IBM Initiate: Delivering Accurate Patient and Provider Identification for Canadian Electronic Health Records
Electronic health records (EHRs) are being adopted in many countries around the world. The EHR momentum is driven by the desire to improve healthcare efficiencies and enhance the quality of patient care within provider organizations and across geographic boundaries. EHRs are essential for care coordination, which is vital to addressing the rise in chronic diseases, shortage of skilled healthcare professionals, and aging population. By facilitating secure access to patient health information at all points of care, EHRs ensure that providers have the most complete information to deliver the best possible care and to eliminate duplicate tests and procedures.

Canada was one of the first countries to lead the way in EHR adoption. In 2001, Canadian government leaders envisioned a countrywide unified patient record that would result in better quality of healthcare for all individuals. They wanted to provide clinicians with all of the information they would need to make more timely and informed decisions about diagnosis and treatment. The goal of government leaders was to create a pan-Canadian EHR system that would enable the sharing of patient health information even over long distances. This was no small task as few Canadian industries compare in size and complexity to Canada’s public healthcare sector, which serves a population of 33 million through more than 100 health regions and 900 hospitals.

One of the keys to success of Canada’s, or any country’s, EHR program is a solid patient identification foundation that ensures patient health records are as accurate and complete as possible. Canada Health Infoway, an independent, not-for-profit organization that works with the country’s provinces to implement and fund EHR initiatives, recognized this need early on and concluded that client registries were the best approach for achieving accurate and consistent patient identification. They also determined that accurate provider identification was critical and designated provider registries as another important component of the overall registry infrastructure.

Canada’s approach was to begin EHR implementations at the provincial level, with future plans to create an integrated pan-Canadian system, once provincial infrastructures were in place. Today, eight Canadian provinces, with nearly 26 million residents, have deployed IBM® Initiate® Patient master person index software as their client registry solution to link patient identity data from numerous sources and to support multiple integration points within the healthcare delivery system. IBM Initiate Patient provides a single trusted source for patient identification across various healthcare systems and delivery sites and lays the foundation for province-wide EHRs. In addition, IBM Initiate Provider software is used by two provinces to enable accurate provider identification and to link provider and patient records within and across care settings.

The benefits of the Canadian client and provider registry implementations have been significant. Below is a discussion of some of the deployment results and province-specific examples.

**Linking Legacy Systems and Large Volumes of Data While Delivering High Performance**

Successful EHR systems must provide access to complete and accurate patient records. These records are usually located in closed and proprietary legacy healthcare systems that need to be accessed so that data can be combined into a single and complete patient view. Providing access to data in legacy systems can be an extremely complex process. IBM Initiate Patient enables organizations to easily provide real-time access to legacy databases and applications that house the volumes of critical patient data throughout the healthcare ecosystem.
New Brunswick selected IBM Initiate Patient in 2009 to provide client registry technology for its EHR initiatives. Today, IBM Initiate Patient links patient identity data from eight health zones, Vital Statistics and Medicare. The system, which includes 31 contributing legacy sources, manages identities across more than 2.9 million source records and links patient health numbers, demographic information, and historic demographic information. IBM Initiate Patient software seamlessly accommodated New Brunswick’s consolidation of health authorities and their legacy data during the initial implementation. When the EHR is fully rolled out, authorized healthcare providers in New Brunswick will access accurate and complete patient data at all points of care.

Another province chose IBM Initiate Patient in 2007 to provide the foundation for its high performance, province-wide enterprise master patient index. IBM Initiate Patient currently links more than 60 legacy source systems, including provincial data from 159 hospitals and the Ministry of Health, to uniquely identify individuals within and across contributing sources. The system receives, on average, 9,300 new records and 260,000 updates daily and contains more than 52 million source records. With IBM Initiate Patient, the province is able to make more informed decisions for care planning, better wait list management and improvements in the direction of resources and funding, which has reduced patient wait times for five key services.

Integrating PACS, Labs, Pharma and Other Clinical Systems
Integrating clinical systems, such as picture archiving and communications systems (PACS), or laboratory or pharmacy systems enables the rapid online retrieval of images and other data to provide healthcare organizations with significant economic advantages. Clinical systems deliver even greater benefits when integrated with EHR systems. This integration allows clinicians to access complete information at all points of service, which improves care and reduces duplicate testing and prescribing. The job of providing anywhere, online access to clinical systems can require extensive custom programming and years of systems integration work. With IBM Initiate Patient, healthcare organizations can more easily integrate clinical systems by using a standards-based integration approach that requires less maintenance and IT integration support.

Saskatchewan chose IBM Initiate Patient in 2005 to provide an accurate Client Registry and to reduce duplicate patient records. Today, in addition to linking patient identities in legacy systems across the province, IBM Initiate Patient also manages identity validation for Saskatchewan’s PACS. Future, 2011 integration plans include pharmacy, point of service, and the Saskatchewan lab results repository.

IBM Initiate Patient was selected by another province in 2001 to provide the infrastructure for its provincial client registry and EHR. One of the province’s goals is to provide a single source for clinical information. The provincial PACS enables healthcare providers to view, manage, distribute, and electronically store images and related medical reports on a secure computer system from any location. The provincial Pharmacy Network component of the EHR, which went live in 2009, uses client registry data for patient identification confirmation and consolidation. In addition, the design and implementation of a laboratory information system has begun and there are plans to more tightly integrate the provincial PACS and EHR to remove the traditional barriers between images and other patient records information.

Enhancing Patient Care
As healthcare organizations around the world embark on new initiatives to improve patient care, their success will be dependent on how effectively they ensure accurate patient identification and provide a consistent view of critical information. Canada is leading the way with its pan-Canadian EHR efforts and other programs to improve health outcomes and the efficiency of care. IBM Initiate Patient enables enhanced patient care by providing healthcare professionals with more timely and easier access to trusted, accurate and complete patient information and EHRs.
The Alberta Ministry of Health chose IBM Initiate Patient in 2005 to link together existing regional client registries to create a province-wide registry that serves as the foundation for Alberta’s EHR. Today, through the Alberta Netcare EHR Portal, physicians, pharmacists and other health service providers can access up-to-date patient information at the point of care to improve patient outcomes.

In 2004, British Columbia selected IBM Initiate Patient as the mechanism to link patient identities in a single health region, in order to support the creation of a regional EHR, with the intent of expanding that capability to Regional Health Authorities across the province. The software now provides a complete view of patient demographic data, for the province’s four million residents. With IBM Initiate Patient, care providing organizations can easily access the most recent and accurate view of a patient’s identity, in order to ensure that clinical data is associated with the right patient. IBM Initiate Patient is also at the centre of British Columbia’s emerging Provincial Electronic Health Record. In addition, British Columbia deployed IBM Initiate Inspector, a data stewardship tool, to enable efficient, ongoing data quality management and remediation.

Nova Scotia selected both IBM Initiate Provider and IBM Initiate Patient in 2008 to provide the foundation for its province-wide patient and provider registry systems that link provider identity data, from multiple sources, to EHR systems and patient records. IBM Initiate Provider serves as the source of identity validation, links provider data from Nova Scotia’s College of Physicians and Surgeons, College of Registered Nurses and College of Pharmacists, and helps coordinate EHR source system identifiers and changes across receiving patient and provider systems. Nova Scotia also uses IBM Initiate Provider along with IBM Initiate Patient to establish relationships between patients and providers, and enable authorized users to access and exchange clinical records.

In Alberta, the Provincial Provider Registry serves as a central source for accurate, current and standardized provider information, and is a foundational component of Alberta’s EHR initiatives. Alberta uses IBM Initiate Provider to accurately identify regulated health service providers. Next steps will allow Alberta’s health systems to integrate and validate health service provider information against the Alberta Provincial Provider Registry.

Identifying and Linking Healthcare Providers

Providing an accurate and complete single view of provider data and the ability to identify relationships between providers and patients are key components of any interoperable health strategy. Canadian government leaders realized this early on and made provider registries part of their pan-Canadian EHR blueprint. A provider registry can update records from external credentialing sources and serves as the source of truth for systems that depend on the accuracy of provider data. IBM® Initiate® Provider associates information across multiple source systems to create a master view of each provider and enables up-to-date contact and credentialing information to be maintained and shared across a healthcare ecosystem. By establishing the data relationships between patients and providers, IBM Initiate Provider also helps manage data access and protect privacy.

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Implementing Healthcare and IT Standards

HL7 international healthcare interoperability standards enable the efficient exchange, integration, sharing and retrieval of electronic health information. Healthcare organizations that use HL7 standards can improve care delivery, optimize workflow, reduce ambiguity and enhance knowledge transfer. IBM Initiate Patient and IBM Initiate Provider are open and flexible platforms that integrate easily with open-source architectures, using web service technology and HL7V2 and HL7V3 standards.

In Nova Scotia, IBM Initiate software supports healthcare content, messaging and terminology, via HL7V2 and HL7V3 standards, in a single software and hardware instance. With this approach, the province was able to reduce infrastructure costs by advancing data interoperability, which enables collaboration and integration with future deployments.
Registration staff members in another province are able to search for patients via standard HL7 transactions without leaving their registration pathway. This capability enables instant access, at the point of registration, to comprehensive information about demographics and healthcare benefits eligibility. By providing this seamless workflow, registrars can confirm a patient’s identity and update existing records, which reduces duplicate records, saves time and decreases training costs. IBM Initiate Patient supports standard, message-based transactions that eliminate the need for older screen-scraping technology, improve efficiencies and dramatically reduce the complexity of desktop support in the province.

Supporting Bilingual and Ethnically Diverse Populations

The ethnically diverse populations of many countries or regions make patient identification even more challenging due to the greater overall complexities of names. IBM Initiate Patient and IBM Initiate Provider provide more accurate methods for identifying patients and providers, even in deployments where multiple languages are used. The software uses probabilistic matching, a well-established and accepted technique for matching records. Probabilistic matching leverages highly accurate, advanced statistical algorithms to understand the basic errors in demographic information and conclude when two records are referencing the same individual.

Saskatchewan residents are from a wide range of ethnic origins including English, Irish, French, German, Ukrainian, Russian, Middle Eastern, Asian, and a significant Aboriginal population. The diversity of the provincial population makes patient identification extremely challenging. However, with IBM Initiate Patient, Saskatchewan is able to easily identify patients and tie new medical information to existing records, even if care is provided at different facilities. With the deployment, the province has been able to reduce the number of duplicate patient records by accurately identifying the patient at the point of need via an Enterprise Viewer application.

Successful EHRs Require Accurate Patient and Provider Data

Any successful EHR program requires accurate and complete patient and provider identification to deliver the most trusted and up-to-date records possible. With IBM Initiate Patient and IBM Initiate Provider at the foundation, Canadian provincial healthcare organizations are able to accurately reconcile patient and provider identities across legacy and clinical systems to drive more informed decisions, increase efficiencies and reduce costs.

IBM Initiate Patient provides a comprehensive and accurate view of each patient that is proven to address critical patient data issues and allow healthcare organizations to rapidly realize the value of their eHealth or health information exchange (HIE) initiatives. The software enables eHealth participants to search for patients across all participant applications, locate records across patient domains and scale to support evolving information sharing requirements and an increasing number of participants. IBM Initiate Patient, which supports all Unicode languages, is a highly accurate master person index that is designed to identify the same patient across disparate systems and link their records together to create a complete view. More than 145 healthcare organizations rely on IBM Initiate Patient as their enterprise master person index.

IBM Initiate Provider enables healthcare organizations to create a single view of provider contact information and accurately identify and understand relationships between patients and providers. The software establishes a master provider index by linking provider data across disparate systems and incorporating third party data from marketing, insurance and licensing sources.

Any country or jurisdiction planning EHR, eHealth or HIE initiatives can benefit from the accurate and complete patient and provider identification that IBM Initiate software provides. For more information about IBM Initiate Patient and Provider solutions, visit www.ibm.com/smarterhealthcare.