



Guest Editorial

Health Care Innovation – It's Our Generation's Turn

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It's hard for today's Canadians to imagine a time when a visit to a doctor meant first checking your bank account; or when surgery could financially devastate a family. We are inheritors of one of the greatest social innovations of the last century – an innovation framed in the Canada Health Act. Medicare was a remarkable achievement of national collaboration and consensus that delivered an outstanding health care system based on 13 interlocking provincial and territorial health plans. It was the envy of the world and a model to be copied.

Health care remains our top priority and one of Canada's defining characteristics. However, after more than four decades, cracks are now threatening to undermine our system – cracks not in its principles but in its sustainability. So worrisome are these threats that there has been discussion about enshrining patient rights in a Health Charter; and British Columbia is advocating that sustainability be added to the principles of the Canada Health Act. As patients and taxpayers, and as the industry best positioned to help, these threats warrant our serious attention.

Desperately Seeking Innovation

Across Canada, each year our health system handles over 440 million lab tests, 322 million doctor visits and 382 million prescriptions. Information may be the lifeblood of our health care system, but we use antiquated technology - primarily paper and film - to capture, store, manage and share it. Crucial patient information lies scattered and buried in the filing rooms of 40,000 doctors' offices, test centers, hospitals and clinics. Piecing together a patient's complete medical picture today is a difficult, labour-intensive, error-prone challenge.

Should we worry? A landmark study by the Canadian Institute for Health Information found that up to 23,000 Canadians die each year in our hospitals from preventable adverse events. Many of these deaths result from missed drug interactions, inappropriate medications and failures in care coordination.

Paper puts our safety at risk. It wastes money and scarce

resources. It undermines every health care priority we have. How can we efficiently reduce wait times if up to 70 million of the tests we take annually are wasteful duplicates? How can we improve access to care when 68% of specialists seeing a new patient receive no up-front information, making the visit less than productive? And how can we provide safe care when 40% of women at risk of cervical cancer are not screened because we lack cost-effective mechanisms to identify and track them.

Our once-admired health care system is in crisis. Innovation is desperately needed - in the nuts and bolts of how we deliver the health care Canadians deserve.

Taking-Up the Challenge

Fortunately, we are blessed in this country with an exceptionally strong and productive ICT sector. Working with the provinces and territories, innovations are already making a difference as electronic health records (EHRs) are introduced from Iqaluit to Toronto, from St. John's to Vancouver.

Today, seniors arriving at any hospital emergency room in Ontario have their medication profile instantly available on-line to their attending physicians, with more provinces coming on-line this year. The Northwest Territories, Yukon and Nunavut are overcoming the challenges of distance and accessibility by electronically linking local patients and health professionals with clinicians thousands of kilometres away. This year, Alberta and PEI residents will be the first to benefit from province-wide electronic health records. Also in 2008, the Public Health Surveillance system spearheaded by British Columbia for Canada-wide deployment will begin to roll out – including immunization tracking, case management, and outbreak and alert management modules. This solution stands to be the first of its kind in the world for a national implementation.

With our partners, innovation has been widespread. A powerful standards-based, service-oriented architecture is guiding development across the country, allowing each jurisdiction to focus on their priorities while also ensuring that components developed in one jurisdiction

can be reused in another. Formal mechanisms have been established to allow jurisdictions to share their specifications, experience and expertise; all of which is reducing cost, risk and time. Clinicians everywhere are engaging in a process that is bringing benefits to their patients and the health care system, and making them more productive.

Each province and territory has established a detailed 3-5 year roadmap to build the foundation of the electronic health record systems they need. Almost 260 projects are completed or underway, representing an investment by Infoway of approximately \$1.5 billion, or 95% of our total funding. Jurisdictions' contribution for development, deployment, adoption and on-going maintenance often represents multiples of this amount.

By 2010, every province and territory will benefit from these new systems. In addition, we are on track to have comprehensive EHRs for 50% of Canadians – comprising hospital discharge summaries, clinical reports, allergies and immunizations, as well as medication profiles, lab test results and diagnostic imaging exams.

The rest of the world is taking notice. We are regularly asked to present our innovative and collaborative approach to foreign governments and institutions anxious to learn from our successes and challenges. Companies such as Sun and Oracle are leveraging our architecture and EHR Blueprint, developing solutions for Canada and beyond.

More Innovation to Come

Although our efforts have focused on improving health care for individual Canadians, Canada's emerging EHR infrastructure could also provide a powerful platform for secondary applications. Specifically, EHRs have been designed so individual records can be "de-identified" and aggregated to provide precious real-world data to public health officials, academic researchers and policymakers.

Just last month Prime Minister Harper unveiled sweeping changes that will expand Canada's ability to recall unsafe drugs from the market. To support this, Health Canada is exploring effective "life-cycle drug surveillance" solutions to more quickly identify problems. Analyzing de-identified data, sourced from EHRs that include drug histories, examination findings, lab reports, and diagnostic test results from a wide population base, could be a potent tool in more rapidly and effectively assessing the efficacy of recently introduced drugs.

Health Minister Tony Clement will also be working with the provinces to introduce a mandatory system to report adverse reactions. Having a readily available EHR would make it easier to report an adverse drug reaction, along with critical supporting documentation. The anonymized, aggregated health databases derived from EHRs could also drive new epidemiological and policy

research to better understand the benefits and risks of an increasingly complex health care system.

All this is good news for Canada's economy at a time when it is most needed. It is allowing Canada's IT industry to grow and diversify beyond its traditional work in the financial, retail and transport sectors, opening important opportunities to take their health information expertise to international markets. It is strengthening the expertise and knowledge base of universities and colleges throughout Canada, who are growing their health informatics faculties and working on aspects of solution development and benefits evaluation.

In a recent study, the Conference Board of Canada estimates EHR activity will have created 37,000 jobs by 2010, providing \$2 billion in new labour income for Canadians. The study also estimates EHR investments will have generated \$1 billion in corporate pre-tax profits. Importantly, every dollar invested by Infoway and the provinces adds \$1.34, on average, to Canada's gross domestic product.

Our Generation's Challenge

Unfortunately the story doesn't end here. Completion of our current goal in 2010 represents a significant milestone. However, it represents less than half of the EHR solution. In 2010, half of all Canadians will still not have a complete, individual electronic health record. As well, the vast majority of doctors' offices will not be part of the EHR platform. Indeed, a recent Commonwealth report showed Canada seriously lags behind other developed countries in automating physician offices.

In Canada, we are at a crossroads. We have established strong momentum and a solid track record. We know what needs to be done and we know how to do it. Stopping now should worry us, not only as patients and care-givers, but also as innovators and taxpayers, especially as health care costs consume well over 30% of provincial budgets.

To finish what was started takes commitment and money. Two recent studies estimate the total cost of EHRs for all Canadians in all settings would be \$10 billion, spread over ten years. The promising news is that these same studies confirm that once fully implemented, electronic health records will deliver savings estimated at \$6 to 7 billion each year – money that can be more productively re-invested in other priorities, whether it's health care, education, innovation or infrastructure.

The health care system the previous generation struggled to build is precious and important to preserve. It is now our generation's turn to renew this inheritance - to develop the innovations, to make the commitments that will make it ours and our childrens. ●