

Challenge

Personal health records in primary care

The Nova Scotia Department of Health and Wellness implements McKesson's RelayHealth to make the patient a partner in care

A lack of connectivity and breakdowns in communication are some of the major issues challenging the Canadian healthcare system as it confronts an aging population and high rates of chronic disease. Healthcare costs escalate with duplicate testing, multiple prescriptions, medication errors and poor hand-offs between levels of care resulting from an inability to share patient information.

Safety is compromised due to misinformation or gaps in information transferred between different healthcare providers.

Richard Alvarez, President & CEO of Canada Health InfoWay, has stated that Canada's antiquated approach to information sharing "undermines every healthcare priority we have."¹

Patients are calling for faster access to the right services and more involvement in managing their own health care. They can do online banking so why can't they book a doctor's appointment? However, investments to date in health information technology (HIT) have focused on large hospital systems and not on systems with which patients can interact. In its 2011 report *Healthcare Transformation in Canada*, the Canadian Medical Association stated that HIT investments have not yet resulted in significant benefits to providers or patients, which can only be realized if HIT is used at the point of care. The vast majority of contacts are at the community physician level.²

The province of Nova Scotia has made significant progress with the implementation of a hospital-based electronic health record system known as SHARE (Secure Health Access Record), a provincial Picture Archiving and Communications System (PACS) system for storing and viewing diagnostic images and the development of an electronic medical record (EMR) system for

use in primary care. While essential to render information accessible to providers, these systems do little to equip patients to take a more active role in their health and health care — a high priority in a province that has some of the highest rates of chronic disease nationwide.

Patients as partners in care

Dr. Ajantha Jayabarathan, a community-based family physician in Halifax, is a long-time proponent of collaborative shared-care models that meaningfully engage patients in the prevention and management of disease. "Using the EMR and the shared-care model, I take a preventive and proactive approach to bring about behaviour change at a patient and family level," says Dr. Jayabarathan. She offers her 1,400 patients annual visits and customized screening, and motivates them to understand their health conditions, confront risk factors and take measures to reduce them. "This involves taking the time to explain test results, giving them copies and actively engaging them in their care. For older patients who are likely to show up at the ER, I generate from my EMR a sheet detailing their medical and surgical history, prescribed medications and other relevant information that they can show to ER staff when they arrive."

Her efforts to bridge the gaps in the system by utilizing the EMR and engaging patients got a

welcome boost when, in March 2012, the Department of Health and Wellness announced a two-year demonstration project to assess a personal health record (PHR) strategy for the province.³

Canada Health Infoway defines the PHR as a complete or partial electronic health record under the custodianship of a person (which could be a patient or a family member) that holds all or a portion of relevant health information about that person over their lifetime.⁴ “We see the PHR as a true game changer,” says Mary Russell, Project Director, Personal Health Records with the Nova Scotia Department of Health and Wellness, “because it will allow us to engage patients in their health care in ways we’ve not experienced before and help bend the cost curve attributable to chronic disease.”

Nova Scotia wanted a PHR that would enable patients e-access to their own health information, provide patient-to-provider and provider-to-patient e-communication for appointment requests or routine care questions, enable provider-to-provider linkages across the system for referrals, allow patients to log their over-the-counter (OTC) medications, symptoms and self-monitoring data, and provide access to targeted wellness programs. “The benefit we see with a PHR,” says Ms. Russell, “is that it stores information from many healthcare providers in one central location available at all times from any location where there’s Internet connectivity.”

The program

Government felt it should lead the PHR initiative to ensure that patients didn’t end up with a different PHR from every level of care. “If one patient one record is where we want to head, then we need to adopt a systematic and coordinated approach to PHRs,” says Ms. Russell. The Department of Health and Wellness looked at experience in Europe (Denmark in particular), New Zealand and the US with e-referrals and patient access to health information. There was no relevant experience in Canada with wide-scale use of PHRs.

The Department also looked into a new non-capital-asset funding model that would allow for speedy implementation without an upfront investment in hardware, software or human

resources to maintain the program. “We wanted a subscriber-based solution that would allow us the flexibility to ‘pay as we play’, says Ms. Russell. Canada Health Infoway provided 75% of the funding for a demonstration project.

The province launched a request for proposals (RFP) and, following a rigorous procurement process, selected McKesson’s RelayHealth for the demonstration project. “An important factor in our selection,” says Ms. Russell, “was RelayHealth’s experience implementing PHRs, including its integration with 40 different EMRs in the US. That was important in selecting a PHR because physicians are using a range of EMRs.”

RelayHealth is a simple, accessible Web-based interface that provides secure information flow between patients and their healthcare providers. It is used by 24 million patients and 40,000 physicians in the US. Patients can ask clinical questions via secure messaging, receive preventive care reminders, send a note to the provider’s office, request prescription renewals and refills, access lab or test results, and request appoint-

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ments. They can also store securely and manage their information on health conditions, allergies, immunizations, hospitalizations, office visits and family history. It empowers patients to participate in their own health care in a new and advanced way.

Vendors as partners in development

“We knew we wanted to work with an experienced vendor because PHRs are a new area with very little published evidence and there’s a lot to learn on both the client and vendor side. Part-



Cloud Computing

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

National Institute for Standards and Technology (NIST) in the United States

nership is essential to make this work,” says Ms. Russell.

“The province was very open in saying this is a learning experience for us and we need our partner to work with us so we may learn together,” says David Mosher, Director, RelayHealth. “Normally, a RFP has very rigid requirements and a set amount of money for a tightly defined service and whenever a change is required, you have to go back and redesign the whole offer. The experience in Nova Scotia was quite different. The need to adapt and change gears as needed was emphasized.”

RelayHealth is delivered as a service, which means there is no need for government to invest in an expensive infrastructure project or develop and upgrade software. The absence of up-front costs means the system can be used even by small health regions, hospitals or clinics. If the demonstration project proves successful, RelayHealth will be rolled out province-wide and the government is exploring a subscription-based funding model.

Ownership and security of data

RelayHealth enables patients to set privacy settings and control who views the data. McKesson manages the data but does not have access to the records themselves. Neither does government have access to anything more than aggregate data. Privacy and custodianship are supported by federal and provincial privacy legislation.

Unlike e-mail, which relies on multiple file servers distributed across the Internet, RelayHealth uses a single, centrally-managed, secure database for all provider-patient communications. All messages are delivered to a Web browser using layer encryption and the patient’s information remains completely confidential and secure.

Uptake

The two-year demonstration project of the RelayHealth PHR got under way in January 2013 in the Capital Health district, one of nine district health authorities in the province. Capital Health includes both urban and rural areas, covers a population of 400,000 (almost half the provincial population), 473 GPs and 880 specialists. Thirty community-based physicians signed on to participate and were given a target of enrolling 100 patients from each practice by the end of 2013. That target of 3,000 participants was met in early July, six months ahead of schedule. “There’s clearly an appetite for this,” states Ms. Russell. The number of messages between physicians and patients is also much higher than expected.

Among the physicians participating in the demonstration project, some were early adopters of EMRs. They are now in the process of integrating the PHR into their existing EMRs. A few others however, were still paper-based and regarded the PHR as a quick way to get access to e-results and use the PHR as an “EMR lite”. RelayHealth can work either in conjunction with an EMR or independently. Ms. Russell welcomes the fact that different physicians and patients will find different uses for RelayHealth and produce different benefits.

Ms. Russell describes one rural physician who is giving patients access to their lab and diagnostic imaging reports through an auto release

function in RelayHealth. He set the system up so that within a certain number of days, results are automatically released to the PHR. "The delay allows the physician to call the patient if he feels they should speak about a sensitive result before the patient sees it," she explains. The system saves time and expense for patients who often live quite a distance from the physician's office, and would previously have had to schedule an in-person visit to obtain test results. The physician can then open up those appointments to other patients.

Dr. Jayabarathan was an early adopter of EMRs, working since 2003 with Practimax Plus, a collaboratively developed Nova Scotian EMR/clinic management system on a local client server. She was enthusiastic about supplementing this EMR with the RelayHealth PHR and is aiming to get all her patients enrolled. In the six months leading up to July 2013, 500 patients joined the project. All are invited to do so when they arrive for appointments at the clinic. "About 70 to 80% of patients agree to use the PHR," she says. "A few don't feel ready to use the interface and a small number don't want to have their information on a network, no matter how secure."

Dr. Jayabarathan can now communicate e-results and other messages to patients electronically, thus bridging more gaps and replacing paper-based communications with a more efficient and reliable electronic format. She also discovered unanticipated uses for and benefits of RelayHealth. "The broadcast messaging component enables me to send a message to all or part of my practice to announce unanticipated office closures (we had a fire in early July), nurse-led foot care clinics, flu vaccinations, etc. The follow-through for services we offer at the clinic is increasing just through better communication."

However, the transition within doctors' offices is not always smooth. Dr. Jayabarathan's current colleague is like-minded and welcomes computerized support for the practice but former colleagues were not always open to such a high degree of communication with patients. Front office staff also needs the skills and confidence to support electronic management of clinical workflow in order to be comfortable receiving

electronic appointment and information requests. In Dr. Jayabarathan's practice, messages from patients through RelayHealth are screened by the office staff, who then route the communication to the physician or nurse. Physicians and nurses are also able to initiate direct communication. "When I send messages or e-results to patients, I always enable the back-and-forth communication, but we have worked these steps out incrementally in order to manage the communication volume. During the pilot, we are not paid for e-work, and must balance our workflow to keep the clinic running."

Potential for expansion

With enrollment complete well ahead of schedule, the Department of Health and Wellness anticipates being able to analyze results of the demonstration project shortly. A benefits evaluation plan has been designed in line with Info-way requirements and will identify the PHR's impact on patients, providers and the healthcare system, along with lessons that are expected to inform the provincial roll-out of the PHR.

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"The evaluation model looks at four domains," says Ms. Russell: "chronic disease management, patient-provider interaction, health service utilization and the quality of health services. For each of those we've identified indicators and are now collecting data."

Government has included community members, family physicians and specialists on the project steering committee and focus groups have been held with physicians, members of the community and front office staff to gain feedback on the PHR. This combined effort is providing valuable information to adapt the PHR, improve its utilization and identify issues that will need to be resolved. "Having citizens on

the committee changed the conversation,” says Ms. Russell. “They’ve been instrumental in the project’s success.”

An important issue is how to compensate physicians. The Department of Health and Wellness is exploring different physician pay-

ments accustomed to investing in large capital projects rather than purchasing services. “As more and more services are provided through cloud computing,” says Ms. Russell, “we need to move from our traditional funding of capital assets into non-capital assets. This is the first time our government is implementing cloud-based technology in this way. Cloud computing doesn’t require hardware or software. We’re going to have to move funding that people have allocated through Infoway or Government from the capital asset funding pool into operational funding. That’s a very significant change for provincial governments and organizations.”

In a white paper published in 2012, Canada Health Infoway identifies many opportunities for the application of cloud computing in health care in Canada, including community clouds to support integrated care delivery models for chronically ill patients. It also anticipates meaningful cost savings — cloud solutions cost about two-thirds less than maintaining a traditional in-house data centre.⁵

Ms. Russell has presented the demonstration project at many conferences and senses significant interest from other provinces “I haven’t heard a single person within or outside the province say that this is not the right direction in which to go,” states Ms. Russell. “Research has shown that patients want four things from a PHR: access to lab results, and the ability to send messages to their doctor, book appointments and renew prescriptions. Some provinces have implemented partial systems focusing on such aspects as access to health education materials. The speed of uptake in Nova Scotia can be attributed to the fact that the RelayHealth PHR provides the services that patients want.” ■

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ment mechanisms to compensate for electronic communications and this demonstration project is intended to provide information to help with that. Part of the purpose of the demonstration project is to inform a master agreement for physicians. For the moment, Dr. Jayabarathan is shadow-billing for “PHR visits” to track the impact of the PHR on clinic revenue and resource utilization.

McKesson has worked to tailor RelayHealth to the specific needs and capacities in Nova Scotia. In the US, RelayHealth includes a much broader range of functionalities. “When we launched the business in Canada, we narrowed the scope to focus on patient engagement,” says Mr. Mosher, “while leaving open the option of adding functionality over time.” The Department of Health and Wellness aims to add capabilities for referrals, along with a dashboard service that would enable physicians to match patient need for specialists with availability and help reduce wait times.

Financing presents a challenge to govern-

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