



THE ASSOCIATION OF FACULTIES
OF MEDICINE OF CANADA

L'ASSOCIATION DES FACULTÉS
DE MÉDECINE DU CANADA

AFMC Submission to Advisory Panel on Healthcare Innovation

**Effective and Efficient Innovations for the Health and Healthcare
of our Changing Canadian Population**

Submitted on December 5, 2014

Introduction

The Association of Faculties of Medicine of Canada (AFMC) represents the country's 17 faculties of medicine and is the national voice for academic medicine. Our organization was founded in 1943 and functions to support individually and collectively Canada's medical schools through promotion of medical education, research, and clinical care. Canada's faculties of medicine reported \$2.7 billion in research funding, representing 82.8% of total health research spending for all of Canada. Our members are the educators of tomorrow's doctors and scientists. We have a responsibility to teach students and train residents so they may meet the health and healthcare needs of Canadians and we train graduate students to become health researchers. We have an important voice in shaping the future of healthcare in Canada. Specifically, our mission of social responsibility focuses on improving the health of the most vulnerable populations through disease prevention and health promotion. This includes, but is not limited to: individuals, particularly children, living in poverty; our Indigenous peoples; recent immigrants from developing countries; and, seniors. The following focuses on seniors, as an example.

The proportion of the senior population (aged 65 and older) has been increasing steadily over the past 40 years. From 1971 to 2010, the proportion of seniors in the population grew from 8% to 14%. This proportion is expected to ramp up to 23% - 25% by 2036, which would represent over 10 million Canadians.¹

According to a 2013 Ipsos Reid survey 83% of respondents are concerned about the health care they will receive in their retirement years, and 77% are worried about their personal access to home care and long-term care. Also, 63% believe that home and community care should be at the centre of the governments' efforts to address future healthcare needs.²

The AFMC welcomes the opportunity to inform the Advisory Panel on Healthcare Innovation and we believe that our imperative must be to identify the **innovations for better health and healthcare of our senior population that will ensure the sustainability of our healthcare system**.

We will provide evidence-informed examples of innovations within our Academic Health Science Networks that have led to

- Reduced use of diagnostics
- Reduced use of pharmaceuticals
- Reduced hospitalizations and length of stay

And suggest that Canada can create a sustainable healthcare system by

- Sharing and transfer of knowledge for better health, care and cost containment
- Creating a learning health system with ongoing feedback on impact
- Strong Federal leadership in establishing accountability for health and healthcare of Canadians

Innovation in our Academic Health Science Networks

Health researchers from our faculties of medicine know what questions to ask to effectively address the quality of care and reduce the cost of care for our seniors.

Reduced use of diagnostics

Many seniors with Type 2 diabetes who are not on insulin test their blood glucose levels regularly, using portable devices and strips, although virtually no evidence suggests that this improves their outcomes. In 2009, a drug network study led by a Li Ka Shing Knowledge Institute scientist, in Toronto, examined the impact on patient outcomes and the savings in costs that could be achieved by changing the current Ontario policy of paying for these test strips. She found **the province could save between \$25 million and \$300 million over five years** with no impact on patient outcomes. Since the publication of these findings, the Canadian Diabetes Association has recognized that limits on government-funded diabetes test strips are reasonable in some patients and has changed its recommendations on optimal testing frequency. When implemented widely by the province, this will reduce unnecessary test strip use and save the Ontario public health care system between \$5 million and \$60 million annually.³ This will have a positive effect on our seniors by simplifying their care and improving their quality of life.

To be effective, this knowledge must be systematically transferred to care providers and decision makers across the country. This dissemination will also allow maximum savings to the healthcare system.

Reduced use of pharmaceuticals

The evidence is clear that many seniors in Canada are exposed to inappropriate drug therapy. Poor prescribing leads to poor patient outcomes and unnecessary costs to the health care system (e.g., fractured hips from falls in overly sedated or confused patient). The Canadian Institute for Health Information used the Beers criteria to study seniors' drug claims from public programs in Alberta, Saskatchewan, Manitoba and New Brunswick from 2000 to 2006. The rate of inappropriate drug use in 2005-06 varied from 25.2% in Manitoba to 31.3% in New Brunswick. The rate of regular use of such medications ranged from 12.9% in Alberta to 18.8% in New Brunswick. In Denmark 5.8% of elderly patients used an inappropriate medication in a four month period of 2001.

To help it provide optimal care to every patient, the University of Sherbrooke Hospital Centre (CHUS) has begun using APSS, the first Canadian automated antibiotic prescription surveillance system.⁴ The software imports all patient data from the CHUS electronic medical record (EMR) system, e.g., lab tests, vital signs, current prescriptions, allergies, etc., as well as all the data available on the various drugs used for treatment. As soon as a prescription is entered in the system, APSS analyzes all the data and then, in accordance with specific criteria, produces an alert if it identifies a more appropriate treatment. The hospital pharmacist then analyzes the alert, contacting the prescribing physician as needed to suggest that the prescription be altered. The system could, for example, recommend a less expensive compound or one that is administered orally instead of intravenously.

Prescription drug costs make up a growing share of Canadian health care costs, accounting for over \$25 billion in spending in 2008, or more than 16% of the total health care budget. In addition to improving the quality of care, a more efficient use of drugs thus leads to significantly reduced direct and indirect costs. The APSS system has led to a **14% reduction in the use of antibiotics, direct savings of**

over \$1 million on antibiotic purchases (18.5% of the CHUS budget) over 3 years, a 22% reduction in the use of intravenous antibiotics and a reduction in the length of stay of 2,500 days per year.

Maximizing the use and benefit of electronic prescribing and the electronic medical record would have significant impact on the safety of seniors care and on the cost of care. Systems need to interact and health and drug information shared with other care providers as required for best care.

Reduced hospitalizations and length of stay

In Ontario, seniors account for 63% of acute inpatient days and 43% of provincial health expenditures. The Mobilization of Vulnerable Elders in Ontario (MOVE ON) project is a strategy to help older patients maintain function through regular physical activity while in hospital.⁵ The Council of Academic Hospitals of Ontario approved its implementation in November 2011 for its 14 member hospitals across the province, with about 700 patients being observed in each hospital. For the patient, physical activity translates into **shorter hospital stays (on average, by one day per patient), decreased chances of delirium and depression and increased chances of returning home healthier. Six per cent more patients go home instead of to a nursing home or other care facility** because of the strategy. The early mobilization strategy reduces pressures on the health care system, by decreasing days that patients wait for alternate level of care.

A pan- Canadian structure should exist to ensure that such quality innovations are translated into policy in all provinces in order to keep our elderly patients active and healthy.

These are but three of several examples of innovations that have being implemented locally or provincially with a significant benefit to seniors and a decrease in healthcare usage and cost. But these **currently function as “pilot projects” as the innovation is not disseminated or translated to other jurisdictions across the country.**

Creation of a Sustainable Healthcare System

The Federal Government should work towards 1) Sharing and transfer of knowledge for better health, care and cost containment 2) Creating a learning health system with ongoing feedback on impact and 3) Strong Federal leadership in establishing accountability for health and healthcare of Canadians.

Sharing and transfer of knowledge for better health, care and cost containment

The knowledge pool created by Canadian Health Research is not currently being shared or disseminated optimally to influence decision makers and thus not maximally improving the health and health care of Canadians. Also the diffusion of the impact is not being fed back for future research.⁶

The goals of the knowledge transfer are threefold: 1) to encourage the collection and sharing of data among researchers; 2) to encourage further development of an environment for analysis and translation of data in Canada that provides for more effective coordination among the various decision makers; and 3) to help ensure that existing and future investments in health data infrastructure and training are maximized to the benefit of Canadians.

Canada has put in place many of the elements of a well-functioning digital infrastructure ecosystem for research and innovation in health. While this has provided the foundational platform for a large segment of the research community, it is equally clear that the potential of data-intensive research is progressively and rapidly outstripping our ability to manage and to grow the digital ecosystem required to meet the needs of the healthcare system.

The Canadian health research environment is characterized by a high degree of commitment to collaboration and cooperation. However barriers to access do exist. To ensure maximal use of data and coordination with all stakeholders, including the provinces, in the Federal Government should support the development of Canada's national digital infrastructure ecosystem for health research.

To help create a forward-looking pan-Canadian digital health research environment we need broad collaboration in the development of a coordinated plan to encourage the establishment and sustained operation of world-class centres specializing in data management and supporting interrelated functions including but not limited to administration, operations, policy and access; enhanced networks and infrastructure; skills development; and graduate and researcher training.⁷

Creating a learning health system with ongoing feedback on impact

The Institute for Healthcare Improvement (IHI) Triple Aim is a framework that describes an approach to optimizing health system performance. It is IHI's belief that new designs must be developed to simultaneously pursue three dimensions, called the "Triple Aim": 1) Improving the patient experience of care (including quality and satisfaction); 2) Improving the health of populations; and 3) Reducing the per capita cost of health care.⁸ This has also been endorsed in Canadian health care.

Continuous improvement and innovation in health and health care requires the progress toward the development of a **learning health system**—in which science, informatics, incentives, and culture are aligned for continuous improvement and innovation, with best practices seamlessly embedded in the delivery process and new knowledge captured as an integral by-product of the delivery experience.⁹ The successful evolution of Kaiser Permanente, the largest not for profit integrated health care delivery system in the US, has required a close partnership between managers and physicians supported by a culture of physician accountability for quality and efficiency. An overarching agenda for achieving excellence focuses on high-impact health conditions, provides goal-oriented tools to analyze population data, proactively identifies patients in need of intervention, supports systematic process improvements, and promotes collaboration between patients and professionals to improve health.¹⁰

A project such as the Canadian Primary Care Sentinel Surveillance Network (CPCSSN) EMR surveillance and research system focused on several chronic diseases including Alzheimer's and other dementias, supported by federal funding, should become systematized across the country and include all care providers.¹¹ As our senior's access care by most types of practitioners this would be an important step forward.

A national body to oversee the creation and adherence to Clinical Practice Guidelines, which have been proven to improve health outcomes, currently exists in the UK in the form of the National Institute for Health and Clinical Excellence.¹²

Strong Federal leadership in establishing accountability for health and healthcare of Canadians

Our faculties of medicine believe the Federal Government should take a strong leadership role in establishing accountability for health and healthcare that is responsive to the needs of Canadians with a focus on our most vulnerable populations including seniors, many of whom have chronic diseases such as dementia.

Ongoing and increased support for health research and innovation in these areas, through federal funding agencies, with clear demonstration of provincial performance that includes return on investment processes and deliverables, would represent a great step forward.

The Federal Government facilitation of the knowledge sharing from health research, health data from EMR, and clinical practice guidelines must be accompanied by a willingness to hold the provinces accountable for implementing known advances to knowledge related to better care and cost containment in care delivery.

Federal leadership in establishing accountability of our health systems could be the most important innovation in healthcare and have the greatest impact on the health of all Canadians.

¹ Statistics Canada 2011, Government of Canada, accessed November 18 2014, <<http://www.statcan.gc.ca/pub/11-402-x/2011000/chap/seniors-aines/seniors-aines-eng.htm>>

² Sullivan, P 2013, *Seniors' care now a dominant Canadian concern: CMA survey*, Canadian Medical Association, accessed November 18 2014, <<https://www.cma.ca/En/Pages/Seniors-care-dominant-Canadian-concern-CMA-survey.aspx>>

³ Mamdani, M; Dhalla, I 2012, *How changing drug policies save lives and dollars*, Li Ka Shing Knowledge Institute, accessed November 18 2014, <<http://www.stmichaelshospital.com/pdf/corporate/research-impact-report.pdf>>

⁴ Valiquette, L 2014, *Outils informatiques pour la prise en charge des infections*, Centre de Recherche du CHUS, accessed November 18 2014 <<http://pdf.latribune.ca/cahiers/2014/10220108/HTML/index.html#14/z>>

⁵ Straus, S 2012, *Keeping our elderly patients active and healthy*, Li Ka Shing Knowledge Institute, accessed November 18 2014, <<http://www.stmichaelshospital.com/pdf/corporate/research-impact-report.pdf>>

⁶ Panel on the Return on Investments in Health Research 2009, *Making an Impact – A Preferred Framework and Indicators to Measure Returns on Investment in Health Research*, Canadian Academy of Health Sciences, accessed November 18, 2014, <http://www.ca-hs-acss.ca/wp-content/uploads/2011/09/ROI_FullReport.pdf>

⁷ Canada Foundation for Innovation; Canadian Institutes of Health Research; Natural Sciences and Engineering Research Council; Social Sciences and Humanities Research Council 2013, *Capitalizing on Big Data: Toward a Policy Framework for Advancing Digital Scholarship in Canada*, Government of Canada, accessed November 18 2014, <http://www.sshrc-crsh.gc.ca/about-au_sujet/publications/digital_scholarship_consultation_e.pdf>

⁸ Institute for Healthcare Improvement 2014, accessed November 18 2014, <<http://www.ihl.org/Engage/Initiatives/TripleAim/Pages/default.aspx>>

⁹ Institute of Medicine 2013, accessed November 18 2014, <<http://www.iom.edu/About-IOM.aspx>>

¹⁰ McCarthy, D; Mueller, K; Wrenn, J 2009 *Kaiser Permanente: Bridging the Quality Divide with Integrated Practice, Group Accountability, and Health Information Technology*, The Commonwealth Fund, accessed November 18, 2014, <http://www.commonwealthfund.org/~media/Files/Publications/Case%20Study/2009/Jun/1278_McCarthy_Kaiser_case_study_624_update.pdf>

¹¹ Canadian Primary Care Sentinel Surveillance Network 2013, accessed November 18, 2014, <<http://cpcssn.ca/about-cpcssn/>>

¹² National Institute for Health and Clinical Excellence 2014, accessed November 18, 2014, <<http://www.nice.org.uk/about>>