.

However, it is also important to acknowledge the challenges with developing and delivering an Indigenous health curriculum in medical schools. Traditionally, medical schools are constrained by discipline and lecture-based courses and it can be challenging to find the appropriate space in the curriculum to accommodate these changes. Another significant challenge is being aware of the stereotypes and misconceptions that are associated with Indigenous people, and ensuring that these views are not reinforced by the curriculum. Lastly, there are challenges in evaluating the impact of such programs and ongoing efforts to track specific educational outcomes need to be further pursued.

CONCLUSION

The divide in health status between Indigenous and non-Indigenous populations is well-documented in the current literature. Cultural competency is frequently suggested as a probable way to address this large gap. Experiential learning allows students to be fully immersed in Indigenous health care. This immersion allows them to better understand and witness first-hand the hardships and barriers that are currently present within the healthcare system. Supplementary to this, arts-based learning is very engaging and creates a safe space for the students to learn and examine multiple perspectives on the problems that Indigenous populations encounter in healthcare.

Despite how promising these teaching strategies may be, there are challenges to curriculum implementation, including reinforcement of stereotypes and incorporation into predominantly didactic curriculum structures. In spite of these challenges, it is important to improve the Indigenous health curriculum in medical schools to foster the growth of doctors who advocate for Indigenous populations. Most importantly, educational content relating to post-colonial health should be better integrated into the medical school curriculum to ensure the provision of equitable healthcare services by culturally competent care providers.

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Conservative management strategies to mitigate the increasing burden of osteoarthritis on the healthcare system

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Faculty Reviewer: Bert M Chesworth, BA, BScPT, MCIScPT, PhD (School of Physiotherapy)

ABSTRACT

In Canada, the incidence is expected to increase in the upcoming years due to changing population demographics. As such, researchers have recently started to focus on conservative management strategies. This article will review the current evidence available for the effectiveness of self-management and therapeutic exercise programs in individuals with hip and knee OA, as well as discuss the potential for mitigating rising healthcare costs in this population.

INTRODUCTION

Osteoarthritis (OA) is the most common form of arthritis, involving structural changes in the joint as well as inflammation.1 There are currently over 4 million Canadians living with OA, representing 13% of the population.2 In the coming years, the proportion of affected individuals is expected to increase due to an aging population, which will result in more people developing OA.3,4 Moreover, it has been predicted that 25% of the Canadian population will be diagnosed with OA by the year 2040.5 This increase will place a large financial burden on the Canadian healthcare system as these individuals seek continual care. A recent cohort study in the United States found that individuals with arthritis or joint pain accounted for higher total healthcare expenditures than those who are not affected.6

A recent scoping review found that the key factor in determining an OA patient’s self-perceived need for healthcare services was their symptom control.7 This finding is further supported in the Arthritis Alliance of Canada 2011 report, which predicted that the development of adequate pain management strategies for OA would result in a cumulative savings of $488 billion over the next 30 years.8 Self-management patient education and therapeutic exercise interventions may offer clinically significant pain and symptomatic relief for the patient while allowing providers to decrease costs of care delivery, resulting in a more efficient healthcare system.

GUIDELINES

Many organizations from around the world have published guidelines for the management of hip and knee OA, most of which recommend that patients participate in self-management educational programs, including weight loss if overweight, and engage in regular aerobic, resistance, and flexibility exercises.9–16 One such guideline, published by the European League Against Rheumatism (EULAR), recommends that every patient with hip or knee OA should receive a core non-pharmacological intervention consisting of education, self-management, weight loss if overweight, and regular exercise.9 These interventions represent a patient-centred and multidisciplinary approach, utilizing the main principles of non-pharmacological management.10 The reduced need for clinical interaction with individuals who implement these patient-centric interventions may provide a cost-effective alternative for OA pain and disability management, with the potential to reduce the economic burden on the healthcare system. However, little is known about how these treatment guidelines influence patient outcomes and healthcare expenditures.

REVIEW OF EVIDENCE

While little is known regarding the effectiveness of comprehensive management programs like that recommended by EULAR, key elements of these guidelines have been tested experimentally. Self-management strategies and therapeutic exercise have been proposed as conservative interventions for the treatment of OA-related pain and disability, and have been studied extensively.11–20 Self-management programs for OA comprise a package of interventions specifically targeted at patient education and behaviour modification, which encourage people with chronic disease to take an active role in the management of their own condition.11 Weight loss is often considered its own form of OA intervention, but for the purposes of this review, will be considered as part of a broader self-management category.

In 2014, the Cochrane Library published a review of randomized controlled trials assessing the effectiveness of self-management education programs.18 Twenty-nine studies were included in the review, which found low to moderate quality evidence for self-management programs.18 However, when compared to usual care for individuals with OA, these interventions may improve self-management skills, pain, function, and symptoms. It was concluded interventions of this nature are unlikely to cause harm to patients, and that more research is needed on other models of self-management education programs.19

Weight loss is also recommended as a basic self-management tenet for individuals with osteoarthritis.8 A systematic review of 454 patients with diagnosed knee OA in four randomized control trials found that disability can be significantly improved with weight loss of greater than 5% of total body weight over a 20-week
period. However, only a small pooled effect size for improvement in pain was found with a reduction in weight. A particular strength of this review was the inclusion of both dietary and exercise interventions to reduce weight, highlighting the potential to incorporate patient preference into the shared decision making process.

Therapeutic exercise has also been the focus of much clinical research and is defined as a range of targeted physical activities that directly aim to improve muscle strength, joint range of motion, and aerobic fitness. The Cochrane Library published a review of fifty-four randomized controlled trials examining the effectiveness of land-based therapeutic exercise in individuals with knee OA. Moderate to high quality evidence suggests that land-based exercise provides sustained benefit in pain and physical function for up to 6 months following cessation of treatment. These findings are comparable to reported improvements in the same outcomes following the use of non-steroidal anti-inflammatory drugs. Furthermore, a similar review for individuals with hip OA found that land-based therapeutic exercise improved pain and physical function levels immediately after treatment, and improvements were sustained for three to six months. It is important to note that therapeutic exercise for individuals with hip or knee OA was unlikely to cause any adverse events, and that further research is needed to determine optimal dosage parameters for exercise.

In addition to land-based exercise, aquatic exercise interventions may provide symptomatic relief of OA. A review of aquatic exercise interventions for people with OA of the hip or knee was recently published by the Cochrane Library. This review included 13 trials (1190 participants) and found moderate quality evidence that aquatic exercise provides small, but clinically relevant effects on pain, disability, and quality of life, with minimal risk of any adverse events. With both land-based and aquatic exercise shown to produce clinically significant outcomes for individuals with OA, patients may select a more preferable program to manage their OA.

There is little consensus on the optimal frequency and duration of self-management education and exercise programs, as more research examining these interventions is needed. Moreover, this article limited its focus to a discussion of self-management and therapeutic exercise effectiveness individually but there is growing evidence examining these treatments in combination or as part of a larger multimodal intervention. There is potential for multimodal conservative and pharmacological interventions, tailored to the individual patient, to provide effective symptomatic and functional improvement.

CONCLUSION

Due to the increasing number of Canadians with OA and subsequent burden on the healthcare system, it is important for practitioners to be aware of interventions that have the potential to reduce costs while simultaneously improving patient health. The purpose of this review was to highlight the latest evidence on self-management and therapeutic exercise strategies for patients with OA. These interventions were found to provide small to moderate improvements in pain levels and physical functioning and were unlikely to cause harm in these individuals.

After review of the available high-quality evidence, it is recommended that clinicians consider referral of patients to self-management and exercise programs to manage the symptoms of OA in addition to standard care. Treatment approaches such as this require collaboration from a multidisciplinary team and highlight the need for effective communication within the patient’s entire healthcare team. These interventions can provide meaningful results to patients with OA and may help reduce the costly burden of OA on the healthcare system. It is hoped that this article provides clinicians with a review of the most up-to-date evidence on approaches to the management of OA, while aiming to stimulate thought and further research in the development of efficacious and cost-effective OA management strategies.

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Poverty: A clinical instrument for family physicians

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ABSTRACT

The primary driver of health outcomes is not medical professionals and the treatment they provide, but rather the socioeconomic environments enveloping individuals from the time they are born until their last breath. Social determinants of health (SDOH), which are factors such as income, education, ethnicity, disability, and access to healthcare, create disparities in morbidities and mortalities across a social gradient. Poverty constitutes one of the most well-studied and well-acknowledged SDOH, with a wide-ranging and treacherous impact on one’s health and well-being. A new poverty tool, created by the College of Family Physicians of Canada and the Centre for Effective Practice, enables front-line clinicians to tackle the social challenges associated with a low socioeconomic status. Consideration of socioeconomic conditions in a clinical practice setting can improve health outcomes by optimizing clinical management decisions and reduce the burden on our healthcare system.

INTRODUCTION

Case study: Amanda is a 38-year old single mother of three kids. She has a history of smoking 10-pack-years. In addition to being on income support, Amanda works as a maid and laundry worker at a motel for minimum wage and works extremely long hours. She has a Grade 7 education. Amanda lacks family and community support. She has a history of abuse by alcoholic parents. Amanda rarely visits a family doctor because of her childcare duties and inability to take time off from work. She presented to the emergency room suddenly and was diagnosed with Stage IVB metastatic cervical cancer. Sadly, she passed away within two months of her diagnosis.

While the official cause of Amanda’s death was her cancer, could the real culprit of her demise be related to her status of poverty?

The evidence supporting the link between health status and disease burden to a social gradient can be traced back to the early 1800s and continues to become more powerful. Inequalities in the distribution of income, power, and resources patently contribute to the growing disparities in health outcomes amongst Canadians. SDOH contribute to one’s socioeconomic status (SES) and are living conditions that shape the health and well-being of individuals and communities. The SDOH include, but are not limited to early-childhood development, income, education, ethnicity, gender, sexuality, Indigenous status, immigration status, and access to the healthcare system.

POVERTY AS A CLINICAL TOOL TO IDENTIFY RISK FACTORS IN PRIMARY CARE

Poverty has been demonstrated to be a health risk comparable to smoking, hypertension, and high cholesterol levels. Living in poverty has been inextricably tethered to a higher risk for chronic diseases including diabetes, cardiovascular disease, stroke, respiratory illnesses, nervous system disorders, alcoholic cirrhosis, mental illnesses, accidents, and trauma. A study assessing trends in mortality demonstrated that income accounts for 24% of potential years of life lost in Canada. In Hamilton, ON, there is a gap of 21 years in the average age at death between the residents of highest- and least-income neighborhoods. Moreover, those who are chronically homeless are at 8-10× greater risk for premature death in comparison to the general population.

For those with a lower SES, barriers to housing, food security, education, employment, and physical and mental well-being become more significant. For instance, in contrast to the richest of Ontarians, the poorest report higher rates of smoking and physical inactivity, reduced fruit and vegetable intake, and increased incidences of multiple chronic disorders. Lower SES is also associated with reduced access to quality healthcare services. Inequitable access to healthcare diminish the opportunity for routine checkups including recommended screenings such as pap smears, hinder health education, early diagnosis, and clinical management of an illness, and ultimately contribute to the perpetuation of poor health outcomes. Reduced accessibility to healthcare further prompts a higher proportion of emergency room visits and hospitalizations for conditions that could be well-managed in a community clinic, contributing to a greater economic burden.

ADDRESSING POVERTY IN A CLINICAL ENCOUNTER

Family physicians, being providers of comprehensive and longitudinal care, are in an unparalleled position to address poverty in their practices. However, according to a qualitative study, family physicians feel ill-prepared in confronting poverty needs in clinical encounters. Just as one would screen for diabetes, hypertension, and cardiovascular disease, there is a need for a systematic way to screen for poverty that would help health care providers recognize socioeconomic inequities within their practice populations, enable better patient-centered care for the disadvantaged, and reduce their health risks and related unfavourable health corollaries.

In order to develop an effective clinical intervention to address challenges related to SDOH in primary care, the College of Family Physicians of Canada (CFPC) collaborated with the Centre for Effective Practice (CEP) to establish and distribute province-specific poverty tools across Canada. This poverty tool includes three systematic steps to address poverty in a clinical encounter.
Step #1. Screen for Poverty. It is imperative to screen everyone for the poverty risk factor. Brcic et al (2011) developed an evidence-based poverty case-finding tool that can be used by family physicians to identify patients who are poor. A simple question, “Do you (ever) have difficulty making ends meet at the end of the month?”, was identified to be a good screening tool for poverty with a sensitivity of 98% and a specificity of 64%. If the answer is yes, then the physician can proceed with Step #2.

Step #2. Adjust for Risks. Physicians must acknowledge that women, Indigenous populations, newcomers, visible minorities, and the LGBTQ+ communities are among the highest risk groups for a wide range of chronic conditions. In addition, family physicians need to have a general understanding that when it comes to patients in poverty, regardless of their risk profile, they are at an elevated risk for health conditions such as cardiovascular disease, diabetes, depression, and suicidal ideation. Experiencing poverty is also associated with other chronic conditions such as high blood pressure, inflammatory disorders, and chronic obstructive pulmonary disease.

Step #3. Ask, Educate, and Intervene/Connect. Family physicians should ask probing questions to understand the patient's living situation, financial burdens, employment, social assistance and supports, and the remunerations they receive from the government. Depending on the patient's needs and living conditions, family physicians can direct patients to allied health professionals such as social workers to be educated on topics such as tax returns, income supplements, drug coverages, child and disability benefits, and non-insured health benefits for First Nations. Physician intervention and the dialogue that this generates with patients and their families can identify opportunities for additional income and benefits support, and connect patients to government and community resources.

The poverty tool places family physicians vis-à-vis with the threats posed by poverty. Using the poverty tool can empower physicians to take on more of a leadership and advocacy role within their clinical encounters, and more importantly, present patients with opportunities to access appropriate and available resources, ultimately fostering a more positive socioeconomic environment in their lives.

IMPLICATIONS OF POVERTY TOOLS IN MEDICINE

The use of poverty tools to modify clinical decision-making reflects a drastic cultural shift in the field of medicine, from a strict biomedical approach to one that takes into account patient context. In Ontario, the Ontario College of Family Physicians (OCFP) Poverty and Health Community of Practice, an association of primary care providers dedicated to reducing health disparities, continues to mediate discussions related to poverty and associated adverse health outcomes across the province. OCFP has been actively engaged in anti-poverty advocacy projects, emphasizing the commitment of medical professionals towards social accountability.

CFPC has been accentuating the intensifying duty for family physicians to regard poverty as an avertible and treatable condition and that family physicians are in a unique position to combat poverty.

The CFPC recognizes that aside from advocacy at the micro-level in the clinic, physicians can also become activists at the meso-level in the local community and at the macro-level. At the meso-level, family physicians can collect and use community-level data on SDOH to educate and train health care professionals. This information can also be used to understand the health needs of the local community and identify gaps in the provision of care. In addition, physicians can provide on-site healthcare services to patients that are unable to visit the clinic. At a macro-scale, family physicians can initiate collaborations with organizations to advocate for improved living conditions for the general Canadian population and advocate for the transformation of public health policies that target upstream elements of health such as benefits, social assistance, and affordable housing.

SUMMARY

Poverty has a powerful impact on health outcomes and creates inequities in health outcomes between the highest- and lowest-income populations. For decades, what has been considered as a social issue now needs to be perceived as a health issue. The poverty screening and intervention tools developed by the CFPC and CEP empower family physicians to take a stand against poverty, help guide clinical action to provide the best possible patient outcomes, and tackle the social challenges faced by those who are living in poverty. Amanda, who was presented in the case study at the beginning of our article, would have been identified as an individual of low socioeconomic status by her doctor, who then may have been able to accommodate Amanda’s work schedule for her routine appointments. Amanda could have gotten her pap smear and she could have become educated about tax benefits, income supplementation, and government grants. She could have survived and lived a long, healthy life.

While further evidence is required to optimize the screening, risk-assessment, and intervention practices, integration of poverty as a clinical tool in medical practice is a step in the right direction for family physicians to become more socially accountable. With more family physicians adopting poverty as a health risk, those from marginalized populations can begin to receive more accessible and appropriate care.

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Radiology wait times
Impact on Patient Care and Potential Solutions

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ABSTRACT
As diagnostic imaging becomes a more prevalent tool in medicine, radiologists must increasingly be concerned with resource management. Wait times represent an important quality of care issue in medicine, especially in Canada, where the number of MRI and CT scanners is limited compared to other countries. Longer wait times have been shown to worsen medical outcomes in a number of different settings, including head and neck cancers, as well as costing patients emotional and financial resources. Accordingly, a number of strategies have been undertaken to reduce waiting times. Teleradiology, which is the assignment of diagnostic interpretation of images to distant radiologists, has worked in the context of reduced staff radiologists in PEI. There may also be a role for encouraging only appropriate indications for imaging. In conclusion, the authors suggest that good radiologic practice consists of considering appropriate use of diagnostic imaging to reduce wait times.

INTRODUCTION
The perception that the radiologist’s only job is diagnostic interpretation of medical imaging is outdated. Radiologists not only provide medical imaging interpretation, but are increasingly involved with resource management and quality of care improvement.1 Wait times are an important quality of care issue, especially in Canada, which has lagged behind other developed countries in efficient utilization of Magnetic Resonance Imaging (MRI) equipment per capita. In Organisation for Economic Co-operation and Development (OECD) countries the median number of MRI scanners per million people is 6.1. Canada’s is 4.6 per million people, which is considerably lower than Japan (35.3) or the United States (19.5), which have the highest MRI per capita in the OECD.2 The expanding indications for imaging combined with inappropriate ordering, and delays in reporting, has led to poorly managed wait lists and unnecessarily long wait times.

DIAGNOSTIC IMAGING IN CANADA
Canada has seen an increase in medical imaging utilization. In Ontario, the number of MRI scans performed increased by over 300%, and the number of Computerized Tomography (CT) scans increased 3-fold between 1993-2003. This rapid increase in use of technology raises the questions of whether the indications for CT and MRI have expanded, or if physicians are using diagnostic imaging appropriately. The average Canadian waits 3.7 weeks for CT and 11.1 weeks for MRI scans.3 In contrast, the Canadian Association of Radiologists (CAR) has recommended that the maximum wait times for non-urgent CT or MRI scans to be no more than 60 days (or 8.6 weeks). The same report outlines the need for better data to monitor wait times.4

IMPACT OF RADIOLOGY WAIT TIMES ON PATIENT CARE
Wait times pose a significant problem to many areas of medicine. Wait times have an impact on quality of care, inconveniences the patient, increases cost of care, and also have material consequences on the medical issues the patient faces.5 A study by Byrne et al demonstrated the effect of wait times in patients with non-small cell lung cancer (NSCLC). Biopsies from patients in a Newfoundland centre who required CT guided lung biopsies in 2009 were compared to biopsies taken in 2011 as there were significantly shorter wait times in 2011. The authors showed longer wait times correlated with an increase in the tumor size and stage found on imaging, which worsens the prognosis of NSCLC.6 Jensen et al, similarly, showed that wait times negatively impacted disease course in the context of head and neck cancers.7 In this cohort, the authors compared initial diagnostic scans with the treatment planning scan of patients diagnosed with squamous cell carcinoma of the head and neck, and measured changes in tumor volume and in disease stage. The average wait time was 4 weeks, with a range of 5 to 95 days, and most (62%) of the patients had an increase in tumor size, and many others developed serious complications of tumor growth including new lymph node metastases (20% of patients) and progression in the TMN classification (10% of patients).

Wait times have an economic impact as well. A report by Barua and Ren estimated that 973,505 Canadians waited an average of 10.6 weeks in order to access treatments in 2016, and that on average each patient lost between $1,759 to $5,360, depending on whether the analysis only included loss of work hours, or included loss of weekends and evenings as well. The total estimate borne by individuals waiting for treatment is between $1.7 billion or $5.2 billion. This estimate does not include the cost of loss of productivity in the family members of the patients, and also does not include mental anguish or worsening medical issues.8

SOLUTIONS TO REDUCE WAIT TIMES IN DIAGNOSTIC IMAGING
The problem of long wait times has many contributing factors. The total radiology waiting time is measured as both the time between referral and examination, and the time between the radiologic examination and the production of the clinical report. A systematic review by Olisemeke et al studied a number of service delivery initiatives targeted at reducing wait times in radiology.
For this review, while the heterogeneity across studies was large, a number of approaches have shown decreases in wait times. Some promising avenues in the literature include technological tools to increase radiologist productivity such as speech recognition software, teleradiology, and increasing radiographic technician’s scope of practice to assist with image interpretation. The introduction of teleradiology improved the number of reports completed within 40 minutes from 34 to 43.

Teleradiology has been particularly successful in Canada when the primary problem is a paucity of staff radiologists. Teleradiology is the practice of interpreting radiographic images at a distance. In Prince Edward Island, a number of changes were implemented that resulted in wait times for elective or non-urgent CT scans decreasing from 22 weeks in January 2009, to under 3 weeks in 2011, and MRI wait times decreasing from 33 weeks to 8 weeks. In order to achieve this improvement in wait times, a quality improvement committee implemented a number of upgrades to their existing procedures, but attributed much of their success to the implementation of teleradiology. Teleradiology practices allow scans to be interpreted by highly skilled radiologists in neighboring provinces, thus reducing the time between radiologic examination and clinical reporting. Hence, this allows for the corresponding primary care physicians or specialists providing care to the patient (depending on the results of imaging scans) to do so in a more timely manner.

The province of PEI has a shortage of staff radiologists relative to the needs of the population, so the PEI Department of health contracted radiologists working in Halifax, Nova Scotia to commit to reviewing a number of cases per day, with a predetermined amount of time to return a report.

Yet another global method of improving wait times is to ensure that only appropriate diagnostic examinations are ordered. A report estimated that 10 to 20% of MRI or CT scans are unnecessary. There are many potential sources of inappropriate scans including patients’ demands for imaging when not indicated, lack of knowledge of up-to-date guidelines by the referring physician, and poor communication between physicians. Despite the high estimated rate of inappropriate diagnostic examinations, very few centres have programs to reduce this inefficiency. The authors of this report suggest that physicians should stay abreast of the appropriate imaging guidelines and to foster a culture of quality within radiology departments. Indeed, it has been demonstrated on a local level, that appropriate use of guidelines by general practitioners reduced inappropriate radiology referrals by 23%. The standardization of imaging guidelines and workflow processes will help to shorten wait times and lead to improved quality of patient care.

CONCLUSION

Wait times for imaging remains a significant issue in the Canadian healthcare system. While this is widely considered a trade-off for our presumably otherwise successful single-payer system, wait times are not benign. Delays in patient imaging can negatively impact patient care in a number of ways, including reducing the quality of care and causing worsening of medical conditions and prognosis. In addition, there are economic impacts associated with waiting for medical care. Wait times is a complex issue and there are many possible approaches to reduce it including appropriate use of imaging, having validated guidelines, increasing radiologist productivity through more efficient workflows, increasing the number of staff radiologists, teleradiology, or increasing the number of operational hours of CT or MRI machines. Different approaches may be successful to different extents in different centres. The PEI example serves as a reminder that drastic changes in this area are possible, and that we need not accept that long wait times are inevitable in our system. We suggest that dedicated task forces investigate the many causes and possible solutions to the problem of lengthy wait times in diagnostic imaging. As mentioned above, although a number of individual research groups have investigated the role of radiology wait times on patient outcomes there is no uniform body in Canada that currently works to address such issues on a national level (other than individual academic health science centre quality improvement projects). Ideally, we suggest this task force committee could be a subset of the Canadian Society for Radiology who already have the nation-wide contacts and capacity to investigate and mediate quality improvement within radiology departments across Canada.

REFERENCES

Evaluation of supervised injection facilities as an ethically sound approach to treatment of injection drug abuse

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ABSTRACT

Novel approaches are needed to address the issue of injection drug use in Canada, which can have negative consequences for drug users and society. Supervised injection facilities (SIFs) are legally sanctioned facilities in Canada where drug users can receive sterile drug paraphernalia, referral to cessation programs and timely medical care if necessary. SIFs operate under the principle of harm reduction, which aims to reduce rates of infection and death due to overdose among drug users. SIFs are largely driven by the utilitarian ideal of maximizing benefit for the greatest number of people, through supervision of active drug users and appropriate referral for those wishing to quit. Deontological theory may support SIFs depending on how one applies the categorical imperative. Studies of the first SIF in North America, Insite, have shown demonstrable reductions in adverse health and societal consequences of injection drug use, rationalizing their implementation under consequentialism. SIFs are, therefore, suitable for greater adoption by the healthcare system.

INTRODUCTION

Injection drug abuse in Canada is a pressing public health issue. Frequent injection drugs include heroin, cocaine, amphetamines and prescription opioids. Recent data estimate that there are 75 000 to 125 000 intravenous drug users in the country. Injection drug use is problematic due to its association with addiction, fatal overdose, contraction of chronic infections such as Human Immunodeficiency Virus (HIV) or Hepatitis C, social isolation and criminal behaviour. Novel approaches to facilitating cessation of intravenous drug use are needed to ameliorate this issue.

Supervised injection facilities (SIFs) are legally sanctioned medical facilities within which individuals may consume illicit drugs under the supervision of healthcare workers. These centers operate under the principle of harm reduction, which aims to circumvent the adverse effects of drug consumption rather than absolutely discourage use altogether. They provide sterile injection equipment to prevent the spread of infection often seen with needle-sharing and using unsanitary drug paraphernalia, including needles, cookers and tourniquets. Opiate antagonists such as naloxone are available on site to be administered in the event of an overdose. SIFs staff includes social workers and mental health workers who provide services including counseling and information about referral to rehabilitation programs.

The first SIFs were established in the Netherlands in the 1970s as a result of changing attitudes towards deviant youth behaviours including drug use. These centres were designed as a communal meeting place and drop-in facility where individuals could consume drugs. Some basic health services were also provided onsite.

In following years, similar centres were established in Switzerland and Germany.

In 2003, Insite, the first SIF in North America, opened in Downtown Eastside, Vancouver as a pilot project for a novel harm reduction approach to substance abuse. Downtown Eastside is the poorest urban neighbourhood in Canada with an estimated 5 000 injection drug users. Insite was initially granted a special three-year exemption from Section 56 of the Controlled Drugs and Substances Act, which prohibits possession and trafficking of illicit drugs, on the condition that its effects on the community be studied. The exemption was extended until 2007, after which a constitutional challenge to Section 56 was filed to the Supreme Court of British Columbia. Plaintiffs argued that it is unconstitutional to prohibit possession and trafficking of illicit drugs as it restricts drug users’ access to SIFs such as Insite. The Supreme Court of British Columbia and, subsequently, the Supreme Court of Canada ruled in their favour, granting Insite a constitutional exemption of Section 56 to allow them to continue operation. In 2017 thus far, Health Canada has approved the opening of three new SIFs in Montreal and three in Toronto, and they are currently reviewing applications for additional SIFs in Surrey and Vancouver.

SIFs are controversial. While other drug therapy practices such as methadone clinics are funded by provincial healthcare systems, many question whether the Canadian healthcare system should subsidize or even simply condone a practice that facilitates drug consumption rather than seeking to abolish it. This article will demonstrate that utilitarianism and consequentialism provide an ethical foundation for the Canadian healthcare system to adopt SIFs as a complementary approach to treatment of injection drug abuse.

UTILITARIANISM, CONSEQUENTIALISM AND DEONTOLOGY

Ethical examination of a practice typically consists of two schools of thought: utilitarianism and deontology. Utilitarianism, pioneered by Jeremy Bentham and John Stuart Mill, teaches that an action is moral if it maximizes the happiness within a society. Utilitarianism is sometimes considered under the broader theory of consequentialism. In judging the morality of an action or policy, consequentialism considers the widespread impact of an action on all stakeholders as well as society at large. Consequentialism and utilitarianism justify an action based upon the goodness of the results it produces, regardless of the optics or inherent righteousness of the action itself.
In contrast to utilitarianism, deontological theory as put forth by Immanuel Kant states that humans are rational beings, and rational beings cannot be used as a means to an end.\textsuperscript{14} Therefore, deontology judges morality by inherent goodness and whether actions are motivated by duty, irrespective of the consequences.\textsuperscript{21} Inherent goodness is often evaluated by whether an action or policy can conform to the categorical imperative, which poses that inherently moral actions could be prescribed as a universal law.\textsuperscript{12}

**SUPERVISED INJECTION FACILITIES MAXIMIZE GOOD FOR MORE DRUG USERS**

An ideal utilitarian approach to the issue of substance abuse would bring about the most happiness for the greatest number of people. However, many of the current approaches to treatment for substance abuse are rooted in an abstinence-only philosophy whereby help is provided to those willing to completely cease use. These programs only benefit a subset of drug users: those who are willing, ready and able to stop using. A significant proportion of drug users do not fall under those categories for a multitude of reasons, such as a desire to continue use or an inability to quit. These individuals are therefore unaddressed by the abstinence-only approach.\textsuperscript{3}

In contrast, harm reduction programs such as SIFs provide more holistic care for drug users. In addition to the services provided in association with supervised injection, SIFs employ on-site counselors, physicians and mental health workers to assist individuals who express a willingness to quit. Some SIFs either have adjacent detoxification facilities or are closely affiliated with similar facilities in the community.\textsuperscript{15} Therefore, SIFs help more people than would a strict cessation program, and therefore are more utilitarian in nature.

**DEONTOLOGICAL THEORY MAY CONFLICT WITH HARM REDUCTION PRINCIPLES**

The deontological approach to substance abuse would conform to the categorical imperative, which states that a truly moral action could be prescribed as a universal law. However, drug users comprise a rather small subset of the population, and so it is hard to delineate whether the categorical imperative should consider a proposed policy as universal law only for those who consume drugs or for all members of society. In the case of SIFs, if one considered all of society, a possible universal law might be, ‘everyone should consume drugs in SIFs’. However, as intoxication and/or addiction eliminate an individual’s autonomy and free choice,\textsuperscript{14,16,17} if everyone were to consume drugs, it would impair all individuals’ ability to act as rational beings – a central tenet of deontological theory. Therefore, this cannot align with a deontological viewpoint. However, if the categorical imperative instead applied only to drug users, and the universal law became, ‘all drug users should consume in SIFs’, then a rationale becomes evident. If all drug users consumed in SIFs, then the rates of fatal overdoses and injection-related infections would be markedly reduced – the result of close surveillance and education by medical personnel. In addition, public drug use and drug litter would be virtually eradicated since everyone would only consume within SIFs.

**CONSEQUENTIALIST EVALUATION OF SUPERVISED INJECTION FACILITIES SUPPORTS THEIR ADOPTION**

Rampant drug use detrimentally impacts the communities in which it occurs. Oftentimes, communities with significant populations of drug users have associated high rates of public drug use and public discarding of syringes, which can put other citizens at risk for needle-stick injuries.\textsuperscript{14,28} The presence of drug dealers and higher rates of petty crime may also pose safety issues.\textsuperscript{1} In the neighbourhood of Downtown Eastside, Vancouver, the rates of Hepatitis C and HIV infection are 90% and 30%, respectively,\textsuperscript{1,19} and rates of fatal overdose and emergency care use are exceedingly high relative to surrounding communities.\textsuperscript{20}

Two years after Insite opened in Downtown Eastside, rates of syringe sharing declined among individuals who injected within the facility, whereas no change in syringe sharing patterns were noted in individuals not injecting at Insite.\textsuperscript{2} Insite users also received education about how to inject to avoid infection and subsequently adopted sterilization regimens prior to injection.\textsuperscript{21} Utilization of Insite facilities was also associated with decreased syringe lending by HIV-positive drug users and decreased syringe borrowing by HIV-negative drug users.\textsuperscript{21} Downtown Eastside also noted decreases in public injection of drugs and in publicly discarded syringes and other forms of injection-related litter.\textsuperscript{21} With respect to medical complications of injection drug use, Insite has prevented approximately 35 new cases of HIV and 3 deaths due to overdose each year – a net societal benefit of almost $6 million per year.\textsuperscript{22} Furthermore, rates of overdose at Insite were remarkably low and the majority that did occur were managed onsite by in-house staff,\textsuperscript{21} subverting the need for external emergency care. The overall overdose rate in the community surrounding Insite fell by 35% in the two year period following its opening.\textsuperscript{21} Suspected drug dealing and drug-related crime also did not increase during this time.\textsuperscript{21} Insite has led to positive outcomes within the community of Downtown Eastside, justifying its operation under consequentialist ideals.

**CONCLUSION**

As demonstrated, SIFs find footing on utilitarian and consequentialist bases by minimizing the harms associated with ongoing drug use and assisting those who are ready to quit. Unlike previous approaches that stress abstinence from drugs, SIFs promote individual freedoms and also prevent further harm through distribution of clean drug paraphernalia and timely medical attention in the case of an overdose. On a societal level, the implementation of SIFs can lead to both subsequent decreases in public drug injection and public discarding of syringes with no associated increase in drug-related crimes. SIFs are, therefore, well suited for adoption by the Canadian healthcare system for treatment of drug abuse.
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An analysis of the French healthcare system in the context of geriatric care

How does Canada compare and what can we learn

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ABSTRACT

The geriatric population occupy a progressively greater portion of the Canadian demographic spectrum. They often present with multiple comorbidities and utilize a disproportionate amount of healthcare resources per capita. Keeping current Canadian healthcare practices may become unsustainable in the long run, and comparison with the French healthcare system may help with the identification of current shortfalls. The Canadian healthcare system lags behind the French counterpart in several key healthcare indicators, including per capita spending, growth in expenditure, and specialist wait time. The French healthcare system is characterized by a mix of public and private healthcare choices, greater emphasis on preventative health and an nationwide integration. All of these may have contributed to the French healthcare system's better fiscal spending practices and healthcare outcomes. The Canadian healthcare system should take note of these differences and integrate positive elements to create a model better prepared for geriatric care in the foreseeable future. More in-depth studies may be needed to better assess the extent of adaptation for each of the aforementioned areas.

GERIATRIC CARE CHALLENGES – AN INTRODUCTION

Effective management of the aging Canadian population is an increasing societal concern and will remain so for years to come. Individuals over 80 are the fastest growing age group, and will account for a quarter of the total population by 2036, based on data from the Canadian Institute of Health Information. This in turn presents many unique challenges to the currently established healthcare system.

Firstly, the geriatric population present more commonly with vulnerability resulting from a combination of frailty, disability and multiple chronic conditions (MCCs). These individuals suffer from more than 2 comorbidities and no longer fit the one-problem-per-visit model currently practiced in Canada, which is partly incentivized by the way physician billings are structured. Furthermore, due to the array of health problems presented by a standard geriatric patient, the level of care can be subjected to much greater intra- and inter-provider variability, leading to iatrogenic errors such as polypharmacy. Finally, the geriatric population has much higher rate of utilization of healthcare resources compared to their younger counterparts. For instance, individuals above 65 account for over 60% of the primary care spending, suggesting that the system would eventually become unsustainable as more fall into this age category.

With that in mind, this article will shift focus onto another healthcare system—that of France, arguably one of the best in the developed world. Some of the strongest features of French healthcare will be examined, and based on those, recommendations will be made that may help alleviate some of the current major challenges faced by the Canadian healthcare system.

RATIONALE FOR SELECTING THE FRENCH HEALTHCARE SYSTEM

The French healthcare system is reputed for its accessibility, broad consumer selection and quality of care. It has topped the World Health Organization’s list since 2000 and has consistently received positive evaluation from the general populace.

A side-by-side comparison further emphasizes the French system’s superiority over the Canadian counterpart in select key elements. Based on the annual reports published by the Organization for Economic Cooperation and Development (OECD) for instance, while both Canada and France have similar per capita spending, sitting at $4611.30 and $4407.20 respectively, France had noticeably lower annual growth in governmental expenditure, averaging 2.6% over the course of 2000-2010. Meanwhile, Canada’s annual growth over the same period, sitting at 4.5%, is significantly above the OECD average and trails only behind countries such as United Kingdom and the United States. France also performs noticeably better in areas such as physicians per 1000 population (3.3 vs. 2.4) and avoidable mortality caused by deficient healthcare per 100,000 discharges (63.6 vs. 87).

Meanwhile, the International Health Policy Surveys for the Commonwealth Fund reports similar findings with different indicators assessed. Canada scored particularly low in comparison in 2 key areas: accessibility and cost effectiveness. Canadian patients need to wait on average 68 days before seeing a specialist of any kind, while that number drops down to 44 days for the French. Similarly, only 7% of patients in France had to wait 4 months or more for an elective surgery, compared to 25% in Canada. Meanwhile, the average Canadian hospital spends on average $14,000 per discharge, while the French spend less than half of that, sitting at $5,204.

To summarize, the French healthcare system appears to have comparatively lower adverse outcome, better long-term sustainability and better access despite similar per capita spending, all of
which are significant advantages in the context of geriatric care. Given these observations, recognizing and integrating strengths of their model into the Canadian healthcare system certainly seems a logical approach to address future shortfalls.

CHARACTERISTICS OF THE FRENCH HEALTHCARE SYSTEM

One of the central characteristics of the French healthcare system involves a mixed public and private insurance model, both of which are available for patients. This is consistent with the French medical philosophy of medicine liberale which advocates maximizing free choice.11 The model contains both elements of nationalized care and those of a competitive market-based system as in the case of the United States.12 At initial glance this approach may jeopardize the universal access epitomized by socialized medicine. However, the method of coverage is incremental in nature based on the individual’s financial, insurance and health status, so uninsured individuals and those falling below an income threshold would receive extra coverage from the government up to 100%.13

The French healthcare providers also engage in a different culture of care with much greater focus on primary prevention. For instance, when considering cardiovascular diseases alone, the French are 30% less likely to die than Americans even after adjusting for MCCs.14 When the French physicians were polled regarding this issue, 53% cited a greater focus on patient education regarding both lifestyle and dietary habits.15 While subjective in nature, this study does show primary prevention being a critical aspect of care, especially in the context of elderly care. With so many geriatric patients plagued with a diverse set of MCCs, creating unifying treatment guidelines may prove unfeasible, and shifting focus onto preventative tactics may be a better alternative leading to better improvement on health outcome.

Finally, the French healthcare system’s success may be attributed to its highly integrated nature. The “carte vitale” is the official health insurance card possessed by virtually every citizen. The card contains all the necessary demographic information, and patients can expect treatment after a single swipe.16 The payment details are subsequently sent to the insurers, which are usually a mix of both public and private insurance providers.17 This highly integrated approach helps reduce repetitive collection of the patients’ information, as well as streamline the entire payment process so physicians can spend more time with patients rather than administrative inefficiencies.

DISCUSSION AND CONCLUSION

Through review of the French system’s strengths, this article proposes the following recommendations which may alleviate the fiscal burdens of future geriatric care. Firstly, the government can adopt a mixed system where both public and private care are available. As demonstrated previously, this may have a dramatic impact on the current long wait times for both primary and specialty services plaguing Canadian hospitals. The challenge to this is to avoid over-privatization and compromise the principles of universal access. Population-based studies may be needed to elucidate the perfect balance.

Secondly, Canada should strive for a greater focus on primary care initiatives. The French are known for their three-meals a-day routine and high greens consumption, a practice that has been relatively well preserved despite globalization of fast-food chains. Additionally, Europeans walk and bike much more than their North American counterparts.18 The health benefits of such lifestyle practices cannot be unduly emphasized, and should be considered of equal, if not greater, importance than treatment guidelines in the context of health policy development. Hence, programs should be created to enable greater access to physical activity and better dieting practices amongst the geriatric population.

Finally, there should be a similar endeavor in Canada to create a universal payment and information storing system. Similar initiatives are underway in Canada but are scarce and comprise of numerous locally integrated systems lacking capacity for nationwide integration.19 This is likely the most challenging area from a feasibility standpoint. Not only does Canadian healthcare fall under provincial jurisdiction, making a national initiative extremely hard to administer, Canada is also bigger with physicians practicing over a broader geographic spectrum, which may hinder technology uptake especially in remote, sparsely populated regions.

Several limitations exist for this article. Firstly, many comparisons were made between France and Canada without accounting for geographical, economic, and sociocultural differences. For instance, while Canadians do bike less, the difference may be partly due to the sparser layout of North American cities which discourages nonautomotive transportation—an issue that cannot be ameliorated by healthcare advances alone. Furthermore, some of the comparisons made in this article address the United States or all of North America and may not accurately reflect Canadian statistics. Consequently, more in-depth studies are needed to assess whether making changes to the current healthcare system is the most pragmatic approach.

France has created a unique healthcare structure where its citizens do not want universal coverage at the expense of individual choice, and this practice has stood the test of time as one of the strongest models today, one that is more prepared to face the explosive growth in geriatric population already underway. While Canada does indeed have a very strong socialized healthcare, complacency is dangerous and stagnation may lead to an unsustainable model. A brighter outlook relies critically on reciprocal learning between these 2 great healthcare systems.

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ECT: Examining a controversial therapy in the armamentarium of psychiatry

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Faculty Reviewer: Shelley McKellar, PhD (Department of History)

ABSTRACT

Historically, treatments for severe psychoses and affective disorders were nonexistent, and patients with mental disorders were transferred to asylums for public safety. This deficiency in treatment inspired the inception of somatic therapies, of which electroconvulsive therapy (ECT) was the most efficacious. This paper will outline the birth of ECT, the controversies leading to its decline, and the subsequent resurgence back into practice.

INTRODUCTION

Before the 20th century, psychiatry as a field of medicine offered little to individuals suffering from severe psychoses or affective disorders. Treatments for mental illness were scarce, the public perceived the mentally ill as dangerous, and individuals with mental disorders were involuntarily transferred from their homes into dirty, overcrowded public institutions, supposedly for treatment and public safety.12 Individuals who experienced mild psychotic episodes were typically locked into isolation and, if the episodes became too severe, they received sedation to control their behaviour.2 Since few individuals could afford the handful of private asylums that existed, most patients were admitted to public institutions, referred to as insane or lunatic asylums. These were harsh, ill-equipped facilities with underpaid staff who often treated patients cruelly.2

The first feasible breakthrough in treating psychiatric illnesses arose from advancements in psychodynamic therapies, notably the work of Sigmund Freud. Although this approach proved fruitful for neuroses and milder mental disturbances, treatment development for individuals suffering more severe psychoses remained stagnant.13 This impasse in the treatment of mental illness sparked the inception of somatotherapies – treatments by chemical or physical means.5 During the early decades of the 20th century, 3 unsubstantiated procedures were proposed as methods to shock the patient out of illness: insulin shock therapy, chemical convulsion shock therapy, and electroconvulsive shock therapy.4 Today, only electroconvulsive therapy remains in the armamentarium of psychiatrists, but not without its share of controversy.

DISCOVERY OF ECT AND EARLY APPLICATION

Lacking modalities for treating severe psychoses, Hungarian physician Ladislaus von Meduna turned to the medical histories and autopsies of mentally ill patients in search of a solution.4 What came of this search was the discovery that schizophrenia and epilepsy seldom occurred together, a phenomenon he coined biological antagonism.4 This phenomenon set the foundation for a belief that inducing convulsions could be used as a therapy for psychotic disorders. Stimulating convulsions through metrazol, a pharmacologic agent, Meduna showed the potential of convulsive shock in reducing psychosis symptoms.5 But there was a disturbing response in witnessing conscious patients endure painful convulsions that reduced the appeal of this particular treatment.5

On the heels of Meduna’s discovery, neurologist Ugo Cerletti extended the induction of convulsion to electric shocks. Having specialized in epilepsy, Cerletti understood that electric shocks applied to the cranium of pigs would create a transient epilepsy-like convulsion.2 In contrast to pharmacological induction of convulsions, electrical induction had the added benefit of retrograde amnesia, which increased its desirability as a treatment since patients would not remember the pain associated with convulsion.4 Similar to pharmacologic convulsion therapy, ECT reduced symptoms in patients suffering from depression compared to other treatments.4

The transition of electroshock therapy from animal models to human subjects raised serious ethical problems. The first test on a human patient occurred in April of 1938 when patient S.E., who had been diagnosed as paranoid schizophrenic, was institutionalized against his will and, as doctors later recounted, received treatment without understanding what was about to happen.2 S.E. later published a letter retroactively praising the doctors for curing him of his illness, which instilled the belief that convulsive shock could be used to treat mental illness in humans.3 The immediate improvement and short-term convalescence observed in this patient and a handful of patients thereafter led Cerletti and his team to believe that ECT was a panacea for psychiatric illness.3 In fact, eager physicians began recommending the procedure for nonpsychiatric conditions like psoriasis and ulcers.5 While these preliminary human tests revealed the potential for ECT in treating mental illness, the excitement quickly faded soon after.

RISE AND FALL OF A SOMATIC THERAPY

With minimal ECT regulations during the early 1940s, patient safety was a problem, which contributed to a rapid decline in ECT popularity. The first patients to undergo this treatment suffered spine fractures and joint dislocations due to the violent convulsions they experienced, which created further medical problems for physicians and a fear of ECT treatment for patients.13 Furthermore, adequate empirical research was minimal due to ethical limitations, with the majority of case information derived from anecdotal evidence.4 Understandably, this lack of appropriate regulation pro-
voked improper ECT practice and therefore a poor reputation of the treatment in the eyes of the public.\textsuperscript{8} Therapy without proper indication, inadequate adjuvant therapy, and technical inconsistencies rendered the practice of ECT problematic.

After addressing initial problems of patient injury, practitioners continued to provide ECT therapy through to the 1960s until social backlash and alternative therapies caused ECT treatments to decline.\textsuperscript{4} Methodology of ECT practice incorporating anesthesia, oxygen, and muscle relaxants reduced therapy-related injuries and side effects to improve patients’ desirability of this treatment.\textsuperscript{8} Still, public perception of ECT remained tainted due to the flaws observed in its early practice. These troubles became compounded by the abuse of ECT in psychiatric hospitals, which would later inspire the anti-ECT movement. Reports of ECT being used to punish patients in psychiatric institutions, as heavily publicized in the movie “One Flew Over the Cuckoo’s Nest,” added to the public’s disapproval of ECT.\textsuperscript{7} Visuals of involuntary patients being strapped down and forced into convulsions propagated the belief that the practice was inhumane. The suicide of Ernest Hemingway, who after multiple ECT sessions to ease his depression shot himself because he found the memory loss that came with the treatment simply unbearable, added fuel to the anti-ECT movement.\textsuperscript{7} It also led to an increasing number of lawsuits against ECT professionals by former patients.\textsuperscript{3,8}

During the mid-20th century, ECT remained the predominant somatic therapy available for psychiatric disorders, however, the concurrent discovery and development of psychotropic medications reduced the need for convulsions.\textsuperscript{7} Medications were proving their efficacy against placebos, and pharmacotherapy was seen as more humane regardless of the side effects that coexisted.\textsuperscript{7} Consequently, pharmaceuticals emerged as the standard therapy for preliminary management of psychiatric disorders by medical professionals, driving ECT towards obsolescence.\textsuperscript{7} Unfortunately, patients with disorders resistant to pharmaceutical therapy were left lacking a proper alternative.

RESURGENCE OF ECT AND INCORPORATION

The renaissance of electroconvulsive therapy in North America was led by the American Psychiatric Association (APA) as greater empirical evidence surfaced illustrating its benefit. After nearly disappearing from practice, a surge of research and press releases from the APA helped standardize the methodology of ECT, with appropriate indications and contraindications.\textsuperscript{3,8} ECT re-entered the armamentarium of psychiatrists for incapacitating mental disorders such as major depression, bipolar disorder, and catatonia, where pharmacotherapy alone lacked effectiveness.\textsuperscript{8} Further research revealed nonpsychiatric potential in Parkinson’s disease and epilepsy, thereby increasing its therapeutic value.\textsuperscript{4,5} Coincidentally, ECT has re-emerged as an efficacious therapeutic modality for psychiatric and nonpsychiatric disorders, as was alleged by physicians during its inception.

Since Cerletti’s innovative discovery of ECT in the 1930s, the procedure has undergone a complete transformation. The technique itself has undergone changes in the equipment used to induce the electric stimulation, and concomitant therapies have been integrated to mitigate side effects and potential injury.\textsuperscript{4,7} Likewise, policy has adapted to prioritize the health of the patient, ensuring patient safety and other issues that had plagued the therapy earlier in its history. In contrast to the unknowing patients that ECT was tested on, patients now undergo rigorous testing by physicians to ensure that treatment is the ideal option, and are well informed of the procedure and risks.\textsuperscript{4}

Still, public perception remains skewed in judging ECT as an inhumane treatment, and many individuals think the procedure is unlawful. This prevailing misconception elucidates the necessity to educate the public about the benefits of this treatment, and explains the regular press releases from the APA educating doctors.\textsuperscript{7} Currently, most patients with major depression still reject ECT as a possible treatment, despite medical literature and patient testimonials reporting positive outcomes.\textsuperscript{2} Interestingly, even 7% of physicians in 2005 believed ECT to be obsolete.\textsuperscript{7} Consequently, the APA has designated a task force of professionals to tackle ECT misinformation through press releases, workshops, and published reports. Accordingly, this effort has created an initiative to reclassify ECT as a low risk procedure.\textsuperscript{2,41}

CONCLUSION

Although electroconvulsive therapy is back in the psychiatry toolkit, its controversial history has left it entrenched in public doubt and skepticism. The misconceptions surrounding the practice are deep-rooted and will require extensive education of physicians and the public to dismantle. Organizations such as the APA have made it a priority to better educate the physicians offering ECT treatment and to eliminate the stigma associated with ECT.

Psychiatric disorders are a major burden to society, both economically and socially, and so it is critical that we continue to strive for better treatments and ultimately a cure. Consequently, research regarding the mechanisms of ECT have now yielded more effective and less invasive techniques. Newer brain stimulating techniques such as transcranial magnetic stimulation and deep brain stimulation have sprouted from the knowledge of ECT, and now provide better alternatives to convulsive therapy.\textsuperscript{[5,6]} Despite being less than a century old, ECT has survived a controversial and tortuous life, and the future may be just as uncertain. But regardless of what the future may bring for the treatment of psychiatric disorders, it is important to appreciate the influence of ECT in the present era, and the undeniable effect it has had on the treatment of mental illness in the past.

REFERENCES

Machine learning in medicine

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ABSTRACT
Machine learning (ML) is a powerful and flexible tool that can be used to analyze and predict outcomes from biological and clinical data. ML models have the potential to improve healthcare efficiency in a number of ways. Algorithms that predict prognosis empower healthcare officials to allocate resources optimally and physicians to select better treatment options for patients. Diagnostic models can be used in screening, in risk stratification, and to recommend appropriate testing and treatment. This would decrease the burden on physicians, increase and expedite patient access to care, save resources, and reduce costs. However, despite the research advances of ML in medicine, its role in the clinic is currently limited. Model building and validation may require large amounts of high-quality data that can be difficult and expensive to obtain, and diagnostic models must be individually built for each disease, a lengthy process. The psychological aspect of trusting black box algorithms may also be challenging to accept. Continued ML research, however, may enable the use of smaller datasets and the development of more transparent models. Careful trials in the clinic will need to be conducted before the more impactful uses of ML, such as diagnosis, can be implemented.

INTRODUCTION
Machine learning (ML) is a branch of artificial intelligence (AI) that has become ubiquitous in many fields. Essentially, from an initial training dataset of features and outcomes, an algorithm learns how the features relate to and are predictive of the outcomes. On subsequent data, the ML model can predict outcomes when presented only with the features. Models are currently used by banks to detect fraudulent transactions, by email servers to filter spam, and by astronomers to analyze galaxy images. ML especially excels at identifying patterns in large and noisy datasets, making it useful for analyzing complex biological data. As a simple example, an algorithm may be trained to predict outcomes such as whether a tumour is benign or malignant from features such as tumour size. The model could then make predictions on new tumours whose outcomes are unknown. Data on which ML can be trained range from numerical data of blood biomarkers to medical images. Thus, ML is a versatile and powerful tool that potentiates personalized medicine, providing a more precise understanding of individual patients and their needs. Here, we examine how ML can improve the efficiency of our healthcare system in areas of prognostics, diagnostics, and increasing access to medical care.

PREDICTING PROGNOSIS
Prognosis prediction includes approximating outcomes such as a patient’s disease susceptibility, disease recurrence likelihood, life expectancy, and response to treatment. The factors involved are complex and multifactorial, and thus, it is difficult to provide a definitive prognosis for many conditions. Accurate prognosis prediction is valuable as it helps healthcare providers make informed decisions about resource allocation and best treatment practices. A tool to predict response to treatment, for instance, would allow physicians to tailor treatments to individual patients. Such a tool would enable physicians to identify which patients would benefit from adjuvant or alternative therapies and which patients would not, sparing the latter from treatment risks and side effects.

The field of oncology in particular has been extensively studying the use of ML methods in predicting prognosis. One review reported that ML improves cancer prognostic predictions by 15-25%. The rise of high-throughput sequencing has pushed the consideration of genetic markers in treatment decisions, and ML is useful for modeling complex genetic data. For example, a classification ML algorithm trained on microarray data of breast tumour tissues found different genetic signatures associated with metastatic phenotypes and with certain treatment prognoses. These patterns could serve as clinical indications for different treatments, leading to better patient outcomes. A study on hepatitis B virus-positive metastatic hepatocellular carcinoma also used ML to identify signatures from 153 genes to predict metastasis and survival.

SCREENING, DIAGNOSIS, AND ACCESS TO CARE
AI has the potential to streamline healthcare diagnostics by reducing cost and time to diagnosis. ML has been demonstrated to be capable of screening patients, stratifying patients by risk, and assisting physicians in decision making. Screening models have been built to detect diseases such as congenital cataracts, skin cancer, heart disease, hepatitis disease, and autism. Given the high stakes of medical decisions, a model built with particularly high sensitivity could be an inexpensive tool to rule out diagnoses, leaving potentially positive cases for physicians to investigate. These models could also be distributed to patients for preliminary evaluation and to prioritize patients at risk. For example, Esteva et al trained algorithms to classify skin lesion images as cancerous or benign at an accuracy that matched dermatologists. Mobile-based evaluation of other diseases could also be feasible. For instance, Wall et al developed a highly accurate model to assess and diagnose autism. Given that the incidence of autism is increasing and evaluation involves analysis of candidates’ home videos, mobile tools could be valuable in assessing a wider population. Indeed, models developed for many diseases could potentially be deployed on mo-
bile devices for greater access to care.

Screening could be particularly advantageous for rare diseases. Rare diseases are typically difficult to identify, and this may lead to delayed or incorrect treatment, possibly with harmful consequences to the patient. Because specialists are usually concentrated at larger health institutes, patients with rare diseases may have difficulty accessing expertise for diagnosis and care. Thus, Long et al examined whether AI could provide a unique management system for rare diseases. They built ML models to screen patients for congenital cataracts, perform risk stratification, and suggest treatment. In fact, the models performed to the same level as ophthalmologists. A widely accessible system of such models could increase access to the expertise required to identify and care for patients with rare diseases.

**CHANGING THE ROLE OF THE PHYSICIAN**

As ML algorithms improve and their applicability to healthcare broadens, ML will be gradually introduced to the healthcare system. In fact, ML already forms the basis of radiology tools such as image segmentation to isolate areas of interest. Increased capabilities of ML, however, may displace physicians from some of their roles. For instance, image-reading specialties such as radiology involve identifying patterns from medical images. Such tasks are suitable for ML as the data are consistent in format, and diagnoses often can be made from the images alone. Given equal accuracy to human assessment, algorithms would be advantageous in providing immediate results while reducing cost. One study, for instance, found that computer-aided detection could replace the traditional second reader in detecting small breast cancers. The increasing use of imaging due to technological advances has also escalated the workload for radiologists. ML would reduce the burden and provide consistent 24-hour service, whereas human radiologists may make errors in circumstances such as overnight shifts. Models that have been built for computer-aided diagnosis include those that detect pulmonary embolisms, polyps in CT colonography, and patterns of mild cognitive impairment in brain scans that precede Alzheimer's disease. By extension, physicians of other image-based specialties, such as pathology, may also perform fewer image analysis tasks as ML algorithms improve.

**CHALLENGES TO TRANSLATION**

Despite its widespread use in other fields, ML has failed to make an equivalent impact in the healthcare system. One of the biggest challenges is the enormous amount of high-quality data often required to build and validate ML models. Though patient data is increasing in abundance, they may be incomplete for ML purposes. One model that aimed to predict the survival of postmenopausal women using electrocardiogram biomarkers, clinical factors, and demographic variables performed worse than the current standard, the Framingham Risk Score. This was at least partly because the data lacked information known to be important to the outcome, such as blood biomarkers. Another possible problem in applying ML to healthcare data is that predictive variables may be infrequently tested in clinic or only tested in limited patient subgroups and thus are generally unavailable. Therefore, there may exist important predictive features that ML would fail to recognize. Furthermore, some lesions, such as in cardiac and vascular tissues, are generally not biopsied, which limits the availability of molecular and histological information. Aside from the data needed to build the model, data must also be acquired from multiple independent populations to validate the model. As biological data is expensive to acquire and not typically shared among researchers, quality and quantity of information is a major inhibitor of ML progress in medicine. The study that used electrocardiogram markers to predict mortality in postmenopausal women, for instance, failed to find an appropriate external dataset on which to validate their model. These issues are currently being addressed by research that aims to build models from smaller datasets.

Another challenge to translation is the psychology involved in using machines to manage patients. A human error rate is generally accepted in healthcare, but machine error that carries health consequences may be difficult to accept. Some powerful ML methods are also black box models where the algorithmic mechanism is unknown, and the medical community may feel uncomfortable with this lack of transparency. However, ongoing research efforts to improve model transparency are promising, and if ML performance eventually exceeds that of a physician for a task, it may be considered inefficient and unethical not to defer to ML. Additional clinical trials will be required to determine the appropriate and responsible use of AI in healthcare.

**CONCLUSION**

ML shows tremendous promise in increasing the efficiency of our healthcare system. It has demonstrated the ability to predict prognoses, provide diagnoses, and increase the reach of medical care. As novel predictors of health-related outcomes are discovered, ML findings will also contribute to research developments and our understanding of disease. However, because ML generally requires large quantities of high-quality data, progress is costly and time-consuming. Nonetheless, advances suggest that this technology may grow to be a fundamental part of our healthcare system, decreasing the burden on physicians and improving the speed and depth to which patients can be attended. As domain knowledge is necessary to interpret ML findings, physicians will continue to be key in providing empathetic care.

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The complexity of cross-sector healthcare teams
An interview with Dr Shannon Sibbald

Dr Shannon Sibbald: I did my undergrad in Bachelor of Health Sciences program here, at Western. When I was here I had the opportunity to work with phenomenal mentors and faculty, and one of my mentors, Dr. Louis Charland, really helped me understand how much I enjoyed research. Like many students who start the BHSc program, I thought I wanted to be a doctor! My interests changed as the program allowed me to look at health from a different perspective—as a holistic concept as opposed to just a biomedical concept. I spent summers working at the University of Toronto Joint Centre for Bioethics, and that's where I ended up doing both my Masters and PhD. I was in the Institute of Health Policy, Management, and Evaluation, with a subspecialty in Bioethics. I returned to Western to work with Dr Anita Kothari and Dr Nadine Wathen and did a three-year postdoctoral fellowship, during which I began focusing my time more on cross-systems and intersectoral work. So while my graduate studies were heavily focused in acute care in hospitals, I started looking more at other sectors like public health, primary care, and long-term care, and began to understand truly how complex our health system is. After then, I did a six-month post-doc with the International Center for Health Innovation and Leadership out of Ivey, and at that time a position came up that involved working with the Department of Family Medicine, the Schulich Interfaculty Program of Public Health, and the School of Health Studies. It was perfect—it was everything I'd been doing up until this point all wrapped up into one perfect role! The job allows me to continue working in interdisciplinary and cross-sector research, and I've been here since 2013.

What drew you towards interdisciplinary health systems research?
I really want to help people—to help patients, but knowing that I didn't have a clinical interest made me think, “What can my contribution be instead?” And I think I’m good at research; I enjoy it, whether it be coming up with a research question on my own or being involved with integrative knowledge translation. I try to be involved with knowledge users—policy makers, physicians, people who are using the knowledge on the ground—and come up with research questions that will ultimately and hopefully impact their day-to-day practice, which then in turn impacts patient care. I’m drawn to new, innovative, changing, and dynamic systems, and that’s what healthcare is. There’s always new policies, new legislations, grey papers, or political promises. There’s always something going on that's affecting the health of Canadians, so to be a part of that but at the same time use my own strengths was what really drew me into health systems research.

Could you tell us about your current research?
In order to understand the complexity of the health system, it is necessary to understand each of the working pieces and how they function. My goal right now is to try and understand how teams function within healthcare. Whether or not teams are the best approach to handle a scenario is kind of up to debate. Dr Natalie Allen, a great researcher here on campus, has a paper called “The Romance of Teams,” where she says teams aren’t always the best approach; it depends on a number of factors. In healthcare though, it’s the reality—whether or not teams are the best from an evidentiary point of view, we do a lot of things using teams, and that largely comes down to the right mix of health professionals along with task complexity and financial costs. We know that a service delivered by a personal support worker is going to be more cost-effective than a service offered by a physician, so we need to figure out how to best deliver care in a team-based way. With that in mind, I am trying to understand what team-based care looks like across primary care and hospital care.

I’m looking at patients with complex care needs, like with COPD. These patients need a team that can work across the sectors. They need a primary care team, an acute care team for when they need to be in the hospital, and many of them also have long term and home care needs. We’re getting really good at team based care in a hospital, with a classic example being a surgical team. Those teams have in some ways learned how to do it really well. Even in primary care we’re getting better at understanding what a team should look like. But what does a team look like that has to navigate across those sectors?

We’re looking at what we are calling high-performing teams. They have the right mix of health professionals, and they’re working in a way that’s effective and efficient. How have they figured it out, and what’s the secret? We hope we
can understand their secret to success and share those lessons with other teams who are trying to do a similar task.

What does the current average cross-sector team for COPD care look like?

The answer is we don’t know yet; there’s not a lot of consistency. We have 14 Local Health Integration Network (LHINs) in Ontario, and in just our LHIN alone we’re trying to categorize all the different COPD programs available. And COPD is complex because there are multiple stages. Something that might work for someone with early stage COPD in the community would not work for someone who has late stage COPD and needs care in the home.

There are some exemplars out there. For example, I’ve done work with the Canadian Foundation for Health Care Improvement and they recently did a quality improvement collaborative project called the INSPIRED COPD Outreach Program. That was their attempt at a cross-sector, inter-professional, inter-disciplinary, patient-centered team. We’re in the process of evaluating the impact of those teams. What happened to allow some teams to do so well, while others never got off the ground?

Are there any countries or provinces other than Ontario that has a successful intersectional teamwork model?

The example I gave you earlier of INSPIRED actually comes from Nova Scotia. But in terms of what’s really happening, we don’t know yet. My goal is to reach out to colleagues in other provinces to start those discussions. Even in London, there is so much diversity. I think that’s a good thing, because that means that patients potentially have access to this diversity of programs. But the challenge comes when there’s not a program in their area that’s right for them, and this can be because of many factors like disease stage, access, or patients’ wishes. So the multitude of programs can be seen as a good thing, but the fact that those programs are not well coordinated is where we have a challenge.

What is the biggest barrier to creating an effective integrated system?

We have historically provided healthcare in silos, and unfortunately the silos are perpetuated by the way they’re funded. It becomes really challenging to make a change when at the end of the day you still have to pay for the services somehow. Who owns this intersectoral healthcare team? Acute care probably doesn’t think they own it because it’s not happening in the hospital, even though these patients eventually end up at their front door! Primary care is often willing to own it but they need the support of other sectors. It’s really difficult to coordinate when the systems are not very integrated. I think that’s one of the biggest challenges, but I also think we currently have an opportunity with changes coming down the pipe with Patients First Act.5,4

What’s the current state of education in terms of interprofessional, team-based learning?

I’m very interested in team-based learning. I have this hypothesis that if we are training all of our health professionals in a team-based learning approach, they’ll work better at point-of-care in a team based case approach. Another long-term goal of mine is to test out this hypothesis. It’s important to educate people on the complexities of the systems, but we also need to teach people how to function within a complex system. We’re not going to change how complex the system is, so we need to teach people how to work within it.

Here at Western, all the learning in the MPH program is team-based. We have a strong competency-based and case-based curriculum, and we are using it as a living laboratory to test out some of those assumptions. There’s a lot of literature around inter-professional education, but oftentimes that literature focuses more on inter-professional education once people are already working. What I’m suggesting is maybe we need to start evaluating inter-professional education a little earlier in the classroom in graduate and undergraduate training.

Do you have any advice for medical students or students in general who are interested in health systems?

Don’t be afraid to challenge the system. No matter what area you go into, as a doctor there’s always an open door to challenge the system. If you see something that’s not right in the system, or if you see a way to make it better, to do it because you have that credibility to make things happen. And that’s why I feel very fortunate to be jointly appointed in the Department of Family Medicine, because I have the ability to sit down with family doctors and find out what is actually happening on the ground. I can only speak from my research perspective and what I see happening is from a systems point of view, whereas the clinicians actually live it.

FURTHER READING

A series of unfortunate events
How should a health system react after preventable medical errors?

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CASE INTRODUCTION

Mr. B presents to the ED with a 4 day history of dyspnea. He is a smoker, and was diagnosed one year ago with systolic heart failure (NYHA II). He has a history of hypertension, and is on enalapril 10mg PO BID and labetalol 200mg PO q12h. Physical exam reveals bilateral crackles and moderate peripheral edema. The ED physician orders a chest X-ray, and observes signs of pulmonary edema. A decision is made to admit Mr. B, but it proves difficult to diurese him, and the decision is made to insert a Foley catheter on the ward. On the third night of his stay, he complained to a member of the cleaning staff of severe pain in his right leg. The staff member subsequently notified the nurse, who was able to contact the resident on call. A bedside ultrasound was performed, and confirmed the presence of a DVT. The resident also noted that the patient had not been started on DVT prophylaxis. After morning rounds the patient was started on anticoagulation, and his pain resolved within a few hours. Now on his 4th day in hospital, the nurse noted that Mr. B was now febrile, and that he was producing cloudy urine. The catheter is removed and Mr. B is started on empiric antibiotic therapy, and a few days later the infection resolves. However, Mr. B spent 5 extra days in hospital and was discharged feeling extremely displeased with his care. You are the hospital director of quality improvement, and have been asked to review the case and suggest solutions.

WHAT IS QUALITY IMPROVEMENT AND WHY SHOULD WE BOther?

Quality improvement (QI) is defined as “the combined and unceasing efforts of everyone-healthcare professionals, patients and their families, researchers, payers, planners and educators, to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning).” The Institute for Healthcare Improvement, a leading QI organization based in the United States, advocates for the use of a systematic QI process, outlined in Figure 1. In order to create change, the problem must be rigorously defined, including the patient population and health systems that will be affected by the proposed interventions. Quantitative measures must be defined prior to implementing any changes in order to determine whether a specific change has improved the outcome of interest. Ideas for interventions should be solicited from healthcare professionals, others working in the system, and those who have previously completed successful changes. It is important to note that traditionally, QI has been distinguished from research by its focus on local problems and its use of Plan-Do-Study-Act cycles of rapid data collection and refinement of interventions. QI was also normally not carried out with the intention of publishing scholarly papers. This distinction is currently being blurred, with the advent of QI-focused journals, as well as QI work published in prestigious traditional research journals leading some to question whether QI projects should be subject to similar oversight as other research programs.

Preventable complications in hospitalized patients represent an enormous burden on our healthcare system. The WHO has reported that 7% of hospitalized patients in developed countries will acquire a healthcare associated infection, with rates as high as 30% in patients in intensive care units. The Canadian Patient Safety Institute reports that about 8,000 Canadians die each year from hospital acquired infections, and that in 2010 $129 million was spent treating these infections. A meta-analysis of hospitalized patients in Vancouver, BC, found that infection with vancomycin-resistant enterococci (VRE) increased the length of stay by an average of 68%, or 13.8 days, and increased costs by 61.9% or $17,949 in absolute terms. For these reasons, reducing hospital-acquired infection has been a major goal of quality improvement efforts. In the United States a program aimed at reducing central-line infections has been adopted in at least 45 states, contributing to a 63% decrease in these infections between 2001 and 2009. The program uses a model focused on collaboration both within and between states and is supported by centralized data collection and a distribution tool that provides each participating hospital with real-time reports of their infection rates.

Although national level estimates of hospital acquired DVT are not available, Canadian data suggests that DVT also represents a serious cost to our system, with each case averaging $5180. At a large US teaching hospital, a QI effort based around provider education, reminders, decision support tools, data audits and feedback was implemented over a 3 year period to improve adherence to DVT prophylaxis guidelines. Over this period of time, adherence to the guidelines increased from 63% to 96%, while rates of hospital acquired DVT fell from 2.6 per 1,000 discharges to 0.2 per 1,000 discharges. Clearly, avoiding preventable complications should be a goal for hospitals as well as our healthcare system, and well-conceived QI measures represent an important method for achieving this goal.

EVALUATION OF THE CURRENT CASE

What are the possible lapses that have contributed to Mr. B’s complications? At multiple points throughout this case, breakdowns in communication contributed to the eventual outcomes. Evidence has shown that handover procedures are frequently in-
complete, and that in some cases information considered important by physicians and nurses is omitted, and that ineffective communication is one of the leading causes of medical error.

Although this case does not specify whether standard protocols for DVT prophylaxis or catheter insertions are used at this hospital, it is possible that both complications may have been avoided by the use of “bundled” care. Electronic medical records often have these bundled orders that are implemented automatically upon the initiation of certain procedures.

It is important to recognize what went well during the course of Mr. B’s stay in order to acknowledge and learn from these positive actions. Well trained housekeeping staff were able to quickly alert the nursing staff to Mr. B’s problem, and he was subsequently able to get treatment quickly. Additionally, despite his complications, Mr. B was able to be discharged to home with no long term consequences. Finally, the fact that the hospital initiated a QI effort is a crucial step towards creating positive change in this system.

STRATEGIES FOR IMPROVEMENT

A first step for initiating any QI initiative is to involve the right people in the effort. This team includes members with expertise in the technical details of the case, a day-to-day leader of the initiative, representation from allied healthcare professions affected by the proposed changes, as well as a sponsor or champion in hospital management to advocate for the project. Once established, this QI team should actively solicit ideas for improvement initiatives, some of which are detailed below. Before undertaking any changes, quantitative outcome measures must be defined in order to track the success of the intervention. These measures will vary based on the aspect of care being targeted, but must be relatively easily tracked over time and must be meaningful in the context of the goals of the QI project. Potential strategies for change in this case include:

**Standardized communications**: The Situation, Background, Assessment, Recommendation (SBAR) method has been proposed as a method to ensure that all team members are on the same page. Using this method, all members of the healthcare team frame their communications around four questions: What is going on with the patient? What is the clinical background or context? What do I think the problem is? What do I think needs to be done for the patient?

**Team huddles**: Implementing focused ‘huddles’ with all members of the care team at the beginning of every shift in order to set out the goals and action items to be attended to has been shown to reduce the need for interruptions in order to seek clarification later in the shift.

**Goal oriented multi-disciplinary rounds**: Daily rounds including all members of the healthcare team are focused using a patient centered approach, where the aim is to ensure that all members of the team are clear on what the goals of care are for that day. Evidence suggests that these rounds can significantly increase the proportion of nurses and physicians who understand the goals of care for that day, and can reduce the length of stays in the ICU by up to 50%.

**Bundles of Care**: Bundles are sets of evidence-based practices designed to prevent complications. Bundles may be designed by the QI team, in collaboration with other content experts, or taken from existing literature. In one study, implementation of care bundles along with multi-disciplinary rounds resulted in significant reductions in nosocomial UTIs, including four consecutive months without a catheter associated UTI in an ICU setting.

You form a working group consisting of the unit charge nurse, an infection control expert, a consultant internist on the same unit and yourself as hospital administration champion. Over the course of three meetings, the team reviewed the case and identified areas for improvement. Initially, two measures were selected: the rate of catheter associated infections on the unit, and nursing staff’s self-reported knowledge of the assessment and treatment plan for patients under their care. After baseline data was collected, the team implements two changes. First, goal oriented multi-disciplinary rounds will occur on a daily basis. Additionally, an evidence based bundle of care is put in place through the hospital’s electronic medical record for patients receiving urinary catheters. Data collection will continue throughout the trial period, lead by the unit charge nurse, and both interventions will be re-evaluated after one month.

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**Figure 1.** The systematic process of Quality Improvement. Adapted from the Institute for Healthcare Improvement’s Model for Improvement.

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CONCLUSION

This case has illustrated only a few of the nearly limitless opportunities for change in healthcare. QI, as a systematic cycle of iterative changes based on locally generated data, is a template that may be applied in many other healthcare settings. By using a systematic approach, we are better able to evaluate changes that have the potential to tackle the many challenges facing our healthcare systems and allow others to learn from our work.

REFERENCES

OECD single-payer policy review

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ABSTRACT
The Canadian national public healthcare system is federally funded and delivered within provincial and territorial jurisdictions. While this system is a source of national pride, the limitations of this mode of healthcare delivery are an important point of consideration in light of the changing demographic and social factors upon which this system's ongoing economic viability will depend. The Organization for Economic Co-operation and Development aggregates and reports on measures of national health statistics, and therefore provides a valuable point of comparison between Canada and similarly economically developed nations with public healthcare options. A number of salient public policy differences between Canada and other nations are discussed they relate to healthcare delivery. Two broad health policy areas are emphasized as potential areas of improvement with regard to efficient, cost-effective healthcare delivery: access to primary care, and integration of care between primary and specialist services.

INTRODUCTION
Since the implementation of the Medical Care Act of 1966, Canadians have been justifiably proud of the universal healthcare system in our country. The Canadian single-payer healthcare system, and the tacit implication of national values with which it has been associated, has for many embedded itself into the very identity of what it means to be Canadian.

The Organization for Economic Cooperation and Development (OECD) is an intergovernmental agency that collects economic data among developed nations. Among the 35 member countries regularly included in its analysis, the Canadian healthcare system stands relatively average as compared to similarly structured single-payer systems. National healthcare spending ($4608 per capita) is not substantially different than the majority of European, Australian, and South American counterparts. Among other measures of health outcomes reported by the OECD, the Canadian healthcare system reports falls below the top ten nations in a number of measures, including: life expectancy (79.4 years), percentage of population over the age of 15 who are overweight or obese (52.5%), and the number of hospital beds per 1000 people (2.7). Overall, the Canadian single-payer healthcare system is falling behind international best practices. Within the context of healthcare systems delivery, it is therefore imperative to identify both potential areas of improvement.

ACCESS TO PRIMARY CARE
Access to primary care is an essential component of a robust and economically efficient healthcare system. In Canada, primary care include services such as mental healthcare, palliative and end of life services, health promotion, healthy child development, primary maternity care and basic rehabilitation services. Overall, the benefits of primary care service in Canada are evident: this form of healthcare delivery is cost-effective, allows patients access to rapid treatment, reduces burden on specialist services, and improves disease prevention and health outcomes for patients. However, the proportion of Canadians who have access to same-day primary care (41%) lags behind similar nations like New Zealand (72%) and Germany (76%). This is a consequential reality within the Canadian healthcare system. Patients who do not use primary care are driven to more expensive points of access. For example, a study from Ontario found that over half (57.4%) of patients in the emergency department would have chosen to use primary care if it had been available to them. This problem is not exclusive to Canada, as many single-payer healthcare economies grapple with the issue of “inappropriate” emergency department (ED) use. This is characterized broadly as visits that could otherwise be attended to by community-based primary care services. However, Canada seems to be unique in the extent to which this problem exists, with a reported 25% of ED visits in Canada are patients who could otherwise be seen in a primary care setting, as compared to 12% in the United States, 20% in Italy, and 15% in the United Kingdom.

The benefits of improving primary care access are enormous, and healthcare systems that achieve success in this realm realize benefits across a variety of health and economic measures. New Zealand is a global leader in this regard, having entirely restructured their healthcare policy approach to primary care in 2001. The New Zealand government finances all health expenditures for all hospital and specialist care for patients referred by a primary family practitioner. The Primary Health Care Strategy was a program which decentralized healthcare provision from the federal government into the control of 82 District Health Boards (subsequently reduced to 46 in 2008) representing unique districts of the country. These District Health Boards are composed of elected board members from the communities themselves, and the mandate of the boards is to take the responsibility for their communities' unique needs in an entirely non-profit context. This initiative was widely lauded for its success – today the proportion of New Zealanders with access to primary care is 94%.

INTEGRATION OF CARE
In so far as primary care access is an important measure of healthcare system deliverability, integration of specialist care services is an essential component in the continuation of primary care service. Failure to integrate services remains a ubiquitous and
obstinate barrier to healthcare in Canada. Nowhere is this lack of integration more pronounced than at the junction of primary and specialist care: a 2016 study of primary care physicians in Canada found that 71% of doctors reported not receiving relevant patient information following a specialist appointment, including changes to patient prescriptions and care plans. Patients also recognize the lack of integration of care in Canada – a survey of Ontario residents found that 18% reported that their doctor “did not seem informed” about the care they had received from a specialist appointment.

By virtue of the compartmentalization of service, and without incentive to achieve maximum efficiency in integration of care, it is easy for single-payer healthcare systems to fall victim to healthcare integration problems. The German healthcare system combines public and private insurance for healthcare delivery – with the majority of the population (88%) accessing healthcare through the public stream. This system of delivery was at the height of inefficiency in the year 2000, where the majority (68%) of German primary care physicians worked in solo practice, more than 50% of whom reported that it took more than 14 days to receive full reports of their patients upon discharge from hospital. Coordination of care with community services such as long-term care, support services, and residential environments for patients with physical or mental deficiencies were criticized as being ineffectual. These failures were largely attributable to disconnected financing streams of the country’s medical and social services. In response to these challenges, the German government set a large-scale policy overview with a view to remove inefficiencies and improve integration between primary care, specialist care, and community services. These policies included a number of reforms including improving the gatekeeping mandate of primary care physicians within the healthcare system, investing in preventative disease management programs and medical care centers, and developing integrated care contracts – a system through which care is provided within a network of care providers that are overseen by independent management organizations. German healthcare integration is now regarded as one of the most efficient in the world, 90% of patients reporting that their primary care physicians were aware of their hospital admission care, as compared to 75% of patients in Ontario.

CONCLUSION

It is important to recognize that no healthcare system will ever be perfect. Healthcare delivery is unique in its economic viability – it does not follow many of the basic economic assumptions that can be applied to other sectors. Furthermore, every system of healthcare delivery is a microcosm of the demographic, political, economic and social values of a society. That being said, it is important to recognize benchmarks of comparable single-payer healthcare systems in order to generate new ideas to improve Canadian health services. By acknowledging varying provision practices and objectively measuring their success, governments and health advocates can more effectively improve healthcare within our own communities.

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Chikungunya virus in Canada
A case report highlighting the need for increased global health education

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ABSTRACT
This article presents a previously reported case involving the first Canadian patient to acquire Chikungunya virus (CHIKV) infection after travelling to a newly endemic region in the Americas. The specific history and clinical presentation of this patient is examined, including the treatment and complete resolution of the patient’s symptoms. A brief overview of the general disease course and diagnosis of CHIKV is provided. This case emphasizes the importance of global health education in Canadian medical curricula. The current standards of global health education in Canadian medical schools are briefly reviewed and recommendations based on expert opinions are provided. Although such programs exist, their implementation was found to be variable between schools and increased attention and standardization is currently required.

CASE PRESENTATION
A 57-year-old Caucasian male with no previous medical history travelled to Martinique, an island in the East Caribbean, from mid-January to early February 2014. Around 3 days after his return to Quebec, he presented with several symptoms including fever, myalgia, and increasingly progressive headaches. The patient sought medical attention with his primary complaints being arthralgia in his extremities, joint swelling and a nonpetechial rash on his thorax. Upon further questioning, the patient reported that while in Martinique, he resided in a villa close to the mountains. Although the villa itself was reportedly well maintained, the patient reported mosquito bites, mostly during the first few days of his approximate 2-week stay. The patient did not experience episodes of fever, gastrointestinal or respiratory illness during his trip. He was evaluated for renal and liver anomalies with no significant results.

Serological testing for dengue virus was ordered on paired sera samples with negative results for the anti-dengue IgM and IgG antibodies. The patient was treated supportively with nonsteroidal anti-inflammatory drugs. Upon treatment, the fever subsided, however musculoskeletal symptoms persisted for an additional 2 weeks.

Four weeks after the initial symptoms, the patient received follow-up blood tests. The patient reported gradual improvement in symptoms, although arthralgia and residual morning joint stiffness were both still present. Physical examination displayed no signs of synovitis and a presumptive diagnosis of arbovirus infection was given. Additional serological testing for Rickettsia spp. and chikungunya virus (CHIKV) was conducted with a positive CHIKV IgM enzyme-linked immunoassay found. The positive finding was later confirmed by a CHIKV plaque neutralization test. Amplification of the CHIKV envelope E1 gene from the samples was initially attempted by reverse-transcriptase polymerase chain reaction. Successful amplification of the targeted genome resulted in a product that could be sequenced. These results were consistent with initial findings related to an Asian strain circulating in the Caribbean.

Eight weeks following his first patient visit, the patient reported returning to his previous state of health with a lack of residual febrile syndrome, and absence of both hand stiffness and other symptoms.

DESCRIPTION OF CHIKV: PATHOGENESIS AND EPIDEMIOLOGY
Chikungunya is an RNA alpha virus of the Togaviridae family that is transmitted by the Aedes aegypti and Aedes albopictus mosquitoes. Although the virus is endemic in nonhuman primates, humans can also serve as primary hosts during periods of acute illness that allow for infection of biting mosquitoes. The virus was first isolated in Tanzania in 1953 but spread to Thailand in 1958. In 2004, an outbreak sparked a transmission to Mozambique, India, Sri Lanka and other parts of Southeast Asia. The virus first reached the Western hemisphere in late 2013 with transmission to the Caribbean island of St. Martin. Since then, it has reached up to 44 countries including the United States and Canada.

CHIKV infection is characterized by an acute onset of high fever in addition to symmetric and severe polyarthralgia in the small distal joints. Other possible symptoms include headache, myalgia, and vomiting with further examination potentially revealing arthritis, lymphadenopathy, and conjunctivitis. The most common laboratory finding is lymphopenia, the severity of which correlates with the extent of viremia. CHIKV has an incubation period of 2 to 12 days with the subsequent viremia lasting between 4 to 7 days. Although acute symptoms typically do not last more than 2 weeks, up to 60% of patients can experience relapsing and severe arthralgias for months to years after the infection subsides. While CHIKV has a low mortality rate, elderly and immunocompromised patients are at a higher risk for life-threatening disease including meningoencephalitis, hepatitis, myocarditis, and nephritis. Differential diagnoses often include dengue virus, which carries similar symptoms (see Figure 1) and is transmitted by the Aedes mosquito in similar locations. Additionally, chronic arthralgia may mimic rheumatologic conditions including rheumatoid arthritis, underscoring the need a comprehensive history upon initial presentation.

Although malaria is still the most common cause of fever in travellers returning to Canada, a broader spectrum of other vector-borne and viral infections are being detected over time including measles, CHIKV and dengue virus. Since early 2014 and the
initial transmission of the CHIKV to the Caribbean islands, a dramatic increase in CHIKV cases diagnosed in Canada has been seen, emphasizing the need for increased awareness and education for Canadian clinicians and healthcare providers.\textsuperscript{12}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Clinical presentations of CHIKV and dengue virus including overlapping and distinguishing clinical signs.\textsuperscript{10}}
\end{figure}

\section*{GLOBAL HEALTH EDUCATION
Need for increased training}

Due to trends in globalization and travel bringing previously foreign pathogens to North America, students and medical educators should maintain a global perspective on infectious illness needs to mitigate the potentially negative societal impact of globalization. Globalization is a multifaceted phenomenon with a myriad of potential and critical health impacts, ranging from direct impacts on individuals through healthcare delivery to indirect impacts via economic and other social factors.\textsuperscript{13} For instance, globalisation resulted in liberalization of the airline industry, leading to a dramatic increase in global air travel, thus enabling the rapid spread of communicable disease.\textsuperscript{13} In the past 5 years, numerous emerging infectious agents such as Zika virus, Ebola virus, Enterovirus D68, and CHIKV have spread broadly and rapidly. These infections emphasize the need for increased training and awareness of global health issues. Furthermore, the rapid influx of newcomers due to international conflict, especially considering the recent crisis in Syria, highlights the importance of such training.

While “global health” can be an evasive term, especially when used with terminology such as “international health” or “tropical medicine”, it is increasingly being used to denote the health issues that transcend national borders, race, ethnicity, income or culture.\textsuperscript{14} Although significant differences exist between disease patterns based on geography, the factors that perpetuate disease states - which include poverty, political instability, limited access to care and genetic determinants - are often quite related.\textsuperscript{14} This similarity can perhaps be best exhibited by the rise of chronic conditions such as cardiovascular and lung disease in developing countries due to increased risk of smoking, poverty and educational factors.\textsuperscript{14} In order for medical students to be able to address these complex and nuanced issues, there has to be a clear and comprehensive integration of global health in medical school curricula.

\section*{Current status and recommendation}

The past few years have brought a substantial increase in medical students interested in global health.\textsuperscript{14,15} In a recent study conducted on American medical schools, it was found that many matriculating students had prior international experiences, and up to 30% chose to partake in international electives during their studies.\textsuperscript{15} Additionally, up to 68% of schools had active student global or international health groups.\textsuperscript{13} In a similar study in Canada, 53% of the medical schools had either specific global health lectures or modules as part of the mandatory courses.\textsuperscript{16} As a caveat, there is significant variation across schools in the material covered, the amount of information provided, and the year in which this training is offered.\textsuperscript{16} While all schools offer the opportunity to take part in international electives, there has historically been poor consistency in the pre-departure training provided, as well as the financial and organizational support provided by the school.\textsuperscript{18} Despite the growing interest exhibited by medical students and the increased need for global health training, medical school curricula have yet to deliver a sufficient and coherent response.\textsuperscript{15,16}

Recommendations have been made for the foundations of global health curricula in undergraduate medical programs. In a 2010 update to guidelines released by the Association of Faculties of Medicine of Canada Resource Group on Global Health/GHEC joint committee, the group proposed all medical graduate should have competency in the following areas: global burden of disease, health implications of travel, social and economic determinants of health, population health, globalization of healthcare, healthcare in low-resource settings, and human rights in global health.\textsuperscript{15} Another study based on work from the American Society for Tropical Medicine and Hygiene Committee on Medical Education consolidated the core competencies of global health education into 3 domains: burden of global diseases, traveller’s medicine, and immigrant health.\textsuperscript{15} Despite these consensus competencies, tremendous variability remains.

Despite the difficulty of incorporating novel elements into medical school curricula, and ensuring that these newer offerings are available in learning formats accessible to all students, it is critical to ensure that physicians graduating today have the skills to make them competent and effective practitioners. While standardized curricula of a specific length or format may be impractical for all medical schools to accommodate, increased student interest in global health and the increased demands on today’s medical practitioners require action.

\section*{CONCLUSION}

This report presents the first case of a Canadian acquiring CHIKV after travelling to a newly endemic region in the Western hemisphere. The clinical picture of this disease is also examined. While other potential causative infectious agents can confound diagnoses, it is important for clinicians to be aware of the different presentations of emerging infections. In addition, this case highlights the continual need for global health education in its varied formats for medical trainees. There is ongoing debate regarding
standards for global health education in Canadian medical schools, with a number of recommendations being put forward from expert opinion groups.

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