Achieving meaningful use of healthcare information technology

A patient registry is key to adoption of EHR
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Executive summary
With the cost of healthcare in the US growing at an unsustainable rate, the US government has turned attention and significant funding towards meaningful use of health information technology (HIT) as part of the solution. The term “meaningful use” is much debated, but focuses on improved adoption of electronic health records and information exchange, encompassing a broad set of goals and use cases for improving patient-centric coordinated care.

Electronic medical records (EMR), electronic health records (EHR), health information systems (HIS), personal health records (PHR) and clinical portals are used today and are important components in a health information environment, but these systems alone do not support proposed meaningful use requirements. Patient information is locked in system silos and a trusted, patient-centric view cannot be achieved without an information exchange infrastructure.

A patient registry is a necessary component of this information exchange infrastructure to link different representations of a patient between these silos, facilitate access to relevant information and let interoperability be realized.

This paper provides an overview of the barriers to meaningful use and how a patient registry provides the infrastructure necessary to share and use clinically relevant patient information in a meaningful way across the HIT environment.

The problem today
The US healthcare system is in crisis. Healthcare expenditures represent 18 percent of the US GDP and are growing at an increasing rate. Access to care is becoming more limited due to an increasing number of uninsured and current economic conditions. This, in turn, fosters growth of chronic illnesses that are being left untreated. All of these factors are culminating in a situation that is unsustainable. Healthcare organizations are working to redefine value and success in three key ways: by building sustainable healthcare systems; by collaborating to improve quality, outcomes and personalized care; and by increasing consumer access and value.

HIT systems aim to improve the quality and timeliness of patient care, improve communications and streamline processes to reduce the cost of care delivery. However, widespread adoption of these technologies has been limited. Many physicians lack trust in the information presented via an EMR system or clinical portal. They are concerned that the information is not complete, accurate or up-to-date. Perhaps they have received information about the wrong patient in the past, resulting in an incorrect diagnosis or treatment.
Lack of trust stems from patient data being fragmented across the healthcare ecosystem, with records locked in individual “silos” across local systems. This prevents any single service or care provider from having access to a complete view of the patient’s longitudinal health record and drastically increases the difficulty of making timely treatment decisions. The inability to obtain clinically relevant patient information often results in:

- Redundant and unnecessary testing (compounding the cost of treating the uninsured)
- Lost time spent replicating patient histories
- Adverse drug effects
- Reduced efficiency and effectiveness of care delivery

These scenarios contribute to an increase in medical errors and wasted costs, impacting the overall cost of healthcare and patient safety.

**Health information technology adoption becomes a priority**

The US government is investing billions of dollars into health information technology adoption and interoperability innovation to improve access to information and foster collaboration. On February 17, 2009, President Obama signed the $789 billion American Recovery and Reinvestment Act of 2009 (ARRA). $46 billion is allocated to HIT for the adoption and effective use of EHRs and HIEs.

A majority of the funding is designated for office-based physicians and hospitals to incent the increased adoption and “meaningful use” of EHR systems by physicians and hospitals that treat significant numbers of Medicaid and Medicare patients. The Health IT Policy Committee within the Department of Health and Human Services (HHS) currently is developing the detailed specifications for the legislative requirements.

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“To lower healthcare cost, cut medical errors and improve care, we’ll computerize the nation’s health records in five years, saving billions of dollars in healthcare costs and countless lives.”

—President Barack Obama, January 24, 2009, Weekly Address

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1. Proven meaningful use of certified EHR technology, including e-prescribing
2. Exchange of health information to improve the quality of healthcare and improved coordinated care
3. EHR reporting of improved clinical quality measures

Hospitals and physicians that fulfill the criteria by 2015 will receive incentive payments to partially reimburse the cost of implementation. Hospitals and physicians that do not meet the criteria by 2015 will begin to see reductions in Medicare fees.

**Preparing for meaningful use**

Many detailed questions remain regarding what constitutes “meaningful use.” However, the goals of meaningful use of HIT seek to achieve improvements in patient safety, reduce the cost of care delivery, prevent disease, better coordinate care and improve population health while ensuring that patient privacy is protected. In order to achieve these goals, interaction and interoperability must increase across multiple points in the healthcare ecosystem. This requires bidirectional information exchange and improved communications about patient status and outcomes among providers, patients and care facilities.
Whether your organization has health information technology in place today, or is just beginning to evaluate technologies to enable meaningful use and sharing of health information, it is important to understand the infrastructure components necessary to deliver information to your care teams that they can trust.

Application silos prevent a complete view
Health information technologies such as EMRs, PHRs, e-prescribing, practice management, health information systems (HIS) and clinical portals each contribute to improvements in information access at many points of care. However, these technologies alone do not deliver a shared, consistent longitudinal patient medical record necessary to meet the goals of meaningful use. Patient records must be located across system silos and properly linked to make available a record that is suitable for sharing across all points of care, both internal and external to the healthcare organization.

Each system has a unique way of managing patient information and data quality across systems is inconsistent. This makes it difficult to bring the information together in a meaningful way and deliver a shared view for use by EMRs, EHRs and portals. While these systems and applications offer value for their users, they are not designed to access or share information from other systems. The net result is an inaccurate picture of the patient’s history which can impact decision making and ultimately the patient’s safety.

A patient registry is a necessary component of the information exchange infrastructure that links different representations of a patient between systems, facilitates access to relevant information and lets interoperability be realized. Having a patient registry at the foundation of your HIT infrastructure allows you to leverage the systems you have in place today and create a meaningful EHR that links patient records across registration, clinical and lab systems.

What is a patient registry?
An effective patient registry integrates patient information in different formats and from many different systems and applications to accurately link disparate records for a patient, regardless of where the patient seeks care. Its key function is to identify the same patient across disparate systems and link those records to help establish that the medical records being accessed belong to the John A. Smith seeking treatment and not another John A. Smith living elsewhere in the US.

Associating patient medical records helps caregivers access all relevant information about a patient regardless of the way the data is maintained and managed from one system to another. The patient registry facilitates adoption of the EHR by enabling secure, consistent and coordinated communication between providers to create a trusted patient-centric view.
These capabilities enable providers to confidently access information and make more timely and effective decisions. The end result is an improved workflow that allows healthcare organizations to deliver patient-centric, coordinated care and reduce the number of adverse events while also reducing overall cost of care.

For example, John Smith has received treatment at the hospital where both a lab test and a prescription were ordered during his visit. However, the hospital EMR does not hold all historical information about that patient, especially for treatment occurring outside of the hospital facility. It is important for the hospital caregiver to know what other medications John has been prescribed by his primary care provider to prevent any adverse reactions. To enable this, all of John’s information must be collected across all systems—both inpatient and outpatient. In the illustration, the medical records being connected across the EMR and pharmacy systems are made available through a portal so that additional care team members can have access to this complete history.

**Patient registry requirements**

Evaluate a patient registry for your organization based on these key requirements to enable health information exchange and trusted use of patient information across systems:

**Integration with new and existing systems**

A patient registry should seamlessly integrate with the existing IT infrastructure including specialty systems and new technology as it is enabled. It must be hardware- and software-agnostic to support interoperability efforts without disrupting current systems or replacing legacy applications.

**Data governance and control**

Healthcare organizations must manage what data is shared and with whom based on patient consent. When patient data is requested by another organization, the patient’s consent preference, which may be stored in the patient registry or in an external enterprise security framework, must be honored. A patient registry can help healthcare organizations overcome common privacy challenges encountered with distributed data ownership, limiting data access to only authorized users.
Achieving meaningful use of healthcare information technology

Efficient data management
An effective solution must deliver both automatic data issue resolution capabilities as well as tools to alert data stewards to where manual resolution is required. Without these tools, significant human resources will be required to accurately collect data across heterogeneous systems, and cost reductions will not be achieved.

Scalable across multiple sources
The patient registry must be capable of supporting additional systems over time without a negative impact on performance or response time. It must scale to support large numbers of transactions per second across a diverse ecosystem of applications to meet the demands of real-time access to patient information. It must also search across not only current but also historical demographic information to enable comprehensive matching across patient historical records.

Standards compliance
Cross-boundary information exchange to enable care coordination requires compliance with standards for data sharing to ensure ongoing interoperability with systems that you cannot redesign. A patient registry must support leading healthcare standards such as HL7 and NIST and should have successfully demonstrated compliance with the Integrating the Healthcare Enterprise (IHE) profiles supporting patient matching and data sharing, including PIX/PDQ, PAM and ATNA. These profiles demonstrate rigorous testing in real-world scenarios—a true illustration of today’s healthcare environment.

Extensible beyond patient data
Interoperability is a journey, not a short-term endeavor. After connecting patient records between affiliated facilities, the scope will expand to nonaffiliated providers (community physicians), payers and government agencies. A connected community facilitates coordinated care through a broader understanding of the patient, their providers and the relationships between them.
**Proven implementations with real-world references**

While interoperability and exchange of information is not a new frontier and many healthcare organizations have achieved this today, achieving interoperability can be a difficult challenge. To ensure success, it is critical to leverage the experience and best practices from healthcare organizations that have overcome common challenges. Select a patient registry that has been proven in the healthcare industry to support complex, large-scale patient data exchange initiatives across multiple heterogeneous systems. Ensure that your vendor has knowledgeable, experienced implementation services teams and a roadmap to support your needs as they grow over time.

**Begin building your roadmap for meaningful use**

Whether your organization has HIT in place today or preparations for meaningful use are just beginning, the time is now to understand your environment, locate where patient information exists today and prioritize your needs. Care providers are incented to adopt meaningful use by 2015, after which date Medicare reimbursements will be reduced. This timeline is aggressive. Enterprise data management is complex and even further complicated by the data quality and political governance challenges that arise when organizations attempt to share or exchange information.

To understand your ability to create a patient-centric record that is complete, timely and accurate, ask the following questions:

- Can patient information be retrieved without a unique patient identifier such as social security number?
- Can updates to this information be shared with outside facilities or between inpatient and outpatient facilities?
- Are there gaps in the information due to its location in specialty systems or practices outside your organization’s four walls?
- How much time does your staff spend seeking information to facilitate care coordination?
- Can you achieve a single view of patient data across your organization to report quality measures?

Do not wait for the meaningful use criteria to be finalized to understand the current state of your systems and future needs. Be prepared with a vision for how to achieve a patient-centric view and enable bidirectional exchange across boundaries to improve care coordination and patient safety and ultimately reduce the cost of healthcare delivery in the US.

**IBM—a proven and trusted leader**

IBM is the acknowledged leader in interoperable health information exchange. Its unmatched depth of experience in delivering patient registries to healthcare organizations is exemplified in nearly 200 customers worldwide. The solution touches 80 percent of the US and Canadian population and is in use for e-prescribing, electronic exchange of medical records and interoperability.

With IBM as the foundation, healthcare organizations can make more meaningful use of their data and support the objectives of the ARRA.

**About IBM Information Management for healthcare**

The journey to sustainable healthcare systems starts with a smarter approach to information sharing. IBM Information Management solutions for healthcare deliver master data management (MDM) capabilities that help stakeholders to connect and share clinical information accurately, securely and cost-effectively. IBM® Initiate® Patient and IBM Initiate Provider are a trusted foundation for information sharing around the globe; they help healthcare organizations improve collaboration to increase quality of care, streamline compliance and increase patient and provider satisfaction.