



Canada



Describe a successful and challenging e-health initiative Canada has taken.

A major e-health initiative Canada has undertaken was the creation of Canada Health Infoway (Infoway) in 2001, following several years of related policy work. Canada Health Infoway is a federally-funded, independent, not-for-profit corporation with a mandate to accelerate the development and adoption of electronic health information systems with compatible standards and communications technologies on a pan-Canadian basis.

All jurisdictions in Canada are working together in the expectation that health I/Ts, such as electronic health records (EHRs), telehealth and public health surveillance systems, will significantly improve access to health care services, patient safety, quality of care and productivity. (Canada considers all of these areas and some other ICT tools to be part of e-health.)

Infoway is collaborating with the federal, provincial and territorial (F/P/T) governments towards a common goal of modernising Canada's health information systems. This collaborative approach reduces overall costs by coordinating efforts, avoiding duplication, taking advantage of economies of scale, replicating successful initiatives across the country and sharing best practices.

The creation of Infoway both expanded the use of telehealth and built the foundation for Canada's electronic health records system. Through its support of Infoway, the federal government seeks to build a health care system which is more accessible and sustainable and ultimately more responsive to the health needs of Canadians.

What were the financial challenges and costs associated with implementation of this programme?

Development of an interoperable, integrated electronic health record system in a decentralised federation with a small population (about 34 million) scattered throughout a country with a very large landmass that includes the far North, poses financial and other challenges.

To encourage participation, Infoway acts as a strategic investor, providing a portion of system development costs and project oversight while its provincial and territorial (P/T) partners in initiatives and projects are responsible for the actual system development, implementation and overall funding, including on-going operational costs.

To date, the following funding agreements between the Minister of Health and Infoway represent a total federal investment to date of C\$1.6 billion:

- ✦ 2001 – C\$500 million for EHRs and telehealth
- ✦ 2003 – C\$600 million additional support for EHRs and telehealth
- ✦ 2004 – C\$100 million for a pan-Canadian health surveillance network
- ✦ 2007 – C\$400 million for continued work in telehealth and EHRs, and to support wait times reductions.

As of December 31, 2007, Infoway has approved over C\$1.3 billion to support more than 240 Canadian projects.

What have been the main technological challenges in implementing e-health in your country?

The first major challenge was the need to define and develop a pan-Canadian standards-based business and technical EHR solutions architecture on which 14 different jurisdictions (Infoway Members), health system delivery organisations, vendors and clinicians could agree. Moreover, this architecture had to have the capacity to enable connectivity across approximately 40,000 points of service.

The business requirements and resulting architecture were innovative for the health care information technology industry. This meant that using existing solutions was problematic; quite simply, there were a limited number of 'off-the-shelf' solutions available that supported Canada's collective functional, technical and interoperability requirements. As a result, many vendors had to develop new solutions or do significant enhancement or customisation of existing solutions.

Developing and deploying the related standards has proven challenging as well. There were few standards which supported our business requirements and architecture already available that could simply be adopted. Thus, significant effort was needed to gather the detailed requirements for standards, develop the standards specifications, and finally to retrofit the applications to apply the standards. However, the efforts expended will facilitate interoperability and ensure the use of consistent terminology across the spectrum of solutions deployed. Interoperability, for the purpose of sharing a person's personal health information across a very diverse set of applications, is fundamental to the mission of Infoway on behalf of the jurisdictions and other key stakeholders they serve. This requires consistent implementation of software services and standards. The ability to test and certify system compliance with the interoperability standards remains a major challenge for Canada.

Another technological challenge in Canada is inadequate bandwidth, particularly in the North, and territories such as Nunavut. Essentially, the electronic capacity to support this work is missing in these areas, due to inadequate telephone line infrastructure. The lack of capacity is impeding progress on telehealth and electronic health records applications development, both of which, being information-intensive, require access to lines with considerable capacity. Enhanced capacity in these remote areas of Canada must be supplied by satellite, and this can be very costly. The situation is being reviewed by the federal government.

Have any ethical issues been raised during the design and implementation of e-health programmes?

As mentioned, Canada had been building the foundation for e-health for several years (1997-2000) prior to the creation of Infoway. This consultation work involved not only the provinces and territories on e-health, but also experts and stakeholders from across the country to participate in the e-health vision for the country.

From the outset, privacy and the protection of personal health information has been a key area of focus for these F/P/T consultations, and a key consideration for the development of Canada's e-health plans for electronic health records systems in particular. This concern resulted in early collaborative work toward harmonisation of F/PT legislation regarding personal health information in electronic format.

*The Pan-Canadian Health Information Privacy and Confidentiality Framework, endorsed in 2005, recommended core provisions for the collection, use and disclosure of personal health information. As Canada is now well along in the implementation of initiatives such as EHRs, governments at all levels remain acutely aware of the need to protect the personal health information of their citizens. A public opinion research initiative entitled *Electronic Health Information and Privacy: 'What Canadians Think 2007'**, released on 16th November, 2007, indicated that 88 per cent of Canadians support the implementation of EHRs. However, this support remains tightly linked to the need to safeguard the personal information contained in those records.*

Infoway provides expertise to support successful implementation of electronic health information solutions by its partners, as well as monitor projects to ensure cost and risk are well-managed. Dimensions of this work include: standards development, the EHR Blueprint, risk and quality assessments, and collaborative work on privacy. The latter includes a Privacy Forum where F/P/T Privacy Officers and representatives from health departments discuss privacy governance matters as they relate to electronic health information management on an ongoing basis.

** Health Canada, Canada Health Infoway and the Privacy Commission co-sponsored the survey.*

Has the implementation of e-health programmes required any legal or regulatory changes?

Recognising the benefits of electronic prescribing, Health Canada undertook a review of its federal statutes to determine whether amendments would be required to enable electronic prescribing, a component of an interoperable EHR. The review resulted in the following decision: "Health Canada has determined that electronically generated and transmitted prescriptions are permissible to the extent that they achieve the same regulatory objectives as written prescriptions."

Another legal issue to consider in Canada is that it is a bilingual country; therefore there is a requirement that e-health initiatives and systems be produced in both official languages; English and French. One example can be seen in the decision to use the Systematised NOMenclature of MEDicine Clinical Terms (SNOMED CT®) standard.

This clinical terminology facilitates the interoperability of EHR, and is the terminology 'standard of choice' for semantic interoperability of EHR, since it provides the core clinical terminology for the interoperable Electronic Health Record (iEHR). Currently SNOMED CT® contains more than 357,000 concepts with unique meanings and formal logic-based definitions organised into hierarchies. However, SNOMED CT® is not currently available in French, so Infoway is leading the translation effort to ensure the pan-Canadian iEHR is able to serve the Canadian population if necessary in both official languages.

What have been the outcomes of your e-health initiatives?

The work of Infoway with the P/Ts has been proceeding well, particularly over the last several years, according to a federal review done in 2006 and the Health Council of Canada, which reports annually on results. However, Canada's plans for telehealth and EHR development in particular are ambitious, so they are not yet complete.

Governments in Canada are working with Infoway on the both the telehealth and the electronic health record priorities. Infoway has invested with P/Ts in projects to expand and sustain telehealth initiatives in Canada, in rural and remote communities in particular, including some Aboriginal and official language minority communities. Telehealth strategic plans are also now in place in most jurisdictions, and the implementation goal of telehealth solutions by all jurisdictions is by 31st December, 2009.

An important goal Infoway is working on with the provinces and territories is to provide a fully interoperable EHR for 50% of Canadians by the end of 2010. While all P/Ts have accelerated the development and implementation of the eEHR in their jurisdictions by working on projects with Infoway, according to the Health Council's 2007 report, while seven of Canada's 13 P/T jurisdictions are 'on track to achieve the goal by either 2009 or 2010', several are not as advanced.

Additional e-health initiatives and contacts from Canada

Highlights of international research on e-health:

- i. **World Health Organization** – Canada, along with several other Commonwealth member countries, was among the 112 countries that participated in Building Foundations for e-health, the first-ever worldwide survey done on this topic. Canada has a 10-year involvement in e-health and was able to cite activities in all five of the key areas included in the WHO survey.
- ii. **Organization for Economic Cooperation and Development (OECD)** – Canada is participating, along with several European countries, in a study being conducted by the Health Committee of the Organization for OECD "Assessing incentives for implementation of ICTs in the health sector. The study objectives are the development of indicators for monitoring and bench marking ICT adoption; research of the drivers and incentives for ICT adoption within the health sector; and conduct of case studies to obtain new data and insights. Canada has agreed to participate as one of the project's case studies, which will examine two e-health ICT projects.

Key e-health contacts at the federal level include:

Two senior Health Canada officials, the Deputy Minister and the Assistant Deputy Minister, Health Products and Food Branch, serve as the federal government's Corporate Member and Member of the Board of Directors, respectively.

Health Canada

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