

A Growing E-Health IT Partnership: Canadian Healthcare and HIMSS Analytics

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In the last year, several Canadian provinces have restructured healthcare delivery in ways that are intended, in large part, to enhance the role and responsibility of electronic health information technology (IT) in contributing to efficient and effective healthcare services. New Brunswick and Alberta have downsized the number of regional health authorities (RHAs). British Columbia and New Brunswick have established shared services organizations for purchasing – and managing – a variety of IT services. Ontario has created an agency and chief executive

officer of e-health to consolidate the province's e-health programs and efforts. Driving these provincial ventures is the conviction that cost-effective economies of scale will increase opportunities for smart, province-wide investments in IT systems and services that improve patient outcomes and save lives.

Implementing Interoperable Electronic Health Records

At the top of provincial and territorial agendas is the development of an interoperable electronic health record (iEHR) that would generate a longitudinal electronic record of patient health information accessible by a province or territory's providers and the patient. This is a goal shared by Canada Health Infoway. On the way to implementing an iEHR, the provinces and territories face significant IT systems challenges, not least of which is the diversity of clinical IT solutions in the individual care-delivery organizations that have been implemented regionally, often without much governmental oversight or coordination, during the last two decades. Provincial and territorial governments must address questions of whether to interface existing legacy solutions through a patient and clinician portal or execute a

Provincial E-Health Initiatives in 2008

- Alberta replaces nine RHAs with Alberta Health Services
- New Brunswick consolidates eight RHAs into RHAs A/B and creates FacilicorpNB, a shared services organization
- Ontario creates eHealth Ontario, replacing Smart Systems for Health Agency
- British Columbia establishes the BC Health Authority Shared Services Organization

RHA = regional health authority.

“rip and replace” with a single clinical IT solution. Critical to the debate, given the extensive ambulatory healthcare network in all provinces and territories, is the need for an efficient IT solution that connects in-patient hospital-based systems with out-patient physician-centric systems and seamlessly provides patient information across different delivery settings.

An Example: Alberta Netcare

A case in point is Alberta, which has spent several years developing Alberta Netcare, the provincial patient information portal collecting physician, diagnostic imaging and drug dispensing information, and the provincial Health Information Exchange, the single point of connectivity for Alberta’s EHR components in transmitting data between repositories and registries. The working hypothesis for both projects has been the continued existence of diverse clinical systems for the major components of an electronic medical record (EMR) environment, or an electronic patient record (EPR) environment in Canadian terms. The EMR or EPR environment comprises the collection of systems supporting the care-delivery organization’s care of the patient, including laboratory, radiology and pharmacy systems, the clinical data repository, order entry, computerized practitioner order entry (CPOE), nursing and physician documentation, electronic medication administration records and clinical decision support.

With the creation last year of Alberta Health Services, a province-wide healthcare system, the question has surfaced as to whether Alberta should continue supporting the regional legacy of multiple EMR environments (Meditech, Eclipsys and Epic) or consolidate. Likewise, New Brunswick will face the same question as it works toward its vision of an EHR, “one patient, one record,” taking data from existing Meditech and Eclipsys clinical systems.

Canadian IT data needs

When Healthcare Information and Management Systems Society (HIMSS) Analytics initiated its Canada Information and Communications Technology (ICT) project in 2007, a recurring theme of conversations with provincial and territorial healthcare officials was their recognition of the need to obtain reliable sources of IT information as a basis for developing and implementing their EMR/EPR and EHR strategies. In some cases, their immediate need was to collect data from across regions and facilities on existing inventories of software applications, servers, computers, long-term storage and so on. In all cases, there was strong interest in accessing comparative measurements of IT operability and effectiveness against peers, and developing IT best practices across provinces. Keeping in mind these IT data requirements of Canadian officials and providers, HIMSS Analytics set out to fill this need, starting with IT data collection for all Canadian acute care facilities.

The not-for-profit healthcare data and research subsidiary of HIMSS has just concluded the second year of its Canada ICT Study with an exponential increase in the number of provider participants and the quantity of collected data.

The 2008 Canada ICT Study

Most provinces and territories participated extensively in the 2008 Canada ICT Study, which closed on December 31, 2008. In seven provinces (not including Ontario, Quebec and Alberta) and the three territories, 44 of 47 RHAs, Health Authorities (HAs) or district health authorities (DHAs), accounting for 205 of 211 acute care hospitals, completed most of the study. In Ontario, 110 of 146 hospitals took part in the first-ever “E-Health Adoption Survey – Technologies and Applications,” which was jointly sponsored by the Ontario Hospital Association and HIMSS Analytics. In Quebec, through the efforts of the Montreal Agence de la santé et de services sociaux, 24 of the province’s 114 acute care facilities began the study in late fall. Given the work involved in transitioning Alberta to a single health system, discussions are still underway about updating the information collected in 2007 for the province’s former nine RHAs and 95 hospitals. Recent federal–provincial–territorial conversations about the HIMSS Analytics Canada ICT Study at meetings of the Canada Health Infoway–Chief Information Officer (CIO) Forum in Nunavut last September and Vancouver in February – concerning the kinds of data collected and the benchmarking benefits – offer the promise of growing cooperation between the provincial and territorial ministries of health and HIMSS Analytics to ensure even richer data collection and benchmarking for 2009.

Benchmarking Reports and the EMRAM Score

While outcomes statistics from the Canada ICT Study for the country as a whole will not be available until later this spring, participating regional healthcare organizations and hospitals already have easy web-based access to benchmarking reports. Each of the benchmarking reports allows providers to compare their organization against 10 peers based on a selection of metrics such as hospital or regional information services (IS), department expenses, operational or full-time equivalents and so forth. For 2009, 77 benchmarking reports (blinded data) are available; this compares to 61 reports for 2008. The 2009 benchmarking reports include 27 hospital IS department comparisons, 29 regional/integrated delivery systems comparisons and 21 EMR Adoption Model (EMRAM) score comparisons.

The jewel in the crown of HIMSS Analytics’ efforts to benchmark the progress of healthcare organizations in implementing a fully paperless EMR/EPR environment is the EMRAM score. Currently, HIMSS Analytics computes EMRAM scores only for US hospitals (Figure 1). The EMRAM score, published on a quarterly basis, measures a care-delivery organization’s level of

Figure 1. EMR Adoption Model 2007 and 2008 Final: United States

Stage	Cumulative Capabilities	2007 Final	2008 Final
Stage 7	Medical record fully electronic; HCO able to contribute CCD as a byproduct of EMR; data warehousing in use	0.0%	0.3%
Stage 6	Physician documentation (structured templates), full CDSS (variance and compliance), full R-PACS	0.8%	0.5%
Stage 5	Closed loop medication administration	1.4%	2.5%
Stage 4	CPOE, CDSS (clinical protocols)	2.2%	2.5%
Stage 3	Clinical documentation (flow sheets), CDSS (error checking), PACS available outside radiology	25.1%	35.7%
Stage 2	CDR, CMV, CDSS inference engine, may have document imaging	37.2%	31.4%
Stage 1	Ancillaries – lab, rad, pharmacy – all installed	14.0%	11.5%
Stage 0	All three ancillaries not installed	19.3%	15.6%
Total Hospitals		n = 5,073	n = 5,166

CCD = Continuity of Care Document; CDR = Clinical Data Repository; CDSS = Clinical Decision Support System; CMV = Controlled Medical Vocabulary; CPOE = computerized practitioner order entry; EMR = electronic medical record; HCO = Health Care Organization; Lab = laboratory; Rad = radiology; R-PACS = Radiology – Picture Archiving and Communication System.
 Source: HIMSS Analytics Database.

EMR/EPR capabilities, ranging from limited ancillary department systems to a fully electronic environment on a continuum of eight stages ranging from zero to seven. Stage 7 means that clinical information can be readily shared via electronic transactions or exchange of electronic records within a health information exchange (such as Canada’s iEHR, discussed at the beginning of this article), including other healthcare organizations, government and patients. A comparison of 2007 and 2008 US EMRAM scores by stages provides US IT leaders with rigorous standards for locating the IT progress of their facilities against the e-health achievements of all US hospitals and health systems.

It is premature to predict what the EMRAM scores will be for Canadian hospitals, based on the data collected for 2008. General observations from the data collection process show that many regional health organizations and hospitals are still completing implementation of the ancillary systems of stage 1, are in the process of developing a clinical data repository for stage 2, and planning to install clinical documentation systems for stage 3. Going forward, the higher-complexity e-health tasks challenging Canada’s hospitals will be implementation of the CPOE capacity of stage 4 and the closed-loop medication administration environment of stage 5.

In this light, a number of Canadian hospitals might benefit from studying the successes of those peer US hospitals that

have implemented CPOE in one patient service for stage 4, achieved the closed-loop medication administration environment of stage 5 and moved to implementation of full physician documentation and a full complement of radiology picture archiving and communication systems for stage 6. Among the 42 American hospitals to have achieved stage 6 as of February 18, 2009, 26 belong to seven healthcare systems or integrated delivery systems comparable in size to the range of Canadian regional healthcare organizations in number of facilities and beds (HIMSS Analytics, 2009). In the EMR environment, these seven US integrated delivery systems have adopted clinical suites developed by Epic (3), Cerner (2) and Meditech (1) – vendors familiar to Canadian providers – as well as a self-developed EMR solution (1).

Embracing Clinical IT in Canada

Increasingly, Canadian healthcare stakeholders are embracing advanced clinical IT as the instrument of choice for integrating functional, patient-centric healthcare delivery across facilities, regions and even provinces or territories. Canada Health Infoway’s Annual Report 2007–2008 opens with a section on “Better information for improved patient outcomes” (Canada Health Infoway, 2008). The example cited is that of the web-based surgical reporting system WebSMR, which was first tested at the Alberta Cancer Board’s Tom Baker Cancer Centre in

Calgary. In the report, the chief of surgical oncology at the Tom Baker Cancer Centre, Dr. Walley Temple, says: "The approach behind WebSMR has really moved surgery from art to a science. Suddenly you can analyze what works and what doesn't work." In announcing the creation of eHealth Ontario and its first president and chief executive officer, Ontario's Ministry of Health and Long-Term Care identified three provincial e-Health priorities – a Diabetes Registry, e-Prescribing and an e-Health portal to centralize web-delivered health information – and chose Sarah Kramer for her leadership experience on the province-wide IT projects of Cancer Care Ontario, the Wait Time Strategy (including setting up the Wait Times Information System) and the Provincial Client Registry (eHealth Ontario 2008).

Working in partnership with Canadian healthcare IT leaders and their e-Health strategies, HIMSS Analytics' primary objective for its Canada ICT Study is to assist Canadian healthcare stakeholders in identifying and developing effective IT strategies based on accurate IT environment data, enabling the development of best practices that generate improved patient outcomes and patient safety.

For more on HIMSS Analytics' studies, research and findings on healthcare, go to www.himssanalytics.org.

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