HEALTH SCIENCE INQUIRY

A publication platform for graduate students to discuss, discover, and inquire…

Volume 5 / Issue 1 / 2014

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Cover Design

Transplant *(Detail)* *David Longpre*

Description of Cover Design: This work is a rendition of a previous work I had constructed titled, “Transplant.” Two master modules were created then placed together to form a pattern, which can change with the rotation of each tile. The image is of a human heart with many accompanying arteries. As the HSI focuses on high quality articles facing health and society, in this work it reminds us how complex solutions can be although we can easily identify the issue.

About the Artist: David Longpre is an artist who recently completed his Bachelors of Fine Arts, Major in Visual Arts, from the University of British Columbia. David's work tends to focus on themes on humanity, history, urban environments, and nature. His practice primarily involves using print media, photography, and sculpture to express this thematic. He currently lives in Vancouver, BC but is in transition to Calgary to start his Graduate studies at the University of Calgary. He is an avid student of history, architecture and enjoys hiking nearby mountains when given the chance. More of his work can be viewed and acquired from his website: davidlongpre.ca

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Call for Submissions (Issue #6. June 2014)

HEALTH SCIENCE INQUIRY

A publication platform for graduate students to discuss, discover, and inquire…

Issue #6

Advancing Human Genetics into Health Action

June 2015

Health Science Inquiry publishes an annual issue each June, and we welcome all graduate students in Canadian Institutions to submit their thoughts. Our 2015 issue will focus on **Human Genetics and their application for Health Action**. We will once again partner with peer-reviewed journals to offer expedited review for publication with our partners. In addition to these structured commentaries, we will also accept news articles and creative editorial pieces for the next issue of Health Science Inquiry. Blog articles can also be submitted year-round for publication on our website. If you're interested in writing a piece or have any questions about our next issue, visit our website (**www.healthscienceinquiry.ca**) or email (**healthscienceinquiry@gmail.com**)!

Special Thanks to our 2014 Partnering Journals

HEALTHCARE
POLICY
Politiques de Santé

CFP MFC
CANADIAN FAMILY PHYSICIAN • LE MÉDECIN DE FAMILLE CANADIEN

Official Publication of
The College of
Family Physicians of Canada

MEDICAL
CARE

2015 Sponsorship Opportunity

Health Science Inquiry will be offering space for advertisements in its 2015 issue. GIven our unique role as a Canada-wide graduate student run publication, our readership and circulation continues to expand each year. For more information, please email healthscienceinquiry@gmail.com and refer to the tentative pricing details below.

TITLE OF YOUR ADVERTISEMENT

Sample advertisement, with information, including contact, e-mail address, telephone, website.

Large Box Example

- Size = 7.6” × 5.5”
- Cost = $300

TITLE OF YOUR ADVERTISEMENT

Sample advertisement, with information, including contact, e-mail address, telephone, website.

Small Box Example

- Size = 7.6” × 2.25”
- Cost = $150

TITLE OF YOUR ADVERTISEMENT

Sample advertisement, with information, including contact, e-mail address, telephone, website.

Full Page Example
- Size = 7.6” × 9.5”
- Cost = $500
- Limit of 4 Full-Page packages available

INTRODUCTION

Letter from the Editor-in-Chief

Dear Readers

I am pleased to present the 5th issue of our annual publication, exploring issues related to Primary Health Care and Primary Service Delivery in Canada.

Each day, thousands of Canadians receive primary health care services provided by general practitioners, family physicians and nurse practitioners. Research has shown that countries with strong primary care infrastructure have better health outcomes, better equity, lower mortality rates, and lower overall costs of care. Despite significant progress in recent years, the performance of Canada's primary care sector trails that of many other high-income countries.

2014 is an opportune time to explore this year's theme. Several provinces and territories have introduced primary care reform initiatives and strategies, and key federal and provincial elections are about to get underway. There is now broad consensus both within Canada and internationally that primary health care should aim to be: patient and family centred, accessible, effective, efficient, safe, coordinated and population-health oriented. Restructuring towards primary care groups, networks and inter-professional teams have been proposed as one method of achieving these goals, where care teams working alongside technological improvements in areas like telehomecare/telemedicine and integrated health records, can improve health, increase access to services, and improve the efficiency of resource utilization.

These themes are explored from the perspective of graduate students throughout this edition with a particular emphasis on the implications of reform initiatives for Canada's diverse populations. This year, HSI received the largest number of submissions to date, highlighting the vast opportunities that exist in academia for students looking to contribute to a higher performing primary care system. We were delighted to have partnered with three leading academic journals– *Canadian Family Physician*, *Medical Care*, and *HealthCare Policy* – each of which have granted expedited review to the top article from each of our three submission categories. We are indebted to these journals and to our Faculty Judging Panel for taking the time to critique and review our top submissions.

Outside of the annual publication, HSI continues its efforts to become a year-round platform for discussion. Our website (www.healthscienceinquiry.ca) features a Blog offering readers meaningful perspectives on various issues in academia and the health sciences, written by graduate students throughout the year. In addition, HSI is pleased to release the second edition of its "*Spotlight on Careers*", a compilation of interviews and pieces delving into career prospects after graduation. This publication is an excellent resource for graduate students transitioning from academia, and can be accessed and downloaded from our website.

I am grateful of our dedicated team of staff members for their invaluable contributions and their time volunteered to provide a forum and a voice for graduate students researching in the health and biomedical sciences. HSI continues to grow and be recognized internationally as a student-run organization. I hope that this publication incites discussion among readers, peers and colleagues.

Sincerely,

Heather L. White
Editor-in-Chief

SECTION 1: ARTISTIC IMAGES

By collaborating with numerous talented students across the country, we are able to feature an Artistic Images section to showcase various artistic interpretations of healthcare and the medical sciences.

Intersecting Spaces

Hope Wells, MFA

With two Fine Art degrees from the University of Alberta, Hope puts her energy into expanding her thesis exhibition into research that makes connections between our external environment, the cause of cancer and the effects the experience has on a person, the family within their community. Humans trying to sift out the gem stones for our modern economy poisoning our water, air and soil, infecting our wildlife to the point they resemble horrible ancient leviathan like creatures. The locals rely on the animals for food, the river for water and as they consume the immediate resources Dr. John O'Connor noted cancer rising in the community by 31% between 1995 to 2003, a variety of cancer that are rarely seen these days. (Brym 2012, 92). Pain and loss that should never happened.

> ***Medicine is a social science, and politics is nothing else but medicine on a large scale.***
> **Dr. Ruldolf Virchow**

The toxic sludge's poisons sneak into the micro-environment of the pickerel making the tissues and blood cells become an acidic a breeding ground for the cancer cells. (Deisboeck and Couzin 2009). The genes are triggered into anxiety, "We can't stop multiplying". The cells build and pile on top of one another forming lumps and humps in the helpless body of the pickerel. The invading tumor knows the immunity system is going to try to stop it so the cystic mass begins to make its environment even more acidic the stromal cells become fearful, which enslaves them to become the defensive force. Stromal cells are the decoy for the immune system keeping it away from the tumor so it may grow and spread to create other cancerous social communities. (Deisboeck and Couzin 2009). The fish is no longer the keeper of its body; it has become the home to cancer. In a desperate search for food and health the pickerel spots a worm just floating in space, it takes the bait trapped with hook in mouth and eye, it sores to the surface. Air hits its gills with a driving force causing it to gasp for oxygen; it no longer feels the cool soft water flowing though its scales. With a thud its body hits the rough wood of the boat. Soon the fishermen's body won't be his own.

Athabasca. 2013, Acrylic, silk, glass beads, wool, alpaca hair on linen, 66 cm x 61.5 cm
Hope Wells

As Hope researches the environment's effect on humanity, she makes connections between human body, the external environment, and individual's mind. Her thoughts settle on her Grandfather, who farmed through the 60's and 70's when the government was experimenting with chemicals to increase farmers' wheat yields. The farmers were not given any protection and there were no health and safety regulations to protect the farmers' health. These chemicals were given under the intention to increase the grain production by eliminating the need for summer following the land, which is every three years a piece of the land is not planted left to grow naturally and at around harvest time the field is set fire. The practice and tradition was ▶

to rejuvenate the top soil. Grandfather stopped putting the chemicals into his land after a couple of years when he realized the top soil was eroding away. The land eventually healed but Grandfather died of lung cancer on December 5th, 2004.

Creating social spaces through paintings, sculptures and video installations is Hope's passion, which maps influences from both past and present experiences with silk lines of connections and comforting blankets of wool and Alpaca hair (figure 1). Hope thinks about the future— she questions social, political and economic structures in people's lives and wonders how they affect every individual.

Hope's current research draws parallels between Thomas S. Deisboeck and Lain D. Couzin's, Collective Behavior in Cancer Cell Populations and Robert J. Brym's, Sociology: As a Life or Death Issue. The aim of this research is to question social, political, economic and environmental issues which individuals families and communities face daily. To inquire into sustainable social solutions to health related problems is to bring social awareness, communication and social impact to Canada's larger environmental crisis. As a methodology, design reflects functionality and aesthetics, while art pursues pure abstract form to represent a powerful way of perceiving and changing the world through a universal visual language (Arnason, 217).

Hope's collaboration begun in her living room with a student of history and archeology, an engineering student and an artist conversing about side projects each were working on individually. The conversation came to Hope's research regarding the social behaviours of cancer cells and damaged Canadian environments. It drew parallels to everyday social relations among humans and people's relationship with their environment. Staring at the computer screen of stagnant 2D digital images of cancer cell, Hope was asking the two students how hard would it be to make these images become viable with interactions and movements? The conversation ignited the imaginations of all three,

"There is a floating dome made up of cross-fibre-glass tent rods covered in sheer flowing fabric (chiffon, linen, wool: white to cream colour) hovering in a small dark room, a stop animation film of moving cancer cell and immunity cells is projected from below. Some experts suggest to project from the above, which will elevate the issue of viewer's shadows yet we may lose the effect of the cells filtering into the room. It is the filtering out beyond the membrane fabric, which connects us to our environment and our bodies."

D293.66. 2013, Acrylic, pyrite, Amethyst, Carnelian, wool, Alpaca hair, silk on linen
Hope Wells

Another phase of the proposed project is the addition of sound art — the idea that came to Hope, when she attended the performance by Edmonton-based sound artists Gary ▶

James Joynes and Scott Smallwood. Both were playing the high frequency sound art in a small dark space, a sound art sub-culture pub. With earplugs in Hope's ears and eyes closed, she became aware of the vibrations that began to generate throughout all her organs. At one point, a frequency was hit where the cyst is located in Hope's knee, which began to twinge and vibrate causing the knee to shake. A series of questions ran through Hope's mind, "Why did my knee react to that frequency? Or was it my imagination because of the experience? What if sound could highlight our ill parts of our body? What if sound vibration could promote healing? How do sound waves affect our bodies? When and how will we make the connection between treatment of the environment effect or treats our bodies with equal kindness? How does the process of creation of the artwork connect the relationship between environment and human?"

Sound art has an ethereal experience, which complements the experience of the stop motion animation film. Time becomes still; internal and external is turned inside out. Sound waves make a physical effect and connection of the viewer's body to the space and contemporary scientific thought, yet through human experiences. Paintings suspended between two acrylic rods with fishing wire are suspended throughout the inner space of the gallery, line of sight become complicated and imperative to the bodily experience. Memories, scattered and disconnected, isolated in a social space. The colour palette of the artwork is bright and expressive of devastation, trauma and loss yet in a hopeful and comforting way. They need to be displayed in low light, to create a more contemplative atmosphere.

As Hope constructs these spaces, she refers to sociologist Robert J. Byrm's ongoing research, where he analyses the state of the land and wildlife in relation to cancer rates. He and Rudolf Virchow challenges us and medical science to find, "truly effective [cancer] treatment, [which] must also involve investigating the social causes of disease and designing health and environmental policies that minimises disease risk" (Brym 2012, 98). Hope feels challenged to collaborate with the art and design world to find sustainable solutions, and then package the information to inspire and communicate the possibilities to the public. Communication with the end user needs to be clear and concise. This health issue needs the collaborative platform and interdisciplinary research angle to seek solutions.

Conclusion

Sociology builds relationships between social groups, culture and their environment. Within art and design, Landscape Theory discussed human settlements, including cities, and large natural resource industries as part of the natural world (Spirn 43). How we represent our natural world communicates cultural attitudes and awareness. Knowledge alone will not be able to begin to correct the damage on the environment (Spirn 44). Creating an integrated methodology between all disciplines is the key to having a holistic perspective. It will take the combined efforts of sociologists, ecologists, artists, designers, medical sciences and the community to plant preventative measures to reduce 'disease risks' within our living-spaces. ■

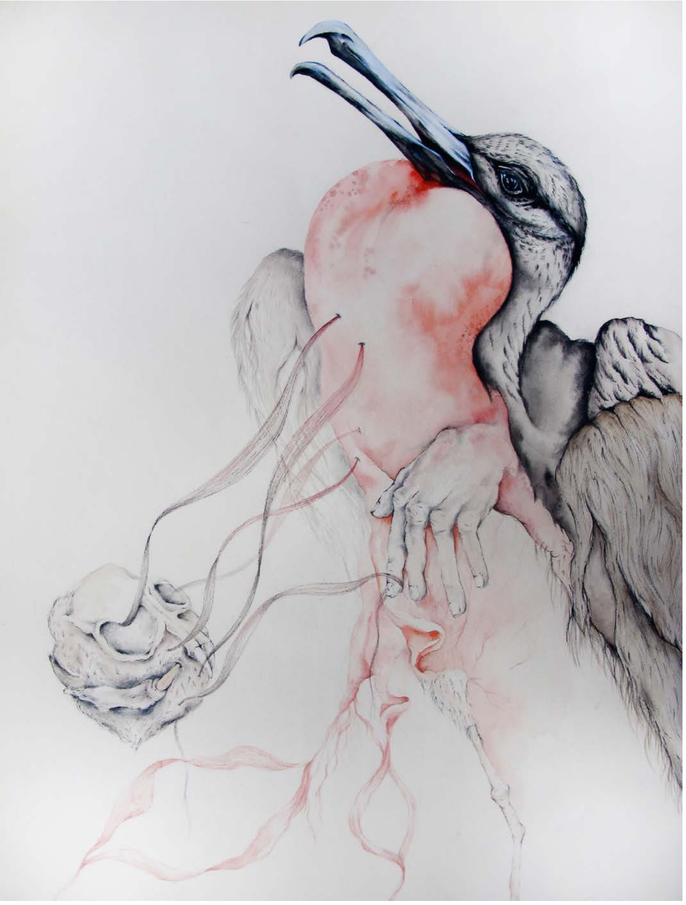
Sources

1. Arnason, H. H. and Marla F. Prather. *History of Modern Art*. New York: Harry N. Abrams INC, 1998.
2. Brym, Robert J. *Sociology: As A Life Or Death Issue*, 2nd editiion . Toronto, Ontario: Nelson Education Ltd., 2012.
3. Deisboeck, Thomas S. and Iain D. Couzin. "Collective behavior in cancer cell populations." *BioEssays* 31 (2009): 190-197.
4. DeLue, Rachael Ziady and James Elkins, *Art Seminar: Landscape Theory*. Vol. 6. New York: Routledge, 2008. 8 vols.
5. Spirn, Anne Whiston. "One with nature: Lanscape, Language, Empathy and Imagination." *Art Seminar: Landscape Theory*. Ed. James Elkins and Ziady Rachael DeLue. New York: Routledge, 2008. 43-67.

Human and Animal Hybrid

This work focuses on spirituality, nature, balance, and the human and animal connection. Over the past two years, I have been developing ideas hovering around ‘human and animal hybrid’. This stems from an interest in the primal nature of human beings and our connection with the natural world, and the fear we often face when questioning if we have really evolved, or if as a species, we are devolving. Much of my work has been a study of the animals we share a large percent of DNA with and plants and animals that are going extinct (yet we rely on them for survival). Last year I spent three months conducting research with preserved specimens at the University of Calgary Biology Lab. The drawings created though realistic in technique, exhibit an imagined narrative so closely paralleled with the possibility of human effort that the viewer is left disarmed and wondering if he/she is to blame.

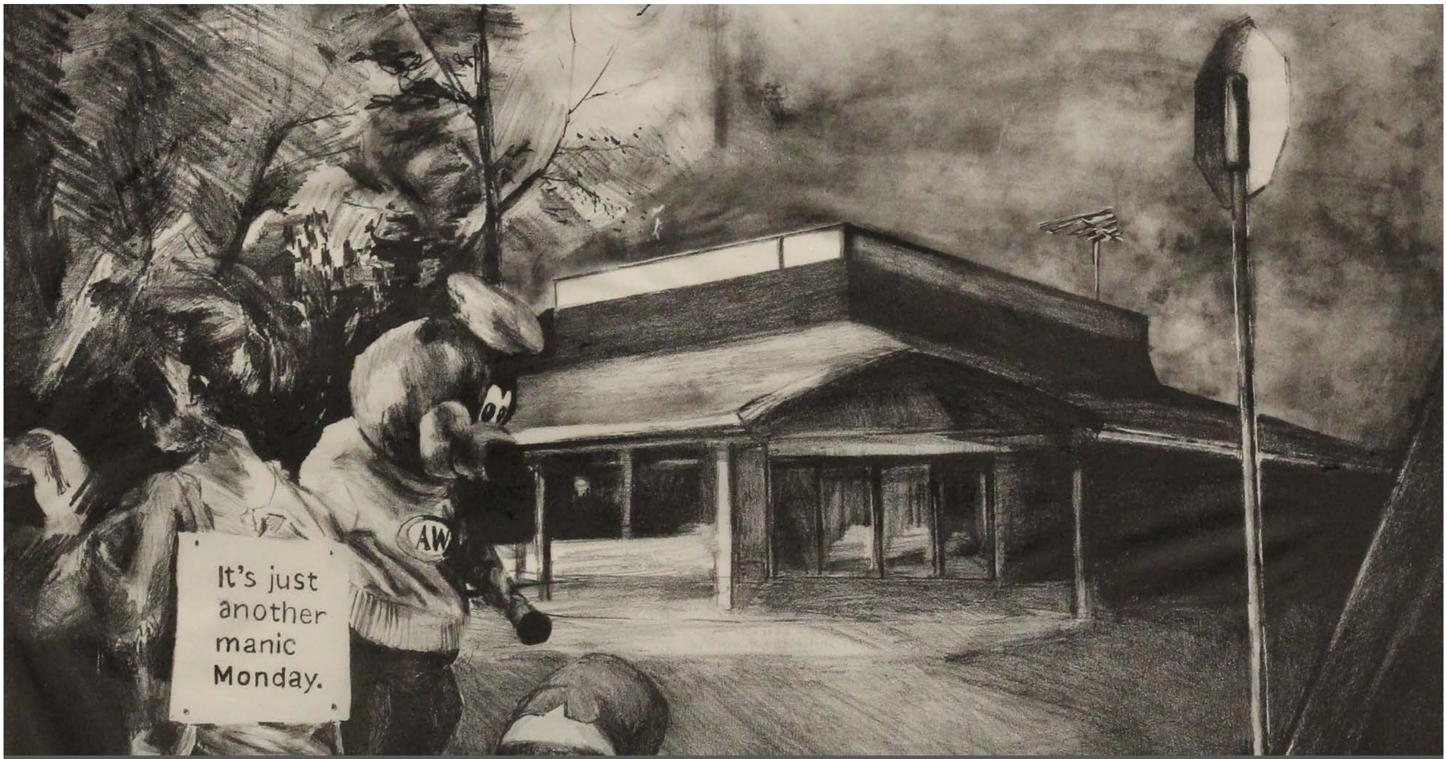
From genetically modified food, factory farming, cosmetic testing, animal textiles, and entertainment, humans are constantly directly and indirectly dismissing and abusing nature, rather than seeing our species as a symbiosis with the natural world. The more we dismiss nature, the more we dismiss ourselves. I use this research to make interesting, complex, and detailed works that make you question our ‘superiority’, our need to harm in order to progress, and our forgotten connection with the natural world as our species continues to live for ultimate self gain.



Katie Green

Graduating with a BFA with Distinction from University of Calgary, Katie Green is a visual artist whose practice aims to draw the curtain of perception hiding the true nature of humankind’s connection to all life. Katie crafts ethereal paintings and elaborate illustrations, underlining themes of growth, death, adaptation, cooperation, and our physical and emotional connection to nature. With the fearlessness of imagination and the curiosity of heart, Katie hopes her work can be a catalyst towards building a stronger connection with our rootedness in nature, and in turn, our sense of self.

Katie’s work has been exhibited in public galleries such as Contemporary Calgary (formerly Museum of Contemporary Art) and the Nickle Galleries. Her work can also be seen internationally in Nepal, India, and Sri Lanka where she worked on numerous mural projects, both independently and in collaboration with artist collectives and non-profit organizations. More of Katie’s work can be seen at: www.katiegreenartist.com



I Wish It Was Sunday. 2014.
Ink on Paper; Lithograph. 19" by 26"
Marie Winters

I Wish It Was Sunday

This lithographic print "I Wish It Was Sunday" contains pessimistic undertones concerning contemporary values in society concerning suburbia and stigma towards metal illness. The piece features the text "It's just another manic Monday" from the popular Bangles song Manic Monday. The title of the work is the following line in the song: "I Wish It Was Sunday". This combination of words invokes a more desperate plea to escape the absurdity of the scene unfolding in the work. It is a commentary on the ridiculous nature of looking and judging illness for what you see, and what you don't see.

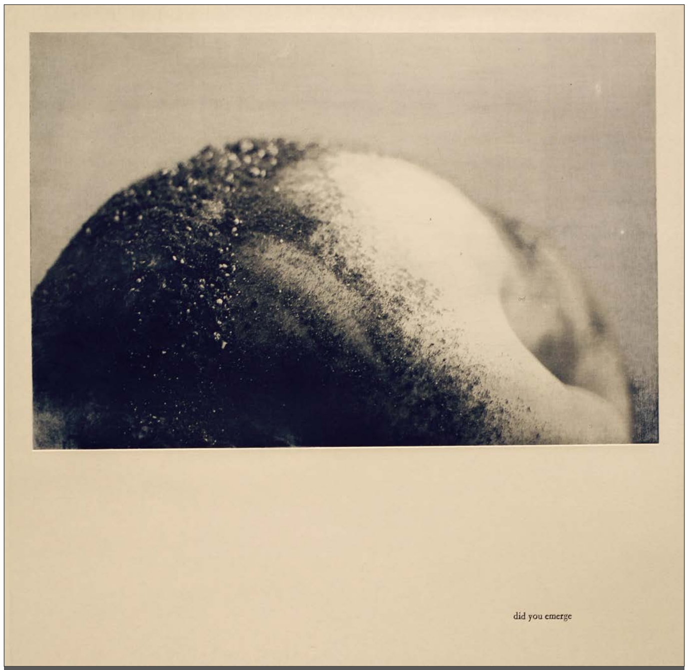
This work also has dual meaning for the artist. It is a deeply personal to the Artist and is a narrative collage of her last hospitalization at age 9 for her second open heart surgery. It started as an exercise to recall what people can remember from a specific event or from a specific place. The artist recalls only a few memories from her hospitalization which is throwing up after playing on the ward and receiving a teddy bear from the A&W mascot.

Marie Winters www.misswinters.co.nr

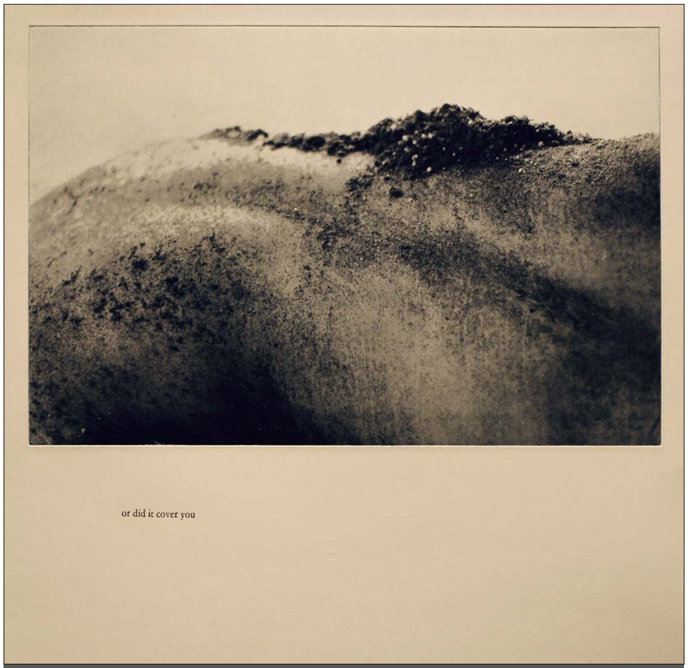
Marie Winters is a recent graduate from the University of Alberta' Bachelor of Fine Arts program specializing in Painting and Printmaking. Many of her memory related pieces incorporate fantasy elements and impossible structural spaces in the hopes to communicate a more affective truth through sensation. They seem to speak of understanding trauma and mental illness in a communicable language outside the realm of reality and into a fictional enclosing, claustrophobic and collapsing space. Marie's endeavor, as Jill Bennett wrote in her book *Empathic Vision: affect, trauma, and contemporary art*, was to "move away from evaluating art in terms of its capacity to reflect predefined conditions and symptomologies, and to open up the question of what art itself might tell us about lived experience and memory of trauma." (P.2)

Her recent work is influenced by personal anxiety concerning genetic illness. The imagery she employ's consists of both family and found photos juxtaposed with fragments of hospital scenes.

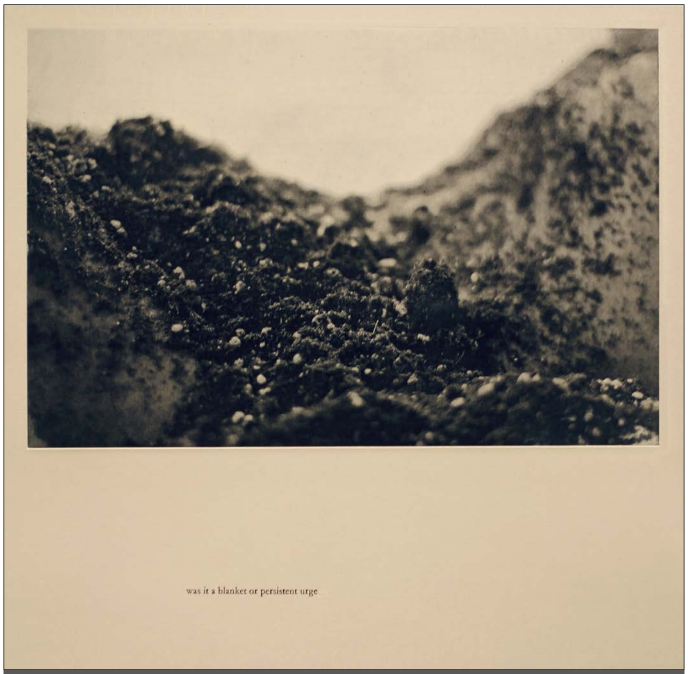
Artistic Images



did you emerge
photo-etching, wood block, and letter press
Suzi Barlow



or did it cover you
photo-etching, wood block, and letter press
Suzi Barlow



was it a blanket or persistent urge
photo-etching, wood block, and letter press
Suzi Barlow

This three piece series of prints features a stanza from poet Bernd Hildebrandt. He wrote this poem in response to a previous body of work I exhibited at the Society of Northern Alberta Print artists. This piece, for me, describes a deep-spirited integration of the environment in an understanding of the self.

Suzie Barlow

Suzi Barlow is an emerging artist, currently enrolled in the final semester of her Bachelor of Fine Arts degree in Art and Design at the University of Alberta. Throughout her undergraduate career, Barlow has worked as a full time mountaineering guide each summer in Greenland and the West coast mountain range of Canada. Her experience living and working in such intimacy with the land has a profound affect on her artistic practice. She strives to maintain an inquiry-based practice, investigating themes of the integration of ecology in cultural identity. Barlow employs printmaking techniques, performance, video and installation to articulate thoughts and questions surrounding these themes.

Barlow has exhibited in various group shows at the Society of Northern Alberta Print Artists, Timms Center, Ruterford Library, Telus Centre, and Fine Arts Building and the University of Alberta. She looks forward to a residency and exhibition at Museum Kloster Bentlage in Munster, Germany this coming summer.

Through visuality, Barlow aims to explore the parameters of our relation to the environment, and furthermore, how shifts in this relationship impact identity and social behavior.

accessABLE

accessABLE are designed to be fashionable as well as functional. Our aim was to design forearm crutches that were more than a medical necessity, we wanted to create a stylish and desirable object. During the design process we challenged ourselves to view forearm crutches as wearable sculptures rather than mobility aids. accessABLE enables users to enjoy their daily activities and look good while doing so. Made of carbon fibre and wood these crutches are lightweight and strong. Adjustable components allows the design be adapted for greater comfort and ease of use. accessABLE, an accessory for accessibility.

Mikenna Tansley University of Alberta

4th year Industrial Design Student at the University of Alberta. Focus on medical design and looking to pursue a career in prosthetics. Interested in making medical products function and aesthetically pleasing to enhance the users experience and quality of life.

Rinde Johansson University of Alberta

4th year industrial design student at the University of Alberta. Interested in conceptual and medical design.

SECTION 2: NEWS ARTICLES

News Reporters from HSI's Editorial Team investigated various issues in **Primary Health Care and Primary Service Delivery** to present readers with insight into the latest research and initiatives across the country. Our team of reporters conducted research and interviews with key experts in a range of different topics.

E-Health Records:
A slow marathon to get online

Johanna Mancini
(McGill University)
News Reporter (HSI 2013-2014)

Imagine walking into any hospital, clinic or pharmacy in Canada, providing a piece of identity, and within minutes having access to your complete medical history. In 2001, Canada's First Ministers launched a $1.6 billion initiative to make this a possibility all across Canada.[1,2,3] Now, almost thirteen years later, how much closer are we to this reality? While significant progress has been made in establishing an online information technology platform for this national healthcare database, Canada continues to lag behind other Western countries in adopting electronic-health records (EHR). This delay in implementation of EHR by physicians is due, in part, to the immense task of data re-entry, to privacy and political issues, to poor adoption and accessibility, and due to rigidity of the online data collection system, which forces physicians to collect patient data for preset, rather than customizable, fields.

“Immediate access to clear, up-to-date, and comprehensive medical records empowers both primary care workers and patients themselves to make well-informed health care-related decisions.”

Building on EHR frameworks previously established for primary care in Alberta, population drug information in British Columbia, and regional interoperable health networks in Sault Ste. Marie, Ontario, the federal government mandated the independent not-for-profit corporation Canadian Health Infoway to implement a national system of interoperable EHR from coast to coast.[1] The goal of this initiative was to bolster the quality of healthcare provision, especially in the primary healthcare sector. With numerous key players in primary health care services, such as family physicians, nurse practitioners, clinical laboratory technicians, health information helplines, and pharmacists, it is critical that patient medical records be correct, clear, and complete. Consequently, in 2001, Canada Health Infoway proposed a national healthcare information technology platform and regulated standards for data collection and entry that would link patient and provider registries with regional drug and laboratory databases, as well as with digital imaging centres. Creating this online medical network would simplify and improve the exchange of medical information,[1,4] greatly diminishing the risk of medical errors or loss of medical records.

Image source: The Boston Globe (http://www.boston.com/lifestyle/health/articles/2012/04/30/goodbye_paper)

While EHR simplifies medical information collection and sharing, many years' worth of files, information and images need to be transferred from paper into newly organized electronic order sets. Despite having a head start with 17 years' worth of computerized physician order entry patient files, the Calgary Health Region realized that very little was standardized. A large number of patient data sets had to be re-entered into the electronic healthcare information platform by people with a lot of experience. The new standardized system organized information systematically, providing more value to the user. “Previously, allergy information could be found in 42 different places in the chart,” revealed Dr. Tom Rosenal, past medical director of clinical informatics for Calgary Health Regions.[5] Now, this information is in one clearly identified place. It is no wonder that in July 2007 the Calgary Health Region became the first ▶

non-U.S. winner of the Association of Medical Directors of Information Systems (AMDIS) award in recognition of their Patient Care Information e-Record System.[4] Belinda Boleantu, the executive director of clinical transformation at the Calgary Health Region, described a strategy whereby each hospital unit had "super-users" who trained 100 physicians and 700 staff members who then disseminated the information to their peers. "It was a 'big bang' at each site in terms of computerized physician order entries and nursing documentation. We really believe clinicians lead, and this was a system by clinicians and for clinicians […] The uniqueness of what we've done has been the engagement of clinicians."[4]

However, not all provinces were quick to get online. By 2009, only 36% of Canadian physicians were using EHR, as compared with more than 90% of physicians in Australia, the United Kingdom, New Zealand and the Netherlands. By 2012, this number rose to 56%.[3] In a country as large and as diverse as Canada, it is conceivable that specific provincial issues contributed to the lag in adoption. Quebec's EHR plan was only unveiled in 2007 by Quebec's then Health and Social Services Minister, Dr. Philippe Couillard.[6] Dr. Couillard explained that while e-health was a priority during his tenure, which began in 2003, privacy and politics were two of the main reasons it took four years to reveal concrete plans. "Respect for people's privacy is a commitment and responsibility at all times for government. So first we had to adopt the right legal framework – one that would ensure the safety of any data being exchanged between hospitals and their partners beyond hospital walls, such as clinics and community groups […]. Keeping the data of patients confidential is built right into the foundation of the system." Moreover, in a province known for its resistance to federal initiatives, the second step involved joining the Canadian Institute for Health Information and aligning themselves with Canada Health Infoway. "[…] the previous (separatist) government didn't give these 'Canada' organizations a high priority," explained Dr. Couillard, "without Infoway, however, there would be no EHR project in Quebec and we are deeply grateful for their funds."[6]

Also contributing to the lag in implementation of EHR are the low adoption rates of older physicians and of physicians located in remote areas of the country. A significant number of well-established physicians simply refuse to part ways with their comfortable and reliable paper-based medical record system; their inexperience with technology forcing them to shy away from EHR. One could expect that with the arrival of a new generation of physicians, EHR adoption rates would be on the rise. However, one would have to consider the volume of existing files needing to be transferred to the online system, and recognize that not all physicians have access to the resources and support, both in personnel and financially, to make this transition. Moreover, many physicians are located in remote or isolated towns; places where a reliable network is not always available.[3] Unfortunately, "[t]he places with the worst public health issues in Canada are the places with the least amount of health information technology. So, remote communities, first nation communities… its [computerizing] not gonna make the water any cleaner," states a respondent in the 2013 qualitative study of health information technology in the Canadian public health system.[4] The priority in these disadvantaged communities remains treating patients over implementing EHR.

In attempts to improve the adoption of EHR, a 2011 Canadian Medical Association Journal study led by McGill University Epidemiologist, Dr. Robyn Tamblyn investigated the successes and failures of the EHR so far. Low rates of adoption were attributed to "lack of meaningful engagement of clinicians; poor alignment of the e-health plan and implementation strategy with the clinical and business needs of clinicians and the healthcare system; lack of flexibility in incorporating change; and a focus on national rather than regional interoperability."[1] Unlike the flexible clinician-centered approach taken by Calgary Health Region, Canada Health Infoway's rigid "top-down" structure left little room to accommodate changes in technology and feedback from implementation experiences. The proposed solution was to provide incentive for the adoption of EHR, not only to increase the number of users, but to also encourage them to discuss and propose changes to the system. Now that a national medical information technology platform is in place, provinces can focus on achieving complete adoption. Across Canada, more clinicians are using EHR, growing by almost 500% between 2006, with approximately 7,600 users, to 2012 with more than 45,000 users.[3] In order to maintain this rate of expansion, in November 2013 Canada Health Infoway announced the e-Connect Impact Challenge of $1 Million in awards and incentives program for clinicians using digital health to connect with patients and peers.[7,8] Richard Alvarez, President and CEO of Canada Health Infoway explains, "The e-Connect Impact Challenge encourages clinicians to accelerate the use of digital health to connect with their patients and their peers, and share how that is improving the quality of care and the patient experience."[7,8] Through this initiative, physicians will help improve the existing platform, while getting online and building their EHR. ▶

The EHR information technology platform established by Canada Health Infoway provides an essential foundation for both local and interprovincial exchange of critical patient information, labs, scans and test results. Immediate access to clear, up-to-date, and comprehensive medical records empowers both primary care workers and patients themselves to make well-informed health care-related decisions. With an increasing number of users providing critical feedback on the EHR information technology platform, and with the help of periodic evaluations, new consultations, and increased incentives, the adoption of EHR is set to increase at a greater rate, thereby allowing Canada to embrace the digital era, bringing single click access electronic medical records to our fingertips. ■

References

1. Rozenblum R, Jang Y, Zimlichman E, Salzberg C, Tamblyn M, Buckeridge D, et al. A qualitative study of Canada's experience with the implementation of electronic health information technology. CMAJ. 2011 Mar 22;183(5):E281-8.
2. Canadian Health Infoway. The path to better, safer, more accessible and more efficient health care for everyone includes effective use of health information technology. [Internet]. Toronto: Canadian Health Infoway; [date of last update unknown]. Available from: https://www.infoway-inforoute.ca/index.php/progress-in-canada
3. Canadian Health Infoway. Annual Report 2012-2013. [Internet] Toronto: Canadian Health Infoway; July 26, 2013 [date of last update unknown]. Available from: https://www.infoway-inforoute.ca/index.php/resources/infoway-corporate/annual-reports
4. Zinszer K, Tamblyn R, Bates DW, and Buckeridge DL. A qualitative study of health information technology in the Canadian public health system. BMC Public Health. 2013 May 25;13:509.
5. Versel, N. Calgary wins U.S. awards for its e-record implementation. [Internet] Ojai, California: Canadian Healthcare Technology; October 2007 [date of last update unknown]. Available from: http://www.canhealth.com/oct07.html#07octstory1
6. Shaw, A. Quebec to launch pilot project in January for province-wide EHR. [Internet] Ojai, California: Canadian Healthcare Technology; October 2007 [date of last update unknown]. Available from: http://www.canhealth.com/oct07.html#07octstory4
7. Canadian Health Infoway. $1 Million in Awards and Incentives for Clinicians Using Digital Health to Connect With Patients and Peers. [Internet] Toronto: Canadian Health Infoway; November 4, 2013 [date of last update unknown]. Available from: https://www.infoway-inforoute.ca/index.php/news-media/2013-news-releases/1-million-in-awards-and-incentives-for-clinicians-using-digital-health-to-connect-with-patients-and-peers
8. Canadian Health Infoway. e-Connect Impact Challenge. [Internet] Toronto: Canadian Health Infoway; November 4, 2013 [date of last update unknown]. Available from: http://imaginenationchallenge.ca/econnect/

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Taking up the gauntlet: Pharmacist delivery of primary care services

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With Canada's aging population and the concomitant burden of chronic disease, physicians need more help than ever in coping with patients with multi-morbidities who require complex drug regimens. Community pharmacists are increasingly being called upon to move beyond their traditional role as drug purveyors and expand the scope of their clinical duties. For instance, pharmacists from across Canada have been engaging in expanded activities, such as providing emergency prescription refills, renewing and extending prescriptions, changing drug dosage and formulation, making therapeutic substitutions, prescribing for minor ailments, initiating prescription drug therapy, ordering and interpreting lab tests and administering drugs by injections (see table 1). The logic behind introducing these new responsibilities is that during their schooling, pharmacists have been trained in many domains of disease management, which they do not end up actually applying once they start practicing. In order to use pharmacists' specialized knowledge more effectively, regulated technicians are hired by pharmacies to take over the routine, product-focused aspects of drug dispensing, such as ensuring that the right drug and label have been added to the prescription.

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Table 1: Summary of Pharmacists' expanded scope of practice across Canada

	BC	AB	SK	MB	ON	QC	NB	NS	PEI	NL	NWT	YU	NT
Provide emergency prescription refills	Y	Y	Y	Y	Y	$P^{6,7}$	Y	Y	N	Y	Y	N	N
Renew and extend prescriptions	Y	Y	Y	Y^{3}	Y	P^{6}	Y	Y	Y	Y	Y	N	N
Change drug dosage/formulation	Y	Y	Y	Y	Y	$P^{6,7}$	Y	Y	Y	Y	N	N	N
Make therapeutic substitutions	Y	Y	Y	N	N	$P^{6,7}$	Y	Y	Y	Y^{10}	N	N	N
Prescribe for minor ailments	N	Y^{1}	Y	Y	N	$P^{6,7}$	P	Y	N	N	N	N	N
Initiate prescription drug therapy	N	Y	Y^{2}	Y	Y^{4}	$P^{6,7}$	Y^{9}	Y^{2}	N	N	N	N	N
Order and interpret lab tests	N	Y	N	Y	P	P^{6}	Y	Y	N	N	N	N	N
Administer drugs by injection	Y	Y	N	Y	Y^{5}	$P^{6,8}$	Y	Y	P	P	N	N	N

Table adapted from Blueprint for Pharmacy: http://blueprintforpharmacy.ca/docs/resource-items/pharmacists'-expanded-scope-of-practice_summary-chart---cpha---january-2014-from-graphicsDF4DC970F6835A01BE1C1989.pdf

1. AB: pharmacists in Alberta who have "additional prescribing authority" can prescribe a Schedule I drug (prescription-only) for the treatment of minor ailments
2. SK & NS: only as part of assessment and prescribing for minor ailments
3. MB: as Continued Care Prescriptions under section 122 of the Regulations to the Pharmaceutical Act
4. ON: restricted to prescribing specified drug products for the purpose of smoking cessation
5. ON: administration of influenza vaccination to patients five years of age and older; administration of all other injections and inhalations for demonstration and educational purposes
6. QC: pending Orders in Council (activity enabled by passage of Bill 41, an Act to amend the Pharmacy Act, December 8, 2011; regulation for this activity was planned for September 3, 2013, however it was postponed by Orders in Council on August 22, 2013)
7. QC: when authorized by a physician by means of a "collective prescription" (i.e., collaborative practice agreement)
8. QC: for demonstration purposes only
9. NB: prescribing constitutes adapting, emergency prescribing or within a collaborative practice; independent prescribing or as part of minor ailments prescribing is pending
10. NL: limited to non-formulary generic substitution

This frees up a pharmacist's time for more complex tasks, such as the activities described above.

These changes have not been adopted haphazardly; they are predicated on a significant body of evidence showing that pharmacists can improve health outcomes of patients. For instance, a 2010 systematic review and meta-analysis by Chisholm-Burns et al looked at the impact of pharmacy interventions on various health outcomes, which yielded distinctly positive assessments.[1] At the meta-analysis level, pharmacy interventions led to lower hemoglobin A1c and LDL levels, as well as decreased blood pressure.[1] Although there were not enough randomized control trials (RCT) to perform a meta-analysis on hospitalizations and re-admission data, the evidence indicated that pharmacists' interventions reduced these indicators in 51.4% of cases, with no effect in the other cases.[1] The same authors were also able to show significant improvements in both safety (reduction in adverse drug events) and humanistic (medication adherence, patient satisfaction, quality of life and general health) outcomes at the meta-analysis level.[1] Results like these led Janet Cooper, Senior Director of Professional and Membership Affairs at the Canadian Pharmacy Association (CPhA), a licensed pharmacist herself, to be convinced of the positive role that pharmacists can have in improving health care delivery.

The process of change is being guided and monitored by Blueprint for Pharmacy, an ongoing practice change initiative spearheaded by the CPhA and managed by Ms. Cooper (http://www.blueprintforpharmacy.ca). The Blueprint was conceptualized in 2006 upon recognizing that pharmacy practice in Canada was rapidly evolving. The CPhA considered that the best approach would be to provide a regulated framework in which pharmacies and jurisdictions could pursue change. The CPhA also explicitly decided to de-centralize ownership of the project by bringing in key players from both the national and provincial levels, as well as some major pharmacy chains.[2] This initiative is helping to standardize the scope of pharmacy practice across the country, as is the case with the medical profession. However, not all pharmacists are supportive of expanding their scope of practice. This is why, as Ms. Cooper highlighted, "provincial legislation is enabling, but pharmacists are not being forced to do it." Of course, pharmacists are not the only ones with hesitations; physicians, as well as other health care professionals, do have legitimate concerns regarding the fragmentation of care if they were to send their patients to the pharmacy for various procedures. As Ms. Cooper explained, solutions to this issue have been developed in Alberta, where a province-wide prescription drug network contains all patient prescription data history, and pharmacists have access to lab values. As well, appropriate payment schemes exist to encourage communication between pharmacists and physicians. In contrast, in provinces with fewer resources for integrative care, pharmacists must still rely on verbal and fax communication with the patient's physician. According to Ms. Cooper, physicians have a tendency to worry that pharmacists might take away their patients, along with the additional revenue. This point was also made by Dr. Grabenstein, who is the Senior Medical Director for Adult Vaccines for Merck Vaccines, and the individual responsible for producing the "Pharmacy-Based Immunization Delivery," a CDC (Centers for Disease Control and Prevention)-recognized 20-hour immunization-training course coordinated by the American Pharmacists Association (APhA). With respect to lost revenue, his work showed that pharmacist immunizers increase absolute vaccination rates; people vaccinated by pharmacists are often those that would not have been vaccinated, not individuals who have left their physician to be vaccinated by pharmacists.[3] To explain this, he conducted a survey that found that "people vaccinated at pharmacies valued access and convenience, whereas people who visited their physician valued existing personal relationships."[4] Although Dr. Grabenstein did not explore these considerations in relation to other services provided by pharmacists, patients may make choices to either visit their pharmacist or physician based on similar values. He conjectured that the accessibility of pharmacists takes on many dimensions, such as geographic proximity, extended hours of operation, and ease with which individuals can talk with their pharmacist. These reasons can help explain why individuals might visit their pharmacist, rather than their doctor. ▶

Moreover, Canadians are very supportive of the direction pharmacy is taking. An Ipsos Reid poll from June 2012 found that over 70% of Canadians either strongly support or somewhat support pharmacists engaging in activities as broad as physiotherapy clinics, providing X-rays and in-home medical care, among others.[5] Revealingly, a majority of Canadians (82%) believe that if these products and services are owned and offered by pharmacies, the quality of treatment or service would be higher (28%) or the same (54%) as treatment currently available.[5] Whether these responses reflect a general desire for a more responsive and accessible health care system or a true belief in the capacity of pharmacists to provide these services is difficult to discern; most likely, both influences are at play. What is important is that pharmacists are rising to the challenge. With over 33,000 licensed pharmacists across Canada, we can expect that mobilizing this highly-trained workforce can have important consequences on the health of Canadians. ■

References

1. Browne AJ, Smye VL, Rodney P, Tang SY, Mussell B, O'Neil J. Access to Primary Care From the Perspective of Aboriginal Patients at an Urban Emergency Department. Qual Health Res. 2011;21(3):333-348.
2. Browne AJ, Varcoe CM, Wong ST, Smye VL, Lavoie J, Littlejohn D, Tu D, Godwin O, Krause M, Khan KB, Fridkin A, Rodney P, O'Neil J, Lennox S. Closing the health equity gap: evidence-based strategies for primary health care organizations. International Journal for Equity in Health. 2012;11:59.
3. Peiris D, Brown A, Cass A. Addressing inequities in access to quality health care for indigenous people. Can Med Assoc J. 2008;179(10):985-986.
4. Towle A, Godolphin W, Alexander T. Doctor-patient communications in the aboriginal community: Towards the development of educational programs. Patient Educ Couns. 2006;62(3):340-346.
5. Wilson K, Cardwell N. Urban Aboriginal health. Examining inequalities between Aboriginal and non-Aboriginal populations in Canada. Canadian Geographer-Geographe Canadien. 2012;56(1):98-116.
6. Gao S, Manns BJ, Culleton BF, Tonelli M, Quan H, Crowshoe L, Ghali WA, Svenson LW, Ahmed S, Hemmelgarn BR, Alberta Kidney Dis Network. Access to health care among status Aboriginal people with chronic kidney disease. Can Med Assoc J. 2008;179(10):1007-1012.
7. Shan BR, Gunraj N, Hux JE. Markers of access to and quality of primary care for aboriginal people in Ontario, Canada. Am J Public Health. 2003;93(5):798-802.
8. Anderson-DeCouteau, Marcia. White Coat Black Art with Dr. Brian Goldman: Improving the Healthcare System with Dr. Marcia Anderson-DeCoteau (Extended Interview). CBC, October 7, 2013.
9. Campbell DJT, Ronksley PE, Hemmelgarn BR, Zhang J, Barnabe C, Tonelli M, Manns B. Association of enrolment in primary care networks with diabetes care and outcomes among First Nations and low-income Albertans. Open medicine : a peer-reviewed, independent, open-access journal. 2012;6(4):e155-65.
10. Morrison L, Buckeridge DL, Xiao Y, Moghadas SM. The impact of geographical location of residence on disease outcomes among Canadian First Nations populations during the 2009 influenza A(H1N1) pandemic. Health & Place. 2014;26:53-59.
11. Bhattacharyya OK, Estey EA, Rasooly IR, Harris S, Zwarenstein M, Barnsley J. Providers' perceptions of barriers to the management of type 2 diabetes in remote Aboriginal settings. Int J Circumpolar Health. 2011;70(5):552-563.
12. Buxton JA, Ouellette V, Brazier A, Whiteside C, Mathias R, Dawar M, Mulkins A. Bridging the gap in population health for rural and Aboriginal communities: a needs assessment of public health training for rural primary care physicians. Canadian journal of rural medicine : the official journal of the Society of Rural Physicians of Canada = Journal canadien de la medecine rurale : le journal officiel de la Societe de medecine rurale du Canada. 2007;12(2):81-8.
13. Kelly L, Brown JB. Listening to Native patients - Changes in physicians' understanding and behaviour. Canadian Family Physician. 2002;48:1645-1652.
14. Van Herk KA, Smith D, Gold ST. Safe care spaces and places: Exploring urban Aboriginal families' access to preventive care. Health Place. 2012;18(3):649-656.

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Public attitudes toward vaccination

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When asked about her attitude toward vaccines, Stephanie Cabildo, a 23-year-old criminology student at York University, responded "I don't think they are necessary." This is consistent with the trend that Dr. Brian Ward, a physician and leading expert in vaccine research at McGill University, has been noticing among the general and scientific communities with regards to vaccine efficacy and safety. "There has been an absolutely massive loss of confidence in vaccines over the last 20 years," he states.

Not surprisingly, this loss of confidence in vaccination has also translated into a decrease in the administration of childhood vaccines. The Center for Disease Control and Prevention recommends that children between the ages of 2-6 years receive 10 vaccinations that protect against 14 different diseases.[1] Canada's current immunization rate is at roughly 84%, which is below the recommended rate of 92% that is set by the World Health Organization that is needed to stop the spread of diseases in children.[2] Although the national average is 84%, there are some schools - for example, those in Lethbridge, Alberta – that have vaccination rates as low as 60%.[3] In response to the striking decline in vaccine use, Dr. Ward states, "This is a potential disaster."

In fact, we are already starting to see the re-appearance of diseases that were presumed to have been eradicated in North America due to childhood vaccination schedules. In 2010, there was an outbreak of pertussis, more commonly known as the whooping cough, with nearly 10 000 cases reported in California that killed 10 infants.[4] In Canada, there were roughly 2000 cases reported (including the death of one infant) from coast to coast - from British Columbia's Fraser Valley, to southern Alberta, to parts of Southwestern Ontario, and to New Brunswick.[5] Vaccination is not mandatory in Canada and recent reports suggest that the areas with the highest vaccine opt-outs are also those that experienced the most severe outbreaks.[4]

But why have people's attitudes towards immunization changed? Dr. Ward believes that, over the last ten years, the increasingly large amounts of non-science based information against vaccines available online, in tandem with the negative press regarding their safety, are to blame. The measles, mumps, and rubella (MMR) vaccine in particular has received a striking amount of notoriety. In 1998, the medical journal The Lancet published a study conducted by British physician Andrew Wakefield that linked the MMR vaccine to the development of autism.6 Further investigation into Wakefield's study, however, exposed the falsification of data among other acts of scientific fraud, and in 2010 The Lancet formally retracted the paper and Wakefield was stripped of his medical license.[7] Wakefield's now disgraced study has had widespread ramifications on public health, and the negative emotions and fears that it has evoked still persist among parents.

While the claims of an association between vaccinations and disorders like autism are completely unfounded, Dr. Ward acknowledges that vaccines are not 100% safe. As with any procedure, there are certain risks and side effects associated with vaccines, the most common being local inflammation, malaise, and low-grade fever, all of which typically last a few days.[8] Although very rare, there are also well-documented cases of severe side effects following vaccination.[9] A small number of infants developed post-infectious encephalomyelitis from the measles vaccine.[10] Post-infectious encephalomyelitis is a primary demyelinating disorder of the central nervous system that causes symptoms similar to those observed in multiple sclerosis; it can leave those affected with permanent neurological defects. Dr. Ward explains that the chance of developing post-infectious encephalomyelitis from the ▶

measles vaccine is about one in one million. However, the media fail to recognize that without the vaccine the chance of developing post-infectious encephalomyelitis from the actual measles disease is three orders of magnitude higher - a nearly one in one thousand risk. “They compare the risk of the vaccine-associated adverse events versus nothing when what they should be doing is comparing [the risks of the vaccine-associated adverse events] versus the risks of the disease.”

In addition to concerns regarding vaccination safety, Dr. Ward has noticed that more and more Canadians are refusing vaccines because they simply do not feel that they are at risk for contracting the disease. Most people in this day and age have not seen the consequences of diseases like smallpox or polio and it is perhaps for this reason that they are starting to underestimate the importance of vaccines. Dr. Ward provides the uptake of the influenza vaccine as a prime example of this. Initially, when the influenza vaccine became available, the uptake was very low, and, unfortunately, it was not until people started dying from the flu that people wanted the vaccine. “This is tragic,” Dr. Ward comments.

It is critical that we acknowledge the real risks and benefits associated with vaccines and are not swayed by the misuse of statistics in the media that overemphasize the risks associated with vaccines. While vaccines are not perfect, Dr. Ward urges their use, as they are still by far the best tools that we have to protect ourselves from infectious diseases.

Up until now, vaccines have been used as prophylactics intended to prevent diseases. We are now rapidly entering a phase where vaccines are becoming therapeutic. In addition to improving the safety and efficacy of existing vaccines, current researchers are working on developing vaccines with the potential of treating cancer, allergies, substance addiction, and hepatitis C. “The next 10-20 years are going to be very exciting,” Dr. Ward adds. In fact, there is already a vaccine for pancreatic cancer being tested in late stage clinical trials that is showing a lot of promise.[11] The most common side effects associated with this cancer vaccine were flulike symptoms, making it considerably less toxic compared to the radiation therapy that is traditionally used to treat it. Perhaps these exciting discoveries will be the missing piece we need to rebuild the public’s confidence in vaccines. ■

References

1. CDC.gov. Immunization schedules [Internet]. Atlanta: Center for Disease Control ad Prevention; date of first publication unknown [updated 2014 Jan; cited 2014 Feb]. Available from: http://www.cdc.gov/vaccines/schedules/easy-to-read/child.html.
2. UNICEF. Child well being in rich countries [Internet]. Florence:Innocenti Research Center; 2013 [updated 2013 Apr; cited 2014 Jan]. Available from: http://www.unicef-irc.org/Report-Card-11.
3. CBC News. Lethbridge measles outbreak prompts vaccine clinics [Internet]. Calgary: CBC Radio Canada; 2013 Oct 23[updated 2013 Oct 24; cited 2014 Feb 3]. Available from: http://www.cbc.ca/news/canada/calgary/lethbridge-measles-outbreak-prompts-vaccine-clinics-1.2190840.
4. Atwell JE, Van Otterloo J, Zipprich J, Winter K, Harriman K, Salmon DA, et al. Nonmedical vaccine exemptions and pertussis in California, 2010. Pediatrics. 2013;132(4):624-30.
5. Alphonso C. Whooping cough makes deadly return across Canada. The Globe and Mail [Internet]. 2012 Jul 23 [cited 2014 Feb 8]. Available from: http://www.theglobeandmail.com/life/health-and-fitness/health/whooping-cough-makes-deadly-return-across-canada/article4436946/.
6. Johnson M. Health Buzz: Autism-vaccine doctor stripped of medical license. US News [Internet]. 2010 May 24 [cited 2014 Feb 5] Available from: http://health.usnews.com/health-nmanaging-your-healthcare/brain-and-behavior/articles/2010/05/24/health-buzz-autism-vaccine-doctor-stripped-of-medical-license.
7. Eggertson L. Lancet retracts 12-year-old article linking autism to MMR vaccines. CMAJ: Canadian Medical Association journal = Journal de l’Association Medicale Canadienne. 2010;182(4):E199-200.
8. McCann LJ, Ford KJ, Pollard AJ, Kulkarni R, Amirthalingam G, Smith A, et al. Self-reported adverse events in adolescents aged 13-18 years after mass vaccination with pertussis-containing vaccine, following a school outbreak. Public Health. 2013;127(12):1133-6.
9. Cerpa-Cruz S, Paredes-Casillas P, Landeros Navarro E, Bernard-Medina AG, Martinez-Bonilla G, Gutierrez-Urena S. Adverse events following immunization with vaccines containing adjuvants. Immunologic Research. 2013;56(2-3):299-303.
10. Huynh W, Cordato DJ, Kehdi E, Masters LT, Dedousis C. Post-vaccination encephalomyelitis: Literature review and illustrative case. Journal of Clinical Neuroscience: Official Journal of the Neurosurgical Society of Australasia. 2008;15(12):1315-22.
11. Salman B, Zhou D, Jaffee EM, Edil BH, Zheng L. Vaccine therapy for pancreatic cancer. Oncoimmunology. 2013;2(12):e26662.

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Poor access to primary care for Aboriginal patients in Canada: What are the barriers?

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Gaps in health outcomes of Aboriginal people are recognized across Canada.[1,2,3,4,5] In British Columbia, the Aboriginal population has 2 to 5 times the age-standardized mortality rate for medically treatable diseases compared to the non-Aboriginal population.[1,2] On a national level, Aboriginal people are 1.1 to 2.5 times as likely as non-Aboriginal people - with similar geographic or socioeconomic backgrounds - to be admitted to hospital for conditions that are preventable through primary care.[6,7] These findings have prompted Dr. Marcia Anderson-DeCouteau, a Canadian physician and former president of the Indigenous Physicians Association of Canada, to assert that Canada needs "to examine the care of First Nations people in the health care system".[8]

Measuring access to primary care directly is difficult; thus, other healthcare indicators that may be correlated with primary care access are often used. Considering that primary care is correlated with lower admissions to hospital for preventable conditions and emergency department visits[9], the increased mortality and admission rates in Aboriginal groups may reflect gaps in access to primary care.[1,2] Although both on-reserve and off-reserve Aboriginal patients have higher admission rates than non-Aboriginal patients, the odds of hospitalization are twice as high for Aboriginal patients living on-reserve compared to off-reserve.[10] Comparing specialist referrals from primary care physicians is another way of measuring access to primary care. Aboriginal populations are 0.6 to 1.0 times less likely to receive appropriate referrals than non-Aboriginal people with similar geographic or socioeconomic backgrounds.[7] For example, Aboriginal populations are 43% less likely than non-Aboriginal populations with chronic kidney disease to visit a nephrologist.[6]

Barriers to primary care access for Aboriginal populations are complex, but can be categorized as patient-provider barriers, health clinic access barriers, and systemic barriers.[3,11] Patient-provider barriers to primary care access include issues such as the communication and relationships between patients and physicians.[4] Aboriginal patient interviews have outlined concerns that doctors may be prejudging and dismissing their health concerns during visits based on their Aboriginal status, economic standing, housing situation, or assumed substance use.[1,2] Dr. Anderson-DeCouteau believes that physician prejudice is commonly experienced by Aboriginal patients: "There are certain types of patients that it's okay to care less about… and certainly Aboriginal people are at the top of the list".[8] Some patients have identified this concern of prejudice as a factor that has delayed or inhibited their seeking of health care.[1,2] Doctor interviews on patient-provider factors are split between those who believe the communication and understanding between Aboriginal patients and their doctors needs to improve, and those who believe that Aboriginal patients need to take more personal responsibility for their health.[11]

To improve relationships between physicians and patients, educational interventions in medical school could allow future doctors to improve cultural competence, cultural sensitivity, doctor-patient partnerships, advocacy, and communication.[4,11,12] Specifically, physicians can build culturally sensitive communication with patients by allowing patients to speak more, increasing the time for a consultation, and becoming more comfortable with silence.[13]

Clinic level barriers to primary care include understaffing and staff turnover.[11] Doctor interviews have highlighted clinic barriers to primary care for Aboriginal patients such as deficient emergency and social service resources.[1,2] Although these factors also impact non-Aboriginal patients, doctors specifically identified these factors as preventing the proper treatment of Aboriginal patients who may require additional referrals to primary care and social services.[1,2] Solutions at a clinical level for improving access involve building the capacity, resources and time to appropriately refer Aboriginal patients entering the emergency department or walk-in clinics to the appropriate primary care service. Consistent referral to social workers, specialists, or addiction services would not only improve ▶

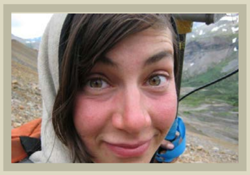
emergency department efficiency but ultimately help improve patient outcomes.[1,2]

The most complex barriers to primary care access are systemic factors, and most importantly the continuing impact of colonization.[3] As Dr. Anderson-DeCouteau recalled, "In medical school… there is no historical context, no understanding of the impacts of colonization or residential schools, and how that might have impacted our current day health status or current day socio-economic circumstances".[8] A postcolonial framework in healthcare research provides context to barriers related to race, class, and gender, and how personal and collective health care experiences shape current health care decisions.[1,2,14] One example of a systemic access barrier stems from the trauma of the residential school system from 1876 -1996, where Aboriginal survivors were subjected to emotional, physical, or sexual abuse by people in positions of authority.[1,2] Within this context, it is not surprising that Aboriginal patients who have experienced or were affected by this trauma are especially aware of power imbalances within the health care system,[3] often resulting in feelings of anxiety during interactions with people in positions of authority such as doctors.[1,2,3]

System-level barriers to care require a critical understanding of the power dynamics entrenched in the health care system.[3] Of the systemic changes that may equalize these dynamics, easing the navigation and permeability of health services may be of significant benefit to the health care experience of Aboriginal patients.[3] Examples of these changes include community-entrenched health clinics, Aboriginal managerial and reception staff, as well as the incorporation of indigenous knowledge, accessible transportation, low cost services, flexible hours, and open-door policies.[3] As discussed, addressing these barriers will be the first step in improving primary care access for Aboriginal patients: "So often, these patients or their families get dismissed. Their voices aren't really listened to," Dr. Anderson-DeCouteau says. "There needs to be a voice for people who are too often rendered voiceless."[8] ■

References

1. Browne AJ, Smye VL, Rodney P, Tang SY, Mussell B, O'Neil J. Access to Primary Care From the Perspective of Aboriginal Patients at an Urban Emergency Department. Qual Health Res. 2011;21(3):333-348.
2. Browne AJ, Varcoe CM, Wong ST, Smye VL, Lavoie J, Littlejohn D, Tu D, Godwin O, Krause M, Khan KB, Fridkin A, Rodney P, O'Neil J, Lennox S. Closing the health equity gap: evidence-based strategies for primary health care organizations. International Journal for Equity in Health. 2012;11:59.
3. Peiris D, Brown A, Cass A. Addressing inequities in access to quality health care for indigenous people. Can Med Assoc J. 2008;179(10):985-986.
4. Towle A, Godolphin W, Alexander T. Doctor-patient communications in the aboriginal community: Towards the development of educational programs. Patient Educ Couns. 2006;62(3):340-346.
5. Wilson K, Cardwell N. Urban Aboriginal health. Examining inequalities between Aboriginal and non-Aboriginal populations in Canada. Canadian Geographer-Geographe Canadien. 2012;56(1):98-116.
6. Gao S, Manns BJ, Culleton BF, Tonelli M, Quan H, Crowshoe L, Ghali WA, Svenson LW, Ahmed S, Hemmelgarn BR, Alberta Kidney Dis Network. Access to health care among status Aboriginal people with chronic kidney disease. Can Med Assoc J. 2008;179(10):1007-1012.
7. Shan BR, Gunraj N, Hux JE. Markers of access to and quality of primary care for aboriginal people in Ontario, Canada. Am J Public Health. 2003;93(5):798-802.
8. Anderson-DeCouteau, Marcia. White Coat Black Art with Dr. Brian Goldman: Improving the Healthcare System with Dr. Marcia Anderson-DeCoteau (Extended Interview). CBC, October 7, 2013.
9. Campbell DJT, Ronksley PE, Hemmelgarn BR, Zhang J, Barnabe C, Tonelli M, Manns B. Association of enrolment in primary care networks with diabetes care and outcomes among First Nations and low-income Albertans. Open medicine : a peer-reviewed, independent, open-access journal. 2012;6(4):e155-65.
10. Morrison L, Buckeridge DL, Xiao Y, Moghadas SM. The impact of geographical location of residence on disease outcomes among Canadian First Nations populations during the 2009 influenza A(H1N1) pandemic. Health & Place. 2014;26:53-59.
11. Bhattacharyya OK, Estey EA, Rasooly IR, Harris S, Zwarenstein M, Barnsley J. Providers' perceptions of barriers to the management of type 2 diabetes in remote Aboriginal settings. Int J Circumpolar Health. 2011;70(5):552-563.
12. Buxton JA, Ouellette V, Brazier A, Whiteside C, Mathias R, Dawar M, Mulkins A. Bridging the gap in population health for rural and Aboriginal communities: a needs assessment of public health training for rural primary care physicians. Canadian journal of rural medicine : the official journal of the Society of Rural Physicians of Canada = Journal canadien de la medecine rurale : le journal officiel de la Societe de medecine rurale du Canada. 2007;12(2):81-8.
13. Kelly L, Brown JB. Listening to Native patients - Changes in physicians' understanding and behaviour. Canadian Family Physician. 2002;48:1645-1652.
14. Van Herk KA, Smith D, Gold ST. Safe care spaces and places: Exploring urban Aboriginal families' access to preventive care. Health Place. 2012;18(3):649-656.



April Clyburne-Sherin

April Clyburne-Sherin is an MSc Candidate in Epidemiology in the Department of Population Medicine at the University of Guelph. With a background in ecology, April is interested in the relationships between ecosystems and human health, with a particular interest in Northern and Aboriginal health. April's graduate research explores spatial and statistical epidemiological methods using historical data.

Primary Care Networks: Community-focused primary health in Alberta

Stephanie Kowal
(University of Alberta)
News Reporter (HSI 2013-2014)

Canadians value healthcare and the various purposes it serves during good and ill health throughout life.[1] Healthcare has the potential to promote and protect good health, address acute health needs, manage chronic health conditions, and support individuals into later stages of life. Often people are satisfied with the care they receive; however, the current system suffers from inefficiencies, causing concerns for Canadians.[1] More specifically, Canadians have stated that the healthcare system is difficult to access, wait times are long, and they worry about long-term sustainability of healthcare as a universal system.[1,2] To address challenges faced by the healthcare system provinces are designing innovative healthcare delivery options.

In Alberta, collaboration between the provincial government and the Alberta Medical Association resulted in Primary Care Networks (PCNs). PCNs are regionalized multidisciplinary teams created to facilitate effective health promotion by improving access to care from family physicians, as the first point of care, and coordinating subsequent health services as needed. The underlying logic of PCNs is to build local solutions to local health needs. Specific goals include: 1) increasing the proportion of Albertans with ready access to primary care; 2) managing access to appropriate round-the-clock primary care services; 3) increasing the emphasis on health promotion, disease and injury prevention, and care of patients with complex problems or chronic diseases; 4) improving the co-ordination of primary care with hospitals, long-term and specialty care facilities; and 5) facilitating the greater use of multi-disciplinary teams in primary health care.[3]

> *“Facilitating access to and coordination of primary health care helps to improve patient experience through streamlined referral systems while optimizing provincial expenditure on healthcare.”*

PCNs develop their localized programs with the vision of focusing on health promotion and protection rather than acute and chronic care response. Lorna Milkovich, the Executive Director of Alberta’s Red Deer PCN, stated that during their network’s development they understood that primary care could help improve the health of Albertans while reducing the cost of healthcare. Facilitating access to and coordination of primary health care helps to improve patient experience through streamlined referral systems while optimizing provincial expenditure on healthcare. To do this, a central facet of PCNs is to help connect individuals to family physicians, ensuring citizen access to primary care, and helping physicians track the personal needs of all patients. Emphasizing health promotion and focusing on individual and community needs creates an opportunity for PCNs to empower people to protect their health, and reduces the incidence of preventable chronic conditions.

The Red Deer PCN is an exceptional example of commitment to understanding and responding to community-based needs. The PCN pioneers understood that people spend most their time in community settings versus in hospitals or clinics. Thus, to promote sustained, day-to-day health, Red Deer PCN decided they would have to develop programs that existed in peoples’ day-to-day lives. This PCN values their time spent in the community understanding community needs and helping build community capacity to address those needs. Health is a formal and legal responsibility of provincial governments, not municipalities nor other potential stakeholders. However, the Red Deer PCN, working with the city, found that many community groups were “all in the same business of creating a healthy community,” as Lorna Milkovich explained. It is with these shared goals that the municipal and provincial governments were able to build programs to address local health priorities. For example, through collaboration with

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the city, Red Deer's PCN was able to build an outdoor gym to promote physical activity and increase the visible profile of the PCN. They were also able to revitalize the 26 struggling local tennis courts by working with schools to create learning modules based on tennis skills, in turn ▶ inspiring youth interest in sport. These efforts contribute to the vibrancy of the city and to the goal of empowering people to live better lives.

The strengths created and challenges faced by PCNs are both attributable to their multidisciplinary nature. The makeup of the multidisciplinary teams varies from location to location. Each PCN has at least one physician as an initial point of care, and may also include pharmacists, psychologists, master social workers, kinesiologists, registered nurses, nurse practitioners, dietitians, recreation service providers, or any other health service providers required to meet local demands and priorities. The multidisciplinary team facilitates versatility in addressing changing local needs; however, team integration and standardized surveillance are inherent challenges.

Regardless of the initial implementation challenges that exist when developing or adapting PCNs, the outcomes are on a worthwhile trajectory. In fact, since their 2003 inception, the networks are currently employing, *PCN Evolution*, a framework for PCNs to evaluate and improve their programs and operations. PCNs are moving from development and implementation to quality improvement. Individual PCNs are evolving by refining their programs, processes and accountabilities. *PCN Evolution* is a provincial initiative that provides a coordinated approach to do so. It also includes an element of knowledge sharing where individual PCNs present their own evidence-based examples of success and challenges with one another to help build each other's capacities to serve local needs.

Main strengths of community-focused models, such as PCNs, are: 1) their philosophy of empowering individuals to protect their health in a way that is meaningful to them; and 2) the versatility in program planning that allows them to engage and fulfill their vision. There are currently over 40 PCNs in Alberta that include over 2,500 family physicians, 600 other healthcare providers.[3] There is an element of excitement among PCN workers, as Ms. Milkovich stated, "It's a very cool time to be in healthcare and in primary care because we really are a part of something that is going to make a huge change in our healthcare system." PCNs have taken opportunities to be innovative in their program development and delivery, helping connect locals to primary health care and ensure that citizens receive the primary health care required on individual and community levels. ■

References

1. Health Care in Canada. Health Care in Canada Survey [Internet]. Ottawa: Health Care In Canada Partnership; 2011 [cited 2014 Jan 20] Available from: http://www.hcic-sssc.ca/english/Home.aspx
2. Alberta Health Services. Becoming the Best: Alberta's 5-Year Health Action Plan [Internet]. Edmonton: Alberta Health Services; 2010 [cited 2014 Jan 20] Available from: http://www.health.alberta.ca/documents/Becoming-the-Best-2010.pdf
3. Alberta Health Services. Primary Care Networks [Internet]. Edmonton: Alberta Health Services; 2013 [updated 2014; cited 2014 Jan 20] Available from: http://www.health.alberta.ca/about/health-funding.html

Stephanie Kowal

Stephanie is currently a graduate student in the School of Public Health at the University of Alberta. Her thesis work comprises a community-based research project aimed at understanding how new immigrant mothers in Edmonton, Alberta make immunization decisions for themselves and their children. With the findings, she and her research partners will create information content and delivery strategies that better suit the cultural needs and day-to-day realities of different immigrant communities in Edmonton.

SECTION 3: MAIN SUBMISSIONS

Call for Submissions

Back in October 2013, graduate students across Canadian Institutions were asked to submit commentaries on various aspects of **Primary Health Care and Health Care Delivery**. The commentaries were 700-800 words in length (maximum of 10 references) and focused on one of three specified topics of interest:

- Canada's Diverse Demographics: Challenges to Primary Health Care
- Primary Health Care in the Prevention and Control of Acute and Chronic Disease
- Knowledge Transfer: Informing and Engaging the Public in Primary Health Care

Review / Revisions

Starting in March 2014, each submission was reviewed by three blinded Reviewers from HSI. Reviewers provided feedback to the authors by critically assessing the content and writing of each commentary. After receiving feedback from Reviewers, authors were given three weeks to revise their submission and resubmit their manuscript to the journal. Our team of Senior Editors went through each commentary, providing a decision on publication and any final comments.

Judging Process

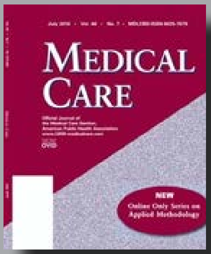
Twelve Faculty members from Canadian Institutions (see Page 32) were recruited as expert advisors, playing an instrumental role in the judging process of the journal's submissions. For each of the above categories, four faculty advisors were assigned to rank each of the submissions according to pre-defined criteria. Scores within each category were then summed as a collective rank of the individual faculty member's selections:

Example: Rank #1: Paper 1C = 5 Points
Rank #2: Paper 1A = 4 Points
Rank #3: Paper 1D = 3 Points

Section 3: Main Submissions

Winners

After processing the rankings from all our faculty advisors, a combined score was tabulated for each submission. The authors of the highest scoring paper for each category were granted expedited review for possible publication in our three partner journals: *Medical Care*, *HealthCare Policy*, or *Canadian Family Physician*.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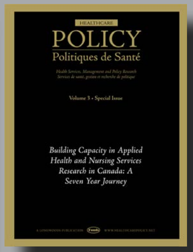
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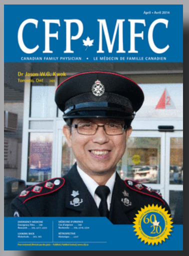
CFP·MFC

The quality and creativeness of all the submissions were outstanding, and both the editorial team and faculty advisors highly commend the authors for their achievement and hard work! After tabulating the results, we are pleased to announce the winning submissions for the 2014 issue of *Health Science Inquiry*.

2014 Winners

Canada's Diverse Demographics: Challenges to Primary Health Care

Stephanie Kowal and Derek Clark

Communicating genomic risk in primary health care: Challenges and opportunities for providers *(Page 43)*

Primary Health Care in the Prevention and Control of Acute and Chronic Disease

Tanya Raaphorst

Gluten intolerance: Changing the face of public health *(Page 85)*

Knowledge Transfer: Informing and Engaging the Public in Primary Health Care

Loae Khir and Raywat Deonandan

Shifting the birth weight paradigm *(Page 109)*

Past Winners

Chelsea Himsworth's paper was published as a 'Reflection and Reaction' piece in a 2010 issue of **The Lancet**: **http://www.thelancet.com/journals/laninf/article/PIIS1473-3099%2810%2970148-1/fulltext**

Timothy W. Buckland's paper was published as a 'Salon' piece in a 2011 issue of **The Canadian Medical Association Journal**: **http://www.cmaj.ca/content/early/2011/10/11/cmaj.111419.long**

Marc Bomhof, Jane Polsky, and Denise Darmawikarta's paper was showcased on the 'News' section in 2012 of the **International Journal of Obesity** website: **http://www.nature.com/ijo/index.html**

Leigh M. Vanderloo and Gillian Mandich's paper was published in a 2013 issue of the **Canadian Journal of Community Mental Health**: **http://www.cjcmh.com/doi/abs/10.7870/cjcmh-2013-032**

JUDGING PANEL

We are very fortunate to have the involvement of 12 distinguished faculty members from all across Canada for this issue of Health Science Inquiry. Each faculty advisor was assigned to one of the three categories students were asked to write commentaries on, and their main responsibilities were to judge and comment on the submissions within each category.

Dr. Erin Aspenlieder, BA, MA, PhD

Educational Developer, Open Learning and Educational Support, University of Guelph

Dr. Erin Aspenlieder is an Educational Developer at the University of Guelph. In her role she supports instructors in their teaching and supports programs in designing, implementing and assessing curriculum.

Dr. Gillian Bartlett, PhD

Associate Professor and Research Director, Dept. of Family Medicine, McGill University

Dr. Bartlett received her Ph.D. in epidemiology from McGill University in 2001 and her M.Sc. in 1996. Dr. Bartlett specializes in optimizing quality and safety of patient care.

Her research involves health informatics, pharmacoepidemiology, population health and evaluation methodologies for complex datasets in primary care. She has also developed a research program that deals with privacy issues related to health informatics. Through her PhD work and on-going research, she has extensive experience with the formation and analyses of large administrative database linked with clinical records. Her current focus is on the role of health informatics, knowledge translation and genomic medicine on patient safety in family medicine.

Dr. Richard H. Glazier, MD, MPH, FCFPC

Professor, Department of Family and Community Medicine, University of Toronto
Senior Scientist and Program Lead, Institute for Clinical Evaluative Sciences
Research Director, Department of Family and Community Medicine
Core Scientist, Center for Research on Inner City Health, St. Michael's Hospital
Family Physician, Department of Family and Community Medicine, St. Michael's Hospital

Dr. Glazier obtained his medical doctorate from the University of Western in Ontario, and completed his Masters of Public Health at the Johns Hopkins University, School of Hygiene and Public Health.

Dr. Glazier has an extensive background in the area of public health and epidemiology. His research interests are centered on ensuring delivery of primary care to disadvantaged urban populations, working to ensure equity in health care for these members of the population. He is also exploring the application of GIS methods in the context of health research.

JUDGING PANEL

Dr. Patricia Janssen, BSN, MPH, PhD

Professor and Co-Theme Leader, Maternal Child Health, School of Population and Public Health, University of British Columbia
Associate Member, Department of Family Practice, Obstetrics and Gynecology and School of Nursing, University of British Columbia

Dr. Patricia Janssen is a perinatal epidemiologist with a clinical background in obstetrical nursing. Her work focuses on maternal/newborn and women's health. She conducts clinical trials and population-based studies to determine the impact of exposures such as intimate partner violence or specific health services such as home birth or early labour support, on perinatal outcomes. She develops screening and diagnostic tools for measurement of fetal and newborn health. She undertakes clinical trials to evaluate methods of pregnancy and labour management and interventions for mothers at particularly high risk for experiencing adverse perinatal outcomes.

Dr. Ana Johnson, PhD

Member, Division of Cancer Care and Epidemiology, Cancer Research Institute, Queen's University
Associate Professor, Department of Public Health Sciences, Queen's University
Canada Research Chair in Health Policy, Queen's University
Member, The Pharmacoepidemiology and Economics Research Unit, ICES
ICES-Queen's Scientist, Queen's University

Dr. Johnson received a BA in economics from Nottingham University, and then a MA in economics from the University of Houston. She went on to get her PhD in Health Economics from the University of Texas.

Her projects address research in health economics, some of which focus on oncology. Her team has completed projects relating to resource use and costs of palliative and end-of-life care in Ontario, and a similar project in follow-up care. Her major area of research interest includes health services research, economic evaluations, uncertainty in economic evaluations and resource allocation/decision-making.

Dr. Natasha Kenny, BSc(Env), MLA, PhD

Manager, Educational Development, Open Learning and Educational Support, University of Guelph

Dr. Natasha Kenny currently holds the role as manager of the university's educational development unit, leading a team of educational developers and actively facilitating and supporting curriculum improvement, assessment, mapping and development initiatives.

Dr. Kenny has strong interests in curriculum development, program assessment and evaluation, as well as the scholarship of teaching & learning. Her disciplinary research interests relate to bioclimatic urban design and human thermal comfort.

JUDGING PANEL

Dr. Michael Klein

Senior Scientist Emeritus, CFRI
Emeritus Professor, Department of Family Practice, University of British Columbia
Honorary Member, Departments of Family Practice and Pediatrics, BC Children's Hospital and BC Women's Hospital & Health Centre

Dr. Michael Klein is best known as principal investigator for the only North American randomized controlled trial of episiotomy, which showed that episiotomy caused the problems it was supposed to prevent. He has focused on best practices in maternity care to help achieve optimal outcomes for mothers and newborns. Professor Michael Klein and his group continued to study the attitudes and beliefs of all those who care for women in their pregnancies and births - family physicians, obstetricians, midwives, nurses, doulas and trainees in these disciplines - as well as the women themselves. His studies demonstrate that attitudes have direct impact on outcome. His research also focuses on the health of rural communities and the place of maternity care in sustainable communities, as well as related areas of safety of rural maternity care and optimal strategies for safe maternity care in any setting. His studies have led on to the current series of studies on the attitudes of all providers of maternity care and the women themselves.

Dr. Steve Milosavljevic, PhD, MMPhty, GDMT, BAppSc

Director, School of Physical Therapy, University of Saskatchewan

Dr. Milosavljevic obtained his BappSc (physiotherapy degree) from the Curtin University in Perth, Australlia. After several years of clinical practice he resumed his studies at the University of Otago in New Zealand; obtaining his MPhty in 1998, and PhD in 2004. On January 28th, 2013 Dr. Milosavljevic was appointed director of the School of Physical Therapy at the University of Saskatchewan.

Dr. Milosavljevic has a research and clinical background in the areas of musculoskeletal physical therapy, manual and manipulative physical therapy. He is particularly interested in the exploration of occupational health issues faced by farmers; specifically the management of back pain and occupational exposure to whole body vibrations.

Dr. Pierre Pluye, MD, PhD

Associate Professor, Dept. of Family Medicine, McGill University
Associate Member of the School of Information Studies (McGill), the Department of Social Studies of Medicine (McGill), the Division of Experimental Medicine (McGill), the Centre for Clinical Epidemiology and Community Studies (SMBD Jewish General Hospital), and the 'Centre interuniversitaire de recherche sur la science et la technologie' (UQAM).

Dr. Pluye has a PhD in Public Health & Health Promotion from the Université de Montréal. He is a specialist in Public Health and Social Medicine. He also has a clinician background from France (General Practitiner). He has obtained New Investigator Awards from the Canadian Institutes of Health Research (CIHR) and the Fond de la recherche du Québec - Santé (FRQS).

His expertise includes mixed methods research and complex literature reviews (mixed studies reviews including quantitative, qualitative and mixed methods studies). His current CIHR-funded studies examine the clinicians', patients' and consumers' application of information derived from electronic knowledge resources (email delivery, information retrieval, social media) and subsequent patient health benefits.

JUDGING PANEL

Dr. David Price, BSc, MD, CCFP, FCFP

Professor and Chair, Department of Family Medicine, McMaster University
Chief, Department of Family Medicine, Hamilton Health Services

Dr. Price's efforts focuses on a large array of issues including primary care policy development, family practice obsetetrics, interprofessional primary care, eHealth and electronic medical records and quality in primary care.

He is the Provincial Primary Care Lead and Chair of the Provincial Expert Advisory Panel on Primary Care. He has also established a multi-disciplinary centre and remains founding director of the Maternity centre of Hamilton. His model of care at the Maternity centre has been used across Canada and has been the subject of several national presentations and publications.

His efforts also helped create the academic Family Health Team at McMaster University; An interprofessional team consisting of physicians, nurse practitioners, social workers, dieticians, occupational therapists, physician assistants, pharmacists and psychiatrists.

Dr. Michael Schwandt, MD, MPH, CCFP, FRCPC

Assistant Professor, College of Community Health and Epidemiology, University of Saskatchewan
Deputy Medical Health Officer, Population and Public Health, Saskatoon Health Region

Dr. Schwandt completed his medical doctorate at the University of Manitoba in 2007. He completed his residency in Family Medicine at the Women's College Hospital in Toronto in 2009, and obtained his Masters of Public Health from the Harvard School of Public Health in 2010. He carried out specialist training in Public Health and Preventive Medicine at the University of Toronto, receiving certification as a Fellow of the Royal College of Physicians of Canada in 2013. Dr. Schwandt is a public health researcher with an interest in health equity. His research interests include; social determinants of health, HIV and STI prevention, built environments and the implications of urban design on health, and healthy public policy.

Barriers to healthcare services among recent immigrants in Canadian cities

Hieu Ly

University of Western Ontario

In Canada, foreign-born individuals account for 20% of the total population.[1] Compared to the Canadian-born population, recent immigrants to Canada are generally healthier.[1,2] This phenomenon has been well-documented and has been coined the "healthy immigrant effect", which occurs when individuals' health advantages decline as their duration of time in the host country lengthens.[2,3] The healthy immigrant effect has been attributed to various factors including the underutilization of healthcare services.[3] In particular, language, cultural, and healthcare accessibility barriers may contribute to this issue, especially for immigrants settling in urban areas.[4,5] Consequently, this may result in the decline of immigrants' health after extended-time living in Canada.[4]

Communication and Language Barriers

Immigrants who lack proficiency in Canada's national languages (i.e., English or French) may have difficulty navigating the healthcare system.[6] Approximately 66% of male and 52% of female immigrants rated their language proficiency as 'persistently good' after 6-months in Canada,[6] leaving a significant proportion of immigrants with communication difficulties. Ultimately, language barriers may influence the ways immigrants interact with or utilize medical services.[3] After four years in Canada, immigrants reporting poor health increased from 5% to 12% for males and from 8% to 21% for females with limited language proficiency.[6] Furthermore, a common issue that occurs in multicultural cities across Canada is the lack of physicians that speak the patient's native language.[5] Due to a lack of resources, interpretation services are often not provided in primary care, but are available at hospitals to various extents.[7,8] Unfortunately, reductions in funding have decreased a substantial amount of community-based health and social services provided by hospitals and healthcare practices devoted to immigrant health.[7]

In order to overcome these barriers, an increase in health literacy as well as language proficiency among newcomers to Canada is crucial. Involving immigrants in community-based healthcare awareness programs is one possible avenue to both promote health education as well as improve language proficiency. In addition, designing print materials that are offered in a variety of languages in healthcare practices, and community-based programs that advocate for immigrants' health can circumvent language barriers while educating.

Cultural Barriers

Meeting the cultural needs of everyone who utilizes the Canadian healthcare system is a persistent issue. In addition to preferences for a male or female physician, Western-based medical approaches may not meet the needs of immigrant populations in a holistic or traditional way.[5] As a result, cultural beliefs, expectations or practices may exist that influence newcomers' behaviours toward accessing medical services.[2] For example, 59% of Chinese immigrants prefer to have physicians that speak their native language because of difficulty communicating their symptoms, especially if they are accustomed to describing their symptoms in terms of good or bad 'chi'.[8] It is crucial to consider individuals' cultural beliefs and values when providing health services due to immigrants' low levels of acculturation and familiarity of Western-based healthcare practices and/or medicine. Although immigrants can find physicians' information through government websites, there is a lack of culturally-matched physicians.[5,8] Therefore, communities and their members should help advocate for individuals by matching those with culturally-specific needs with appropriate physicians. ▶

Access to Healthcare Barriers

Immigrants are more likely to access healthcare services if culturally appropriate care were located within a close proximity.[5,8] As such, public transit may act as a barrier for those without access to a car. Consequently, locating a physician that is within reasonable travel distance may be difficult for recent immigrants.[5] Moreover, the concentrations of physicians in Canadian cities may reveal a spatial mismatch between physicians and immigrant populations.[8] In other words, there is a shortage of culturally-matched physicians in close proximity to immigrants' home and work.[8,9] Therefore, location of practice and travel time/distance may be significant factors for recent immigrants when deciding to seek medical services. Policymakers should be aware of the potential spatial barriers when recruiting physicians to specific communities, thus, reorienting healthcare services to meet the travel needs of those in the community.

Increasing Healthcare Utilization via Health Promotion

From a health promotion perspective, it is necessary to increase an individual's control over his/her own health by modifying factors (e.g., policies and services) that help individuals navigate the Canadian healthcare system.[10] Identifying barriers that recent immigrants face should be a goal for all healthcare providers and policymakers to ensure a healthy immigrant population in Canada. Some of the most notable concerns relate to lack of language, cultural understanding, and accessibility. In order for Canadian cities to sustain the health of the immigrant population, a multifaceted approach must be established for healthcare practitioners, policy makers, and immigrants to collaborate and promote better access to healthcare services. ■

References

1. Wang L, Hu W. Immigrant health, place effect and regional disparities in Canada. Soc Sci Med. 2013;98:8-17.
2. Newbold B. Health care use and the Canadian immigrant population. Int J Health Ser. 2009;39(3):545-65.
3. McDonald J, Kennedy S. Insights into the 'healthy immigrant effect': Health status and health service use of immigrants to Canada. Soc Sci Med. 2004;59:1613-27.
4. Scheppers E, van Dongen E, Dekker J, Geertzen J, Dekker J. Potential barriers to the use of health services among ethnic minorities: A review. Fam Pract. 2006;23:325-48.
5. Asanin J, Wilson K. ''I spent nine years looking for a doctor'': Exploring access to health care among immigrants in Mississauga, Ontario, Canada. Soc Sci Med. 2008;66:1271-83.
6. Ng E, Pottie K, Spitzer D. Official language proficiency and self-reported health among immigrants to Canada. Health Rep. 2011;22(4):1-9.
7. Steele L, Lemieux-Charles L, Clark J, Glazier R. The impact of policy changes on the health of recent immigrants and refugees in the inner city: A qualitative study of service providers' perspectives. Can J Public Health. 2002;93(2):118-22.
8. Wang L, Rosenberg M, Lo L. Ethnicity and utilization of family physicians: A case study of Mainland Chinese immigrants in Toronto, Canada. Soc Sci Med. 2008;67:1410-22.
9. Law M, Wilson K, Eyles J, Elliott S, Jerrett M, Moffat T, et al. Meeting health need, accessing health care: The role of neighbourhood. Health Place. 2005;11:367-77.
10. Ferrari M, Tweed S, Rummens J, Skinner H, McVey G. Health materials and strategies for the prevention of immigrants' weight-related problems. Qual Health Res. 2009;19(9):1259-72.

Hieu Ly

Hieu Ly is currently an MSc student in Health and Rehabilitation Sciences, Health Promotion, at Western University. His research focuses on physical activity interventions and the impact they have on university students' physical activity levels. Hieu's research interests include understanding the role of campus-based physical activity interventions and the promotion of healthy lifestyles among students.

Implementing exercise therapy into primary health care

Cameron Moore

University of Waterloo

The benefits of exercise for the treatment and prevention of chronic disease are well-established and widespread across demographic profiles.[1,2] In a recent meta-epidemiological analysis, physical activity was observed to be as effective as pharmacological therapy − indicating that exercise and many drug interventions are similar in terms of cardiovascular disease and diabetes prevention, rehabilitation after stroke, and heart failure treatment.[3] Furthermore, it is proposed that exercise therapy is often less expensive, targets multiple co-morbidities, and has fewer side-effects compared to pharmacological therapy.[4,5] Alarmingly, only 15% of Canadians are achieving the 150 minutes of moderate-to-vigorous physical activity per week as recommended by the Canadian Society for Exercise Physiology and the World Health Organization.[6] While the clinical benefits of exercise are well established, it is evident that the best way to engage individuals in an active lifestyle remains largely unknown.

Primary health care is a gateway to the health care system that is accessed by patients across age, race, and gender categories. Therefore, primary care may provide an effective setting to implement exercise-promoting services targeting groups within the community who may benefit the most. For example, primary care-based initiatives like the Exercise is Medicine® campaign, which endeavours to integrate exercise therapy into the health care system by making patients' physical activity levels a standard "vital sign" question, are gaining increased traction in Canada and the United States.[7] However, exercise therapy has not been sufficiently adopted into the primary care environment; providing physicians and other primary care providers with the resources to counsel or refer their patients to appropriate physical activity therapy must be addressed by national and provincial policy reforms.

Recently, our research group undertook an environmental scan of exercise services offered by the 186 Family Health Teams in Ontario. A Family Health Team is a framework where family physicians work alongside a team of health care professionals to offer comprehensive inter-professional primary health care to over 2.86 million Ontarians. In addition, the Ontario Government provides health promotion funding to approximately a third of Family Health Teams, including 48.5 full-time equivalent health promoter positions to facilitate chronic disease prevention and management programs (e.g., smoking cessation, healthy eating, exercise therapy, etc.) [Personal communication with a representative from the Ontario Ministry of Health and Long-term Care. 2014 Feb 21]. Family Health Teams only serve a fraction of Ontarians; however, because of the availability of health promotion resources and the multi-disciplinary environment, it is proposed that Family Health Teams should be at the forefront of exercise therapy delivery.

The sample of Family Health Teams surveyed in the environmental scan indicated 50% of Family Health Teams offered an exercise service. The availability of exercise services varied depending on the individual site, and services were often restricted to specific conditions or needs rather than available to the majority of patients. Only half of the Family Health Teams offering an exercise service employed a health promoter to provide exercise therapy, and the individuals providing exercise therapy did not always have qualifications associated with expertise in evidence-informed, patient-centered exercise prescription. The variability in exercise service delivery suggests that decisions about program structure and content are made locally, and may not be based on guidelines regarding what interventions are effective for changing behaviour or improving health outcomes in primary care.

Given the established health benefits of exercise therapy, all individuals, regardless of health status or location, would benefit from access to safe and effective exercise ▶

services. Therefore, policy changes could be used to guide exercise therapy delivered in primary care. First, there are many evidence-informed, population-specific physical activity guidelines provided by national bodies (e.g., Canadian Society for Exercise Physiology) and stakeholder groups (e.g., Osteoporosis Canada) that could be used to standardize exercise services. Secondly, the primary health care system could benefit from the increased integration of health professionals with an in-depth understanding of exercise guidelines, contraindications to exercise, and behaviour change strategies to encourage exercise engagement.[7] Kinesiologists for example, who are working under a newly accredited professional designation in Ontario, have an exercise-specific scope of practice, and the opportunity to acquire skills suited to offering safe and effective exercise therapy to diverse patient populations. Evidence has shown that the integration of a health promoter to provide exercise therapy in a primary care environment not only removes the responsibility of exercise prescription from the physician, but does so at an enticing cost-benefit ratio.[5,9]

In conclusion, the evidence base supporting exercise as medicine has reached a tipping point where primary care policy must be reformed to incorporate the widespread implementation of physical activity counselling and services. A standardized model, where physicians or other allied health professionals can assess physical activity needs and refer patients to a health promoter to deliver appropriate exercise recommendations and facilitate engagement in exercise should be considered. Such a model may serve to maximize the use of scarce health professional resources, reduce health care costs, and result in an overall improvement in public health. ■

References

1. Warburton DE, Nicol CW, Bredin SS. Health benefits of physical activity: The evidence. CMAJ. 2006;174(6):801-9.
2. Katzmarzyk PT, Gledhill N, Shephard RJ. The economic burden of physical inactivity in Canada. CMAJ. 2000;163(11):1435-40.
3. Huseyin Naci, John P A Ioannidis. Comparative effectiveness of exercise and drug interventions on mortality outcomes: Metaepidemiological study. BMJ. 2013; 347-f5577.
4. Knowler WC, Barrett-Connor E, Fowler SE, Hamman RF, Lachin JM, Walker EA, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. N Engl J Med. 2002;346(6):393-403.
5. Hogg WE, Zhao X, Angus D, Fortier M, Zhong J, O'Sullivan T, et al. The cost of integrating a physical activity counselor in the primary health care team. J Am Board Fam Med. 2012;25(2):250-2.
6. Woodcock J, Franco OH, Orsini N, Roberts I. Non-vigorous physical activity and all-cause mortality: systematic review and meta-analysis of cohort studies. Int J Epidemiol. 2011 Feb;40(1):121-38.
7. American College of Sports Medicine. Exercise is Medicine® [Internet]. Indianapolis; 2008 [last update unknown; cited 2014 Jan 15]. Available from: http://exerciseismedicine.org
8. Warburton DE, Charlesworth SA, Foulds HJ, McKenzie DC, Shephard RJ, Bredin SS. Qualified exercise professionals: Best practice for work with clinical populations. Can Fam Physician. 2013;59(7):759-61.
9. Tulloch H, Fortier M, Hogg W. Physical activity counseling in primary care: who has and who should be counseling? Patient Educ Couns. 2006;64(1-3):6-20.

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Using Cuba's example to improve primary healthcare in Canada

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The Alma-Ata Declaration in 1978 encouraged many countries to incorporate primary healthcare (PHC) principles. It was the first time that all World Health Organization (WHO) members recognized that access to basic health services was a human right, in what was known as "Health for All by the Year 2000."[1] PHC refers to services that prevent illness and promote health by addressing housing, education, income, and the environment.[2] In Canada, the principles of PHC include 1) making health services universally available, 2) encouraging people to make decisions regarding their own health, 3) promoting health through education, sanitation, maternale and childcare, 4) having appropriate technology that is adaptable to local needs, and 5) maintaining inter-sectoral cooperation through involvement with other sectors such as agriculture, education, and housing.[2] Although PHC played a key role in reforming health services and changing attitudes from treatment to prevention of diseases, some have questioned whether PHC was even successful because the general health status of the population was still poor in many developing countries.[1] Unfortunately, the lack of understanding of the importance of PHC principles on health undermined the translation of PHC principles into tangible reforms,[3] with many countries diverting its focus to acute hospital care.[1] These trends have not only led to decreased access to primary healthcare services; they have also made it difficult to meet the changing social patterns related to health including poverty, hunger and chronic illnesses.[3]

Although the Canadian healthcare system is based on PHC principles, Canada is not immune to its focus on acute hospital care. According to the National Health Expenditure Trends, Canada's health spending in 2013 reached $211 billion with 30% of total spending on acute hospitals, 16.3% in drugs, 15% in physician compensations, and only 5% for public health which includes food and water safety, health education and immunization programs.[5] Unfortunately, the priorities shifted towards acute hospital care as the technological capacity of clinical medicine grew.[10] In addition, there have been inconsistent health care goals among Canadians, with some seeing it as increased access to acute care hospitals, the reduction of waiting times, or how many people are serviced.[6] As a result, having a common public health priority is important to prevent people from being ill, reduce the cost on acute hospitals and improve the quality of life for Canadians.[10]

Canada could look towards Cuba for help. For example, Cuba demonstrates strong, consistent values toward primary healthcare, and has transformed these values into tangible reforms. Despite decades of severe economic embargo and difficulty, Cuba was not only able to maintain a strong PHC system, but also achieve impressive health indices comparable to those in more developed countries.[7] This was evidenced by infant mortality rates of 4.76 deaths/1000 live births (important indicator for the level of health in a country) comparable to those in developed countries including the US [5.9] and Canada [4.78]. In contrast, countries with levels of economic performance similar to Cuba had much higher rates, such as Bolivia [39.76], Honduras [19.28] and Ecuador [18.48].[8] Other health indicators such as life expectancy shared a similar trend that was favourable to Cuba.[7] However, one of the most important factors cited for Cuba's health achievements for such a poor country was their strong emphasis from treatment services for the few to disease prevention and health promotion for the entire population.[8] The most revolutionary idea of the Cuban system is the development of community-based clinics in every neighbourhood, where physicians and nurses live in the community that they serve.[9] These clinics not only provide a holistic, family and community-centered care but also health promotion activities which include teaching about nutrition, hygiene, and environmental issues. They also help to organize grandparents' circles for elders, ▶

and related activities for teens.[7] Rather than focusing on diagnosis and treatment, the physicians and nurses help to address non-medical determinants of health and create a health culture within their communities.[7] As a result, Cuba's priority towards community-based clinics was one of the key factors in producing impressive health results.

Although the aim of the PHC principles was to address a wide range of factors that prevent disease and promote health, the ways in which primary healthcare services are organized, delivered, and funded in Canada have focused on a narrow scope of acute hospital-based care. To increase access to primary healthcare services and meet the changing social patterns related to health, we must revisit how our funding structure and health goals address the PHC principles. Once we realize that health is not just about treating disease, we can begin to learn from Cuba's example of community-based clinics and truly improve primary healthcare in Canada. ■

References

1. Moghadam MN, Sadeghi V, Parva S. Weaknesses and challenges of primary healthcare system in Iran: a review. Int J Health Plann Manage. 2012; 27(2):e121–e131.
2. Health Canada. About primary health care [internet]. Ottawa, Health Canada. [last update 2012 Aug 23; cited 2014 Apr 23]. Available from: http://www.hc-sc.gc.ca/hcs-sss/prim/about-apropos-eng.php.
3. World Health Organization. Introduction and Overview [internet]. Geneva, World Health Organization. [last update 2008 Jan 1; cited 2014 Apr 23]. Available from: http://www.who.int/whr/2008/overview/en/index.html.
4. Duncan S, Reutter L. A critical policy analysis of an emerging agenda for home care in one Canadian province. Health Soc Care Community. 2006; 14(3):242–53.
5. Canadian Institute for Health Information (CIHI). National health expenditure trends, 1975 to 2013 [internet]. Ottawa, CIHI. [last update 2013 Oct 29; cited 2014 Apr 23]. Available from: https://secure.cihi.ca/estore/productFamily.htm?locale=en&pf=PFC2400
6. Muzyka D, Hodgson G, Prada G. The inconvenient truths about Canadian health care [internet]. Ottawa, The Conference Board of Canada. [last update 2012 April 29; cited 2014 Apr 23]. Available from: http://www.conferenceboard.ca/cashc/research/2012/inconvenient_truths.aspx
7. Spiegel JM, Yassi A. Lessons from the margins of globalization: appreciating the Cuban health paradox. J Public Health Policy. 2004; 25(1):85–110.
8. Central Intelligence Agency. The world factbook: infant mortality rate [internet]. Langley, Central Intelligence Agency. 2013 [last update 2013 Apri 24; cited 2014 Apr 23]. Available from: https://www.cia.gov/library/publications/the-world-factbook/fields/2091.html.
9. Fitz D. Why is Cuba's health care system the best model for poor countries? [internet]. Place of publication unknown [last update 2012 July 12; cited 2014 Apr 23]. Available from: http://mrzine.monthlyreview.org/2012/fitz071212.html.
10. Public Health Agency of Canada. The role and organization of public health [internet]. Ottawa, Public Health Agency of Canada. [last update 2011 Nov 08; cited 2014 Apr 23]. Available from: http://www.phac-aspc.gc.ca/publicat/sars-sras/naylor/3-eng.php.

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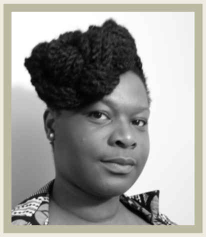

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Communicating genomic risk in primary health care: Challenges and opportunities for providers

Stephanie Kowal and Derek Clark

University of Alberta

Introduction

Using genomic data to guide patient health management is a major advancement in health care delivery. Genomics is the study of: a) a person's genetic material; b) how the components of that genetic material interact; c) how that material interacts with the environment; and d) the resulting phenotypic changes.[1] Genomic information can help guide treatment and dosing and identify those at risk for developing certain conditions (e.g., genetically influenced cancers, such as BCRA1 breast cancer).[2] Traditionally, discussing genomic information with patients has been the responsibility of genetic counsellors. However, genomics will be increasingly integrated into primary health care as patients seek genomic information,[3] including direct-to-consumer testing. This is particularly important considering the increased emphasis on patient engagement and patient-centred care. Although there are many opportunities for genomics, this rapidly advancing area presents many social, ethical and legal challenges. In the primary health care (PHC) context, one of the most significant difficulties is the communication of genomic data and genomic risk to patients. Genomic risk communication includes discussing the physical, psychological and social risks and benefits of accessing and interpreting genomic information. This review will address the context and challenges of genomic risk communication and highlight implications of successful risk communication for PHC.

Risk Communication and Genomics

Communication of genetic data with patients highlights the need for thoughtful education, risk communication, and emotional support strategies.[4] Genetic information dramatically increases the complexity of risk normally associated with disease. For example, gene variation, detected in genetic testing, increases the likelihood of, but does not ensure certainty in disease expression.[2] Alternatively, a certain gene variation might be expressed only through interaction with the environment.[1] Additionally, the implications of risk communication differ depending on whether they pertain to developing a disease or transmitting genetic conditions.[5]. These are uncertainties and implications that need to be discussed between patients and providers.

Challenges of Communicating Genomic Risks in PHC

Communicating meanings of uncertainty, risk, and statistics in genetic information will be difficult.[6] Increasingly, decision aids are being used for risk communication and patient education in informed decision-making.[4] Decision aids are "tools that help people involved in decision making by making explicit the decision that needs to be made, providing information about the options and outcomes, and clarifying personal values."[7] A recent review of risk communication interventions found that decision aids improved knowledge, but did not necessarily decrease anxiety.[4] However, access to decision aids prior to clinician interactions increased time for discussion and consideration of personal genetic risks.[8]

In genomic data risk communication, challenges include communicating uncertainty of risk (i.e., likelihood of developing genetic conditions), decision aid biases, and human biases in decision-making in general.[9] For example, patients are often optimistic towards their health, uncomfortable with their health protection/management choices, and struggle with presentation of statistical risk.[9] These issues increase our need to understand the role of genetic data use and communication of risk management options available to those with genetic variations in the PHC context. ▶

Implications and Opportunities for Communicating Genomic Risks in PHC

Considering the objectives of PHC, successful genomic risk communication has the potential to play a significant role in achieving these goals. Especially relevant objectives include expanding team-based approaches, focusing on prevention and management of chronic and complex illnesses, and encouraging patient engagement.[10]

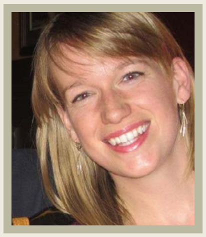
a) As previously stated, genetic counsellors have traditionally provided risk information. As genomic data becomes increasingly prevalent in PHC practice, there may be opportunities to increase the presence of genetic counsellors to collaborate in a multidisciplinary team environment to provide patient-centered care and effective risk communication. Given the reported discomfort of some providers in communicating this information, this could lead to better outcomes in primary care.

b) One of the uses of genomic information is to identify individuals at risk of developing disease, which is particularly relevant in the primary care setting. If providers are comfortable using the data and communicating the risks to patients, there is substantial potential to prevent chronic illnesses. This data will also prove useful in guiding appropriate treatment and management strategies, and avoiding ineffective and potentially unsafe interventions for patients with complex illnesses.

c) Perhaps the most important implication for communicating genomic risk in PHC is related to patient engagement. One of the fundamental goals of risk communication in health is to foster informed decision-making. This goal requires health professionals to disclose a full and honest account of all the information necessary to make an informed health decision.[11] This principle aligns with PHC practices of shared decision-making and patient empowerment.

Conclusion

If providers can successfully communicate the risks related to genetic information, they have the potential to achieve the objectives of PHC and improve patient/health system outcomes. Genomic information is playing a larger role in individuals' health care[3] and PHC is an optimal venue, logistically and economically, for discussions about genomic risk. Regardless of their preparedness, PHC providers will increasingly face the challenges of genomic risk communication as patients seek and demand genomic testing.[3] Ensuring PHC providers are equipped with the knowledge, resources and skills to communicate these risks should be a priority for health systems going forward. ■



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Stephanie is currently a graduate student in the School of Public Health at the University of Alberta. Her thesis work comprises a community-based research project aimed at understanding how new immigrant mothers in Edmonton, Alberta make immunization decisions for themselves and their children. With the findings, she and her research partners will create information content and delivery strategies that better suit the cultural needs and day-to-day realities of different immigrant communities in Edmonton.

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References

1. Saul RA. Genetic and genomic literacy in pediatric primary care. Pediatrics. 2013;132(S3):S198-4.
2. Prathikanti S, Weinberger DR. Psychiatric genetics-the new era: genetic research and some clinical implications. Br Med Bull. 2005;73-74:107-15.
3. Vassy JL, Green RC, Lehmann LS. Genomic medicine in primary care: barriers and assets. Postgrad Med J. 2013;89(1057):615-1.
4. Edwards A, Elwyn G. Shared decision-making in health care: achieving evidence-based patient choice. 1st ed. New York, NY: Oxford University Press; 2009.
5. Huiart L, Eisinger F, Stoppa-Lyonnet D. Effects of genetic consultation on perception of a family risk of breast/ovaria cancer and determinants of inaccurate perception after the consultation. J Clin Epidemiol. 2002;55:665-2.
6. Schwartz LM, Woloshin S, Welch HG. Using a drug facts box to communicate drug benefits and harms: two randomized trials. Ann Intern Med. 2009;150:516-11.
7. Ottawa Hospital Research Institute. Patient decision aids [Internet]. Place of publication unknown. 2013 [last update unknown; cited 2014 Mar 7]. Available from: https://decisionaid.ohri.ca/.
8. Green MJ, Peterson SK, Baker MW. Use of an educational computer program before genetic counseling for breast cancer susceptibility: effects of duration and content of counseling sessions. Genet Med. 2005;7:222-7.
9. Chapman GB, Weber BJ. Decision biases in intertemporal choice and choice under uncertainty: testing a common account. Mem Cognit. 2006;34(589):13.
10. Hutchison B, Levesque JF, Strumpf E, Coyle N. Primary health care in Canada: systems in motion. Millbank Q. 2011;89(2):256-32.
11. Jardine CG, Hrudey SE, Shortreed JH, Krewski D, Furgal C, Craig L, et al. Risk management frameworks in human health and environmental risks. J Toxicol Env Health. 2003;6(569):72.

Effects of cutting refugee health benefits in Canada

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In 2012, reforms were made to refugee health benefits under the Interim Federal Health Program (IFHP) as a result of public discourse that cast these benefits as costly and unfair to Canadians.[1] IFHP benefits act as temporary health coverage until an individual becomes eligible for provincial or territorial health insurance, usually through acquiring permanent residency status.[1] Cuts to benefits affect refugees who arrive without government sponsorship. In 2012, there were 89,383 non-sponsored refugee claimants present in Canada.[2] Of the non-sponsored claimants arriving in Canada, only 38% of asylum claims were ruled to be legitimate and afforded permanent residency in 2011.[1] Under the new policies, privately sponsored refugees and individuals claiming asylum are not covered for services such as non-emergent hospital services, laboratory, diagnostic and ambulance services, prosthetic and mobility assistance coverage, psychological counseling, home care and long term care.[1, 3, 4] These changes will have a considerable effect on the health and well-being of refugees in Canada.

Cuts have been made under the assumption that continuing federal spending on refugee benefits is expensive and unfair to Canadian taxpayers.[5] New amendments to the IFHP shift the focus of refugee health care to the management of emergent conditions in favour of preventative health care. Relocating the majority of care provided to the emergency department is costly and shifts the financial burden to provinces and territories.[1] Emergency departments will also potentially see a rise in demand and an increase in already lengthy wait times. As such, there can be no advantage to limiting health coverage in this population.

These new policy changes deny people access to much needed health care; therefore, new strategies in primary health care delivery are needed to eliminate barriers and allow for better access to health services. In these strategies, the clinician would work to improve access to health care. Such strategies would include creating low barrier, non-judgmental environments, providing care that makes patients feel welcome, and by forming partnerships with community organizations that can be used as resources.

Barriers to Health Care

Refugees typically seek asylum from threats to their freedom or wellbeing and are already at a higher risk for poor physical and mental health at the time of their arrival.[1,3] Moreover, the refugees lack social support systems, familiarity with the health care system, and at times are unable to support themselves financially.[1,6,7] Additional barriers to positive health outcomes include limited employment opportunities, perceived discrimination from health care providers, language barriers, risk of exploitation, social isolation, and risk of experiencing violence and abuse.[1,3] Bureaucratic barriers create difficult situations where people are unable to seek the care they need, as in the case of an individual with chronic illnesses such as diabetes who require monitoring and regular medication for which they are not covered and have no alternative ways of payment.[1] Limited coverage can be a disadvantage, as uninsured individuals might face discrimination when accessing care, be denied care or avoid seeking care due to a lack of funds for payment or the additional administrative hurdles involved in such payment.[1] This could further contribute to higher rates of poor health outcomes already present within this population.[3]

Strategies to Improve Health Care Access

Asylum claimants have limited access to structural support systems such as community clinics that are afforded to permanent and documented residents of the country.[6-9] A familiarity with refugee-specific resources should be incorporated into clinical practice to allow for the provision of comprehensive health services.[7] Clinic staff should also be available to help fill out forms that provide

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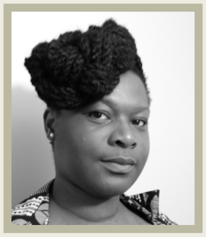
supportive resources such as social assistance and housing. Resettlement services and local cultural communities could be potential partners who could aid in providing comprehensive services such as employment assistance, opportunities for forming social support, translation services and education.[7-9] Federal services and resources could be insufficient as they are often limited to refugees sponsored by the Canadian government.[1] In these cases, partnerships with non-governmental organizations that provide similar services need to be sought out. Payment policies should be expanded to allow for different forms of compensation and within acceptable periods of time.[7]

Elements of trauma- and violence-informed care (TVIC) as well as cultural safety can also be integrated into clinical practice.[6,7,9] TVIC involves understanding of the effects of trauma, working actively to foster trust and create a safe and validating health care environment, and working towards addressing the policy and structural conditions that influence health and social inequities in the context of the social determinants of health. Together TVIC and cultural safety have the potential to encourage healing, promote people's strengths and prevent the retraumatization that can often occur when people attempt to access health and social services.[6, 10] Reaching out to the greater community for partnerships that cater to refugees' concerns would also fill this need.[8, 9] This could include the use of interpreters or cultural partners who can help identify culture-specific concerns and facilitate the inclusion of cultural beliefs and practices into health teaching and practices. These, in addition to informal networks such as religious organizations, ethno-cultural associations and networking groups could also be sources of social support.[10]

Future Directions and Conclusion

Refugees face numerous social and economic barriers to accessing health care. Reforms to the IFHP have led to cuts that have left some refugees unable to get coverage for health care. This compounds the systemic barriers they face when accessing primary health care. Additionally, these policy changes shift the care of refugees from preventative care to acute and emergency care organizations. Primary health care practitioners should consider providing comprehensive care services by making low-barrier organizational changes and partnering with community organizations in order to fill the gaps created by this deficit in care. ■



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References

1. Barnes S. The real cost of cutting refugee health benefits: A health equity assessment 2012. Available from: http://www.wellesleyinstitute.com/wp-content/uploads/2012/05/The-Real-Cost-of-Cutting-Refugee-Health-Benefits.pdf.
2. Facts and figures 2012 - Immigration overview: Permanent and temporary residents: Government of Canada; 2012 [cited 2014 Mar 10]. Available from: http://www.cic.gc.ca/english/resources/statistics/facts2012/temporary/26.asp.
3. Brabant Z, Raynault MF. Health of migrants with precarious status: results of an exploratory study in Montreal--Part B. Social work in public health. 2012;27(5):469-81.
4. Interim federal health program policy: Government of Canada; 2012 [cited 2014 10 Mar]. Available from: http://www.cic.gc.ca/english/department/laws-policy/ifhp.asp.
5. News Release - Reform of the Interim Federal Health Program ensures fairness, protects public health and safety: Government of Canada; 2012 [cited 2014 10 Mar]. Available from: http://www.cic.gc.ca/english/department/media/releases/2012/2012-04-25.asp.
6. Pottie K, Batista R, Mayhew M, Mota L, Grant K. Improving delivery of primary care for vulnerable migrants: Delphi consensus to prioritize innovative practice strategies. Canadian family physician Medecin de famille canadien. 2014;60(1):e32-40.
7. Browne AJ, Varcoe CM, Wong ST, Smye VL, Lavoie J, Littlejohn D, et al. Closing the health equity gap: evidence-based strategies for primary health care organizations. International journal for equity in health. 2012;11:59.
8. Simich L, Beiser M, Stewart M, Mwakarimba E. Providing social support for immigrants and refugees in Canada: challenges and directions. Journal of immigrant health. 2005;7(4):259-68.
9. McMurray J, Breward K, Breward M, Alder R, Arya N. Integrated Primary Care Improves Access to Healthcare for Newly Arrived Refugees in Canada. Journal of immigrant and minority health / Center for Minority Public Health. 2013.
10. Pottie K, Greenaway C, Feightner J, Welch V, Swinkels H, Rashid M, et al. Evidence-based clinical guidelines for immigrants and refugees. Can Med Assoc J. 2011;183(12):E824-925.

It's time to move away from fee-for-service

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Compensation paid to physicians accounts for the third largest share of total healthcare spending in Canada, behind hospitals and pharmaceuticals.[1] As one of the fastest-growing health categories in recent years, physician services cost more than $29 billion annually, representing 14.6% of total healthcare spending in 2011.[1] For fiscal 2011/12 alone, the increase in payments made to fee-for-service physicians rose 7.1%. This increase can be reduced by changing the mechanism of the payment method.

The dominant form of payment received by Canadian physicians is fee-for-service.[2] This is a payment method in which the amount of compensation received is proportional to the number of services provided. The important advantage of fee-for-service lies in its economic principle to price services discretely and motivate the provider to meet patients' demands. Unfortunately, given the direct link between providing service and receiving remuneration, fee-for-service can be problematic on several fronts. The main problem is that physicians are motivated to over-treat patients and deliver services in the shortest amount of time possible in order to maximize profit.[3] When payment depends on the quantity rather than quality of services provided, the effort put into important non-clinical responsibilities is reduced, such as administrative, educational, or communicative tasks, including those related to health promotion and preventive care.[4] Physician payment mechanisms act as a logical entry point for cost containment and present additional opportunities to affect better integration, coordination, and multidisciplinary care.

There is a need to move away from fee-for-service payments, but doing so is a challenge. Fee-for-service is the preferred payment method model for the majority of physicians and medical associations even prior to publically-funded health care systems.[5] The fees charged by physicians are set by negotiation between medical associations and provincial governments, but government can only influence the average level of fees while the relative prices of fees are set internally by medical associations.[4] Without direct control over the pricing of medical services, governments have moved from controlling fees to controlling the incomes of physicians through adjusting aggregate payout based on previous years' volumes or through establishing individual income ceilings.[4] Critics of fee-for-service argue that alternative payment methods may address government fiscal objectives while simultaneously providing better healthcare quality and promoting more efficient usage of resources.[4]

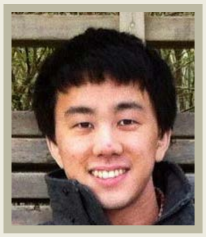
There are multiple alternative payment methods currently in use, each having potential advantages.[6] Salary, sessional, and hourly fees are paid based on units of time rather than on quantity of services provided. These payment methods can eliminate adverse incentives for patient-selection (choosing patients with the greatest bang for buck) and over-treatment, but at the potential cost of reducing physician productivity and efficiency.[7] Capitation fees are lump-sum payments determined by the number of rostered patients. Its key advantages include reducing over-treatment, incentivizing preventive care, and increasing the number of patients serviced. For the government, a capitation arrangement would make health care expenditures more predictable because cost would be characterized by population demographics.[4] However, patient-selection and unnecessary referrals to specialists may persist depending on how capitation is implemented.[4,7] Performance-based payments are another alternative method where bonuses are rewarded for achieving a pre-determined goal. This method can be used to recruit physicians to work in remote communities or to target specific health outcomes in underserved areas.[3] In each of these schemes, different aspects of health care goals are incentivized which may work for or against the providers' and patients' interests. In principle, alternative payment methods appear to better align the needs of both parties. ▶

The evidence for alternative payments in reducing healthcare costs is not definitive. When the Health Services Organization (HSO) experimented with capitation payment in 1973, they did not see a reduction in cost or an improvement in quality of healthcare services.[8] However, another study found that physicians paid through capitation that is privately funded did reduce healthcare costs, although this was complemented with patient and provider dissatisfaction.[9] In a review article, the authors found that salary payments reduced healthcare costs associated with lower volumes of consultations, lower levels of hospital use, and fewer tests and X-rays.[10] Research on alternative payment methods is difficult to conduct. The inability to associate health outcomes with payment methods and the inability to compare settings across contextual boundaries makes it difficult to study the implications of cost containment alone.

In our opinion, the financial incentives embedded in fee-for-service are too high to adequately align patient and provider interests. Alternative payment methods offer a reasonable approach to curb rising healthcare costs. While the current healthcare system emphasizes the importance of physicians, the discussion on physician payment should also engage other healthcare providers. Changing the method of payment presents an opportunity to address the financial incentives in fee-for-service on physician practice. ■

References

1. National Health Expenditure Trends, 1975 to 2013 [Internet]. Canadian Institute for Health Information; 2012 [cited 2014 February 2]. Available from: http://www.cihi.ca
2. National Physician Database, 2011 – 2012 Data Release [Internet]. Canadian Institute for Health Information; 2013 [cited 2014 March 19]. Available from: http://www.cihi.ca
3. Alternative Payment Models to Fee for Service [Internet]. Canadian Medical Association; 2005 [cited 2014 March 19]. Available from: http://www.cma.ca
4. Emery JH, Auld C, Lu M. Paying for physician services in Canada: the institutional, historical and policy contexts-Part 1 of Incentive Effects of Physician Remuneration Schemes. Alberta: Institute of Health Economics; 1999. Institute of Health Economics Working Paper, No. 99-6.
5. Myth: Most Physicians Prefer Fee-For-Service Payment [Internet]. Canadian Foundation for Healthcare Improvement; 2010 [cited 2014 February 2]. Available from: http://www.cfhi-fcass.ca
6. Wranik DW, Durier-Copp M. Physician Remuneration Methods for Family Physicians in Canada: Expected outcomes and Lessons Learned. Health Care Anal. 2010;18(1):35-59.
7. Roberts MJ, Hsiao W, Berman PA, Reich MR. Getting Health Reform Right: A Guide to Improving Performance and Equity. New York: Oxford University Press; 2004.
8. Gillett J, Hutchison B, Birch S. Capitation and primary care in Canada: financial incentives and the evolution of health service organizations. Int J Health Serv. 2001; 31(3):583-604.
9. Mongan JJ, Ferris TG, Lee TH. Options for Slowing the Growth of Health Care Costs. N Engl J Med. 2008;358(14):1509-14.
10. Gosden T, Pedersen L, Torgerson D. How should we pay doctors? A systematic review of salary payments and their effect on doctor behaviour. An Int J Med. 1999;91 (1):47-55.



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Primary care and the transgender population: Supporting providers through training and education

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Brock University

Canada is home to a very diverse population, which presents both challenges and opportunities for improvement in policy and primary care. One minority group that has gained increasing attention in the medical community over the past decade is the transgender population. Transgender is a term that refers to any individual who identifies differently than the sex that they were assigned at birth, making this an umbrella term encompassing many other trans-related identities such as transsexual, trans man, trans woman, and transitioned (to name a few). Although there is insufficient data regarding the proportion of the population that is transgender in Canada, it has been reported that the prevalence of gender dysphoria for natal adult males is between 0.005% and 0.014%, and between 0.002% and 0.003% for natal adult females.[1] However, this estimation accounts for adults seeking treatment in specialty clinics, and is likely an underestimation of this population.[1]

Connected to the social determinants of health, research shows that the transgender population has an increased risk for sexually transmitted infections such as HIV,[2] and mental health issues such as depression and suicide.[3] Transgender individuals may also have unique healthcare needs,[4] including hormone replacement therapy, and/or gender reassignment surgeries in order to more closely align their bodies to their gender identity. These factors make it especially important for transgender individuals to be able to access adequate primary care in environments that are supported by appropriate policies and standards. Unfortunately, on both provider and policy levels, healthcare in Canada is not meeting the needs of the transgender population.[4,5] Through reviewing current policies and guidelines, specific issues will be identified, and recommendations for how primary care providers can better support the transgender population will be highlighted.

Within the academic setting, primary care providers are given little to no formal education on which to build a foundation of knowledge regarding transgender healthcare.[6] This may discourage clinicians from providing services to transgender patients, as they are left in a position which requires them to take time to find resources and educate themselves on transgender healthcare. This is a critical area for change, as transgender individuals report that provider knowledge is an important component of their healthcare experiences that is currently lacking.[4,7] A potential policy change would be to examine the current curriculum in medical schools and work to incorporate and/or strengthen a focus on gender diversity and transgender health in order to give clinicians a basic knowledge on which they can build. To date, a small number of Continuing Medical Education (CME) courses in transgender care have been offered in Canada, which provided both the opportunity for providers to gain knowledge, and incentive for them to obtain needed CME credits. One example of this type of CME course took place in Halifax in 2010, which was formatted as a day-long event focused on medical management of gender/sex transition.[8] The implementation of similar CME courses across Canada would encourage providers to expand their knowledge in transgender care, and to present the information in formats that are accessible for primary care providers.

In order to provide clinicians with guidance in serving transgender patients, international Standards of Care have been developed by the World Professional Association of Transgender Health (WPATH).[9] These standards cover transgender healthcare in a number of areas, including: care specifically within the primary care setting, gynecologic care, reproductive care, as well as mental health services.[9] In addition, Sherbourne Health Centre in Toronto, Ontario has created its own guidelines for healthcare providers, which have been adapted throughout Ontario, and may be more relevant for Canadian providers.[10] However, one noteworthy issue with existing standards of care is that they are merely guidelines that can be interpreted and

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applied differently within the healthcare setting.[6] Thus, the standards may be difficult to implement for primary care providers who have no previous knowledge in transgender care. In order to effectively incorporate existing guidelines, healthcare organizations should ensure that health professionals are supported with adequate education and organizational policies around transgender care. Not only would this provide the institutional support that providers need when serving transgender patients, but it would also prevent current situations whereby transgender individuals are left waiting for healthcare services while policies are being developed at the organizational level.[7]

As transgender patients continue to present to primary care providers within the healthcare setting, it is increasingly important that they have knowledge in transgender health and are supported by policies that facilitate adequate care for this population. Through the creation of policies at governmental and organizational levels, primary care providers will be better equipped to serve transgender people, and to provide them with the same standard of care that many Canadians have come to expect. ■

References

1. American Psychiatric Association. Diagnostic and statistical manual of mental health disorders (5th ed.). Washington, DC: American Psychiatric Association; 2013.
2. Bauer GR, Travers R, Scanlon K, Coleman TA. High heterogeneity of HIV-related sexual risk among transgender people in Ontario, Canada: A province-wide respondent-driven sampling survey. BMC Pub Health. 2012;12:292.
3. Goldblum P, Testa RJ, Pflum S, Hendricks M, Bradford J, Bongar B. The relationship between gender-based victimization and suicide attempts in transgender people. Prof Psychol Res Pr. 2013;43(5):468-75.
4. Bauer G, Hammond R, Travers R, Kaay M, Hohenadel KM, Boyce M. "I don't think this is theoretical; This is our lives": How erasure impacts health care for transgender people. J Assoc Nurses AIDS Care. 2009;20:348-61.
5. Snelgrove JW, Jasudavisius AM, Rowe BW, Head EM, Bauer GR. "Completely out-at-sea" with "two-gender medicine": A qualitative analysis of physician-side barriers to providing healthcare of transgender patients. BMC Health Serv Res. 2012;12:1472-6963.
6. Dewey J. Challenges of implementing collaborative models of decision making with trans-identified patients. Health Expect. [Internet]. 2013 19 Sept [cited 2014 March 18]. Available from: http://onlinelibrary.wiley.com.proxy.library.brocku.ca/enhanced/doi/10.1111/hex.12133/
7. Sperber J, Landers S, Lawrence S. Access to health care for transgender persons: Results of a needs assessment in Boston. Int J Transgend. 2005;8:75-91.
8. IWK Health Centre. Bridging the gaps in transgender healthcare: Medical management of gender/sex transition. 2010 June 11.
9. Coleman E, Bockting W, Botzer M, Cohen-Kettenis P, DeCuypere G, Feldman J, et al. Standards of care for the health of transsexual, transgender, and gender-nonconforming people, version 7. Int J Transgend. 2007;13:165-232.
10. Sherbourne Health Centre. Guidelines and protocols for comprehensive primary health care for trans clients. [Internet]. 2009 [cited 2014 March 9]. Available from: www.sherbourne.on.ca/PDFs/Trans-Protocols.pdf

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Closing the health gap among Canadians: Using Co-Active Life Coaching to address the challenges to primary healthcare

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Several studies have reported the burden of obesity and cardiometabolic risk to be disproportionately greater among ethnic minorities in comparison to those of European-descent.[1,2] Generally, the 'healthy immigrant effect' is proposed as the reason for this disparity, in which new immigrants start to lose their health advantage when they start to adopt the physical, social and cultural environment of their newly adopted country.[1] However, evidence suggests that aboriginal populations also experience poorer obesity-related health outcomes relative to the entire Canadian population,[3] which suggests that this health inconsistency may not be exclusive to immigrant populations. Additionally, this may reflect a deeper issue of accessibility and utilization of primary care services among Canada's diverse population. The following paper will explore the barriers to healthcare access and utilization, specifically primary care among ethnic minorities. In addition, this paper aims to highlight a potential health behaviour intervention, known as Co-Active Life Coaching (CALC), which may serve as a means to manage obesity and cardiometabolic risk and ultimately, alleviate the high demand for primary care.

Health needs unmet: A brief explanation of the challenges

Disparities in primary healthcare accessibility and utilization have been reported among different ethnic minority groups.[4] A limited number of primary care physicians dispersed among aboriginal communities tend to carry large patient loads.[4] Thus, healthcare providers working in these remote areas are unable to devote sufficient time, resources, and ultimately, the accessibility needed for their patients. Furthermore, researchers also noted the main reasons for under-utilization among a sample of ethnic minorities to be a combination of timely treatment, language barriers, and a preference for alternative or traditional medicines.[5] For instance, 59% of an East Asian minority group indicated a preference for native language speaking physicians, with only 38% of those participants actually obtaining a native-speaking provider.[5] Despite some regions possessing adequate accessibility to healthcare services, barriers continue to persist among ethnic minorities. Therefore, the need for a remotely accessible, more timely, and language/culturally supportive assistance is essential to increase healthcare utilization and to meet the health demands of Canada's population.

A need for mobile health: What can be done?

The existence of a comprehensive health intervention may be able to mitigate the health status gap among Canadians struggling with obesity and cardiometabolic risk, and to address some of the primary care challenges. Health coaching, which focuses on facilitating personal health-related topics and goals, has become more commonly utilized in treating cardiometabolic and obesity-related conditions such as hypertension, depression, diabetes, cardiovascular health, and asthma.[6] CALC is a form of health coaching that is commonly telecommunicated and which has been utilized to effectively alleviate several obesity-related conditions.[7,8] Theoretically grounded[9] and evidence-based,[7,8] this behavioural intervention can be conducted by a variety of health professionals such as dieticians, nurses, and/or social workers. It is used to explore the client's health needs and empower clients to develop solutions that best suit his/her lifestyle long-term.[9] CALC can be geared towards ameliorating the challenges of remote accessibility, more timely care, and language/culturally supportive assistance among Canada's diverse population. Firstly, CALC via telecommunication provides a complementary healthcare service option in remote areas. This can either be used as an initial screen and/or as a follow-up to primary care, if health services are limited in the area. Secondly, it can reduce physicians' patient load and wait times such that patients will have undergone CALC sessions prior to or as a follow-up to their visit, consequently allowing physicians to be

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more efficient in their health assessments. It will also help to utilize other community-based family health practitioners in the area since this type of intervention is not limited to being administered by physicians. Lastly, CALC provides the opportunity for translators or ethnic minority healthcare providers, who may not be geographically accessible, to be better positioned to understand the cultural health needs of their patients and offer traditional medical alternatives. Evidence of interpreter services used in the delivery of healthcare has demonstrated increases in patient use of primary health services.[10] Therefore, incorporating several interpreters may be a viable option to overcome language and cultural barriers in different communities. However, a few limitations of this health intervention warrant mention. CALC is not a substitute for medical care, such that if a serious health condition arises, a physician should be contacted immediately. Thus, this only moderately addresses the challenges of accessibility for urgent primary care. As well, since it is an emerging technique, it is difficult to assess whether there are sufficient certified CALC coaches available for language/cultural-sensitive assistance. Ultimately, CALC is a complementary health aid to primary healthcare, which may improve the much-needed mobility for ethnic minority communities. Incorporating and piloting this health intervention into diverse communities may steadily bridge the health gap among ethnic minority Canadians. ■

References

1. Setia MS, Quesnel-Vallee A, Abrahamowicz M, Tousignant P, Lynch J. Access to health-care in Canadian immigrants: a longitudinal study of the National Population Health Survey. Health Soc Care Community. 2011;19(1):70–9.
2. Liu R, So L, Mohan S, Khan N, King K, Quan H. Cardiovascular risk factors in ethnic populations within Canada: results from national cross-sectional surveys. Open Med. 2010;4(3):e143–53.
3. Razak F, Anand S, Vuksan V. Ethnic differences in the relationships between obesity and glucose-metabolic abnormalities: a cross-sectional population-based study. Int J Obes. 2005;29(6):656–67.
4. Shah B, Gunraj N, Hux J. Markers of access to and quality of primary care for aboriginal people in Ontario, Canada. Am J Public Health. 2003;93(5):798–802.
5. Wang L, Rosenberg M, Lo L. Ethnicity and utilization of family physicians: A case study of Mainland Chinese immigrants in Toronto, Canada. Soc Sci Med. 2008;67(9):1410–22.
6. Ammentorp J, Uhrenfeldt L. Can life coaching improve health outcomes?-A systematic review of intervention studies. BMC Health Serv Res. 2013;13:428–38.
7. Newnham-Kanas C, Irwin JD, Morrow D. Co-active life coaching as a treatment for adults with obesity. Int J Evid Based Coach Mentor. 2008;6:1–12.
8. Zandvoort M Van, Sciences H, Ontario W. The impact of Co-active Life Coaching on female university students with obesity. Int J Evid Based Coach Mentor. 2009;7:104–19.
9. Irwin J, Morrow D. Health promotion theory in practice: an analysis of Co-Active Coaching. Int J Evid Based Coach Mentor. 2005;3(1):29–38.
10. Jacobs E, Lauderdale D. Impact of interpreter services on delivery of health care to limited-English-proficient patients. J Gen Intern Med. 2001;16(7):468–74.

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The changing face of HIV/AIDS care

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University of Ottawa

With the increased usage of antiretroviral therapy (ART), HIV infection is no longer considered a death sentence and is now perceived as a chronic condition.[1] HIV-positive individuals are aging with the disease and can have life expectancies that approach those of their uninfected counterparts.[1] It is estimated that "by 2015, approximately 50% of people living with HIV will be older than 50 years of age."[2] However, as the lifespan of HIV-positive persons increases, so does their probability of developing age-associated non-communicable diseases such as cardiovascular diseases, strokes, and cancer, all of which are considered to be major causes of death in North America.[3] Furthermore, the HIV-infected population is at a heightened risk of developing these diseases due to the interaction between factors including the virus itself, ART, and senescence processes.1 This leads to the characterization of HIV/AIDS as a disease that accelerates the aging process.[1] This article highlights the challenges associated with providing quality primary care to HIV-infected individuals in Canada with respect to managing chronic non-communicable comorbidities as well as providing both comprehensive and coordinated patient care.

The main focus of primary care for the HIV-positive population should be on reducing the risk of developing age-associated comorbidities.[4] The Infectious Diseases Society of America recently developed new guidelines and recommendations for providing adequate primary care to the HIV-infected population.[4] They recommend that primary care physicians focus on preventive care such as screening for high cholesterol, diabetes, and osteoporosis. They add that further preventive measures targeting subsets of the HIV population should be taken. For instance, bone densitometry testing for all HIV-infected men over 50 years of age is recommended, as the osteoporosis rates are significantly higher in this specific group. Emphasizing the importance of following a balanced diet and not smoking when following an ART regimen should also be an essential component of preventive care for the HIV-positive population. Adopting such guidelines is thus crucial to palliate the age-associated non-communicable comorbidities increasingly seen in the HIV/AIDS population.

Furthermore, the new guidelines highlight the role of primary care in ensuring that patients are coping with their diagnosis by having sufficient support networks.[4] This suggests that mental health should also be a priority in the primary care services offered to the HIV population. HIV-positive individuals often face discrimination and may not always have access to a reliable support system.[5] These issues have been linked with depression, lower adherence to ART, and an increased susceptibility to adopt high-risk behaviors.[6] For this reason, primary care providers need to adopt a holistic approach in ensuring that persons living with HIV/AIDS are not only adhering to their medications but also to a healthy lifestyle. Routinely assessing the mental health of HIV-positive patients should be a fundamental part of their primary care services, as it has the potential to improve their quality of life by motivating them to live healthier lives and optimizing their adherence to ART.

Another challenge to providing comprehensive primary care to the HIV-positive population is due to the fragmentation of the health care services currently offered to them.[7] For the most part, HIV specialists assume the role of primary care providers for HIV-infected individuals because primary care physicians do not necessarily have the same level of expertise as HIV specialists and regularly need to educate themselves about treatments and the impact of HIV/AIDS on routine health care.[8] This creates a gap of knowledge between primary care physicians and HIV specialists. Integrating the knowledge of the various health care professionals involved in providing primary care to HIV-positive individuals would help create a continuum of primary care providers. Bridging such gaps would increase

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the accessibility and consistency of preventive services; both essential components of cost-effective primary care.

As patients are aging and dealing with the consequences of having HIV, primary care providers should focus on preventing chronic non-communicable comorbidities. The complexity of providing primary care to the HIV-positive population stems from the fact that physicians have to palliate age-associated chronic conditions in addition to treating these patients' underlying HIV infection. The new guidelines synthesize the highest quality of evidence on the matter and aim to bridge knowledge gaps between primary care physicians and HIV specialists. However, further research should be conducted on cost-effective solutions to better structure primary care services in order to efficiently meet the needs of the aging HIV-positive population. Improving the quality of continuous primary care is essential to ensure both longevity and health-related quality of life in the Canadian HIV-infected population. ■

References

1. Justice AC, Braithwaite RS. Lessons learned from the first wave of aging with HIV. AIDS. 2012;26 (Suppl 1):11-8.
2. Effros RB, Fletcher CV, Gebo K, Halter JB, Hazzard WR, Horne FM, et al. Aging and infectious diseases: Workshop on HIV infection and aging: What is known and future research directions. Clin Infect Dis. 2008;47(4):542-53.
3. Hoyert DL, Xu J. Deaths: Preliminary data for 2011. National Vital Statistics Reports. 2012;61(6):1-51.
4. Aberg JA, Gallant JE, Ghanem KG, Emmanuel P, Zingman BS, Horberg MA. Primary care guidelines for the management of persons infected with HIV: 2013 update by the HIV Medicine Association of the Infectious Diseases Society of America. Clin Infect Dis. 2014;58(1):1-10.
5. Brennan DJ, Emlet CA, Eady A. HIV, sexual health, and psychosocial issues among older adults living with HIV in North America. Ageing Int. 2011;36(3):313-33.
6. Aranda-Naranjo B. Quality of life in the HIV-positive patient: Implications and consequences. The Journal of the Association of Nurses in AIDS Care: JANAC. 2004;15(5 Suppl):20S-7S.
7. Mugavero MJ, Norton WE, Saag MS. Health care system and policy factors influencing engagement in HIV medical care: Piecing together the fragments of a fractured health care delivery system. Clin Infect Dis. 2011;52 (Suppl 2):238-46.
8. Smith SM, Allwright S, O'Dowd T. Effectiveness of shared care across the interface between primary and specialty care in chronic disease management. Cochrane Database Syst Rev. 2007(3):CD004910.

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Overcoming language barriers to improve the quality of primary care for migrants

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According to the 2011 Canadian census, one fifth of the population (nearly 6.63 million people) speaks a language other than French or English at home.[1] For approximately 30% of these individuals this is not in combination with either official language.[1] As global migration continues to increase, Canada's healthcare system faces new challenges in providing quality care to the growing number of people with limited language proficiency (LLP) in English or French. As with other social determinants of health, limited language skills are directly associated with healthcare inequities, principally in quality and access.[2-4] This likely contributes towards migrants' declining health status following their arrival to Canada.[5] The provision of professional interpreters (PIs) during medical encounters has been shown to improve the quality of care and health outcomes of LLP patients.[2-4] Despite the growing number of LLP patients and evidence of the costs of care inequities, PIs are rarely engaged in primary care settings (personal communication–Elizabeth Abraham*).

The following paper will address the importance of and barriers to effective communication in the primary healthcare setting, the impact of language barriers on care delivery, as well as a proposed solution to overcoming such barriers.

The importance of effective patient-provider communication, especially in primary care

The delivery of high quality, patient-centered healthcare is largely dependent on effective communication.[2,4,6] It facilitates freedom of expression as well as mutual and informed decision making, all of which are essential for good health results and for establishing a trusting patient-physician partnership.[6,7]

The vital role of primary care in keeping populations healthy makes effective communication in primary care particularly important.[4,8] Yet, primary care is less likely than secondary care facilities to provide language support.*[9] Because of their lower access to preventive services, vulnerable populations, such as LLP immigrants and refugees, have higher emergency department utilization rates and poorer management of chronic illnesses.[2-4]

Barriers to language access

A number of barriers to language access have been identified. Perceived costs and budget constraints have resulted in limited allocation of resources towards the integration of language services into many health systems.[2,9] However, a lack of care-provider training in health equity, cultural responsiveness, and the proper use of PIs is also a deterrent to best practices for serving diverse populations.[4,7,9] For these reasons, significant underuse of PIs is apparent even in situations where they are available.[6] In one Montreal study, PIs were engaged in only 39% of LLP patient encounters where language support was appropriate.[7] Instead, physicians have reported relying on ad hoc interpreters (e.g., family members) or their own limited language skills.[6,7,9]

The consequences of language barriers in healthcare

In addition to the high medical error rate associated with using ad hoc interpreters, there are other concerns, such as breaches of confidentiality and inverted power dynamics among family members.[2,3,6,9] The burden of miscommunication has even led some physicians to stop providing LLP care.[9]

The short- and long-term benefits of language service integration far outweigh the costs (≤1.5% of healthcare spending).[2] Unnecessary tests and procedures, longer emergency department stays, inefficient use of staff time, and liability costs for adverse events and negative patient outcomes are all to be considered when weighing

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the risks of not providing such services.[2,4] Failure to provide language-appropriate oral and written procedural information also makes deficient consent more common among LLP patients.[2,4,9]

Over-the-phone interpretation: a new generation of language access

In primary care, where in-person intervention is less practical, over-the-phone interpretation (OPI) might provide a feasible solution to overcoming communication barriers. While there is no published systematic research in this area, anecdotal evidence suggests that OPI provides fast, convenient, and affordable access to trained PIs in many languages*, and can improve LLP patient-physician communication and satisfaction.[10] Using the speaker setting on standard examination room telephones, remote interpreters can be engaged at any time to mediate conversations between patients and care providers in the patient's preferred language. In jurisdictions that have adopted this service, OPI has contributed towards improved efficiency, quality of care, and reduction of overall healthcare costs .

Communication barriers (including low health literacy) are "the most frequent cause of serious adverse events" in medical settings (4, p.16). In a culturally and linguistically diverse population, it is imperative that we explore solutions to overcoming these barriers. However, promoting awareness of this issue is integral to encouraging these efforts towards a more equitable and sustainable health system. ■

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References

1. Daily T. 2011 Census of population: Linguistic characteristics of canadians [Internet]. Canada: statistics canada; 2012 [updated 2012 Oct 24; cited 2014 Feb 1]. Available from: http://www.statcan.gc.ca/daily-quotidien/121024/dq121024a-eng.htm
2. Hyman I. Literature review: Costs of not providing interpretation in health care. Access Alliance. 2009; 1-16.
3. Jacobs EA, Lauderdale DS, Meltzer D, Shorey JM, Levinson W, Thisted RA. Impact of interpreter services on delivery of health care to limited-English-proficient patients. J Gen Intern Med. 2001; 16:468-74.
4. Betancourt JR, Green AR, King RR. Improving quality and achieving equity: A guide for hospital leaders. MGH. 2008; 1-76.
5. McDonald JT, Kennedy S. Insights into the "healthy immigrant effect": Health status and health service use of immigrants to Canada. Soc Sci Med. 2004; 59(8):1613–27.
6. Diamond LC, Schenker Y, Curry L, Bradley EH, Fernandez A. Getting by: Underuse of interpreters by resident physicians. J Gen Intern Med. 2009; 24(2):256–62.
7. Papic O, Malak Z, Rosenberg E. Survey of family physicians' perspectives on management of immigrant patients: Attitudes, barriers, strategies, and training needs. Patient Educ. Couns. Elsevier Ireland Ltd. 2012; 86(2):205–9.
8. Starfield B. Primary care: balancing health needs, services, and technology. New York: Oxford University Press; 1998.
9. Gadon M, Balch GI, Jacobs E. Caring for patients with limited English proficiency: The perspectives of small group practitioners. J Gen Intern Med. 2007; 22(2):341–6.
10. Azarmina P, Wallace P. Remote interpretation in medical encounters: A systematic review. J Telemed Telecare. 2005; 11(3):140–5.

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Poverty: One of the greatest challenges faced by primary health care providers

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Poverty, like smoking and hypertension, is an independent risk factor for disease,[1,2] and health outcomes follow a socio-economic gradient, where those with lower socio-economic status have poorer health outcomes in comparison to those with higher socio-economic status. The Public Health Agency of Canada defines socio-economic status as the position of an individual group within a society classified by their income, education and occupation,[3] which is part of several factors called the social determinants of health (Figure 1). This relationship between low socio-economic status and poor health is well-known and has been supported by a substantial amount of research, which is well highlighted in a recent Statistics Canada report on cause-specific mortality rates by income quintile.[1,2] Figure 2, taken from Dorman et al.,[1] shows a summary of these findings, where each successfully lower income quintile is associated with an increase in age-standardized mortality rates from HIV/AIDS, diabetes, chronic obstructive pulmonary disease (COPD), suicide, malignancy, and all causes.[4] Given these significant negative health outcomes, it is imperative that primary care providers consider poverty when providing care for patients.

Social Determinants of Health

Aboriginal status	Gender
Disability	Housing
Early life	Income and income distribution
Education	Race
Employment and working conditions	Social exclusion
Food insecurity	Social safety net
Health services	Unemployment and job security

Figure 1.
This model on the social determinants of health was developed at a York University Conference held in Toronto in 2002. Each determinant has been shown to strongly affect the health of Canadians.
Figure adapted from: Mikkonen et al.[9]

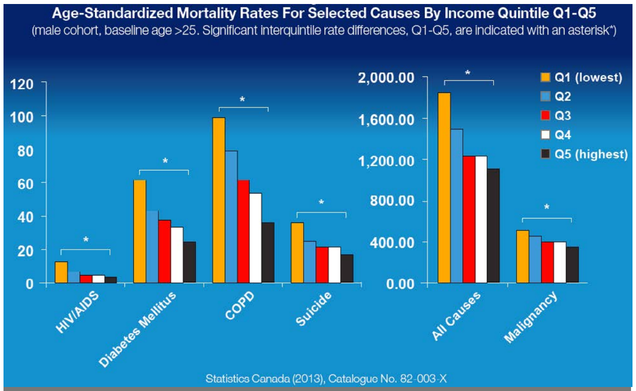

Figure 2.
Summary of select causes of mortality from a Statistics Canada report on cause-specific mortality rates by income quintile.[2,3]
COPD= chronic obstructive pulmonary disease
Figure taken from: Dorman et al.[1]

Interventions for poverty, however, are not usually taught during medical training, and physicians may feel overwhelmed when addressing this issue.[1] Some efforts have been made to help physicians in this regard. For example, physicians from Health Providers Against Poverty (HPAP) in Ontario developed a tool for physicians to screen their patients for poverty and link them with provincial and/or federal programs that can help alleviate the negative health effects of poverty.[2,5] The Canadian Medical Association (CMA), however, feels that this type of program serves merely as a 'bandage' solution and that physicians should not be placed in this position.[5] Instead, they suggest cooperation is needed from various governmental departments to focus on addressing this issue.[5]

In order to mitigate the negative health effects of poverty, we need policies in place that will keep people healthy. In fact, socio-economic factors and health care account for 50% and 25% of all health outcomes, respectively,[7] suggesting that changes need to be made outside of the

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health care system as well. However, over the past 20 years, income inequality has increased in Canada.[6] At the same time, both the provincial and federal governments have made funding cuts to social programs and services. For example, in January 2013 the Government of Ontario terminated the Community Start-Up and Maintenance Benefit (CSUMB), which helped those receiving social assistance to pay for unexpected housing-related costs. In April 2013, the CMA submitted a set of recommendations on income inequality to the House of Commons Standing Committee on Finance. The aim of these recommendations was to bring awareness and provide the government with ways they could address poverty during policy making. For example, one of their recommendations required that the federal government incorporate a Health Impact Assessment (HIA) as part of Cabinet-policy making. The purpose of an HIA is to provide a "systematic process for making evidence-based judgments on the health impacts of any given policy and to identify and recommend strategies to protect and promote health." Incorporation of such a strategy has already been adopted by several countries and would provide assurance that the government considers the health impacts of its policies, anticipates all possible unintended consequences and takes appropriate corrective action.[5] The CMA also provided recommendations which addressed required changes within the health sector, such as providing access to uninsured services, such as medication, physiotherapy, occupational therapy, long-term and end-of-life care.[5] Given that 1 in 10 Canadians cannot afford prescription medications, equal access to such services must be provided. Overall, these recommendations reflect the struggles primary care providers face in their daily practice and suggest that these struggles cannot be overcome without the help of the government.

Overall, although efforts have been made to incorporate appropriate tools into medical practice that focus on helping patients in poverty, these may not address the full cause of the issue. We need policies in place to keep individuals healthy, not just ones that will help treat them when they become ill. Cooperation amongst various governmental departments will be required during policy development to put a greater emphasis on poverty and other social determinants of health. Until such changes are made, primary health care providers will continue to face the challenges of poverty in their practice. ■

References

1. Dorman K, Pellizzari R, Rachlis M, Green S. Why poverty is a medical problem. Ont Med Rev. 2013 Oct; October 2013:15-19.
2. Ontario College of Family Physicians. Poverty: A clinical tool for primary care in Ontario [brochure]. [Place of publication unknown]: Ontario College of Family Physicians; 2013 [last update unknown; cited 2014 Feb 13]. Available from: http://ocfp.on.ca/docs/default-source/poverty-tool/poverty-a-clinical-tool-2013-(with-references).pdf?sfvrsn=0.
3. Public Health Agency of Canada. Canada's Response to WHO Commission on Social Determinants of Health [Internet]. [Place of publication unknown]: Public Health Agency of Canada; [date unknown] [updated 2007 May 02; cited 2014 March 21]. Available from: http://www.phac-aspc.gc.ca/sdh-dss/glos-eng.php.
4. Tjepkema M, Wilkins R, Long A. Cause-specific mortality by income adequacy in Canada: a 16-year follow-up study. Statistics Canada. 2013;24(7):14-22.
5. Canadian Medical Association. Submission on motion 315 (income inequality, submitted to the House of Commons Standing Committee on Finance) [Internet]. [Place of publication unknown]; 2013 Apr [last update unknown; cited 2014 Mar 21]. Available from:http://www.cma.ca/multimedia/CMA/Content_Images/Inside_cma/Submissions/2013/Income-inequality-Brief_en/pdf.
6. Conference Board of Canada. How Canada performs: Income inequality [Internet]. Ottawa (ON); 2013 [last update unknown; cited 2014 Mar 21]. Available from: http://www.conferenceboard.ca/hcp/details/society/income-inequality.aspx.
7. Senate Subcommittee on Population Health. A healthy, productive Canada: A determinant of health approach [Internet]. [Place of publication unknown]: The Standing Senate Committee on Social Affairs, Science and Technology; 2009 [last update unknown; cited 2014 Feb 14]. Available from: http://www.parl.gc.ca/Content/SEN/Committee/402/popu/rep/rephealth1jun09-e.pdf.
8. Law MR, Cheng L, Dhalla IA, Heard D, Morgan SG. The effect of cost adherence to prescription medications in Canada. CMAJ. 2012 Feb;184(3):297-302.
9. Mikkonen J, Raphael D, editor. Social determinants of health: The Canadian facts. Toronto: Canadian Scholars' Press Incorporated; 2010.

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Weight discrimination within the healthcare system: Myth or reality?

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Obesity is a significant public health problem in Canada with approximately 24% of Canadians classified as obese.[1] Obesity is associated with an increased risk for developing cardiovascular disease, type 2 diabetes and some cancers.[1] The increased morbidity associated with obesity not only negatively impacts the patient, both physiologically and psychologically, but also places increased demands on the healthcare system.[2] Despite their increased need for healthcare, obese individuals often face weight discrimination (WD), defined as the display of prejudicial judgment towards an individual based on their body weight. WD has been a topic of interest for over four decades but has only become increasingly important due to the rise in obesity prevalence.[3]

WD within the healthcare system may not be overt but according to researchers is a problem in need of attention.[4-10] One of the earliest studies to examine physicians' attitudes towards obese patients was published in 1969 by Maddox and Liederman.[3] In this study they showed that physicians (n=491) practicing in the U.S. viewed their obese patients as unintelligent, unsuccessful, inactive and weak-willed.[3] Similarly, 66% of general practitioners (GPs) (n=318) in the U.S. reported that their obese patients lacked self-control and 39% stated that their obese patients were lazy.[4] These views were expressed despite the lack of evidence to support these beliefs. Another study of primary-care physicians (n= 620) showed that more than half viewed obese patients as awkward, unattractive and non-compliant.[5] Also, more than half of the queried physicians stated that they viewed obesity as primarily a behavioural issue caused by physical inactivity and overeating, despite the wealth of evidence available to support that obesity is a multi-factorial condition that includes physiological and psychological components as well.[1,5] The pervasive idea that obesity is simply caused by overeating and physical inactivity continues and is a belief that not only spans several health disciplines but many countries as well. One study conducted with GPs practicing in France (n=600) found that 30% of them viewed overeating as the most important risk factor for obesity, ranked above genetic and environmental factors.[6] Even physicians who specialize in treating obesity harbour anti-obesity beliefs/biases despite having knowledge of the multi-factorial nature of obesity.[7] There is also evidence to suggest that the anti-obesity biases observed in some physicians are found in individuals studying to become physicians.[8] In a study conducted on a sample of students enrolled in medical school, researchers found that the students characterized obese individuals as sloppy, lazy and lacking self-control.[8] However, after receiving obesity-specific education, these negative attitudes towards obesity were shown to improve.[8] This is promising because it shows that addressing these biases with further education, helps to decrease its pervasiveness, thus the key to thwarting WD may be in increasing education and awareness about the complex nature of the pathophysiology of obesity and its related conditions.

There are several questions that need to be answered in order to fully understand the effects WD has on obese patients. Are physicians failing to adequately treat their obese patients because of their negative feelings/ biases towards them? Do the perceived negative attitudes towards obese patients translate into poorer patient care? (i.e. are obese patients getting the appropriate treatment for their obesity) Are obese patients less likely to seek medical treatment because they feel their physicians lack an interest in caring for them? Do obese patients with unbiased doctors have better health outcomes then those seen by biased practitioners? One study reported that obese women are significantly less likely to undergo pelvic examinations compared to normal-weight women.[9] Whether this was due to the patients' personal insecurities with their bodies or how they perceived their physicians ▶

viewed them is unclear. Although there is little evidence to suggest that negative beliefs towards obesity translate into actions, there are concerns that they may and hence warrants further investigation. The concern regarding these anti-obesity biases is complex and multi-faceted which, if not addressed, may ultimately lead to poor patient care.

Discrimination against obese individuals amongst healthcare practitioners negatively impacts the health of obese patients.[5,9,10] Educational conferences focusing on weight bias and stigma within the healthcare system are becoming increasingly available to healthcare practitioners and researchers but more work is needed to change these negative biases towards obesity. What we know is that WD is present in the healthcare system and that education which focuses on the pathogenesis of obesity, the associated conditions and most importantly the behavioural and psychological aspects leading to the condition can help to prevent WD. Furthermore, we know that the obesity epidemic continues on its upward climb, and healthcare practitioners will have to care for these patients and will have no choice but to find ways to accommodate them. ■

References

1. Shields M, Carroll MD, Ogden CI. Adult obesity prevalence in Canada and the United States. Natl Ctr Health Stats. 2011;56: 1-8.
2. Public Health Agency of Canada. Obesity in Canada- Health and economic implications. [Internet]. 2011 [cited 2014 Feb 10]. Available from: http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/oic-oac/econo-eng.php
3. Maddox GL, Liederman V. Overweight as a social disability with medical implications. J Med Educ. 1969;44: 214-20.
4. Foster GD, Wadden TA, Makris AP et al. Primary care physicians' attitudes about obesity and its treatment. Obes Res 2003;11:1168–1177.
5. Price JH, Desmond SM, Krol RA, Snyder FF, O'Connell JK. Family practice physicians' beliefs, attitudes, and practices regarding obesity. Am J Prev Med. 1987;3:339-45.
6. Bocquier A, Verger P, Basdevant A et al. Overweight and obesity: knowledge, attitudes, and practices of general practitioners in France. Obes Res 2005;13:787–795.
7. Schwartz MB, Chambliss HO, Brownell KD, Blair SN, Billington C. Weight bias among health professionals specializing in obesity. Obes Res. 2003;11(9):1033-1039.
8. Wiese HJ, Wilson JF, Jones RA, Neises M. Obesity stigma reduction in medical students. Int J Obes Relat Metab Disord. 1992;16:859-68.
9. Adams CH, Smith NJ, Wilbur DC, Grady KE. The relationship of obesity to the frequency of pelvic examinations: do physician and patient attitudes make a difference?. Women Health. 1993; 20:45-57.
10. Balkhi AM, Parent MC, Mayor M. Impact of Perceived weight discrimination on patient satisfaction and physician trust. Fat Studies. 2013; 2:45–55.

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Paediatric obesity prevention: The role of primary health care physicians

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University of Western Ontario

The growing prevalence of paediatric obesity in Canada is alarming; 11.7% of children aged 5-17 are obese.[1] Given the complexity and multifaceted etiology of childhood obesity,[2] preventing and treating this particular chronic disease is challenging. The following paper aims to highlight why family physicians (FPs) are ideal candidates for aiding in the prevention and management of paediatric obesity (particularly in light of the key competencies outlined by the Royal College of Physicians and Surgeons of Canada which help direct their practice).[3] Recommendations for collaborating with families and multidisciplinary teams will also be provided.

The role of family physicians in managing obesity

Research suggests childhood obesity is often under-recognized and undertreated by physicians.[4] Considering FPs are often the first and most frequently visited medical professionals,[5] this has prompted a need for increased obesity detection and treatment in the primary care setting. A positive correlation also exists between obesity-related management training (including teaching FPs nutrition and behaviours that promote healthy weights and patient-centered counselling) and increased competence in treating patients.[6] Since many FPs believe they are unprepared to manage this chronic health condition and find diagnosis difficult,[7] clinical strategies that address the barriers faced by this medical authority (e.g., lack of resources, training, multidisciplinary teams, etc.) may prove useful in supporting physicians managing childhood obesity.

Specifically, physicians may benefit from regular appraisals of the literature via systematic reviews and meta-analyses, frequent attendance at academic conferences or workshops, and an increase in medical training focused on metabolic disorders; all of which will increase competency levels of FPs. In addition, innovative training methods, such as virtual learning collaborative models, have demonstrated effectiveness as reported by pediatricians in busy practice settings with limited experience and resources.[8]

Particularly with respect to medical training, medical schools are well-positioned to teach practitioners obesity-specific knowledge. While most medical programs adopt a biomedical approach versus a preventive one, the curriculum is not designed to tackle complex chronic health conditions like obesity;[9] insufficient time is spent on weight-related subjects in school. Providing medical students with integrated training and more community-based knowledge will motivate them to address obesity in their practice, and will also ensure soon-to-be physicians possess a strong foundation in identifying and treating this rising health concern. Such educational shifts should be given priority, not only due to the growing rates of childhood obesity,[1] but because obesity along with its related co-morbidities (many of which are chronic by nature) tend to track throughout the lifespan.[7] Chronic conditions are expensive to treat, and thus taxing on an already overburdened healthcare system. Consequently, taking a more preventive and health promotion-focused approach could result in long-term economic savings.

Moving beyond the physician-patient dyad

As per the abovementioned issues, most FPs believe their efforts to treat childhood obesity are ineffective.[7] Therefore, it has been suggested that physicians work collaboratively with multidisciplinary teams (i.e., nutritionists, endocrinologists, researchers, exercise physiologists) to diagnose and treat obesity among their young patients.[4] Due to the intricate nature of obesity, at-risk and/or obese children should not only receive a full family history, physical examination, and laboratory workup, but they should also be given lifestyle modification-focused treatment plans that promote increased physical activity, decreased screen time, and healthy diets. Accordingly, a diverse team of ▶

health professionals, all with respective clinical expertise, are required to design, implement, and support an 'ideal' treatment plan.[6]

Moreover, it is recommended that paediatric obesity prevention and treatment involve FPs as well as patients and their respective families and communities.[10] It is crucial that parents become active partners in their children's quest for healthy bodyweights. They not only serve as their children's primary role models, but they are also in charge of purchasing and preparing meals, as well as engaging their children in physical activities.

Conversations regarding healthy weights should begin early to promote obesity prevention as well as early detection and intervention. To fulfill their competency regarding the effective use of preventive health measures,[3] it is crucial for FPs to ask parents more in-depth questions that elicit fruitful responses concerning patients' weight statuses and potential causal factors. Although related discussions may be uncomfortable and poorly received, FPs must address this subject in a respectful manner. Physicians should be mindful of their biases and potential to offend parents with the term "obesity" and/or discussions concerning the overconsumption of fast food and sweetened beverages, physical inactivity, and perceived criticism of parenting skills.[11] FPs should also be prepared to partner with families to develop feasible and sustainable action plans (i.e., ones that align with families' current social and financial standings), with weight loss or maintenance being the optimal goal.

Future directions

Despite ongoing efforts, increasing adiposity among Canadian children continues to be under-addressed. Given that FPs play a key role in the health of their patients, they are integral to preventing and managing childhood obesity. In terms of the role and impact FPs have in targeting and managing obesity among their young patients, their training- and practice-related competencies warrant further attention.[3] As a means of supporting a healthier paediatric population, regularly incorporating obesity-related discourse and health promotion principles into daily practice, partnering with patients, families, and other healthcare professionals to ensure the maintenance of healthy bodyweight, as well as improving medical education, will better position FPs to combat childhood obesity. ■

References

1. Roberts KC, Shields M, de Groh M, Aziz A, Gilbert JA. Overweight and obesity in children and adolescents: Results from the 2009 to 2011 Canadian Health Measures Survey. Health Rep. 2012; 23(3): 37-41.
2. Colley RC, Garriguet D, Janssen I, Craig CL, Clarke J, Tremblay MS. Physical activity of Canadian children and youth: Accelerometer results from the 2007 to 2009 Canadian Health Measures Survey. Health Rep. 2011; 22(1): 15-23.
3. Royal College of Physicians and Surgeons of Canada. Can-MEDS Framework [internet]. Ottawa: Royal College of Physicians and Surgeons of Canada; 2013 [updated 2005 Mar; cited 2014 Mar 17]. Available from: http://www.royalcollege.ca/portal/page/portal/rc/canmeds/framework
4. O'Brien SH, Holubkov R, Reis EC. Identification, evaluation, and management of obesity in an academic primary care center. Pediatrics. 2004; 14(2): e154-9.
5. Pinsonneault L, Déry V. Family physicians and treatment of pediatric obesity: Findings drawn from the creation of clinical practice guidelines. Can Fam Physician. 2011; 58(5): e238.
6. John T, Morton M, Weissman M O'Brien E,Hamburger E, Yolandra Hancock Y, Rachel Y. Moon RY. Feasibility of a virtual learning collaborative to implement an obesity QI project in 29 pediatric practices. Int J Qual Health Care. 2014; 26(2): 205-213. doi: 10.1093/intqhc/mzu012
7. Barlow SE and the Expert Committee. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. Pediatrics. 2007;120 (suppl 4): S164-92.
8. Plourde G. Preventing and managing pediatric obesity. Recommendations for family physicians. Can Fam Physician. 2006; 52: 322-8.
9. Frood, S, Johnston LM, Matteson CL, Finegood DT. Obesity, complexity, and the role of the health system. Curr Obes Rep. 2013; 2: 320-6.
10. Willms JD. Early childhood obesity: A call for surveillance and preventive measures. CMAJ. 2004; 171: 243-4.
11. Wislo VM, McGaffey A, Scopaz KA, D'Amico FJ, Jewell IK, Bridges MW, Hogan L, Hughes K. Fitwits: Preparing residency-based physicians to discuss childhood obesity with preteens. Clin Pediatr (Phila). 2013; 52(12): 1107-17.

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Exercise as medicine: Are primary care professionals equipped to prevent chronic disease through physical activity prescription?

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Introduction

Noncommunicable diseases (NCDs), comprising of cardiovascular diseases (CVD), cancers, and diabetes are the leading causes of death globally.[1] Of the 57 million deaths that occurred worldwide, almost two-thirds of them can be attributed to NCDs.[1] This rapid increase in NCDs might be attenuated through cost-effective and metabolically beneficial interventions, such as increased physical activity (PA). In combination with an increase in PA prescription, the health of Canadians and costs to the healthcare system may benefit from a shift to disease prevention rather than treatment. The following paper will address the need for primary healthcare physicians to combat physical inactivity, chronic disease, and rising healthcare costs through effectively prescribing exercise as medicine.

PA has been shown to decrease the risk of contracting many acute and chronic diseases.[1] Furthermore, it is well established that regular moderate-to-vigorous physical activity (MVPA) exercise lowers the risks and symptoms associated with the co-morbidities of obesity;[2] all of which are said to be key drivers of the increase in chronic disease. Despite the supporting evidence and awareness of the medical community regarding the importance of being physically active, only 15% of Canadians are meeting the Canadian Society of Exercise Physiology's recommendation of 150 minutes of MVPA a week, which is needed to obtain substantial health benefits from PA.[3]

Burden of physical inactivity on society

Approximately 3.2 million deaths per year are attributed to physical inactivity, and individuals who are physically inactive have a 20-30% increased risk of mortality.[1] The total healthcare cost of physical inactivity in Canada was calculated to be $6.8 billion in 2009 with direct costs reaching $2.4 billion or 3.8% of the Canadian healthcare budget.[4] The vast amount of research on the health benefits of PA in recent years, and the concurrent economic burden of inactivity, exacerbate the need for primary healthcare professionals to assist in preventing acute and chronic disease by prescribing PA rather than pharmacological interventions. Therefore, it is important to note that given the association with decreased PA and ones susceptibility of acquiring a NCD, prescribing PA is a cost efficient way to decrease this burden.

Combating physical inactivity: What can be done?

Non-pharmacological interventions, where health professionals recommend lifestyle and behaviour modifications, may be an important treatment and could be prescribed prior to utilizing pharmacological strategies; the body of literature supporting this position continues to grow. Woolcott and colleagues.[5] found that healthcare costs were reduced when PA was prescribed, thus making PA beneficial to both the financially stressed healthcare system and the individual. Interestingly, physicians can play a role in decreasing this healthcare burden, as patients are more likely to follow an exercise regimen if prescribed and/or advised by their physician.[6] This is important as more than 66% of Canadians consider their family physician their primary line of care; it is this group of individuals with who they first consult with on health issues.[7] Consequently, it proves worthwhile for primary care employees to be trained and educated in PA.

Current barriers and future Implications: Merging the fitness and healthcare industries

It is recommended that physicians provide their patients with individualized exercise prescriptions. However, physicians identify barriers to writing exercise prescriptions, as they do not feel competent in doing so.[8] Interestingly, in a recent study examining fourth year medical students at ▶

the University of British Columbia, it has been noted that the students' engagement in PA can impact their attitudes towards exercise prescription and counselling.[9] Specifically, those with higher PA levels had more confidence in exercise prescription.[9] Medical schools in the United States have incorporated exercise-counselling courses in their curriculum, and these courses have improved the students' confidence and knowledge regarding prescribing exercise as medicine.[10] Therefore, education on prescribing PA should commence in medical school, with an objective of increasing medical students' personal PA levels and thus increasing confidence in prescribing exercise. Furthermore, additional research is needed to understand whether medical students' efforts to combat NCDs through PA prescription translates into positive patient outcomes and experiences.

The healthcare system and other related sectors involved in the effective prescription of exercise must merge in order to reduce the burden physical inactivity, chronic disease, and rising healthcare spending have on global health levels. The American College of Sports Medicine and the Canadian Society of Exercise Physiology's campaign "Exercise is Medicine" is becoming more recognized; however, in the authors' opinions, the best advocates and promoters of this campaign are the medical societies and colleges. Given that individuals trust and value their physician's opinions and advice, it would be beneficial for medical students to be trained in exercise prescription early on in their medical training to ensure that the next prescription a physician writes is one for the "exercise pill." ■

References

1. World Health Organization. Global status report on noncommunicable diseases [internet]. 2010 [updated 2010; cited 2014, January 30]. Available from: http://www.who.int/nmh/publications/ncd_report_full_en.pdf
2. Warburton E, Nicol C, Bredin S. Health benefits of physical activity: the evidence. CMAJ. 2006;174(6):801-9.
3. Canadian Society for Exercise Physiology. Canadian physical activity guidelines and Canadian sedentary behaviour guidelines [internet]. 2012. [updated 2014; cited 2014, April 28]. Available from: http://www.csep.ca/english/view.asp?x=949
4. Janssen I. Healthcare costs of physical inactivity in Canadian adults. Appl Physiol Nutr Metab. 2012;37(4):803-6.
5. Woolcott J, Ashe M, Miller W, Shi P, Marra C. Does physical activity reduce seniors' need for healthcare?: a study of 24 281 Canadians. Br J Sports Med. 2010;44:902-4.
6. Lewis B, Lynch W. The effect of physician advice on exercise behavior. Prev Mede, 1993;22(1):110-21.
7. The College of Family Physicians of Canada. Family medicine in Canada vision for the future [internet]. 2004 [updated November 2004; cited 2014, January 30]. Available from: http://www.cfpc.ca/uploadedFiles/Resources/Resource_Items/FAMILY_MEDICINE_IN_CANADA_English.pdf
8. Petrella R, Lattanzio C, Overend T. Physical activity counseling and prescription among canadian primary care physicians. Arch Intern Med. 2007;167(16):1774-81.
9. Holtz K, Kokotilo K, Fitzgerald B, Frank E. Exercise behaviour and attitudes among fourth-year medical students at the university of British Columbia. Can Fam Physician. 2013;59(15):236-32.
10. Persky AM. An exercise prescription course to improve pharmacy students' confidence in patient counseling. Am J Pharm Educ. 2009;73(7):118.

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Social prescribing in primary care: An alternative treatment option

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Introduction

Social prescribing is an emerging approach where physicians and other health care providers connect patients with social resources and supports in the community to improve their health.[1] For example, a physician may refer a recently widowed patient to a local community-based bereavement group. Other examples might include connecting patients with volunteer opportunities, further education, social clubs, sports clubs, social services, and other community supports.[1,2] The benefits of some referrals are obvious, such as social support or counselling for a widowed patient, or group exercise for overweight patients. However, an important benefit of social prescribing that can be overlooked is that it bolsters an individuals' social relationships, which can lead to improved health outcomes.[3,4,5]

Social capital and health

In 1901, Emile Durkheim identified an inverse relationship between an individual's degree of social integration into society and their risk of suicide.[3] This landmark study was the first to suggest that societal-level factors like lack of connectedness between people could affect an individual's health. Since then, empirical evidence from more than 140 independent studies has shown that social relationships significantly, predict morbidity and mortality - but there is no consensus for how.[4,5]

Although several theories exist as to how this relationship functions, three are highlighted. One theory suggests that social relationships are important for encouraging or indirectly modeling healthy behaviours.[6] For example, an Australian study found that women with higher numbers of social relationships were more likely to engage in leisure-time physical activity. This was most likely because these women had more companions with whom to exercise, increased social support for an active lifestyle, and greater exposure to health promotion and modeling of healthy behaviours.[7] Another theory is that individuals with extensive social networks are more likely to access information about diseases, treatment options, and the best health care services and providers, because there is greater opportunity for and frequency of knowledge exchange.[6] Finally, large social-cohesive groups are better able to lobby public authorities to obtain health infrastructure and other health-promoting goods and services like recreational spaces, green space areas, and commercial stores which can facilitate healthy behaviours.[6] For example, a community between Springhurst Park and Lees Avenue in Ottawa rallied together and successfully stopped the construction of a proposed parking lot that would have covered a large amount of green space.[8]

Social prescribing in primary care

Primary care, particularly general practice, is a key point of access in which the social causes of health issues can be addressed and ameliorated. Despite this, the social dimensions of health are often overlooked.[2,9] Social prescribing offers an avenue by which primary care professionals can address the broader determinants of health and improve patient health.

The theory supporting the relationship between social capital and health is sound but there is a substantial gap in the literature about social prescription because of its relatively recent emergence. Of the few studies that have investigated social prescribing, there is evidence to suggest that social prescription can improve patient outcomes and enhance uptake of health-improving activities.[1,10] Social prescribing has been used – to an extent – by primary care professionals however general practitioners reported a lack of up-to-date knowledge about local services and social supports.[9] ▶

The lack of guidelines or a supportive framework for physicians, for when or to whom social prescribing should be administered, has contributed to the rendering of social prescribing as a perfunctory courtesy.[1] But before a framework can be implemented or even developed, there are key issues that must be addressed. First, there is a need for accurate and timely databases containing information about community services and groups that can be used quickly and easily by primary care professionals; the creation and maintenance of such a system is not insurmountable but would require investment. Alternatively, shared-care models of collaboration may allow for smoother introductions of social prescribing in primary care. The responsibility of connecting patients with social resources and supports would pass to social workers or other qualified professionals who would presumably be better trained and knowledgeable about community resources and social supports.[10] This would also address initial hesitancy by primary care professionals who may view social prescribing as yet another imposition on their already heavy workload.[1] Even if such a database existed or a collaborative model adopted, the many options available for referral may also present a challenge; however, given the fluid nature of social prescription, discussion between the primary care professional and patient may alleviate some of this.[1]

Conclusion

There are some gaps that must be addressed before social prescribing can be properly integrated into primary care. Clinical evidence for social prescription, though sparse, suggests that it positively affects patient health. Social prescribing in primary care is worth exploring as it increases the options available during consultations, allows for the primary care professionals to address the broader social determinants of health, and has been shown to improve patient health.[1,2] ■

References

1. Brandling J, and House W. Social prescribing in general practice: adding meaning to medicine. Br J Gen Pract. 2009;59:454-56.
2. South J, Higgins TJ, Woodall J, and White SM. Can social prescribing provide the missing link? Primary Health Care Research & Development. 2008;9:310-8.
3. Durkheim E. Suicide: A Study in Sociology. Translated by John A. Spaulding and George Simpson. London: Routledge & Kegan; 1970.
4. Holt-Lunstad J, Smith TB, and Layton JB. Social relationships and mortality risk: A meta-analytic review. PLoS. 2010; 7(7).
5. McClintock MK, Conzen SD, Gehlert S, Masi C, and Olopade F. Mammary cancer and social interactions: identifying multiple environments that regulate gene expression throughout the life Span. Journals of Gerontology. 2005;60B(1):32-41.
6. Rocco L, and Suhrcke M. Is social capital good for health? A European persepective. Copenhagen, Wold Health Organization Regional Office for Europe. 2012.
7. Ball K, Cleland VJ, Timperio AF, Salmon J, Giles-Corti B, and Crawford DA. Love thy neighbor? Associations of social capital and crime with physical activity amongst women. Soc Sci Med. 2010:7;1(4):807-14.
8. Dance J. Springhurst greenspace saved. Mainstreeter [Internet]. 2013 [last update unknown; cited 2014 Mar 24]. Available from: http://www.mainstreeter.ca/?p=2429
9. Popay J, Kowarzik U, Mallinson S, Mackian S, and Barker J. Social problems, primary care and pathways to help and support: addressing health inequalities at the individual level. J Epidemiol Community Health. 2007;61:966-71.
10. Rockman P, Salach L, Gotlib D, Cord M, and Turner T. Shared mental health care: Model for supporting and mentoring family physicians. Can Fam Physician. 2004;50:397-402.

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The waiting game: A primary care intervention to improve access to specialist care to patients with osteoarthritis

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Osteoarthritis (OA) commonly presents in the major weight bearing joints such as the knee and contributes to debilitating pain as well as impairments of physical function. As of 2011, one in eight Canadians (13%) suffer from this condition.[1] Given appropriate candidacy, surgical treatment for end-stage knee OA such as total knee replacement (TKR) and high tibial osteotomy (HTO) are highly successful with negligible risk.[2] Just as the population has aged over the past decade, so too has the demand for surgical treatment of OA increasing wait times across Canada.[3-6] The 2012 Wait Time Alliance report found that the wait times for an initial surgical consult are as problematic as the wait times for the surgeries themselves.[6]

Cipriano et al. (2008)[7] identified that wait times for TKR in Ontario are longer than clinically appropriate. The current federal benchmark for TKR is no longer than 6 months for low priority patients, while high and intermediate priority patients should undergo surgery 1 and 3 months respectively from the time the decision for surgery is made. Using information from the Ontario joint replacement registry (OJRR), Cipriano et al. (2008)[7] conducted a simulation study that suggests that Ontario would need to increase the number of available procedures by 12% annually over 10 years to ensure that 90% of patients underwent TKA within 6 months.[7]

McHugh et al. (2011)[8] found that patient referrals to a surgeon by general practitioners are often inappropriate, reporting that only 33% of patients actually underwent surgery. Of those patients who did not, the majority were referred back to their general practitioner because they either did not wish to undergo a surgical intervention, had not yet exhausted non-surgical options (physiotherapy, injections, weight loss), had been referred to the wrong type of specialist (i.e. arthroscopy), or were not in a condition severe enough to warrant a TKR.[8]

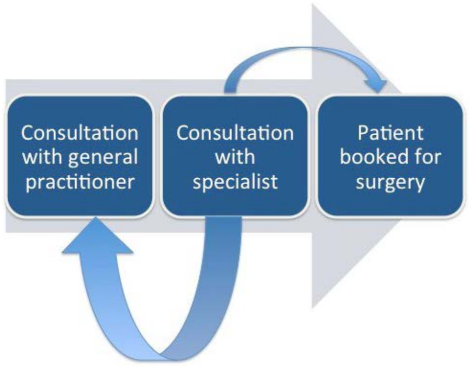

Figure 1- Large proportion of inappropriate referrals to specialists

A study by Klett et al. (2012)[9] implemented an intermediate surgical screening clinic and found that of the 327 patients assessed, 155 (47.4 %) were referred back to their general practitioner (Figure 1). The authors suggested that strategies emphasizing appropriate referral may improve access to TKR.[9]

Strategies to improve the quality of referrals to surgery will reduce wait time to first consultation with a surgeon.

The current practice guidelines suggest: physiotherapy, strengthening exercise, weight loss, walking aids, injections, and anti-inflammatories as frontline treatments for patients with knee OA prior to joint replacement. In a Canadian study conducted by DeHann et al. (2007)[10] the authors evaluated the congruence between a physician training rheumatology-teaching clinic and current evidence-based guidelines for patients with knee OA. Of the 105 randomly selected patients the most commonly recommended non-pharmacologic treatment included: exercise (58.1%), physiotherapy (42.9%), and strengthening exercise (40.0%). Moreover, education, aerobic and ▶

range of motion exercise, social support, orthoses, assistive devices for ambulation, acupuncture, and occupational therapy/energy conservation were documented in under 30% of patient charts, implying the underutilization of conservative strategies in managing knee OA. These results suggest that better strategies to educate and encourage physician adherence to current OA recommendations are still needed.[10]

It is possible that the referring physician feels it is the role of the orthopaedic surgeon to present patients with the resources, options, and recommendations regarding surgery. The greatest improvement in efficiency may begin with improving education, such that the primary physician can feel more confident in determining the severity of knee OA, managing a non-surgical treatment plan, and introducing preliminary discussions of surgical options with their patients.

Providing a means to reduce inappropriate referrals and better informing the decision to refer to surgery for knee OA could potentially reduce wait times that currently hinder our health care system. Thus, strategies that provide a greater awareness of the guidelines for treatment of knee OA, greater accountability by general practitioners for non-surgical options, and effective diagnostic decision-making support are needed. ■

References

1. Arthritis Alliance of Canada. The impact of arthritis in canada: Today and over the next 30 years [Internet]. 2011. Accessed December, 2012. Available from: http://www.arthritisnetwork.ca/downloads/ 20111022_Impact_of_arthritis.pdf. Updated 2011.
2. Dennis MG, Di Cesare PE. Surgical management of the middle age arthritic knee. Bull Hosp Jt Dis. 2003;61(3-4):172.
3. Canadian Institute for Health Information, Canadian Joint Replacement Registry. Hip and knee replacements in canada. Hip and knee replacements in Canada. 2008.
4. Kurtz SM, Walter WL, de Steiger R, et al. International survey of primary and revision total knee replacement. Int Orthop. 2011;35(12):1783-1789.
5. Blackstein-Hirsch, P., Gollish, J., Hawker, G., Kreder, H., Mahomed,N., Williams, J. Information strategy: Urgency rating, waiting list management and patient outcomes monitoring for primary hip/knee joint replacement. 2000;00-04.
6. Wait Time Alliance. Shedding light on canadians' total wait for care [Internet]. Accessed December, 2012. [cited 2014 Feb 6] Available from: http://www.waittimealliance.ca/media/2012reportcard/WTA2012-reportcard_e.pdf. 2012.
7. Cipriano LE, Chesworth BM, Anderson CK, Zaric GS. An evaluation of strategies to reduce waiting times for total joint replacement in ontario. Med Care. 2008;46(11):1177-1183.
8. McHugh GA, Campbell M, Luker KA. GP referral of patients with osteoarthritis for consideration of total joint replacement: A longitudinal study. The British journal of general practice : the journal of the Royal College of General Practitioners. 2011;61(589):459-501.
9. Klett M, Frankovich R, Dervin GF, Stacey D. Impact of a surgical screening clinic for patients with knee osteoarthritis: A descriptive study. Clin J Sport Med .2012;22(3):274-277.
10. DeHaan MN, Guzman J, Bayley MT, Bell MJ. Knee osteoarthritis clinical practice guidelines: How are we doing? J Rheumatol. 2007;34(10):2099-2105.

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Multimorbidity: A complex reality in primary health care

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The burden of multimorbidity

The focus of primary health care (PHC) in developed countries is now largely centred on the treatment and management of long-term or chronic diseases. Due to shared risk factors and interaction among diseases, chronic conditions are increasingly occurring in clusters.[1] In Canada, more than 50% of adults aged 65 years and older report having at least two chronic diseases.[2] The co-occurrence of multiple chronic diseases in an individual, or multimorbidity, is also understood to be the norm rather than the exception in PHC.[3] Multimorbidity is associated with reduced quality of life, limited functional status, polypharmacy, increased mortality, and high health care costs.[3] Deemed an "endless struggle" by PHC providers, multimorbidity is becoming more prevalent in younger patients and is no longer confined to elderly populations.[1,4] This phenomenon is pushing PHC providers and researchers alike to understand its multifaceted nature. A better understanding of the etiology behind multimorbidity can lead to a transformed clinical approach that will, in turn, be cost-saving in the long-run. To achieve this, three main components are necessary.

(1) Defining and measuring multimorbidity

Due to the relatively recent emergence of research in this field, the definition and measurement of multimorbidity remain inconsistent. While the definition has continually revolved around the co-existence of ≥2 chronic diseases or ≥3 chronic diseases in an individual, no consensus exists to date. Literature shows that 51% of published multimorbidity research did not explicitly state the definition of multimorbidity used, adding to the mystery.[5] There is also marked variation in the methodology of multimorbidity studies with respect to the type of data used, the population studied, and the types of chronic diseases included in the pool of multimorbidity.[6,7] A recent comparison of three studies found that the prevalence levels of multimorbidity in a PHC setting ranged from 34% to 95%.[6] Persistent heterogeneity hinders comparability across studies and limits the ability to make informed health system and health policy decisions.[6,7] Consequently, an explicit and unified methodology to examine multimorbidity in PHC research is needed.

(2) Building our understanding of multimorbidity

Historically, medical research has focused on patients suffering from single and discrete diseases, such as diabetes or hypertension. However, this single-disease orientation is inapplicable for patients living with multimorbidity because of the interrelatedness of chronic diseases and common underlying causal mechanisms.[1,8-9] For example, ongoing PHC research both in Canada and abroad is uncovering the non-random clusters of chronic diseases and clinically consistent multimorbidity patterns.[1] We are also learning of the deeply entangled sociocultural causes of chronic diseases, with the onset of multimorbidity occurring 10 to 15 years earlier in individuals living in deprived areas.[10] This research is creating a more nuanced understanding of multimorbidity, which will lead to more effective chronic disease prevention and management strategies.

(3) Transforming PHC clinical multimorbidity

Key elements of our health care system have been organized and designed for patients with discrete diseases, including clinical practice guidelines and disease management strategies for providers. There are well-established calls for these elements to be renewed and restructured. Clinical practice guidelines have the potential to improve care and outcomes for those with chronic disease, but seldom explicitly account for patients with multimorbidity.[9] Updated clinical guidelines should be reformatted to synthesize the evidence for clinical recommendations, ▶

while identifying synergies and contradictions of clinical approaches in the face of multimorbidity.[9] Although it will admittedly not be possible to provide rigorous evidence for every possible combination of disease, this transformation will require an integrated team of professionals and a change from our traditional single-disease focus, facilitated by a patient-centred approach. Indeed, these demands indicate a significant undertaking and a change in the status quo. However, these new approaches will become much needed resources for our frontline PHC providers and their patients.

Reorienting research and delivery in PHC

Multimorbidity has set the stage for us to reorient the delivery of PHC. We must harness the growing momentum to conduct more robust PHC research, establish a multidisciplinary and patient-centred approach, and transform the clinical management of multimorbidity in PHC. In the context of PHC research, an explicit and comprehensive definition of multimorbidity will help guide health system design and health policy decision-making. In the context of PHC delivery, there is a need to control – or even cope with – the tsunami of demands from these patients.[4,6] We must reorient our thinking, from a focus on disease to recognizing the needs and goals of the growing number of patients living with multimorbidity. These elements are steps towards adequately responding to this new reality. Not only will this reorientation help our current PHC system cope with the complexities of multimorbidity, it will also help ensure that our system is responsive and sustainable into the future. ■

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Kathryn is currently a second year PhD Candidate in the Department of Epidemiology & Biostatistics at Western University. Her primary research interest is in multimorbidity and the use of electronic medical records (EMRs). Her doctoral research is based at the Centre for Studies in Family Medicine at Western University and is using the pan-Canadian EMR database from the Canadian Primary Care Sentinel Surveillance Network (CPCSSN). She will be examining the epidemiological patterns, increasing burden and natural history of multimorbidity among adult primary health care patients in Canada.

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References

1. Prados-Torres A, Calderón-Larrañaga A, Hancco-Saavedra J, Poblador-Plou B, van den Akker M. Multimorbidity patterns: a systematic review. J Clin Epidemiol. 2014 Mar; 67(3): 254-266.
2. Broemeling AM, Watson DE, Prebtani F. Population patterns of chronic health conditions, co-morbidity and healthcare use in Canada: implications for policy and practice. Healthcare Q. 2008; 11(3): 70-76.
3. Fortin M, Soubhi H, Hudon C, Bayliss EA, van den Akker M. Multimorbidity's many challenges. BMJ. 2007 May; 334(7602): 1016-1017.
4. O'Brien R, Wyke S, Guthrie B, Watt G, Mercer S. An 'endless struggle': a qualitative study of general practitioners' and practice nurses' experiences of managing multimorbidity in socio-economically deprived areas of Scotland. Chronic Illn. 2011 Mar; 7(1): 45-59.
5. Almirall J, Fortin M. The coexistence of terms to describe the presence of multiple concurrent diseases. J Comorbidity. 2013; 3: 4-9.
6. Stewart M, Fortin M, Britt HC, Harrison CM, Maddocks HL. Comparisons of multi-morbidity in family practice – issues and biases. Fam Pract. 2013 Aug; 30(4): 473-480.
7. Fortin M, Stewart M, Poitras ME, Almirall J, Maddocks H. A systematic review of prevalence studies on multimorbidity: toward a more uniform methodology. Ann Fam Med. 2012 Apr; 10(2): 142-151.
8. Starfield B, Kinder K. Multimorbidity and its measurement. Health Policy. 2011 Nov; 103(1): 3-8.
9. Guthrie B, Payne K, Alderson P, McMurdo ME, Mercer SW. Adapting clinical guidelines to take account of multimorbidity. BMJ. 2012 Oct; 345: 6341-6343.
10. Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. Lancet. 2012 Jul; 380(9836): 37-43.

Dementia in Canadian primary health care: The potential role of case management

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Dementia is a chronic disease characterized by progressive memory loss and behavioural disturbance. It has become a major concern for healthcare professionals due to the increasing number of people affected, usually presenting with more than one chronic condition.[1] According to the World Health Organization (WHO), up to eight million new cases of dementia are detected world-wide annually.[2] Today in Canada, half a million people are living with dementia and this number is expected to rise two and a half times over the next 40 years due to an aging population.[3] The WHO has declared dementia to be one of the most serious health challenges facing our society due to its pronounced consequences on patients, their families and society.[2] Various elements contribute to this quandary including patient-caregiver dyad factors (e.g., fear of stigmatization) and healthcare system issues (e.g., fragmentation of healthcare services). In this article we discuss Case Management (CM) designed for patients with dementia, and types of CM pertinent to primary care.

Dementia and primary care: The current situation

The first contact people with dementia have in the healthcare system is with a Family Physician (FP). The FP is thus ideally positioned to address their needs. Despite the fact that four Canadian consensus conferences on dementia have recommended FPs to be in charge of the prevention, diagnosis, and care for persons with dementia,[4] FPs are reluctant to deal with these patients due to a lack of knowledge and confidence in using cognitive screening tests, and poorly coordinated primary and secondary care services.[5] Unlike most European countries, Canada does not have a national plan on dementia partly due to the fact that healthcare is a provincial responsibility. To address this challenge, the provinces of Quebec and Ontario have developed dementia collaborative care models in the context of a major primary care reform that integrates personalized dementia service delivery within Family Medicine Groups (Quebec) and Family Health Teams (Ontario).[6,7]

One of the key innovative interventions of these models is CM.[6,7] CM is defined as a collaborative process in which a case manager assesses an individual's health, plans a care path, coordinates health services, and monitors health status. This intervention aims for the timely delivery of patient-centered, comprehensive, and inter-professional care throughout the course of the disease in primary care. A case manager works closely with FPs and can facilitate their workloads, allowing FPs to more effectively focus on care. Patients with complex issues are referred to specialists (e.g., memory clinics).

Dementia case management: A potential solution?

The results of studies on the effectiveness of dementia CM have shown that it has the potential to improve outcomes.[8] A few systematic reviews have demonstrated the positive effect on clinical outcomes, service use, cost-effectiveness, and caregiver satisfaction.[9] Varieties of CM models are described in the literature on disease management, including hospital and service-based models. However, it is not clear what types of CM models are pertinent to primary care as systematic reviews conducted to date combine all types of CM.[9] For example, there are no studies comparing case managers working independently versus case managers working in collaboration with other healthcare professionals (FPs and/or specialists). An ideal combination appears to be a case manager working in collaboration with FPs: "an FP treats and a case manager organizes". There is also no agreement about the best combination of healthcare professionals to address the needs of patients with dementia. Some researchers do not consider the direct involvement of a physician and a multidisciplinary team to be essential for CM effectiveness.[10] ▶

To identify which of the types of CM models is more effective in primary care, we conducted a systematic review of intervention studies and examined the differences in outcomes for the patient-caregiver dyad (Table 1).

The findings of our systematic review did not show a clear difference between the three types of dementia CM with respect to outcomes. For example, "*case manager working independently*" showed a more prominent effect on caregiver outcomes (e.g., burden), while "*case manager - multidisciplinary team - FP collaboration*" demonstrated effective management of dementia in terms of medication management and adherence to dementia guidelines. Better medication management was related to the improvement of neuropsychiatric symptoms of dementia.

Conclusion: Future directions to be considered

Dementia CM in primary care is a potential solution to improve the outcomes of the patient-caregiver dyad. While the outcomes of CM cannot be explained by the CM type only, the patient-caregiver dyad will benefit from the close collaboration of a case manager, FPs and a multidisciplinary team. This collaboration can provide a comprehensive approach to meet their needs (e.g., assessment of functional status of patients). However, CM should be carefully implemented for its successful adoption by FPs. High CM intensity (e.g., a small caseload, proactive versus reactive follow-up), and effective communication between healthcare professionals in primary care should be monitored.[8] ■

Stages of the systematic review	
Stage 1. Definition of research question	
Question	With regard to patients with dementia in primary care, what type of CM is more effective?
Stage 2. Definition of eligibility criteria	
Inclusion criteria	*Population*: people of any age and gender with any type of dementia. *Setting*: CM intervention implemented in a range of community settings. *Types of interventions*: CM interventions that comprise assessment, coordination, monitoring, and delivery of services to meet patients' needs. *Type of studies*: intervention studies assessing outcomes of CM (e.g., randomized controlled trial – RCT). *Types of outcome measures*: *clinical outcomes* (e.g., neuropsychiatric symptoms), *service use* (e.g., nursing home admission), *caregiver outcomes* (e.g., depression), *satisfaction*, *cost-effectiveness*, and *other* outcomes.
Stage 3. Development of an extensive search strategy	
Databases	Publications listed in MEDLINE, PsycInfo, EMBASE, the Cochrane Database.
Timeframe	Between 1995 (official publication of the CM Standards of Practice) and 2012.
Language	English and French
Stage 4. Identification of relevant studies and selection of the data	
Identification of the studies	Titles and abstracts were selected independently by two reviewers (VK, IV). Then, full text copies were examined for final inclusion. Kappa scores were calculated to estimate inter-reviewer reliability.
Stage 5. Appraisal of the quality of included studies	
Quality assessment	The validated Mixed Methods Appraisal Tool was used. Inter-rater reliability was calculated based on weighted kappa.
Stage 6. Synthesis of included studies	
Synthesis approach	A narrative synthesis approach was used. A meta-analysis was not possible due to the heterogeneity of CM implementation. To evaluate the magnitude of the positive outcomes we calculated the effect size using the Cohen method.
Results	
Types of CM	Based on the composition of health care professionals, three types of CM were identified: *case manager working independently, case manager-multidisciplinary team collaboration, and case manager- multidisciplinary team-FP collaboration*
Characteristics of the types	*Case manager working independently*: primarily focused on support of the patient-caregiver dyad; strictly applies the traditional tasks of case manager; no interaction with physicians on a regular basis. *Case manager-multidisciplinary team collaboration*: case manager acts as a liaison between different healthcare professionals (FP, geriatrician); FP is not involved in the care. *Case manager- multidisciplinary team-FP collaboration*: FP is a key element of a strong partnership; case manager has regular contact with FP of patients and their caregivers.
Outcomes	*Case manager working independently*: caregiver burden (effect size: 0.5) and mood (effect size: 0.41). *Case manager-multidisciplinary team collaboration*: behavioral symptoms of dementia (effect size: 1.5) and caregiver mood (effect size: 1.5). *Case manager- multidisciplinary team-FP collaboration*: medication management (e.g., rate of anticholinesterase prescription by FPs) (effect size: 1.07) and adherence to dementia guidelines (effect size: 0.65).

Table 1. Types of dementia CM

References

1. Schubert CC, Boustani M, Callahan CM, Perkins AJ, Carney CP, Fox C, et al. Comorbidity profile of dementia patients in primary care: are they sicker? J Am Geriatr Soc. 2006;54(1):104-9.
2. WHO. Dementia A Public Health Priority. World Health Organization 2012.
3. Alzheimer society of Canada. Rising Tide: The impact of Dementia on Canadian Society. 2010.
4. Troisième conférence canadienne de consensus sur le diagnostic et le traitement de la démence: Recommandations approuvées. 2007.
5. Aminzadeh F, Molnar FJ, Dalziel WB, Ayotte D. A review of barriers and enablers to diagnosis and management of persons with dementia in primary care. Canadian geriatrics journal : CGJ. 2012;15(3):85-94.
6. Lee L, Kasperski MJ, Weston WW. Building capacity for dementia care: training program to develop primary care memory clinics. Can Fam Physician. 2011;57(7):e249¬52.
7. Bergman H. Report of the Committee of Experts for the Development of an Action Plan on Alzheimer's Disease and Related Disorders. 2009.
8. Khanassov V, Vedel I, Pluye P, Bergman H. Case management for patients with dementia in primary care: Why it doesn't work—A mixed studies systematic review. Alzheimers Dement. 2013;9(4):116.
9. Pimouguet C, Lavaud T, Dartigues JF, Helmer C. Dementia case management effectiveness on health care costs and resource utilization: a systematic review of randomized controlled trials. J Nutr Health Aging. 2010;14(8):669-76.
10. Verkade P, van Meijel B, Brink C, van Os-Medendorp H, Koekkoek B, Francke A. Delphi research exploring essential components and preconditions for case management in people with dementia. BMC Geriatr. 2010;10:54.

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A battle in the brain: Post-traumatic stress disorder checklist is an effective screening tools needed for post-traumatic stress disorder in primary care

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Post-traumatic stress disorder (PTSD) is a debilitating psychological condition that affects an estimated ten percent of the Canadian population.[1] Affecting all ages, PTSD develops from exposure to a traumatic event with the threat of death or severe bodily harm, accompanied by feelings of intense fear and horror.[2] PTSD can manifest years later, and often without warning – for this reason, PTSD presents a difficult diagnosis and one that is often missed by primary health care physicians.[3] A quick, accurate and comprehensive screening tool for PTSD, such as the PCL-Civilian,[4] needs to be regularly implemented in the Canadian primary health care assessment of individuals with extreme anxiety or depression that could be an underlying PTSD issue.

With the string of recent suicides in Canadian Military personnel in 2013, and with more PTSD related suicides projected to occur within the next year, a greater awareness of the presenting symptoms of PTSD as well as better screening methods need to be in place in Canadian primary care settings.[5] The post-traumatic stress disorder checklist, PCL-Civilian, is one possible screening tool currently available that can be used to accurately assess the possibility of a PTSD diagnosis in a timely manner. The PCL-C can be facilitated by the physician or taken alone by the patient, making it particularly useful in a primary care context when the administration of a structured interview is not suitable. The PCL-C is based upon the PTSD symptoms in the Diagnostic and Statistical Manual of Mental Disorders (DSM)-Fourth Edition. Items are based upon a five-point Likert scale, and are added to obtain a total severity score; the greater the score, the more symptoms present. A cut-off score of fifty is commonly used and has been shown to be a good indicator of PTSD when compared to the Clinician Administered PTSD Scale (CAPS) and the Structured Clinical Interview for DSM (SCID).[6] The PCL has shown a strong correlation of 0.79 with the CAPS and 0.90 with the Mississippi PTSD Scale;[7] in addition, the current gold standard for PTSD diagnosis, the CAPS, is time-consuming to administer, thus making the faster PCL-Civilian a more appropriate primary care tool. By determining a correct diagnosis of PTSD earlier, treatment could be easier, and recovery quicker. While the PCL-Civilian has a tendency to overestimate the prevalence of PTSD, employing the quick, seventeen-question PCL-Civilian for the symptoms of PTSD will aid in the identification of the disorder and subsequently the referral to appropriate treatment. A timely diagnosis of PTSD can aid in the avoidance of maladaptive behaviours such as alcohol and substance abuse,[8] as well as family anxiety, and personal strife. Therefore, it follows from this evidence that the sooner PTSD is correctly identified, the sooner the individual can be referred to behavioural health specialists and support groups to minimize negative outcomes.

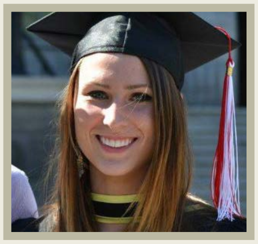
The PCL-Civilian screening tool simplifies the diagnosis and screening of those with suspected PTSD. For soldiers returning from combat, a severe traumatic brain injury presents symptoms almost indistinguishable from PTSD.[8] In addition, misdiagnosing PTSD as depression or anxiety can lead to improper treatment. Medicating PTSD has not been demonstrated to improve the individual's functioning and recovery – as is common in anxiety and mood disorders – as rapidly as behavioural treatment.[9] The diagnosis of PTSD is further complicated by individuals that may have a co-morbid condition of an anxiety mood disorder, which may mask the underlying diagnosis of PTSD from the practitioner. Unless the patient volunteers personal information regarding their trauma, it is difficult to identify PTSD without a solid framework – the PCL-Civilian can provide that framework. With the assistance of the PCL-Civilian screening tool, the complexity in making an appropriate PTSD preliminary diagnosis can be lessened for the primary health care professional. Through the adoption of the PCL-Civilian, Canadian primary care providers can ▶

screen individuals for PTSD with a high degree of temporal stability, internal consistency, test-retest reliability, and convergent validity.[7,10]

Overall, health care investments into the development and implementation of a more effective PTSD screening test, like the PCL-Civilian, into Canadian primary care are needed. Greater awareness of the diagnosis of PTSD by primary health care professionals could lead to the more aggressive treatment of PTSD and overall improved functioning of those individuals. The PCL-Civilian screening tool could benefit primary health care practitioners by lessening the length of consultation times and improving a physician's confidence in diagnosis. The tool will aid in identifying those with PTSD and will alleviate the complexity involved in a diagnosis. Screening implementation with the PCL may reduce misdiagnoses and lead to more appropriate healthcare utilization. The PCL screening tool can thus be used to assist primary care providers in the assessment of a PTSD diagnosis and to monitor patients' symptom changes before, during, and after treatment. ■

References

1. Van Ameringen, M., Mancini, C., Mancini, C., Patterson, B., Boyle, M. Post-Traumatic Stress Disorder in Canada. CNS Neuroscience & Therapeutics. 2008; 14:171-181.
2. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, (5th ed.). Arlington, Va.: American Psychiatric Publishing. 2013
3. Liebschutz, J., Saitz, R., Brower, V., Keane, T.M., Lloyd-Travaglini, C., Averbuch, T., Samet, J.H. PTSD in Urban Primary Care: High Prevalence and Low Physician Recognition. Society of General Internal Medicine. 2007, June; 22(6):719-726.
4. Ruggiero, K.J., Del Ben, K., Scotti, J.R., Rabalais, A.E. Pychometric Properties of the PTSD Checklist – Civilian Version. Journal of Traumatic Stress. 2003; 16: 495-502.
5. Magruder, K.M., Frueh, B.C., Knapp, R.G., Davis, L., Hamner, M.B., Herbert Martin, R., Gold, P.B., Arana, G.W. Prevalence of posttraumatic stress disorder in Veterans Affairs primary care clinics. General Hospital Psychiatry. 2005, May; 27(3): 169-179.
6. Gravely, A.A., Cutting, A., Nugent, S., Grill, J., Carlson, K., Spoont, M. Validity of PTSD diagnoses in VA administration data: Comparison of VA administration PTSD diagnoses to self-reported PTSD Checklist scores. Journal of Rehabilitation Research & Development. 2011; 48(1): 21-30.
7. Wilkins, K.C., Lang, A.J., Norman, S.B. Synthesis of the Psychometric Properties of the PTSD Checklist (PCL) Military, Civilian, and Specific Version. Depress Anxiety. 2011 July; 28(7): 596-606.
8. Williamson, J.B., Heilman, K.M., Porges, E.C., Lamb, D.G., Porges, S.W. A possible mechanism for PTSD symptoms in patients with traumatic brain injury: central automatic network disruption. Frontiers in neuroengineering. 2013, Dec 19; 6:13.
9. Wilkins, K., Lang, A.J., Norman, S.B. Synthesis of the Psychometric Properties of the PTSD Checklist (PCL) Military, Civilian, and Specific Versions. Depress Anxiety. 2011, July; 28(7): 596-606.
10. Blanchard, E.B., Jones-Alexander, J, Buckley, T.C., Forneris, C.A. Psychometric properties of the PTSD checklist (PCL). Behavioural Research and Therapy. 1996; 34: 669-673.



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Improving the health and quality of life of cancer survivors through exercise: The role of the primary care physician

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An estimated 187,600 new cases of cancer were diagnosed in Canada in the year 2013 alone.[1] Treatment options for cancer patients are continually improving, leading to greater survivorship amongst numerous different cancer groups. As a result, an increased demand is being placed on primary care physicians to help manage these patients' quality of life by treating numerous cancer-related comorbidities associated with life beyond cancer-specific diseases. Many cancer survivor groups experience debilitating levels of fatigue; for example, up to 90% of lung cancer survivors experience fatigue that persists for months post-treatment.[2] These cancer-related fatigue levels are often linked to a reduction in exercise capacity, which places these particularly vulnerable individuals at a heightened risk for developing conditions such as cardiovascular disease and hypertension, and can ultimately contribute to an overall poor quality of life or even premature death.[3]

One key area in which primary care physicians may be able to attenuate or reverse the effects of these cancer-related comorbidities is through the prescription of physical activity. The consensus amongst experts remains that physical activity is safe for cancer patients across the entire cancer continuum,[4] and cancer survivors who meet the recommended levels of physical activity report significantly less fatigue, better overall physical health, and an improved short and long term quality of life.[2,3] Though physical activity may serve as viable conduit for improving cancer survivors' overall health,[5] the most effective ways to initiate and maintain health-promoting physical activity levels for these survivors remains largely unknown. Researchers contend that physical activity interventions are likely to yield the greatest results and applicability when they are theory driven and targeted to meet the specific psychosocial needs of cancer survivor populations.[2] However, inconclusive results stemming from theoretically-driven interventions may explain why physician counseling for physical activity remains scarce despite the pivotal role primary health care providers may have in increasing their patients' physical activity behaviour.

Theoretically-driven efforts to improve cancer survivors' dwindling physical activity rates in hopes of promoting greater overall health typically focus on strategies to increase individuals' intentions to be active. Though physical activity intentions remain as one of the strongest correlates of physical activity participation,[6] it appears that when moderately sized changes to intentions are made through interventions, only trivial-sized changes in physical activity participation.[7] Furthermore, in most intention-focused studies, a near-even split exists amongst highly intentional individuals, where half become physically active, and the other half abstain from physical activity participation.[6] Thus, other physical activity promoting variables seem to be at play, and yet remain largely under studied. While additional research is being conducted to discover and validate the best ways to get cancer survivors more active for the long-term, current efforts should seek to apply simplified strategies in order to produce immediate health-enhancing effects.

Notwithstanding the current dearth of research focusing on this problem space, the primary health care physician may still have a role in applying strategies that can promote health-enhancing levels of physical activity to their cancer survivor patients. For example, when an oncologist recommends to their patients to exercise everyday throughout the week, significant and meaningful improvements in their patients' exercise levels are noted.[8] However, since primary care physicians act as the first point of contact and likely meet with their patients more often than would an oncologist, their ability to expose their patients to expert advice may even be potentially superior. Thus, it seems possible that if primary health care physicians simply recommend that their patients become more physically active, these

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cancer survivors may become motivated enough to not only want to be more active but moreover to actually engage in the recommended physical activity.

Despite depicting the influential status that primary care physicians may hold in promoting health-facilitative physical activity in their cancer survivor patients, some physicians may remain reluctant to provide specific physical activity recommendations to their patients. Therefore, the necessary tools and resources need to continually be made available for uptake by primary health care services, and must remain clearly interpretable for practitioners. In sum, if primary healthcare physicians recommend that their patients increase their daily levels of physical activity, numerous health benefits can arise and ultimately result in a higher quality of life post-treatment. Thus, considering that cancer survivors' quality of life is likely to diminish if they remain sedentary, primary health care physicians should feel empowered in recommending that their patients become more physically active. ■

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References

1. Canadian Cancer Society's Advisory Committee on Cancer Statistics. Canadian cancer statistics 2013. Toronto: Canadian Cancer Society; 2013. [cited 2014 Jan 28]. Available from: http://www.cancer.ca/~/media/cancer.ca/CW/cancer%20information/cancer%20101/Canadian%20cancer%20statistics/canadian-cancer-statistics-2013-EN.pdf
2. Coups EJ, Park BJ, Feinstein MB, Steingart RM, Egelston BL, Wilson DJ, Ostroff JS. Correlates of physical activity among lung cancer survivors. Psycho-Oncology. 2009; 18: 395-404.
3. Mishra SI, Scherer RW, Geigle PM, Berlanstein DR, Topaloglu O, Gotay CC, et al. Exercise interventions on health-related quality of life for cancer survivors. Cochrane Database of Systematic Reviews 2012, Issue 8. Art. No.: CD007566. DOI: 10.1002/14651858.CD007566.pub2.
4. Peddle-McIntyre CJ, Bell G, Fenton D, McCargar L, Courneya KS. Changes in motivational outcomes after a supervised resistance exercise training intervention in lung cancer survivors. Cancer Nurs. 2012; 00: 1-9.
5. Speed-Andrews AW, Courneya KS. Effects of exercise on quality of life prognosis in cancer survivors. Curr Sports Med Rep. 2009; 8: 176-181.
6. Rhodes RE, de Bruijn G. How big is the physical activity intention-behaviour gap? A meta-analysis using the action control framework. Br J Health Psychol. 2013; 18: 296-309.
7. Rhodes RE, Dickau L. Experimental evidence for the intention-behavior relationship in the physical activity domain: a meta-analysis. Health Psychol. 2012: 31: 724-727.
8. Jones LW, Courneya KC, Fairey AS, Mackey JR. Does the theory of planned behavior mediate the effects of an oncologist's recommendation to exercise in newly diagnosed breast cancer survivors? Results from a randomized controlled trial. Health Psychol. 2005; 24(2): 189-197.

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Obesity prevention through primary health care: Promoting physical activity in early childhood

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The number of preschool-aged children who are overweight or obese is alarming. In fact, approximately 43 million children worldwide, under the age of five, were considered overweight in 2010.[1] With obesity rates among children reaching epidemic proportions, increased risk factors for insulin resistance and cardiovascular disease are occurring even earlier in life.[1] To minimize the effects of obesity and related comorbidities on the health of the population, our focus needs to be directed to early primary prevention. The following commentary will highlight the need for both the encouragement and prescription of physical activity (PA) by primary health care providers to prevent childhood obesity.

The Necessity of Intervening in the Early Years

Intervening at a young age is critical because lifestyle behaviours (i.e., being physically active) are formed early [2] and may help prevent chronic disease and obesity from continuing into adulthood.[1] Furthermore, as preschoolers' behaviours are largely under the control of parents,[3] involving and educating parents on PA is essential. Childhood obesity has numerous physiological and psychological health implications,[4-6] and once established, obesity is also very challenging to reduce.[1] Fortunately, in several controlled interventions involving children, PA has been found to improve body composition and is a promising method of obesity prevention.[2]

Physical Activity Promotion in Early Childhood

The advantages of PA are numerous (e.g., body weight, improved body composition, psychosocial well-being, etc.),[2] and yet sedentary behaviours and physical inactivity are becoming increasingly prevalent among young Canadian children.[5] As activity rates begin to decline as children get older,[5] it is necessary to promote age-appropriate activities that are enjoyable for preschoolers. The importance of unstructured play (i.e., running, climbing, imaginary play, etc.) during this age is often underscored as a substantial proportion of preschoolers' daily PA.[7] Encouraging health care providers to emphasize the variance in children's activity preferences and forms of play can assist parents to minimize sedentary behaviour and increase PA.[4] When prescribing PA as a preventative measure for both children and their families, physicians should promote PA as a healthy lifestyle behaviour rather than a method of weight reduction.[3] The acknowledgment of PA in this context will frame the discussion in a manner that is nonjudgmental and that does not place blame on either the parent or the child.[7,8]

Pediatricians and family physicians have a unique advantage in the promotion of preventative strategies, as the majority of children this age are seen for routine pediatric care.[3,6,8] Physicians are advised to assess children's body mass index (over 2 years of age)[4] and early lifestyle determinants (e.g., PA levels) at routine visits to screen for increased risk of obesity.[6] Integrating this assessment into practice will help physicians provide anticipatory guidance to parents and families.[7] Unfortunately, physicians are often met with barriers in obesity prevention among children (e.g., limited hours to provide lifestyle guidance or lack of knowledge in physical activity).[4] Primary care providers need resources and support for the surveillance of obesity predictors in early childhood.[4,6] However, inconsistencies remain as to which are the best approaches for this type of assessment, thus highlighting the need for evidence-based preventative strategies.[6]

Acknowledging this research gap, a Canadian primary care practice based research network (PCBRN) called TARGet Kids! is aiming to gather data that will inform evidence-based preventative interventions.[6] The PCBRN provides an outlet for knowledge translation with primary care providers, researchers, and policy makers.[6] In comparison, international efforts such as the World Health Organization's

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(WHO) Global Strategy on Diet, Physical Activity and Health aim to establish a framework that examines how behaviour change is impacted by supportive environments, policies, and programs.[1] Furthermore, WHO also acknowledges that effective obesity prevention efforts must have input from multiple stakeholders.[1]

Strengthening Prevention Through Primary Health Care

Primary health care embodies various aspects of primary care (i.e., episodic or comprehensive care), public health, and health policy.[9] Additionally, it is important to recognize that primary health care extends beyond the health care system and encourages intersectoral collaboration and community involvement.[10] To effectively address the health determinants influencing childhood obesity, collaborative efforts between primary care providers, various sectors (e.g., schools), and governments are crucial.[4,6,9] Furthermore, improvements in the translation of research are required in order for primary care providers to translate these joint efforts into practice, thereby enhancing prevention methods.

Conclusion

The use of primary health care as a method for childhood obesity prevention is not currently being utilized to its full potential.[6] Promoting increased PA appears to be a viable method of obesity prevention, given that lifestyle behaviours are more amenable to change at a young age.[5] Therefore, establishing collaborative partnerships in primary health care will foster the development of efficacious prevention and surveillance strategies targeting the rising rates of obesity among children. ■

References

1. World Health Organization. Population-based prevention strategies for childhood obesity: Report of the WHO forum and technical meeting. Geneva, Switzerland: World Health Organization; 2010.
2. Goran MI, Reynolds KD, Lindquist CH. Role of physical activity in the prevention of obesity in children. Int J Obes. 1999; 23(Suppl 3):S18–S33.
3. Olstad DL, McCargar L. Prevention of overweight and obesity in children under the age of 6 years. Appl Physiol Nutr Metab. 2009;34:551–70.
4. Lau DCW, Douketis JD, Morrison KM, Hramiak IM, Sharma AM, Ur E. 2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children [summary]. Can Med Assoc J. 2007;176(8 Suppl):S1–13.
5. Goldfield GS, Harvey A, Grattan K, Adamo KB. Physical activity promotion in the preschool years: a critical period to intervene. Int J Environ Res Public Health. 2012;9:1326–42.
6. Morinis J, Maguire J, Khovratovich M, McCrindle BW, Parkin PC, Birken CS. Paediatric obesity research in early childhood and the primary care setting: The TARGet Kids! research network. Int J Environ Res Public Health. 2012 Apr;9(4):1343–54.
7. Krebs NF, Baker Jr. RD, Greer FR, Heyman MB, Jaksic T, Lifshitz F, et al. Prevention of pediatric overweight and obesity. Pediatrics. 2003;112(2):424–30.
8. Tucker P, Irwin JD, Sangster Bouck LM, He M, Pollett G. Preventing paediatric obesity; Recommendations from a community-based qualitative investigation. Obes Rev. 2006;7(3):251–60.
9. Martin-Misener R, Valaitis R, Wong ST, Macdonald M, Meagher-Stewart D, Kaczorowski J, et al. A scoping literature review of collaboration between primary care and public health. Prim Health Care Res Dev. 2012;13(4):327–46.
10. Walley J, Lawn JE, Tinker A, de Francisco A, Chopra M, Rudan I, et al. Primary health care: Making Alma-Ata a reality. Lancet. 2008;372(9642):1001–7.

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Preventing chronic disease and mortality among primary care patients with mental disorders

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Primary care goals and challenges

Primary care practices represent the first point of entry into the health care system, and offer services in disease prevention, health promotion, health maintenance, diagnosis and treatment of acute and chronic conditions.[1] The need to receive quality comprehensive and continued care may be especially important for patients with a multitude of comorbid chronic conditions. In particular, managing mental illness represents a difficult public health challenge given its association with additional chronic diseases and excess mortality. For instance, people with depression have been shown to have an excess rate of mortality due to cardiovascular disease, cerebrovascular disease, respiratory diseases, endocrine and metabolic diseases and accidents or intoxications.[2] Since individuals experiencing symptoms of mental illness often first seek treatment in primary care, these practices offer an ideal venue for implementing strategies to prevent or reduce the burden of chronic diseases and premature mortality among patients with mental disorders.[3] Yet, barriers to the monitoring and management of patients with mental disorders and comorbid physical conditions, such as a tendency to focus solely on treating mental rather than physical health concerns may be contributing to the large gap that exists in the coordination of physical and mental health care today.[4,5]

Strategies to prevent chronic disease and mortality in patients with mental disorders

While there are many risk factors and causes of morbidity and mortality that could be targeted for prevention, the question of course is what can be done and where should efforts begin? From a primary care and public health standpoint, perhaps the most important risk factors to target are the ones that can be considered modifiable. The importance of being able to identify a modifiable risk factor lies in being able to exert control over a risk factor, which should thereby result in a reduction of the risk of chronic disease or mortality. Mental illness is often thought to be associated with a detrimental lifestyle and risky behaviours,[6] which can theoretically be changed. Strategies targeting modifiable risk factors that have been shown to be associated with mental disorders such as (but not limited to) smoking,[7] alcohol misuse[8] and obesity [9] are likely to align well with the goals of primary care in terms of improving the overall health of the patient.

Concurrently, it is imperative to consider the timing and context in delivering lifestyle-based interventions relative to the course of the mental illness. For instance, some patients with acute mental disturbances may need to be stabilized first before embarking on interventions aimed at quitting smoking, reducing alcohol consumption and attempting to lose weight. Though there exists some evidence to date that interventions targeting modifiable risk factors may be effective among patients with mental disorders, concerns have been raised regarding the sustainability of these effects. One factor that may compromise intervention efforts by primary care providers is that risk factors for chronic disease and mortality among patients with mental disorders (e.g. smoking, alcohol misuse and obesity) are closely tied to a patient's social network, thus rendering these unhealthy behaviours self-perpetuating.[6] In primary care patients without mental disorders, smoking cessation can be difficult to achieve and maintain, thus one would expect that these challenges be further amplified in the context of patients with mental disorders who have a host of other risk factors and chronic diseases simultaneously. One potential strategy may be to prevent chronic disease by first identifying people with mental disorders in primary care and maintain a focus on stabilizing the mental disorder first before shifting efforts to continuing care, which may be necessary in order to tackle complex lifestyle changes. ▶

In doing so, this could help to make these patients more similar to the general population, which may be less challenging to treat by primary care providers in the long run. With the expectation that eventually once or if a mental disorder is successfully treated, the strategies based on modifiable lifestyle risk factors would continue to offer benefits to the overall health of the patient (i.e. both physical and mental health) in terms of reduced risk of developing chronic diseases and premature mortality.

Future directions

This commentary aimed to shed light on some lifestyle-based strategies (e.g. smoking cessation, alcohol reduction, and weight-loss) for reducing chronic disease and excess mortality among patients with mental disorders in primary care. Additional considerations for primary care providers may entail decisions on when to initiate these strategies along the course of mental illness, by balancing the need to stabilize mental conditions as well as managing physical health. Future primary care research is needed to determine the long-term impact of the proposed strategies on mortality among patients with mental disorders that may help to bridge the gap between physical and mental health. ■

References

1. Canada H. About primary health care [internet]. 2012 [updated 2012 Aug 23; cited 2014 Apr 25]. Available from: http://www.hc-sc.gc.ca/hcs-sss/prim/about-apropos-eng.php.
2. Laursen TM, Munk-Olsen T, Nordentoft M, Mortensen PB. Increased mortality among patients admitted with major psychiatric disorders: A register-based study comparing mortality in unipolar depressive disorder, bipolar affective disorder, schizoaffective disorder, and schizophrenia. J Clin Psychiat. 2007;68(6):899-907.
3. Reilly S, Planner C, Hann M, Reeves D, Nazareth I, Lester H. The role of primary care in service provision for people with severe mental illness in the United Kingdom. PLoS ONE. 2012;7(5):e36468.
4. De Hert M, Cohen DAN, Bobes J, Cetkovich-Bakmas M, Leucht S, Ndetei DM, et al. Physical illness in patients with severe mental disorders. II. Barriers to care, monitoring and treatment guidelines, plus recommendations at the system and individual level. World Psychiatry. 2011;10(2):138-51.
5. Colton CW, Manderscheid RW. Congruencies in increased mortality rates, years of potential life lost, and causes of death among public mental health clients in eight states. Preventing chronic disease. 2006;3(2):A42.
6. Druss BG, Bornemann TH. Improving health and health care for persons with serious mental illness: The window for us federal policy change. JAMA. 2010;303(19):1972-3.
7. Brown S, Kim M, Mitchell C, Inskip H. Twenty-five year mortality of a community cohort with schizophrenia. Brit J Psychiat. 2010;196(2):116-21.
8. Pompili M, Serafini G, Innamorati M, Dominici G, Ferracuti S, Kotzalidis GD, et al. Suicidal behavior and alcohol abuse. Int J Environ Res Public Health. 2010;7(4):1392-431.
9. Daumit GL, Dickerson FB, Wang NY, Dalcin A, Jerome GJ, Anderson CA, et al. A behavioral weight-loss intervention in persons with serious mental illness. NEJM. 2013;368(17):1594-602.

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Gluten intolerance: Changing the face of public health

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Improvements in scientific and clinical research have advanced the efficacy of public health in recent decades, creating a more effective and integrated health care system. Much of this is rooted in the collaboration of separate, but related, fields that amalgamate ideas and results to create a holistic understanding of what contributes to a healthy population. Paradoxically, recent scientific advances have also introduced an abundance of health-related issues to Western society, with gluten intolerance being one that has mysterious roots and an ominous forecast.[1,2]

Dietary sensitivity to gluten, found in wheat and other grains, has become five times more prevalent since 1974.[3] For individuals afflicted with Celiac disease, a severe form of gluten intolerance, gluten in the bloodstream triggers an immune response that damages the villi lining of the small intestine, causing inflammation and malabsorption.[2,4] Varying levels of gluten intolerance have been reported to lead to vitamin deficiencies, anemia, osteoporosis, gastrointestinal distress, skin rashes, depression, fatigue, and, in extreme cases, cancer and early death.[1,2] High degrees of comorbidity also exist between Celiac disease and diabetes, thyroiditis, multiple sclerosis, autism, neuropathic pain, schizophrenia, ADHD, infertility, and seizures.[2,4]

For many years, the origins of Celiac disease were unclear. Recently, genetically modified organisms (GMOs) have consistently been identified as an environmental trigger for varying levels of gluten intolerance, and this may be contributing to the celiac disease epidemic.[2,5,6] GMOs are foods which are engineered to thrive in varied conditions by tolerating glyphosate, a commonly used weed killer, and by producing the insecticide Bt-toxin.[2,5,7,8] Wheat itself is not a GMO, but has been hybridized over the years to produce a superior plant with a high yield. Nine GMOs currently exist, including soy, corn, cotton (oil), canola (oil), sugar (from sugar beets), zucchini, yellow squash, Hawaiian papaya, and alfalfa.[2]

Glyphosate, the active ingredient in the commercial herbicide Roundup™, is an antibiotic that targets and destroys gut bacteria in insects.[5] The speculation is that it may do the same to humans, creating an imbalance of gut flora associated with Celiac disease. Similarly, Bt-toxin, found in corn and soy, is designed to puncture holes in insect cells, and has been shown to trigger immune responses in mice[6] and humans.[7,8] Together, these factors likely contribute to the characteristic leaky gut, compromised digestive activity, and hyperactive immune system associated with Celiac disease.[9] It can therefore be argued that the introduction of GMOs has directly initiated an increase in gluten intolerance and a parallel increase in the number of cases of associated diseases and conditions for the health care industry to treat.

Taken together, this evidence suggests that the immune system has changed over the years in response to gluten, and there is hope that science can further modify that response. Future therapies focus on individualized treatment for patients living with Celiac disease.[10] In Australia, Nexpep Pty. Ltd. has experimented with vaccine therapy, which has proven to be successful in mice, and has advanced to clinical trials. In the early stages, 40 patients with Celiac disease were injected with increasing doses of the protein found in gluten with the intention of increasing tolerance and ultimately eliminating gluten sensitivity. Evaluation will include examination of immune response and levels of intestinal distress, and prolonged treatment will ideally eliminate the adverse response to gluten.[10]

Understanding the relationship between GMOs and the immune response to gluten will be undoubtedly useful in generating therapies for individual patients with Celiac disease and gluten intolerance. However, the ultimate focus should be on prevention for future generations. Conventional methods of health care dictate that those who are sick should be treated. Perhaps it is time to

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challenge this dogma and boldly attempt to prevent illness before it materializes.

Overall health is complex and extends beyond traditional medicine; diet and lifestyle choices play a role in immune function and general wellbeing. Progressive approaches to preventing illnesses like Celiac disease, including healthy eating habits, sensible lifestyle choices, and taking initiative to learn about the foods that we eat can and should be adopted. To this end, collaborative efforts must extend beyond the fields of scientific research and medical care, to include the agriculture, lifestyle, and fitness industries. Until more is conclusively known of GMOs, people should choose to avoid consuming these mysterious hybrids and think critically about how we truly are what we eat. If we choose to eat foods that have been unnaturally modified, it is reasonable to consider the possibility that our bodies may consequently be modified. ■

References

1. Rubio-Tapia A, Kyle RA, Kaplan EL, Johnson DR, Page W, Erdtmann F, et al. Increased prevalence and mortality in undiagnosed celiac disease. Gastroenterol. 2009; 137(1):88-93.
2. Fasano AL. Systemic autoimmune disorders in celiac disease. Curr Opin Gastroenterol. 2006; 22(6):674-9.
3. Catassi C, Kryszak D, Bhatti B, Sturgeon C, Helzlsouer K, Clipp SL, et al. Natural history of celiac disease autoimmunity in a USA cohort followed since 1974. Ann Med. 2010; 42(7):530-8.
4. Pelkowski TD, Viera AJ. Celiac disease: Diagnosis and management. Am Fam Physician. 2014; 89(2):99-105.
5. Franz JE, Mao MK, Sikorski JA. Glyphosate: A unique global herbicide. Washington, D.C.: American Chemical Society; 1997.
6. Arranz E, Bode J, Kingstone K, Ferguson A. Intestinal antibody pattern of coeliac disease: Association with gamma/delta T cell receptor expression by intraepithelial lymphocytes, and other indices of potential coeliac disease. Gut. 1994; 35(4):476-82.
7. Bernstein IL, Bernstein JA, Miller M, Tierzieva S, Bernstein DI, Lummus Z, et al. Immune responses in farm workers after exposure to Bacillus thuringiensis pesticides. Environ Health Perspect. 1999; 107(7):575-82.
8. Mesnage R, Clair E, Gress S, Then C, Székács A, Séralini GE. Cytotoxicity on human cells of Cry1Ab and Cry1Ac Bt insecticidal toxins alone or with a glyphosate-based herbicide. J Appl Toxicol. 2013; 33(7):695-9.
9. Vázquez-Padrón RI, Moreno-Fierros L, Neri-Bazán L, Martínez-Gil AF, de-la-Riva GA, López-Revilla R. Characterization of the mucosal and systemic immune response induced by Cry1Ac protein from Bacillus thuringiensis HD 73 in mice. Braz J Med Biol Res. 2000; 33(2):147-55.
10. Tye-Din JA, Stewart JA, Dromey JA, Beissbarth T, van Heel DA, Tatham A, et al. Comprehensive, quantitative mapping of T cell epitopes in gluten in celiac disease. Sci Transl Med. 2010; 2(41):41-51.

Tanya Raaphorst

Tanya Raaphorst completed her Master of Science in Behavioural Neuroscience at Wilfrid Laurier University. Her thesis focused on the pharmacological effects of chronic nicotine on the behavioural and biochemical response to acute THC. She is currently working at Mount Sinai Hospital where she runs the Histology Suite in the Laboratory for Musculoskeletal Research, and is a PhD candidate in Medical Sciences at McMaster University. Outside of the lab, Tanya is an avid yogi, strives for a healthy, active lifestyle, and enjoys travel.

Coping through coaching: Co-active life coaching as a method for stress and anxiety management

Rebecca Fried

University of Western Ontario

Stress, Anxiety, and Family Physicians

Family physicians (FPs) are often the first point of contact for health-related issues. With respect to mental illness, which is inclusive of stress and anxiety, FPs often serve as a conduit and refer patients to other specialists. Approximately 20% of Canadians are impacted by mental illness in their lifetime.[1] Thus, it is vital for FPs to be familiar with a variety of management options. In 2011, 23.6% of Canadians aged 15 and older reported feeling most of their days were extremely or quite a bit stressful.[2] Anxiety affects 5% of the population, causing mild to severe impairment in daily life.[1] Furthermore, fewer than 33% of individuals receive sufficient help.[3] These statistics are clear indicators that stress and anxiety (hereafter referred to as stress/anxiety) are a concern. As a result, an approach that could help FPs support patients is Motivational Interviewing via Co-Active Life Coaching (MI-via-CALC).

MI-via-CALC: Defined and Described

MI-via-CALC provides a platform to manage stress/anxiety on an individual basis. MI-via-CALC is an approach in which the coach and client operate as a team, in service of the client identifying goals and actions toward making behaviour changes.[4,5] Stress/anxiety is the result of how an individual reacts to stressors; and research suggests that individuals suffering from stress/anxiety are often ambivalent toward change and feel uncomfortable in changing familiar behaviours (i.e. habitual stress responses).[6] The components of MI-via-CALC help clients to feel empowered and capable of making behaviour changes. A cornerstone of MI-via-CALC is to hold the client *naturally creative, resourceful, and whole*, as opposed to being incapable of change.[4,5] A positive attribute of the model is that it encompasses a client's *whole life*, appreciating that one aspect of life may impact others.[4,5] For instance, an upsetting argument may also impact the individual's exercise choices, which in turn can further impact his/her stress experience. MI-via-CALC focuses on 'where is the person now, and where does he/she want to be.' It does not explore the past to understand a client's current situation.[4,5] MI-via-CALC is often done over-the-phone, at a mutually convenient time for the coach and client. This is an important feature of MI-via-CALC, as individuals who perceived their mental health needs were unmet reported the reason was due to personal circumstances, such as being too busy.[7] Other positive elements are *balance* and *perspectives*.[4,5] *Balance* is a coaching tool that emphasizes that the client always has a choice in how he/she acts.[4,5] *Perspectives* refer to looking at a situation from multiple viewpoints.[4,5] FPs should consider this technique for stress/anxiety, as it permits treatment to be tailored to an individual's needs.

Research Findings

There is limited research supporting MI-via-CALC for stress/anxiety. However, findings from other studies suggest this approach is a viable option for stress/anxiety. MI-via-CALC interventions for smoking cessation and obesity have demonstrated promising results with participants able to reduce smoking rates and waist circumference, respectively.[8,9] Participants from both studies, albeit rather different, noted through interviews that their levels of stress had been reduced due to the coaching.[8,9] Quantitatively, this reduction in stress levels was consistent with increases in the participants' levels of self-efficacy and self-esteem.[8,9] Currently, research is being conducted observing the impact of MI-via-CALC on university students suffering from stress. Studies are also being conducted in the field of neuroscience to comprehend coaching's effect on the brain, which is crucial to understanding how coaching affects mental health.[10] Research to date has provided an evidence base supporting MI-via-CALC as a management option that FPs can recommend to their patients. ▶

The Other Side: Limitations

There are several limitations surrounding MI-via-CALC. Hiring a coach may be expensive with sessions costing hundreds, and sometimes thousands, of dollars. Coaching is not a regulated profession and fees are not consistent. Coaches may charge what they desire, potentially causing financial strain for those seeking a coach. MI-via-CALC is a unique approach, and coaches must be rigorously trained and certified with CALC skills. There are many coaches who claim to provide health and wellness coaching similar to MI-via-CALC, but lack sufficient training. Due to limited research, coaching may not be suitable for more severe forms of mental illness. Thus, FPs need to ensure that patients are referred to highly trained coaches, and coaches that are able to work out a financial arrangement with the client.

Conclusion

MI-via-CALC is a promising intervention for stress/anxiety management. This approach contains many components intended to address patients on an individual basis; this is crucial, considering the individualistic nature of stress/ anxiety. Based on previous and emerging research, there is evidence to support MI-via-CALC as a worthy method of addressing stress/ anxiety. Thus, FPs should suggest MI-via-CALC as a management option for patients. ■

References

1. Canadian Mental Health Association. Fast facts about mental illness [Internet]. Canada: Canadian Mental Health Association; 2014 [updated 2014; cited 2014 Mar 13]. Available from: http://www.cmha.ca/mental_health/what-is-mental-illness/#.Ut8FIHn0CX0
2. Statistics Canada. Perceived life stress [Internet]. Canada: Government of Canada; 2011 [updated 2013 Dec 11; cited 2014 Jan 13]. Available from: http://www.statcan.gc.ca/pub/82-625-x/2012001/article/11666-eng.htm
3. Sunderland A, Findlay LC. Perceived need for mental health care in Canada: Results from the 2012 Canadian Community Health Survey – Mental Health. Health Reports. 2013;24(9):3-9.
4. Kimsey-House H, Kimsey-House K, Sandahl P, Whitworth, L. Co-active coaching: Changing business, transforming lives. Third edition. Boston: Nicholas Brealey Publishing; 2011.
5. Irwin, JD, Morrow, D. Health promotion theory in practice: An analysis of co-active coaching. International Journal of Evidence Based Coaching and Mentoring. 2005;3(1):29-38.
6. Westra HA. Motivational interviewing in the treatment of anxiety. New York: The Guilford Press; 2012.
7. Statistics Canada. Canadian community health survey: Mental health, 2012 [Internet]. Canada: Government of Canada; 2013 [updated 2013 Sep 18; cited 2014 Jan 13]. Available from: http://www.statcan.gc.ca/daily-quotidien/130918/dq130918a-eng.htm
8. Mantler T, Irwin JD, Morrow D. Assessing motivational interviewing through co-active life coaching tools as a smoking cessation intervention: A demonstration study. International Journal of Evidence Based Coaching and Mentoring. 2010;8(2):49-63.
9. Newnham-Kanas C, Irwin JD, Morrow D. Co-Active life coaching as a treatment for adults with obesity. International Journal of Evidence Based Coaching and Mentoring. 2008;6(2):1-12.
10. Rock D, Page L. Coaching with the brain in mind. Hoboken: John Wiley & Sons, Inc; 2009.

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Nurse-practitioner-led models and their influence on primary care provision for Canada

Ndolo Njie-Mokonya

University of Ottawa

With increasing numbers of Canadians requiring diverse health care services for their varying needs,[1,2] it is vital that differing models of primary care delivery are explored. The nurse practitioner-led clinic (NPLC) model, currently funded by the Ontario Ministry of Health and Long-Term Care, is one delivery strategy Ontario is evaluating to reduce health disparities for residents by improving access to primary health care.[3,4] The NPLC model tends to be located in rural/remote and inner-city communities due to difficulties recruiting physicians to these areas of the province.[5] Its use has improved patient outcomes and enhanced the overall health status and well-being of clients utilizing its services.[6,7]

The NPLC model adopts a patient-centered approach to care based on the nursing paradigm and with an emphasis on health information technology,[8] health promotion, disease prevention and chronic illness management.[3,9] For instance, a nurse-led healthy heart initiative based out of McGill University Health Centre has led to improvements in identifying women at risk of heart disease by focusing on lifestyle education and chronic disease management.[10] Early detection through preventative healthy heart information, extended education and consultations has helped the region to identify women with previously undiagnosed or inadequate treatment of cardiovascular disease.

The purpose of this commentary is to describe data collected for a graduate course practicum that looked at the NPLC model and its impact on access to primary care within the province of Ontario. Inquiry was guided by the question: "How is access to primary care impacted by nurse practitioners (NPs) through the NPLC model?" Findings were collected from qualitative interviews with four NPs who worked in the NPLC model in several rural communities in Ontario.

Findings of the NPLC Model

Data was collected through semi-structured telephone interviews with four (4) NPs who worked within the NPLC serving areas of Waterloo, Sudbury, Colchester, Essex and other areas of Northern Toronto. Due to the lack of primary care providers in some remote and rural areas of Canada, in part due to a lack of or closing down of physician practices,[5] residents of these communities may have gone for long periods of time without consulting a primary care provider. As a result, they were more likely to have been without follow-up treatment services, screening for various illnesses such as colorectal or breast cancer, and management and support of chronic conditions such as diabetes, hypertension, and heart failure. Unique to one NPLC model was a primary care outreach service to patients in palliative conditions and those requiring mental health management, due to their inability to access the NPLC centers where they were registered. Two main findings emerged from these interviews: 1) the lack of a primary care provider and 2) the scope of practice restrictions/service provision.

Lack of primary care providers

Interviews with one NP indicated that patients experienced a higher incidence of chronic conditions, directly related to the lack of routine monitoring and treatment by a primary care physician. She stated that "there are escalating chronic illness conditions as a result of patients being unattached to a primary care provider." A second NP described a lack of support for chronic illness management, reporting "a lack of mental health support, leadership and chronic illness management for patients particularly within rural and remote communities". ▶

Scope of practice restrictions/service provision

All NPs reported working within their full scope of practice including chronic illness management and supportive services. For example, when describing the challenges with chronic illness management, one NP noted that "some patients can't stay in their homes related to chronic illness care; others need support managing comorbid chronic conditions." A description of daily practices ranged from tasks such as assessing patients to performing follow-ups, setting up and facilitating various health workshops, screening, as well as performing clinical duties, teaching, and counselling. Some of the NPs reported clerical duties due to a lack of appropriate administrative staff, or an inability to replace other specialized staff members (e.g. a dietician on sick leave) as well as the lack of educational support. NPs within the NPLC model encountered challenges with ordering specialized tests and procedures. For example, one NP stated that "diagnostic tests have to be put under a physician's name, the results go to other areas, and we have to call hospitals for these results." This restriction impedes the NPs' ability to provide primary care in an organized, timely manner. Further, they disrupt communication and professional trust between NPs and their patients.

Conclusion

The NPLC model is likely to improve access to primary care services for all communities, but its impact is yet to be evaluated in relation to its financial impact upon the health care system. Findings suggest the NPLC model has improved access to primary care services in categories such as clinical, follow-up, counselling, disease management and supportive services, which can contribute to patients and families living healthier lives and making better health-facilitative decisions. Thus, it appears that the negative health and financial effects on individuals who do not have an attached primary care provider can be diminished within remote, rural and inner city communities. More case studies in conjunction with qualitative studies evaluating the effectiveness of the NPLC model on improving primary care access and patient outcomes are required. ■

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References

1. Health Canada. Canada's health care system.[Internet]. Ottawa: Government of Canada; 2011 [updated 2012 October 9; cited 2014 Mar 21]. Available from: http://www.hc-sc.gc/hcc-sss/pubs/system-regime/2011-hcs-sss/index-eng.php.
2. Murphy TG, Birch G, Mackenzie A. Needs-based Health Human Resource Planning: the challenge of linking needs to provider requirements. [Internet]. Ottawa/Ontario: Canadian Nurses Association/Canadian Medical Association; 2007 [date updated unknown; cited 2012 Mar 12]. ,.
3. Health Council of Canada. Nurse Practitioner-Led Clinics: Reforming Health Care with Inter-professional Teams. [Internet]. Ontario: Ministry of Health and Long-Term Care; 2013 [updated 2013 Apr 17; cited 2012 Mar 12] Available from: http://www.innovation.healthcouncilcanada.ca
4. Nurse Practitioner Association of Ontario (NPAO). Nurse practitioner-led clinics [Internet]. Ontario: Ministry of Health and Long-Term Care; 2013 [updated 2011; cited 2014 Mar 21] Available from: http://www.npao.org/nurse-practitioners/clinics/
5. Wong RW, Pitblado JR. Geographical Distribution of Physicians in Canada: Beyond How Many and Where. [Internet]. Ottawa: Canadian Institute for Health Information (CIHI); 2005 [updated 2005; cited 2014 Mar 21].. Available from: http://www.cihi.ca
6. Russel G, Dabrouge S, Hogg W, Geneau R, Muldon L, Tuna M. Managing chronic disease in Ontario primary care: the impact of organizational factors. Annals of Fam Med. 2009; 7(4):309-318.
7. Litaker D, Mion LC, Planavsky L, Kippes C, Mehta N, Frolkis J. Physician-nurse practitioner teams in chronic disease management: the impact on costs, clinical effectiveness, and patients' perception of care. Jour of Interprof care. 2003; 17(3): 223-237.
8. Bourdeau J, Julien M, Maltais F,Rouleau M, Beaupre A, Begin R, et al. Reduction of hospital utilization in patients with chronic obstructive pulmonary disease: a disease-specific self-management intervention. Arch of Internal Med. 2003; 163: 585-591.
9. Canadain Nurses Association (CNA). The Nurse Practitioner: Position Statement. [Internet]. Ottawa: CNA; 2003 [updated 2009; cited 2014 Mar 21].
10. Wray W. The women's healthy heart clinic. Can Nurse. 2010; 106:1.

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Advancing research in primary care: A graduate program in family medicine

Maedeh Khayyat Kholghi and Gillian Bartlett

McGill University

Research in Family Medicine

Family physicians are responsible for delivering effective, patient-centered and equitable care to patients by addressing prevention, management and treatment of health conditions.[1] The broad spectrum of biological, psychological, social, ethical and spiritual issues targeted by family medicine makes primary care an astonishing and complex field.

Primary care research has been suggested as a critical component in the development of high quality evidence-based health care.[2] It is known that family medicine research strengthens the knowledge base in primary care, and contributes to the improvement of the health care system, as well as the betterment of medical care.[3] Nevertheless, the advancement of research in primary care and family medicine has been a slow process, possibly due to limited resources, insufficient research training, and lack of interest by family physicians in conducting research.[4]

For research to have a direct impact on the practice of family medicine, the leadership of family physicians with both practice and research skills is crucial.[3] In order to promote research advancement in family medicine and engage family physicians in conducting research, there is a need to develop training programs specialized in family medicine research.

Masters in Family Medicine

To address some of the training needs required to conduct rigorous research in family medicine, a research-oriented thesis-based Masters (MSc) program in family medicine has been established at McGill University. Their mission is to advance the field of family medicine through the production of new knowledge, and to provide the evidence necessary to underpin high quality clinical care in family practice.[6] This program is one of the few of its kind in North America that is designed specifically to improve the skills necessary to carry out research pertinent to the practice of family medicine.[5] On average approximately 10 students are enrolled per year, and these candidates include practicing family physicians, residents, medical graduates, and undergraduate university students with a strong interest in family medicine. Courses on different research approaches and methodologies are offered during the first year of training. In the second year, the focus is primarily on conducting a research project and writing a thesis. Research projects are clinically based and/or address issues pertinent to non-clinical aspects of primary care including primary prevention programs. Studies take place at family medicine sites and family physicians are either the lead or heavily involved in projects. Upon graduation, candidates can pursue careers as clinician scientists, family medicine research managers, or further their graduate training with a PhD in Family Medicine.

Specifications of the Graduate Program

In 2004, the World Organization of Family Doctors (WONCA) published a set of recommendations to address the gap in family medicine research.[1] The MSc program at McGill has addressed these recommendations, some of which are described below.

Interdisciplinary

Research in family medicine, apart from covering issues related to best practices and clinical uncertainties, also includes the broader context of patient care, the biopsychosocial reality of patients, and the socioeconomic and cultural determinants of health.[1,7,8] The interdisciplinary nature of family medicine requires understanding of various disciplines and research methodologies. The MSc program recognizes the importance of crossing conventional ▶

boundaries of disciplines and provides training in epidemiology, statistics, health policy, sociology, and ethnography. It also focuses on teaching different types of research methodologies including qualitative, quantitative, and mixed methods.

Participatory Approach

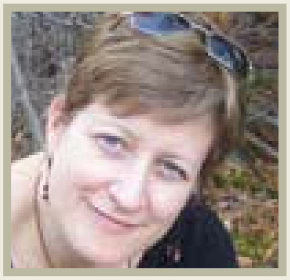
Participatory action research is defined as a systematic investigation with the collaboration of communities affected by the issues under study, for the purpose of taking action and implementing social change.[9] This approach has been recommended as an effective way to engage family physicians directly in the research needs of their community.[9] Participatory Research At McGill (PRAM), in partnership with the MSc program, offers courses and monthly seminars on participatory action research and its impact, as to encourage adoption of this approach for addressing important health issues.

Dissemination

An essential aspect of capacity building is to transfer knowledge and share information on a wider platform.[10] Participating in primary care conferences allows family physicians to freely exchange ideas, adapt new research findings, and discuss questions and challenges encountered in family medicine. The MSc program strongly encourages its candidates to showcase their research projects at international and national primary care conferences; this provides a basis for improving the relationship between family medicine researchers and the wider scientific community. It further offers evidence-based knowledge to physicians, which will ultimately improve family medicine practice.

Conclusion

Addressing research questions pertinent to clinical practice is necessary to improve patient care. In order to increase recognition of value in primary care research among primary care physicians, there is a need for research-training programs focused specifically on family medicine. The McGill graduate research program in family medicine is an excellent model that links the gap between research development and clinical practice, builds capacity for family physicians, and prepares clinical scientists to conduct rigorous research in the discipline of family medicine. ■



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Gillian Bartlett, PhD, is the Research Director of the Department of Family Medicine at McGill University. Dr. Bartlett specializes in optimizing quality and safety of patient care. Her research involves health informatics, pharmacoepidemiology, population health and evaluation methodologies for complex data sets in primary care. Her current focus is on the role of health informatics, knowledge translation and genomic medicine on patient safety in family medicine.

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Maedeh Khayyat Kholghi completed her MSc degree in Family Medicine from McGill University. Her research was focused on evaluating a diabetes prevention program in an Aboriginal Community. She explored the barriers and facilitators of this program using a community-based participatory research approach. Maedeh also holds a BSc in Physiology from McGill University and will be pursuing her medical degree at Marian University in Indianapolis in the hopes of becoming a clinician scholar.

References

1. Van Weel C, Rosser WW. Improving health care globally: A critical review of the necessity of family medicine research and recommendations to build research capacity. Ann Fam Med. 2004; 2(2): S5-S16.
2. Rosser WW, Van Weel C. Research in family/general practice is essential for improving health globally. Ann Fam Med.2004; 2(2):S2-S4.
3. Van Weel C. The impact of research in primary care and family medicine: the Thomson Reuters Web of Science Subject Category 'Primary Health Care'. Fam Pract. 2011; 28 (3): 239-40.
4. Askew DA, Glasziou PP, Del Mar CB. Research output of Australian general practice: A comparison with medicine, surgery and public health. Med J Aust. 2001; 175(2): 77-80.
5. Bartlett G, Rodriguez C, Boillat M. Encompassing research plurality: A family medicine graduate programme. Med Educ.2012; 46(11): 1115-6.
6. Graduate Programs. McGill University: Family Medicine; 2014 [Cited 2014 January 30] Available from: http://www.mcgill.ca/familymed/research-grad/graduate-programs.
7. De Maeseneer JM, Van Driel ML, Green LA, Van Weel C. The need for research in primary care. Lancet. 2003; 362(9392): 1314-9.
8. Van Weel C. Examination of context of medicine. Lancet. 2001; 357(9258): 733-4.
9. Macaulay AC, Commanda LE, Freeman WL, Gibson N, McCabe ML, Robbins CM, et al. Participatory research maximises community and lay involvement. BMJ.1999; 319(7212): 774-8.
10. Hay AD, Rortveit G, Purdy S, Adams J, Sanci LA, Schermer TR et al. Primary care research-an international responsibility. Fam Pract. 2012; 29(5): 499-500.

Post-discharge telephone calls: Improving the communication gap between patients, families and healthcare providers

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Patient-centred care

The concept of patient-centred care (PCC) is not new, having been introduced over 50 years ago in response to the biomedical model of care. The biomedical model of care focused on disease and failed to encompass the whole person's experiences, omitting psychological and social components of disease.[1] Traditionally, doctors were regarded as dominant and able to decide what was in the patient's best interest; however, in recent years, healthcare has moved towards an informed model of care where patients act as partners and are provided with relevant information to make informed decisions.[1]

The participation of patients in the care process has important benefits for patients, families, communities, and hospital organizations.[2,3] Patients who participate in their own care are more likely to adhere to and respond better to their treatment regimens,[4,5] maintain a relationship with a specific healthcare provider.[2,4,5] and follow the healthcare provider's advice.[2,3] This can improve health outcomes, leading to such things as better diagnosis and treatment results, fewer complications, and a decrease in frequency of hospitalization and length of stay.[2,3,5]

PCC encompasses a variety of interventions including but not limited to: patient-physician communication; pain management; discharge planning; engagement in decision-making; and the care environment.[2-7] Kennedy et al.[7] implemented rounding, post-discharge calls, and improved discharge instructions in a hospital setting. Through these interventions, the hospital saw an increase in overall quality of care ratings and satisfaction scores. The nurses, for instance, found that a number of patients did not understand their discharge instructions when they returned home, and the post-discharge calls were able to address the patients' concerns.[7] Research has demonstrated that post-discharge telephone calls are an excellent way to promote PCC and encourage patient-physician communication.[7, 8]

With a renewed focus on PCC and the participation of patients in the care process, patients are becoming more effective managers of their own care.[3] For this reason, having patients as partners in healthcare is becoming increasingly important for healthcare organizations.[3] and conducting post-discharge telephone calls will help to elevate the quality of care that patients receive even when they are discharged home.

Post-discharge telephone calls

The post-discharge period is a time of vulnerability and dissatisfaction for many patients, as patients and their families are re-adjusting to life outside of the hospital.[8] During this time, patients are expected to adhere to discharge instructions, which often include complex detailed medication routines and follow-up appointments.[8] This demand on patients is amplified by the physical and emotional stress of recovery, along with the stress of transitioning home.[8] In a recent study, nearly a quarter of general medical inpatients had one of three outcomes during the post-discharge period: they passed away; were re-admitted; or presented to the emergency department within 30 days.[9] The high re-admission rates were attributed to poor communication between patients and physicians during the discharge process.[9] Furthermore, during the post-discharge period, it has also been found that one in five patients experiences an adverse event, drug events being the most commonly cited.[10] That being said, post-discharge telephone calls are an excellent way to improve communication between the care provider and the patient. Follow-up calls are made from the healthcare provider to the patient 24 -72 hours after the patient is discharged from the hospital.[8] These calls are generally made by a nurse, and they have been reported to decrease re-admission rates, reduce adverse events, improve communication ▶

between the patient and the healthcare provider, and improve patient satisfaction.[8]

Knowledge exchange

Post-discharge telephone calls allow for knowledge exchange by increasing communication between the healthcare provider and the patient. These calls allow the patient to be at the front of their own care, ensuring that the patient has understood the discharge instructions through the use of the teach-back method.[2, 4-6, 8-10] For this reason, post-discharge telephone calls have a number of benefits including: improved patient satisfaction; a decreased number of patients who miss their follow-up appointments; and improved patient understanding and observance of discharge instructions.[2, 4, 8-10]

Unfortunately, research supports that only a fraction of discharged patients are reached through post-discharge calls for a number of reasons, including: no response from the patient; incorrect telephone number in the system; and competing interests in the hospital.[10] For this reason, it would be beneficial to hire staff or to use modified workers to run a post-discharge call program to ensure the maximum number of patients can be reached. Although there are competing interests, the extensive literature suggests that making the call to the patient is important due to the many benefits that these calls have to offer, including the opportunity for knowledge exchange.[2-7]

In conclusion, post-discharge telephone calls have important implications for PCC and knowledge exchange in the community. These calls show promise for improving outcomes in clinical areas, as they help confirm that discharge and medication instructions were understood, as well as remind the patient to follow up with their family physician. Having a process to connect with patients once discharged home from the hospital will lead to better outcomes for the patients and will also demonstrate the organization's focus on PCC. ■

References

1. Dawood M. Patient centred care: Lessons from the medical profession. Emergency Nursing. 2005; 13(1):22-7.
2. Greenslade JH, Jimmieson NL. Organizational factors impacting on patient satisfaction: A cross-sectional examination of service climate and linkages to nurses' efforts and performance. International Journal of Nursing Studies. 2011; 48(10);1188-98.
3. Tugwell PS, Santesso NA, O'Connor AM, Wilson AJ, Effective Consumer Investigative Group. Knowledge translation for effective consumers. Physical Therapy. 2007; 87(12):1728-38.
4. Collins K, Nicolson P, Browns I. Patient satisfaction in telemedicine. Health Informatics Journal. 2000; 6(2):81-5.
5. Hekkert KD, Cihangir S, Kleefstra SM, van den Berg B, Bertjin Kool RB. Patient satisfaction revisited: A multilevel approach. Journal of Social Science and Medicine. 2009; 69(1):68-75.
6. Welch SJ. Twenty years of patient satisfaction research applied to the emergency room department: A qualitative review. American Journal of Medical Quality. 2010; 25(1):64-72.
7. Kennedy B, Craig JB, Wetsel M, Reimels E, Wright J. Three nursing interventions' impact on HCAHPS scores. Journal of Nursing Care Quality. 2013; 28(4):327-34.
8. Dudas V, Bookwalter T, Kerr KM, Pantilat SZ. The impact of follow-up phone calls to patients after hospitalization. American Journal of Medicine. 2001; 111(9b):26S-30S.
9. Harrison PL, Hara PA, Pope JE, Young MC, Rula EY. The impact of postdischarge telephonic follow-up on hospital readmissions. Population Health Management. 2011; 14(1):27-32.
10. Willard M. Post discharge call programs: Improving satisfaction and safety. Patient Safety and Quality Healthcare. 2010; May-June:36-9.

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Erica completed her Bachelor of Public Health (Honours) degree at Brock University in St. Catharines, Ontario Canada, and is now pursuing her Master of Arts in Applied Health Sciences at Brock University. Her research focuses on health services, and policies in the hospital setting. More specifically, her thesis research draws attention to the operationalization of the Patient Declaration of Values in Ontario hospitals, as per the Excellent Care for All Act, in relation to practice and policy. Erica is the recipient of the Canadian Institutes of Health Research Master's Award, the Alice S. Hersh Student Scholarship and has received the Institute for Healthcare Improvement Conference Travel Grant. A large portion of her academic work focuses on quality improvement in healthcare, particularly with the Interprofessional Education for Quality Improvement Program (I-EQUIP), where she is a mentor for student quality improvement initiatives that are taking place throughout the health system in the Niagara Region.

A theoretical model to embrace physical activity counselling in primary care practice

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Introduction

Canadian guidelines for physical activity recommend 150 minutes of moderate physical activity every week in cycles lasting at least 10 minutes.[1] According to a state report, 85% of Canadians do not achieve the recommended guidelines for physical activity,[2] posing a great risk for obesity and chronic non-communicable diseases like cardiovascular disease, diabetes, osteoporosis and cancer. Physical activity counselling (PAC) is a proven means to promote physical activity,[3] for which a 10% increase could save up to $150 million per annum in direct healthcare related costs in Canada. Importantly, primary care providers are in a unique position to influence physical activity through healthy lifestyle recommendations. The purpose of this paper is to describe a theoretical model to understand how PAC can be implemented in the routine practice of primary care physicians.

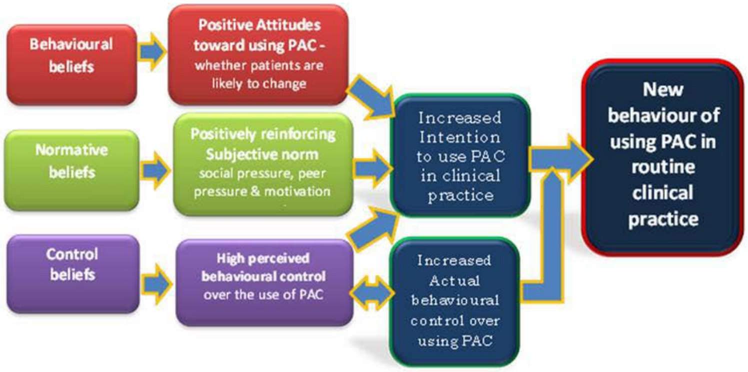

Figure 1. Theory of Planned Behaviour in implementation of PAC

On average, Canadians make approximately 16.2 million family physician visits every year,[4] and are the first point of contact with the health care system. As such this provides a convenient opportunity for physicians to deliver PAC, and effect a positive change over other healthcare providers. Delivering PAC in clinical practice is essential to improve level of fitness in patients who have suboptimal levels of physical activity, as most patients believe that primary care physicians are their source for preventive health information and recommendations.[5] However the amount of PAC delivered by primary care physicians to patients varies greatly.[6]

Physicians have identified multiple barriers to providing PAC, including a lack of time available to counsel during questions about whether it changes the behaviour of their clients, as well as discomfort in providing advice due to lack of training and little or no reimbursement for preventive measures.[7]

In order to understand how physician behaviour can be modified to use PAC in practice, theoretical models can be useful to clarify the internal processes involved in behavioural change. This can be particularly helpful for policy makers to ascertain how physician behaviour can adapt to embrace new policies or procedures.[8]

Theoretical model

A key model that can help policy and decision makers understand the process of implementing PAC in primary care practice is the '**Theory of Planned Behaviour**' (See Figure 1), which suggests that planning and preparation will facilitate the adoption of a specific behaviour.[9] The key elements of this theory are: a) **Behavioural beliefs**: These are individual beliefs about the consequence of a behaviour; ▶

b) **Normative beliefs**: These are individual perceptions of social pressures to perform a behaviour; c) **Control beliefs**: These are individual beliefs about the factors that facilitate or impede performance of a behaviour.[10] Behavioural beliefs affect attitudes towards a behaviour, normative beliefs lead to subjective norms and control beliefs result in perceived behavioural control. At the next level, when the attitude towards a behavioural belief and subjective norm is favourable along with a greater *perceived* control of the behaviour, intention to perform a behaviour increases greatly. An increase in perceived feeling of *actual* control over a behaviour along with a strong intention would result in action when the opportunity arises.[9]

Model for PAC implementation

In this model, the behavioural beliefs are whether primary care physicians deem administering PAC to patients to be effective in modifying patient behaviour. Physicians' behavioural beliefs vary on whether they think physical activity can affect health, or whether their clients are willing to initiate or improve their activity levels.[7] Normative beliefs can affect behaviours as physicians may be influenced by opinion leaders' attitudes about PAC and also organisational policies. Finally, control beliefs are the perceived beliefs regarding ability to implement PAC which might include decision-control, policy or environmental restrictions around PAC. A positive attitude towards PAC and its effects on patients' physical activity levels as well as subjective norms along with high perceived control over the implementation of PAC would increase the intentions of primary care physicians to embrace PAC. Consequently, when the right opportunities are presented to primary care physicians, such as a clinic visit by a patient who will benefit from PAC, or an amenable work environment, they will be more likely to embrace PAC in routine clinical practice.[8]

Final remarks

With so much of evidence to support the use of PAC in improving physical activity in patients, it is important for policy and decision makers to understand the need to work from the bottom-up, starting from the actual attitudes of physicians, subjective norms and perceived control over behaviour. This can be achieved by enacting laws and clinical guidelines alongside incentives to encourage this culture of incorporating PAC into routine clinical practice. ■

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References

1. Tremblay MS, Warburton DE, Janssen I, Paterson DH, Latimer AE, Rhodes RE, et al. New Canadian physical activity guidelines. Appl Physiol Nutr Metab. 2011 Feb;36(1):36-46; 47-58.
2. Katzmarzyk PT, Gledhill N, Shephard RJ. The economic burden of physical inactivity in Canada. CMAJ. 2000 Nov 28;163(11):1435-1440.
3. Katzmarzyk PT. The health economics of physical inactivity in Canada. 2011;4(March):30-31.
4. Canadian collaborative centre for physician resources. Family physician shortage estimates [internet]. 2009. Available from: http://www.cma.ca/multimedia/CMA/Content_Images/Policy_Advocacy/Policy_Research/10-FP_Shortage-E.pdf.
5. Stott NCH, Pill RM. Advise yes, dictate no. Patients' views on health promotion in the consultation. Fam Pract. 1990 June 1;7(2):125-131.
6. Florindo AA, Mielke GI, Gomes GA, Ramos LR, Bracco MM, Parra DC, et al. Physical activity counseling in primary health care in Brazil: A national study on prevalence and associated factors. BMC Public Health. 2013 Aug 31;13:794-2458-13-794.
7. Wechsler H, Levine S, Idelson RK, Rohman M, Taylor JO. The physician's role in health promotion: A survey of primary-care practitioners. N Engl J Med. 1983;308(2):97-100.
8. Haines A, Rogers S. Integrating research evidence into practice. In: Silagy C, Haines A, editors. Evidence-based practice in primary care. 2nd ed. London: BMJ publishing group; 2001. p. 157-174.
9. Haines A, Kuruvilla S, Borchert M. Bridging the implementation gap between knowledge and action for health. World Health Organization. Bulletin of the World Health Organization. 2004 Oct;82(10):724-31; discussion 732.
10. Ajzen I. The theory of planned behavior. Organ Behav Hum Decis Process. 1991;50(2):179.

Housing First and the primary health care approach to health-equity

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Health is dependent on many factors outside of the traditional notions of doctors, hospitals and prescriptions. Housing status is one of the social determinants of health that has been shown to play a part in why some people have a poorer health status than others.[1] Homelessness costs Canadians an estimated 7.05 billion dollars, with over 30,000 people without a home on any given night.[2] In general, the gradients that exist within social determinants are leading to health inequities, where those people with a higher socio-economic status are healthier than those living in poorer conditions.

Primary Health Care:

The Primary Health Care (PHC) approach requires researchers, programmers and policy-makers to think more holistically when attempting to improve the overall health status of society by considering services that address these larger-scale social determinants necessary to create a healthier society.[3] Simply put, PHC is "about creating the conditions that support health and wellness"[4] and the employment of "health-equity producing social policies."[5] Connecting those in poverty to integrated healthcare services is therefore paramount in creating a successful PHC strategy.

Housing First:

Housing First is promising example of a PHC-inspired and health equity promoting social program that can improve the health status of vulnerable populations. First implemented in New York City by the Pathways to Housing in the early 90s, Housing First is a housing program that emphasizes access to housing as a basic right. In practice, this means that an agency following a Housing First program provides housing to homeless individuals, particularly to those with mental health and addictions issues, regardless of clients' sobriety or compliance to treatment.[6] Central to Housing First is a multi-disciplinary approach to supporting client needs. Teams consisting of social workers, nurses, counsellors, primary health physicians, and support staff manage clients and support them through day-to-day living. The team provides treatment services only when needed, as dictated by the client.[7]

Holding true to PHC principles, Housing First initiatives require partnership across many organizations and levels of institutions, including a commitment to both social service support as well as PHC integration. A recent evaluation of five Housing First sites in Canada showed that participants' have experienced high-quality support services (access to psychiatrists and primary care physicians, employment, cooking and grocery shopping) in a client-centred approach were critical to the program's success. Many of the Housing First sites have taken advantage of the initiative to partner with not only primary care hospital staff, but with community groups, mental health care organizations, the United Way and local businesses.[7] When properly administered, the integrative approach to client support in Housing First can create the aforementioned health-facilitative conditions within a vulnerable population.

Housing First also helps clients live more productive, healthier lifestyles. With regards to clients' interactions with police, welfare and health institutions (public system usage), Housing First clients have significantly fewer police interactions, incarcerations, hospital stays, emergency medical services uses and emergency room visits for primary care needs than homeless individuals not involved in the program. In a randomized control trial in New York, Housing First clients showed long term housing stability (24 months) and spent less time homeless than those without the program.[5] Along with these improvements, the Housing First approach has also shown cost-saving potential; in Calgary, Alberta for example, the Housing First program yields 2.5 million dollar savings per year.[8] These ▶

individual and societal wellbeing improvements as a result of Housing First represent the fulfillment of PHC goals and provide the basis for overall poverty-reduction in Canada.

Conclusion:

Primary Health Care is a worldview that stresses the importance of promotion and the sustainability of health for all. With growing evidence of its health and societal benefits, the Housing First approach represents a move towards a holistic paradigm for health service delivery. Housing First is essential to Canada's plan for improving the health of its population, and is being continually evaluated to optimize its implementation in the future.[9] Early evaluations indicate that in order to achieve optimal implementation, programmers and policy-makers must tailor the size, scope and services to address the specific local homeless population needs.[10] For now, it is imperative that health equity continues to be a goal of researchers, programmers and policy makers if we are to fulfill a truly healthy society. By bringing appropriate patient-centred health and wellness services to clients, while simultaneously addressing their basic need for housing, Housing First is a model for what PHC can look like in the real world. ■

References

1. Banbra C, Gibson M, Sowden A, Wright K, Whitehead M, Petticrew M. Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews. J Epidemiol Community Health. 2010;64(6):284-91.
2. Gaetz S, Donaldson J, Richter T, Gulliver T. The state of homelessness in Canada 2013. Toronto: Canadian Homelessness Research Network Press. 2013. Available from: http://www.homelesshub.ca/ResourceFiles/SOHC2103.pdf
3. Health Canada. Primary Health Care [homepage on the internet]. 2013. Available from: http://www.hc-sc.gc.ca/hcs-sss/prim/index-eng.php
4. Canadian Nurses Association. Primary Health Care [homepage on the internet]. 2014. Available from: http://www.cna-aiic.ca/en/on-the-issues/better-health/primary-health-care
5. Starfield B. Politics, primary healthcare and health: was Virchow right? J Epidemiol Community Health. 2011;65(8):653-5.
6. Dunn JR, van der Meulen E, O'Campo P, Muntaner C. Improving health equity through theory-informed evaluations: a look at housing first strategies, cross-sectoral health programs, and prostitution policy. Eval Program Plann. 2013;36:184-90.
7. Nelson G, Rae J, Townley G, Goering P, Macnaughton E, Piat M, et al. Implementation and fidelity evaluation of the Mental Health Commission of Canada's At Home/Chez Soi Project: cross-site report. 2012. Available from: http://www.mentalhealthcommission.ca/English/system/files/private/document/Housing_At_Home_Qualitative_Report_Implementation_Fidelity_Cross_Site_ENG.pdf
8. Calgary Homeless Foundation. Annual General Meeting. [online]. 2013. Available from: http://media3.marketwire.com/docs/917chf_r.pdf
9. Government of Canada. Harper Government supports Housing First model to reduce homelessness. 2013. Available from: http://news.gc.ca/web/article-en.do?nid=785229
10. Keller C, Goering P, Hume C, Macnaughton E, O'Campo P, Sarang A, et al. Initial implementation of Housing First in Five Canadian Cities: how do you make the shoe fit, when one size does not fit all? Am J Psychiatr Rehabil. 2013;16(4):275-89.

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Transdisciplinary collaboration: The future of primary health care

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Primary care is the patient's first point of entry into the health care system, offering health care closest to where individuals live and work. Primary health care (PHC) encompasses primary care, disease prevention, health promotion, population health, and community development within a holistic framework, with the aim of providing essential community-focused health care.[1,2] Providing care within this framework results in a high level of complexity. Many challenges arise when delivering personalized, high-quality care to a diverse and complex PHC population. In response to this complexity, transdisciplinary collaboration of different health professionals within clinical practice and in research is the solution.

Challenges of Primary Health Care and Research

PHC is a multidimensional concept derived from the social model of health. PHC should address the main health problem of the communities and reflect the socioeconomic, sociocultural, and political characteristics of the country it is in.[3] Using this definition, providing care to one individual means not only looking at the disease of the patient, but at all elements of their life and environment.

Thus, the main challenge of PHC is meeting the unique needs of the diverse and complex clientele it has to serve. Take for example the complex issue of the optimal clinical management of an elderly patient with multiple chronic diseases living in poverty. The intertwined issues of the patient's life must be taken into account: his ability for self-management, his sociocultural environment, and his financial challenges. Take another patient: a recently immigrated healthy man with a university degree and employment in his native country before he moved, but since his arrival has been unemployed and develops symptoms of depression. It is likely that these patients' sociocultural environments have a profound impact on their health and wellbeing, and all of this has to be taken into account. These two patients have quite distinct stories, but both need to receive the personalized, high-quality care that will address the underlying causes of their health challenges.

In these two examples, what could be defined as 'effective' or 'high-quality' care? For the first patient, it might be to aim for a better quality of life in the context of his multiple chronic diseases. For the second, it might be to assist with his integration into his new environment, in order to address his depressive symptoms. Indeed, much research still needs to be done to better define what 'good' PHC is, and how to provide patient-centred care in this context of complexity.[4,5]

Transdisciplinarity and TUTOR-PHC

Historically, a single health professional, usually the PHC physician, was tasked with managing this kind of complexity. This is changing. The research questions focussed on PHC are also changing. Providing high-quality, patient-centred care for patients requires the effective collaboration of researchers and health professionals alike. This is where transdisciplinarity comes into play. Transdisciplinarity, defined as an approach that integrates the natural, social and health sciences and in so doing, transcends each of their traditional boundaries is an ideal approach when used appropriately.[6]

One example of successful transdisciplinary work in research is the TUTOR-PHC (Transdisciplinary Understanding and Training on Research – Primary Health Care) program, based at Western University.[7] This fellowship has two main goals: first, to build a critical mass of skilled, independent researchers and second, to increase the transdisciplinary focus in PHC research.[6] This annual program selects trainees from diverse fields, including sociology, occupational therapy, nursing, health education, clinical ▶

psychology, social work, policy-making, epidemiology, and family medicine. Since its creation in 2003, this program has trained more than one hundred fellows through an innovative curriculum and mentorship.

One successful outcome of the TUTOR-PHC program is the Patient-Centred Innovations for Persons with Multimorbidity (PACE in MM).[8,9] Recently funded by the Canadian Institutes of Health Research, this exemplary transdisciplinary collaboration in PHC has the mandate to improve the delivery of PHC for people with multiple chronic diseases, or multimorbidity.[8] The PACE in MM team is co-led by a past TUTOR-PHC fellow and consists of twenty-one members, many of which are previous fellows or mentors of the TUTOR-PHC program. Not only will this team transform the way in which patients are managed in PHC, this work will be guided by the principles of patient-centred medicine. These are two key elements of the future of PHC.

Conclusion

The field of PHC is beautifully complex and is the cornerstone of our health care system; this is the reason each of us is drawn to it. PHC researchers and providers must challenge themselves to learn and work within a transdisciplinary environment, to go beyond their own disciplines and crumbling silos. Due to the increasing complexity of the PHC patient population or clientele, there is truly much at stake. This transdisciplinary collaboration is indeed the future of a high-quality and effective PHC system. ■

References

1. World Health Organization. Declaration of Alma Ata Declaration of Alma Ata [Internet]. International Conference on Primary Health Care, Alma Ata, USSR: World Health Organization; 1978 Sep 12 [cited 2014 January 10]. Available from: http://www.ncbi.nlm.nih.gov/pubmed/20505396
2. Keleher H. Why primary health care offers a more comprehensive approach to tackling health inequities than primary care. Aust J Prim Health. 2001;7(2):57-61.
3. Thomas-MacLean R TD, Ackroyd-Stolarz S, Fortin M, Stewart M. “No cookie-cutter response” Conceptualizing Primary Health Care [Internet]. [Place Unknown]: University of Western Ontario; [updated date unknown; cited 2014 Mar 6]. Available from: http://www.uwo.ca/fammed/csfm/tutor-phc/documentation/trainingpapers/TUTOR_Definitio_%20of_primar_%20health_care.pdf.
4. Stewart M. Towards a global definition of patient centred care. BMJ. 2001; Feb 24:322(7284):444-5.
5. Starfield B. Primary care and equity in health: The importance to effectiveness and equity of responsiveness to peoples’ needs. Humanity Soc. 2009 Feb 1, 2009;33(2):56-73
6. Choi BC, Pak AW. Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. Clin Invest Med. 2006 Dec;29(6):351-64.
7. Stewart M, Reid G, Brown JB, Burge F, Dicenso A, Watt S, McWilliam C, Beaulieu MD, Meredith L. Development and implementation of training for interdisciplinary research in primary health care. Acad Med. 2010 Jun; 85(6): 974-979.
8. Stewart M, Fortin M. PACE in multimorbidity : Patient-Centred Innovations for Persons with Multimorbidity[Internet]. Chicoutimi, Canada: The International Research Community on Multimorbidity; 2013 [updated 2013 July 18; cited 2014 March 10]. Available from: http://crmcspl-blog.recherche.usherbrooke.ca/?page_id=248.
9. CBPHC Innovation team: Moira Stewart [Internet]. Place unknown: Canadian Institutes of Health Research; 2013 [updated 2013 Sep 03; cited 2014 March 10]. Available from: http://www.cihr-irsc.gc.ca/e/47161.html.

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"It's not you, it's us": A hopeful reflection on the tensions of uniting participatory health research and evidence-based medicine

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Nearly 15 years ago, Health Canada identified public involvement as a key challenge of governance in the years ahead, stating that citizen engagement would assist the resolution of most major national challenges.[1] Participatory approaches to research in primary health care have increased over the past decade because of their potential to address inequities in health.[2,3] Participatory health research is an approach that engages citizens in identifying health problems, participating in all aspects of the research process and in designing solutions.[4] Considering such developments, the focus of this commentary is to spark a conversation on the tensions of integrating citizen participation within primary health care; and consequently, to consider the merging of two distinct paradigms: participatory health research and evidence-based medicine. The commentary will conclude by exploring the unique role tensions play in learning and transformation. As citizen participation in research on primary health care is gradually turning into official policy, it is important to discuss these tensions moving forward to capitalize on the value of participation in the health sector. Uncovering these tensions is only a first step in opening a space for conversations on uniting participatory health research and evidence-based medicine.

While there are many reasons for engaging citizens in research on primary health care, here I present three key rationales.[3] First, citizens have lived experience of their health conditions that can benefit researchers and practitioners. Second, it is a right for citizens to be involved in publically funded research that affects their health. Third, public involvement has the potential to strengthen the relevance, impact and accountability of research and service delivery in primary health care. These arguments demonstrate that the integration of citizen participation within primary health care presents new opportunities for addressing inequities in health. However, it also presents new challenges.

First, a central tenant of the participatory health research paradigm is the value placed on different ways of knowing, including experiential knowledge.[4] Experiential knowledge comes from the lived experience of citizens who have valuable knowledge of their health conditions and contexts, which is inherently subjective. This subjectivity is a source of tension within an evidence-based medicine model that considers best evidence to be objective and value-free.[5]

Evidence-based medicine assumes that maintaining a distance between direct experience and interpretation increases reliability.[5] In contrast, participatory health research emphasizes that the shorter the distance there is between lived experience and how it is interpreted, the more relevant and accurate the resulting knowledge is likely to be.[5]

Second, participatory health research brings attention to power differentials. Power plays an important role in whose voices are acknowledged. Within a participatory health research paradigm, equal weight is given to lay and professional knowledge.[4] This conflicts with how knowledge is perceived within an evidence-based medicine model that abides to a hierarchy of evidence. For example, evidence-based medicine places randomized control trials at the top of this hierarchy and expert opinion at the bottom.[6] Within this pyramid of evidence, there is no mention of the contribution of lay knowledge.

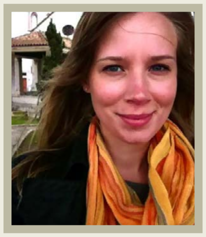
Third, participatory health research is locally situated. The knowledge generated through participation is context-specific, grounded in the reality of daily life and work.[7] This is in contrast to the value that is placed on generalizable knowledge within an evidence-based model.[8] What we are left with is a "generalizability paradox"[2] whereby increasing the relevance and specificity of research questions to local contexts decreases the generalizability of the study findings. ▶

The tensions presented in this commentary demonstrate a few challenges in meaningfully engaging citizens in primary health care research and practice as two worlds come together, each with their own historical structures and assumptions.[8] Ultimately, if we view these tensions as a driving force for learning rather than obstacles, we can bring together multiple perspectives and create new ways of thinking and understanding.[8] It is these new perspectives that initiate transformations in the way research questions are developed, in how services are provided and in the sustainability of our health care system.

Improving the quality and impact of primary health care and reducing health inequities is about transformation. While bringing forth exciting changes and possibilities, such transformation is not always comfortable as it calls upon us to question our current practices.[8] It is my hope that by presenting these tensions I can contribute to sparking conversations on how we can find common ground in our differences. If we are to really address health inequities and proposed policy statements on meaningful public involvement within primary health care, finding common ground and moving forward through transformation are essential. ■

References

1. Secretariat CC. Health Policy and Communications Branch, Health Canada. The Health Canada policy toolkit for public involvement in decision making. Ottawa: Minister of Public Works and Government Services Canada; 2000.
2. Cargo M, Mercer SL. The value and challenges of participatory research: strengthening its practice. Annu Rev Public Health. 2008;29:325-350.
3. Boote J, Baird W, Beecroft C. Public involvement at the design stage of primary health research: a narrative review of case examples. Health Policy. 2010;95(1):10-23.
4. Ledwith M, Springett J. Participatory practice. Bristol: The Policy Press; 2010.
5. Beresford P. Developing the theoretical basis for service user/survivor-led research and equal involvement in research. Epidemiol Psychiatr Soc. 2005;14(1):4-9.
6. Evans D. Hierarchy of evidence: a framework for ranking evidence evaluating healthcare interventions. J Clin Nurs. 2003;12(1):77-84.
7. International Collaboration for Participatory Health Research. Position paper 1: what is participatory health research [online]. Berlin: International Collaboration for Participatory Health Research; 2013 [last update unknown; cited 2014 Feb 2]. Available from: http://tinyurl.com/qygp3y4.
8. Aas M. Towards a reflection repertoire: using a thinking tool to understand tensions in an action research project. Educ Action Res. 2014 Feb 3 [Epub ahead of print].



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Main Submission

Integrating abortion into Canada's primary health care system with mifepristone

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Although the majority of abortions worldwide are performed surgically, termination of pregnancy using medication (termed "medication abortion" in reproductive health fields)[1] is becoming more common due to its cost-effectiveness, accessibility, and desirability among patients. Mifepristone, also known as RU486, is an anti-progesterone steroid, and it is considered the gold standard of medication abortion.[2] This medication is taken in the form of a tablet and is effective for early abortion up through 63 days (nine weeks) after the start of the last menstrual period. When mifepristone is used in conjunction with misoprostol, a medication that induces uterine contractions, the regimen results in a complete abortion 95-98% of the time.[2] Despite this regimen being the international gold standard, mifepristone is currently not registered in Canada and is therefore unavailable for commercial distribution in the country. However, early 2014 was met with national media reports and discussions within the published literature about a pending Health Canada application to register the drug.[3] In the midst of awaiting a decision from Health Canada, it is important to consider the potential role for mifepristone in Canada's healthcare system. Mifepristone could increase access to abortion at the primary health care level due to the fact that it can be prescribed and administered by a variety of providers.[4] Therefore, mifepristone's registration in Canada should be of tremendous interest to primary health care practitioners and patients.

Canada's primary health care system is currently experiencing a pivotal moment of transformation; increases in patient-centered care, expanded and improved training programs, and task sharing within interprofessional teams are reshaping the way we conceptualize and deliver primary health care.[5,6] Since 1997, the number of primary health care providers in Canada who are able to provide reproductive health services, including physicians, nurse practitioners, and midwives has grown.[6] Physicians and nurse practitioners are increasingly being trained in the prescription and administration of medication previously only available through specialized providers; mifepristone could be included in this scope. Counselling women on their pregnancy options, determining gestational age, and providing medication abortion and post-abortion care all fall within the scope of primary care clinicians' practice.[4] A 2002 study found that Canadian family medicine physicians and residents expressed an interest in receiving more information about medication abortion. More than half of physicians said they would consider providing medication abortion care to their patients.[7]

If primary health care providers can provide medication abortion using mifepristone in their practices, abortion may become more accessible to women across Canada. Women in Canada are reported to travel long distances and experience wait times when seeking abortion care; one survey found that 73.5% of women at a Toronto abortion clinic travelled one hour or more to access care.[8] An increase in the number of primary providers who can potentially provide abortion care means more avenues through which abortion options are shared with patients, thus empowering women to have greater control and input into their own reproductive health. By increasing the provision of reproductive health services through primary health care providers, women have more opportunities to become engaged in their reproductive health and able to seek abortion care with fewer travels and delays.

Bringing abortion into the offices of primary health care providers offers an opportunity for knowledge transfer and reduced stigma. Due to an established relationship and comfort with their family physician, provision of medication abortion within the family health care unit is highly acceptable among female patients.[9] A model that encourages knowledge transfer between provider and female patients about abortion options within familiar ▶

health settings allows women to make informed decisions with a trusted provider with whom they have an existing relationship. Historically, the fact that abortion care has been relegated to a specialized setting has contributed to stigmatization of the procedure and patients. Since the public discourse on abortion can be entrenched in polemic, integrating the procedure into a familiar environment at the primary health care level may reduce the stigma women face when accessing care.

One in three Canadian women will choose to terminate a pregnancy in their lifetimes.[10] If mifepristone is registered in Canada, it will open a new channel of choice for patients; it also has the potential to expand access to safe, high quality services. Reframing abortion within primary health care could make it more accessible to Canada's diverse population, simultaneously reducing the stigma associated with the procedure by bringing it into doctor's offices and women's homes. Through shared knowledge between primary care providers and patients, women seeking abortion care would be empowered to make educated decisions rooted in sound evidence, thus leading to more optimal reproductive health outcomes for women across Canada. ■

References

1. Weitz TA, Foster A, Ellertson C, Grossman D, Stewart FH. "Medical" and "surgical" abortion: Rethinking the modifiers. Contraception. 2004;69(1):77-8.
2. Department of Reproductive Health and Research, World Health Organization (WHO). Safe abortion: Technical and policy guidance for health systems. 2nd ed. Geneva: WHO; 2012 [updated 2012 Jun 19, cited 2014 Feb 12]. Available from: http://apps.who.int/iris/bitstream/10665/70914/1/9789241548434_eng.pdf
3. Dunn S, Cook R. Medical abortion in Canada: Behind the times. CMAJ. 2014;186(1):13-4.
4. Yanow S. It is time to integrate abortion into primary care. Am J Public Health. 2013;103(1):14-6.
5. Hutchison B, Levesque JF, Strumpf E, Coyle N. Primary health care in Canada: Systems in motion. Milbank Q. 2011;89(2):256-88.
6. Canadian Institute for Heath Information (CIHI). Canada's Health Care Providers, 1997 to 2011: A reference guide. Ottawa: CIHI; 2013 [last update unknown; cited 2014 Feb 12]. Available from: http://publications.gc.ca/collections/collection_2013/icis-cihi/H118-1-4-2011-eng.pdf
7. Raymond E, Kaczorowski J, Smith P, Sellors J, Walsh A. Medical abortion and family physicians. Survey of residents and practitioners in two Ontario settings. Can Fam Physician. 2002;48:538-44.
8. Sethna S, Doull M. Far from home? A pilot study tracking women's journey's to an abortion clinic. J Obstet Gynaecol Can. 2007;27(8):640–64.
9. Rubin SE, Godfrey EM, Shapiro M, Gold M. Urban female patients' perceptions of the family medicine clinic as a site for abortion care. Contraception. 2009;80(2):174-9.
10. Norman WV. Induced abortion in Canada 1974-2005: Trends over the first generation with legal access. Contraception. 2012;85(2):185-91.

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Utilizing social media as a platform to facilitate primary care physicians' exercise referrals among cancer patients and the general public

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Delivery of primary care physicians' exercise referrals via social networking sites has not been established among cancer patients and the general public. Social media can be utilized as a platform for fostering improvements in following up with exercise and physical activity referrals. The benefits of utilizing such a mechanism include developing self-monitoring behaviours, self-efficacy, and social support among caner patients and the general public. A randomized trial using a Facebook-based physical activity intervention has proven feasible in the promotion of physical activity among young cancer survivors.[1] Thus, as a delivery channel, social networking sites may hold potential for promoting physical activity and exercise among cancer patients and the general public .[1]

The benefits of physical activity and exercise as they relate to cancer prevention and side-effect treatment are well established.[2,3] Research has shown that the protective and anti-inflammatory effects of physical exercise lower the risk of developing both colon cancer and postmenopausal breast cancer.[3] However, physical activity participation has been shown to decrease in colorectal cancer survivors over the course of chemotherapy.[4] In addition, compared to pre-diagnosis, there was a significant reduction in the percentage of colon cancer survivors meeting the American College of Sports Medicine guidelines during chemotherapy treatment. In this context, social media has the potential to increase patient physical activity by enhancing primary care physicians' exercise referrals.

Emerging observational evidence suggests that being physically active following diagnosis can lead to reduced risk of cancer recurrence and improved survival.[4] Specifically, in comparison to the inactive group (<3 MET- hours/week), significantly improved disease- and recurrence-free survival was reported among those who engaged in 18-26.9 MET-hours/week after stage III colon cancer diagnosis.[4] Thus, incorporating an exercise-focused lifestyle might prevent cancer recurrence and improve quality of life. It is also believed that as part of cancer prevention efforts, the healthy population should be encouraged to participate in regular physical activity.

Researchers have attracted the interest of primary care physicians and rehabilitation professionals in disseminating health information. Primary care physicians are in regular interaction with large proportions of the population.[5] Thus, the integration of novel and effective strategies that use social networking sites may prove beneficial in promoting active behaviours and improving fitness levels.[6] This may also help enhance the delivery of exercise referrals and health communication between sport medicine professionals, the general public, and cancer patients. A social networking application or website could be developed with the aim of improving individuals' ability to participate in shared decision making about physical activity options.

A key setting for promoting physical activity is the primary health care arena. Although there is much evidence supporting the therapeutic value of physical activity and its role in lowering the risk of cancer, general practitioners must also contribute to taking initiatives to implement immediate exercise prescription in general practice.[6] However, no official Canadian website or exercise referral programs currently exist. There is no platform for primary care physicians to connect cancer patients and the general public to exercise professionals who have a wide range of expertise in chronic disease management.

It has been shown that primary care physicians' messages and advice greatly influence the motivation of exercise-related health behaviours among the general public.[5-9] As a means of facilitating the writing of prescriptions for exercise, social media could enable primary health care workers to implement evidence-based treatment among the general public. The compliance of patients in relation ▶

to exercise interventions could be supported by a social platform, like Facebook, to facilitate the adaptation of an active lifestyle by incorporating exercise and physical activity as part of daily routines. The implications for cancer patients and the general public include social accountability from having them publish their exercise goals as well as their self-monitoring behaviours online. As a result, they would be able to receive their physicians' advice with follow-up counseling.

Exercise can be used as means of cancer prevention and treatment among the general public and those already diagnosed with the disease. Consequently, it is crucial to promote the uptake of physically active behaviours in the home and community settings by targeting primary care physicians to encourage the general public and those undergoing cancer treatments to seek exercise prescriptions. A social media platform represents an ideal mechanism to accelerate the communication between primary care physicians, cancer patients, and the general public. Social media can be used by patients to help communicate with their primary health care physicians, thus bridging the gap between research and practice as it relates to increasing exercise referral. In this way, physicians will be positioned to deliver essential referrals for treating those at-risk for cancer in addition to training the disease-free population for appropriate usage of available community exercise resources and exercise activities. ■

References

1. Valle CG, Tate DF, Mayer DK, Allicock M, Cai J. A randomized trial of a Facebook-based physical activity intervention for young adult cancer survivors. Journal of Cancer Survivorship 2013:1-14.
2. Gleeson M, Bishop NC, Stensel DJ, Lindley MR, Mastana SS, Nimmo MA. The anti-inflammatory effects of exercise: mechanisms and implications for the prevention and treatment of disease. Nature Reviews Immunology 2011;11(9):607-615.
3. Thune I, Brenn T, Lund E, Gaard M. Physical activity and the risk of breast cancer. N Engl J Med 1997;336(18):1269-1275.
4. Chung JY, Lee DH, Park J, Lee MK, Kang D, Min J, et al. Patterns of physical activity participation across the cancer trajectory in colorectal cancer survivors. Supportive Care in Cancer 2013;21(6):1605-1612.
5. Petrella RJ, Koval JJ, Cunningham DA, Paterson DH. Can primary care doctors prescribe exercise to improve fitness?: The step test exercise prescription (STEP) project. Am J Prev Med 2003;24(4):316-322.
6. Pavey T, Taylor A, Fox K, Hillsdon M, Anokye N, Campbell J, et al. Effect of exercise referral schemes in primary care on physical activity and improving health outcomes: systematic review and meta-analysis. BMJ: British Medical Journal 2011;343.
7. Williams NH, Hendry M, France B, Lewis R, Wilkinson C. Effectiveness of exercise-referral schemes to promote physical activity in adults: systematic review. British Journal of General Practice 2007;57(545):979-986.
8. Taylor AH, Doust J, Webborn N. Randomised controlled trial to examine the effects of a GP exercise referral programme in Hailsham, East Sussex, on modifiable coronary heart disease risk factors. J Epidemiol Community Health 1998 Sep;52(9):595-601.
9. Sorensen J, Sorensen JB, Skovgaard T, Bredahl T, Puggaard L. Exercise on prescription: changes in physical activity and health-related quality of life in five Danish programmes. Eur J Public Health 2011 Feb;21(1):56-62.

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Shifting the birth weight paradigm

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Birth weight is one of the most important indicators of overall infant health and likelihood of long-term survival.[1] Traditionally, population health researchers have dichotomized this indicator, with the cut-off of "low birth weight" (LBW), defined as those less than 2,500 grams of mass, and "normal birth weight" for anything exceeding this cut-off.[2] LBW has proven to be a useful statistic in a host of population health analyses, from indicating health system performance to predicting health trajectories for individual babies. However, a focus on LBW may have diverted our attention from various health concerns associated with other points along the birth weight spectrum. In this paper, we argue that more attention should be paid to those births at the other end of the weight scale, comprising the large for gestational age (LGA) births, which are commonly the result of fetal macrosomia.

The present focus on LBW is due in part to the well-demonstrated association between low birth weight and a host of deleterious outcomes. Such outcomes primarily revolve around fetal/neonatal mortality, impaired cognitive development, and chronic diseases in later life.[3] These associations, coupled with 15.5% of annual births worldwide falling under the LBW category,[1] caused the World Health Organization to declare the reduction of LBW as an important dimension of the Millennium Development Goal for reducing child mortality. Thus, a great deal of infant health research, specifically in the United States, has focused on the prevention of low birth weight, as per policies flowing from programs like Medicaid and the Special Supplemental Nutrition Program for Women, Infants and Children (WIC).[4] Such policies aim to enhance the socioeconomic indicators of good health for low-income women, who are seen as particularly vulnerable to delivering a LBW infant.

Over the past several decades, while attention has been focused on LBW issues, the prevalence of LGA births has crept higher. Fetal macrosomia, a term for infants born weighing greater than 4,000 grams, comprises up to 10% of total births in the United States.[5] This rise may represent a public health crisis if it proves to be associated with other trending social phenomena, such as population obesity rates and nutritional deficits. Consequently, a re-tasking of the public health perception of birth weight may be in order.

Risks associated with LGA births include maternal risks for postpartum hemorrhage, perineal lacerations, increased rates of cesarean delivery, and higher maternal mortality; and infant risks of high blood sugar upon birth, shoulder dystocia, brachial plexus injuries, and asphyxia.[6,7] Numerous long-term health consequences related to high birth weight are also documented. They include a predisposition for childhood and adult obesity, cardiovascular disease, diabetes, and metabolic syndrome.[8]

A major aspect of this paradigm shift must encompass an evaluation of current health technologies, as there is currently a lack of reliable diagnostic means for detecting macrosomia before birth. Clinical and ultrasound estimates are of limited reliability; studies suggest that when birth weight exceeds 4,500 grams, only 50% of fetuses weighed within 10% of the ultrasound estimate.[9] Improved detection methods are an immediate priority, and may include more invasive, serological approaches.

In terms of immediate budgetary impact, the costs of associated health consequences and obstetric complications are significantly increased for LGA births, when compared to delivery of a normal weight fetus.[10] Despite the lack of a thorough cost-effective analysis for reducing high fetal birth weight, similar to those that have resulted in legislation to reduce rates of low birth weight, preliminary cost-effective analyses outline increases in costs for

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procedures associated with delivering a macrosomic fetus. Current practitioner options for high birth weight delivery are limited, but include labor induction, elective cesarean delivery, or expectant treatment.[11] In the United States, the cost of vaginal delivery is $3,376, while the cost of elective cesarean delivery is $5,200; cesarean delivery with labor is $6,500, and the lifetime cost of brachial plexus injury, one of the main obstetric complications associated with high birth weight delivery, is estimated at $1,000,000.[10] Applied to nearly 10% of total births, these cost increases represent a substantial rise in overall health care spending.

Avoiding the public health burdens associated with increased rates of fetal macrosomia requires a shift in our current perspectives on what constitutes healthy birth weight. Primary health care, through reform of the contemporary prenatal care regimen, holds the greatest potential for inducing this paradigm shift. Incorporating a more balanced appreciation for both extremities of the birth weight spectrum would ultimately abate the plethora of acute and chronic health consequences associated with an increased incidence of fetal macrosomia. However, LBW births, for the time being, will remain the primary global concern, as policy and medical attention remains focused on the stated health and cost-effective benefits behind LBW interventions. But for high-income countries, like the United States, a greater consideration must be made of the probable impact of LGA births – particularly as obesity rates, linked with increasing LGA births, are projected to further rise over the next several decades. ■

References

1. United Nations Children's Fund and World Health Organization. Low birthweight: country, regional and global estimates. New York: UNICEF; 2004.
2. Wilcox AJ. On the importance—and the unimportance— of birthweight. Int J Epidemiol. 2001;30(6):1233-41.
3. Horbar JD, Carpenter JH, Badger GJ, Kenny MJ, Soll RF, Morrow KA, et al. Mortality and neonatal morbidity among infants 501 to 1500 grams from 2000 to 2009. Pediatrics. 2012;129(6):1019-26.
4. Black SE, Devereux PJ, Salvanes KG. From the cradle to the labor market? The effect of birth weight on adult outcomes. Q J Econ. 2007;122(1):409-39.
5. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Kirmeyer S, et al. Births: final data for 2005. National vital statistics reports: from the Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. 2007;56(6):1-103.
6. Richards M, Hardy R, Kuh D, Wadsworth MEJ. Birthweight, postnatal growth and cognitive function in a national UK birth cohort. Int J Epidemiol. 2002;31(2):342-8.
7. Stotland NE, Caughey AB, Breed EM, Escobar GJ. Risk factors and obstetric complications associated with macrosomia. Int J Gynaecol Obstet. 2004;87(3):220-6.
8. Gu S, An X, Fang L, Zhang X, Zhang C, Wang J, et al. Risk factors and long-term health consequences of macrosomia: a prospective study in Jiangsu Province, China. J Biomed Res. 2012;26(4):235-40.
9. Melamed N, Yogev Y, Meizner I, Mashiach R, Pardo J, Ben-Haroush A. Prediction of fetal macrosomia: effect of sonographic fetal weight-estimation model and threshold used. Ultrasound Obstet Gynecol. 2011;38(1):74-81.
10. Herbst MA. Treatment of suspected fetal macrosomia: a cost-effectiveness analysis. Am J Obstet Gynecol 2005;193(3):1035-9.
11. Zamorski MA, Biggs WS. Management of suspected fetal macrosomia. Am Fam Physician. 2001;63(2):302-6.

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Chronic disease management in primary health care: The role of rehabilitation professions

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The manner in which Canadians access primary health care services is in the midst of major reform due to changing demographic trends that place increased demands on the primary care system. Canada's federal, provincial, and territorial governments have committed to ensuring the provision of competent and accessible health care services in a cost-efficient and patient-centred manner that addresses these trends: an aging population, decreased interest in the practice of family medicine, a shift from hospital to community care and increased prevalence of chronic diseases.[1,2] Chronic diseases are non-communicable and incurable long-term illnesses that become progressively severe over time. Patients with multiple chronic diseases consume disproportionately more health care resources: they require intensive management and coordination between numerous service providers, frequent contact with their physician, and a significant degree of ongoing coaching and support.[3] Consequently, these patients face fragmented and incomplete care, which results in the development of secondary disabilities and comorbidities. More patients with complex conditions are seeking primary care to address their ongoing health care needs. These patients represent 5-6% of primary care caseloads, and consume a third of practice resources,[3] resulting in a need for rehabilitation professions to offset this burden. Skilled in both prevention and intervention as they relate to patient-centred chronic disease management, rehabilitation professions are a valuable asset to primary care. This article introduces the utility of rehabilitation in primary care in order to facilitate effective and efficient health care services to patients at risk for or diagnosed with a chronic disease.

What are rehabilitation professions?

Rehabilitation professions are founded on common goals and philosophies including patient-centered holistic practice, health promotion, functional improvement and improved quality of life.[5,6] In the primary care setting, they provide *preventative health services* by screening for disease and intermediate risk conditions, and *health education programmes* that provide education on the impact of unhealthy behaviour.[7] They offer *community development* services by facilitating collective action in order to identify and meet widespread health needs. They are also engaged in *public health policy* and *environmental health policy*, advocating for changes facilitating positive health behaviour and enforcing improvements to environmental amenities.

The practice tools of rehabilitation professions, such as physical therapists and occupational therapists, can enhance traditional biomedical treatments, and engage the patient in actively addressing factors in their environment and health behaviours that contribute to the experience of disability.[7-9] *Physiotherapists* address the physical risk factors and intermediate conditions associated with chronic disease by enabling patients to engage in physical activity and mobility.[5] *Occupational therapists* use activities that are familiar to patients to promote personal responsibility for health, and are leaders in facilitating community development; conducting assessment and screening related to occupational performance; offering counselling, coaching and consultation; and bridging health systems to facilitate integrated health care.[6]

How can rehabilitation professions improve primary care?

The traditional health care system focuses on reactive responses to acute illness and cannot provide patients with chronic diseases with the standard of care expected under the *Canada Health Act*.[3] In order to manage the disease process in a manner associated with optimal outcomes and the greatest quality of life, patients with a chronic disease need to receive rehabilitation interventions early in the disease process; however, many Canadians living with chronic conditions continue to experience excessive wait ▶

times for rehabilitation services due to limited availability in primary care settings.[2-4]

Government-supported movement from traditional fee-for-service models to collaborative multidisciplinary models has helped to improve patient access to primary health care. It has also provided physicians with incentives and funding resources for which to offer competent care to complex patients, lifting the burden to the health care system.[8,9] By providing incentives to build a team approach to providing comprehensive primary care, this support has been instrumental to the inclusion of rehabilitation professions in multidisciplinary teams.[2-4] Researchers and clinicians are in agreement that the inclusion of rehabilitation in primary health care delivery (e.g. Family Health Teams and Community Health Centres) is associated with a range of benefits:[8] decreased waiting time, reduced specialist referrals, lower costs for services, greater continuity of care, improved patient outcomes in measures of quality of life, exercise tolerance, treatment compliance, self-management and/or improved health status.[1-4,7-10] Rehabilitation is integral to the provision of primary health care delivery that offers comprehensive, accessible, and patient-centred interventions and support for chronic disease.[10]

Rehabilitation professionals are experts in both the prevention and management of chronic disease, and are ideally positioned to enhance the capacity and infrastructure of the primary care system through the delivery of cost-efficient and effective chronic disease management. Movement toward widespread inclusion of occupational therapy and physiotherapy in primary care across Canada will address increasing prevalence of chronic disease and provide these patients with equitable access to the standard of care outlined in the *Canada Health Act*. ■

References

1. Mable A, Marriott J. Sharing the learning—the health transition fund synthesis series: primary health care. Ottawa: Health Canada; 2002.
2. Cott C, Devitt R, Wong R, Soever L, MacKay, C. A client-centred health service model of primary health care and rehabilitation for arthritis. Toronto: Arthritis Community Resource Evaluation Unit; 2005.
3. Wallace P, Seidman J. Improving population health and chronic disease management. In Dorland J, McColl MA, editors. Emerging approaches to chronic disease management in primary health care. Montreal and Kingston: McGill-Queen's University Press; 2007. p. 15-20.
4. Passalent LA, Landry MD, Cott CA. Wait times for publicly funded outpatient and community physiotherapy and occupational therapy services: implications for the increasing number of persons with chronic conditions in Ontario, Canada. Physiother Can. 2009; 61(1): 5-14.
5. Canadian Physiotherapy Association (CPA). About physiotherapy [Internet]. Ottawa: Canadian Physiotherapy Association; 2012 [last update unknown; cited 2014 Mar 20]. Available from: http://www.physiotherapy.ca/About-Physiotherapy
6. Leclair L, Restall G, Edwards J, Cooper JSM, Soltys P, Sapacz R. Occupational therapists and primary health care: position paper [Internet]. Winnipeg: Manitoba Society of Occupational Therapists; 2005 [last update unknown; cited 2014 Mar 20]. Available from: http://www.msot.mb.ca/uploads/PositionPaper_PrimaryHealthCare.pdf
7. Gottwald M. Health promotion models. In Davis S, editor. Rehabilitation: the use of theories and models in practice. Toronto: Elsevier; 2005. p. 131-146.
8. Donnelly C, Brenchley C, Crawford C, Letts L. The integration of occupational therapy into primary care: a multiple case study design. BMC Fam. Pract. 2013; 14(1): 60.
9. Kralj B, Kantarevic J. Primary care in Ontario: reforms, investments and achievements. Ont Med Rev. 2012; 79(2): 18-24.
10. Eldar R. Integrated institution - community rehabilitation in developed countries: a proposal. Disabil. Rehabil. 2000; 22(6): 266-274.

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Recognizing the role of occupational therapists within the primary health care model

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Introduction

Primary Health Care (PHC) is a social approach to health that identifies a broad spectrum of care as essential to achieving "better health for all."[1] PHC emphasizes the integration of primary care (considered the first point of contact that individuals have to a health worker, like a general physician) with secondary services, which promote health and prevent or manage chronic illness and/or dysfunction (like smoking cessation programs or housing initiatives for the homeless). Simply stated, PHC is a set of values to guide health practices, using proactive/preventative, and reactive/remedial approaches to the whole health of communities, to accomplish better health outcomes for all Canadians.

Occupational therapists (OTs) utilize a holistic biopsychosocial approach to health which compliments PHC values. The World Health Organization (WHO) and Health Canada have identified social factors as critical determinants of health.[1,2] These are often referred to as the social determinants of health, and include factors such as income, housing, education and a person's environment.[3] OTs in Canada are trained at a Master's level to analyze the physical, social, institutional, cultural, attitudinal, and legislative domains of the environment with a focus on how occupation, defined as any activity of daily living, contributes to health and wellness for individuals and populations.[4,5] Like PHC, OT values a multidisciplinary approach to working with individuals, communities, and populations, from a client-centred perspective to achieve better health. These similarities align OTs to be leaders within the PHC reform in Canada.

A Challenge to the Implementation of PHC

Primary health care finds strength in a multidisciplinary team-based approach to increasing access to health services, responding to the needs of specific communities, and integrating health services to address health equity gaps for Canada's diverse communities,[1,2] A challenge to the implementation of PHC is providing tailored health care to each of Canada's many diverse communities (ex. rural or remote areas) and populations (ex. individuals living with addictions). Canada is working to reform health care services and it is up to service providers, including OTs and policy makers, to evaluate how restrictions to social determinants of healthcare are impacting health and to develop primary and secondary health services designed to fit the unique needs of individuals, communities, and populations.

Shared Competencies: OTs and PHC Teams

Occupational therapists typically provide services at the patient-level; however, their unique approach to health enables OTs to evaluate and identify health issues from a population-level as well. The OT's ability to understand how many environmental domains impact health is a valuable tool that should be utilized in the PHC reform. The Pan American Health Organization (PAHO) outlined competencies that are required for the successful transition to PHC.[6] For example, providing "Comprehensive and Integrated Care" is defined by PAHO as the second core competency, and includes training to accurately identify the needs of individuals and families, the capacity to respond to health problems within communities, knowledge of other health services, and promoting "health self-care".[6] OTs possess many of these competencies. They are highly skilled in critically analyzing the interplay between the person, environment, and occupation to identify and respond to areas of need.[7] Furthermore, they are inter-professionally educated,[8] and always strive to support a client's participation in their own occupations and health care needs.[9]

A framework for OTs establishing an inter-professional practice within the PHC model has been designed in collaboration with the Canadian Association of Occupational Therapists (CAOT).[10] The tool further emphasizes the fit of ▶

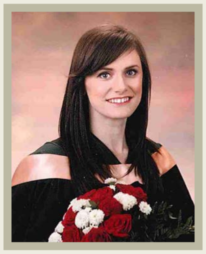
OTs in PHC, highlighting the importance of utilizing best practices at a patient and population level.[10] The PHC skills outlined by PAHO, and the tool provided by the CAOT demonstrate that OTs are well positioned to be leaders on PHC teams, and to have an important voice at the policy level of the PHC reform in Canada.

Conclusions: Advancing the Reform and Improving Health

Canada's health care reform toward integrated PHC, tailored to the idiosyncrasies of the country's populations, requires the effort of healthcare teams from the front line and up to the policy and litigation levels. Serving the diversity of communities found across and within the nation is one challenge being met by the reform. OTs are health professionals who are governed by the values, and equipped with skills, which can promote the PHC reform. Involving OTs from the beginning, with the conception and development of new community initiatives, organizing and delivering wellness promoting services, providing input and advocating at a policy level, and implementing their own programs or practices, for communities based on specific identified needs will help progress the PHC reform. Moving forward, it is imperative that OTs recognize their contributions to PHC so that they may advance their professional presence working with and for Canada's unique communities and populations to improve health for all. ■

References

1. World Health Organization. Primary health care [internet website]. 2014 [cited 2014 Feb 5]. Available from: http://www.who.int/topics/primary_health_care/en/
2. Health Canada. Primary health care [internet website]. 2012 [cited 2014 Jan 30]. Available from: http://www.hc-sc.gc.ca/hcs-sss/prim/about-apropos-eng.php#a3
3. Mikkonen J, Raphael D. Social determinants of health: The Canadian facts. Toronto: York University School of Health Policy and Management; 2010. Available from: http://www.thecanadianfacts.org
4. Canadian Association of Occupational Therapy. Professional practice: Code of ethics [internet website]. 2014 [cited 2014 Feb 5] Available from: http://www.caot.ca/default.asp?pageid=35
5. World Federation of Occupational Therapists. Fundamental Beliefs: Statement on occupational therapy [internet website]. 2011 [cited 2014 Feb 5]. Available from: http://www.wfot.org/AboutUs/FundamentalBeliefs.aspx
6. Pan American Health Organization. Primary health care-based health systems: Strategies for the development of primary health care teams. Washington, DC: PAHO; 2009. Available from: http://www2.paho.org/hq/dmdocuments/2010/PHC-Strategies-Development-PHC-Teams.pdf
7. Law M, Cooper B, Strong S, Stewart D, Rigby P. The Person-Environment-Occupation Model: A transactive approach to occupational performance. Canadian Journal of Occupational Therapy. 1996; 63(1):9-23.
8. Canadian Association of Occupational Therapy. About CAOT [internet website]. 2014 [cited 2014 Feb 5]. Available from: http://www.caot.ca/default.asp?pageid=2
9. Canadian Association of Occupational Therapy. Occupational therapy values and beliefs [internet website]. 2014 [cited 2014 Feb 5]. Available from: https://www.caot.ca/default.asp?pageid=3619
10. McColl, M.A. Occupational therapy in primary health care: Assembling the pieces, a framework to build your practice in primary health care [internet website]. 2008 [cited 2014 April 12]. Available from: http://www.caot.ca/pdfs/primary%20healthcare.pdf



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