

***THE EVOLUTION OF THE  
ELECTRONIC HEALTH RECORD:  
A ROADMAP FOR  
REALIZING THE VISION***

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## INTRODUCTION

When President George W. Bush in 2004 called for electronic health records (EHRs) for most Americans within 10 years to address the rising cost, inconsistent quality and poor safety record of the U.S. healthcare system, he set the clock ticking for all stakeholders — providers, payors, physician practices, patients, governments and IT vendors. This is a momentous time for the healthcare industry to improve public health by driving IT adoption and healthcare information exchange.

Achieving the vision of an EHR is not as simple as asking clinicians to use computers, however, since the EHR is not a single technology or software solution. More than simply an electronic “view” of a paper health record, a fully realized EHR is a complex, interconnected series of technologies, solutions and processes that will lead to a transformation of how healthcare is delivered and managed. An EHR will exist virtually, with information contributed and used by many stakeholders. The result is more effective and higher quality care for individuals, communities and the nation at large.

While many forward-thinking communities and healthcare organizations have taken steps toward realizing the EHR vision, we still have a long journey. The critical questions to address include:

- Why now? Why is this the time for the nation to focus on achieving the EHR vision?
- What is it? What are the critical components of an EHR upon which all stakeholders can agree?
- How do we realize the vision? What is the roadmap required to achieve an EHR?

This paper describes the urgent need for an EHR, establishes a framework within which McKesson defines the EHR, and provides a high-level roadmap that will lead the nation toward the goal of an EHR for most Americans within 10 years.

“Electronic health information will provide a quantum leap in patient power, doctor power, and effective health care. We can’t wait any longer.”

*Tommy G. Thompson, Secretary  
U.S. Department of Health  
& Human Services (2001-2005)*

## THE NATION'S HEALTH DEPENDS ON THE EHR

The healthcare system faces many challenges, including rapidly rising costs, a high number of avoidable medical errors, and productivity losses due to inefficiencies and waste. Dated information systems and paper-based records that operate in functional silos directly affect the quality and cost of care. Approximately 20 percent of medical tests require re-ordering simply because previous results weren't available. Up to 30 cents of every healthcare dollar go to costs other than delivering care to patients.<sup>1</sup>

A series of reports from the Institute of Medicine (IOM) identified a crisis of system failure and called for information technology to transform healthcare.<sup>2,3</sup> Furthermore, spiraling healthcare costs are rapidly creating an accessibility of care crisis in this nation. Per capita health spending increased 39 percent between 1999 and 2003 for privately insured people, while worker's average hourly earnings grew only 14 percent.<sup>4</sup> As the cost of health insurance continues to skyrocket 13 to 15 percent each year, employers are beginning to eliminate healthcare benefits completely or shift more of the costs to employees. Additionally, there are currently up to 45 million uninsured Americans.<sup>5</sup>

While the EHR is hardly the sole answer to these challenges, it can help deliver better quality healthcare for each dollar spent. Estimates of financial savings, resulting from streamlined healthcare administration and elimination of redundant care, range from a low of \$131 billion to a high of half a trillion dollars per year.<sup>6,7</sup>

### Healthcare's Critical Needs

- Avoidance of medical errors: *Up to 98,000 avoidable annual deaths due to medical errors*
- Improvement of resource vectoring: *Up to \$300 billion spent annually on treatments with no health yield*
- Acceleration of knowledge diffusion: *17 years for evidence to be integrated into practice*
- Reduction of variability in healthcare delivery and access: *Access to specialty care highly dependent on geography*
- Empowerment of the consumer: *Capitalize on growing consumer trend of active health management*
- Strengthening of data privacy and protection: *HIPAA becomes reality*
- Promotion of public health and preparedness: *Surveillance is fragmented, homeland security requirements brings heightened awareness*

From "A Way Forward for Improving Healthcare Delivery in the USA," Office of the National Coordinator of Healthcare Information Technology, [http://www.omg.org/attachments/pdf/A\\_Way\\_Forward\\_for\\_Improving\\_Healthcare\\_Delivery-092704.pdf](http://www.omg.org/attachments/pdf/A_Way_Forward_for_Improving_Healthcare_Delivery-092704.pdf), accessed on Feb. 7, 2005.

1 *Health Level Seven (HL7) EHR System Functionality Model, Draft Standard for Trial Use*. Sept. 12, 2004, [http://www.himss.org/Content/Files/EHR\\_Functional\\_Model\\_Ballot.pdf](http://www.himss.org/Content/Files/EHR_Functional_Model_Ballot.pdf), accessed on Feb. 2, 2005.

2 Institute of Medicine. *To Err is Human: Building a Safer Health System*. Nov. 1999.

3 Committee on Quality of Health Care in America, Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. 2001.

4 Ginsburg, P. "Controlling Health Care Costs." *JAMA*. 2004; 351;16.

5 U.S. Census Bureau Press Release (2004). "Income Stable, Poverty Up, Numbers of Americans With and Without Health Insurance Rise, Census Bureau Reports," [http://www.census.gov/Press-Release/www/releases/archives/income\\_wealth/002484.html](http://www.census.gov/Press-Release/www/releases/archives/income_wealth/002484.html), accessed Feb. 2, 2005.

6 TMCnet.com. "Building a Better National Healthcare Infrastructure." June 24, 2004. <http://www.tmcnet.com/submit/2004/jun/1051975.htm>, accessed Feb. 2, 2005.

7 Peterson, T. "Here's To Your (Electronic) Health." *ComputerWorld*. Aug. 23, 2004.

<http://www.computerworld.com/governmenttopics/government/story/0,10801,95342,00.html>, accessed on Feb. 2, 2005.

The EHR also can improve public health capabilities by enabling anonymous information to be shared for disease management and research purposes. The medical community currently takes approximately 17 years to translate scientific evidence into practice, and today's patients only receive evidence-based care 50 percent of the time.<sup>8</sup> An EHR can help reduce the gap from science to service by improving collaboration and communication between the research setting and real-world clinical practice. An advanced health information infrastructure may enable public health organizations to detect bioterrorism attacks early and rapidly respond to them through large-scale inoculation campaigns and ongoing monitoring, detection and treatment of complications arising from exposure to biochemical agents.

## **THE CALL TO ACTION**

Many government and private groups already are working to encourage healthcare IT adoption and develop standards that will lay the foundation for interoperability. For example, government and private payors have developed pay-for-performance models that promote and reward organizations and physician offices for healthcare IT adoption. Numerous federal legislative initiatives are pushing for IT adoption mandates, while employer alliances such as Leapfrog Group push healthcare organizations to use IT to improve care quality and establish a standard of operational and clinical excellence.

To further drive the importance of using healthcare IT to address the nation's healthcare challenges, President Bush named a national coordinator for health information technology within the U.S. Department of Health and Human Services (HHS). In July 2004, David Brailer, M.D., the appointed national coordinator, released a *Framework for Strategic Action*<sup>9</sup> setting forth these common goals:

### **Goal One: Inform Clinical Practice**

Healthcare IT can only affect the delivery and experience of care if the right solutions are used across each care setting, including physician offices. Success will be defined not just by what an EHR does, but also by how well it is adopted and used by end users. The Certification Commission for Health Information Technology (CCHIT) was formed to certify EHR solutions, ensuring that they are robust enough to deliver value and reduce the risk for purchasers of healthcare IT, thus helping accelerate adoption.

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<sup>8</sup> Committee on Quality of Health Care in America, Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. 2001.

<sup>9</sup> Thompson, T., Brailer, D. *The Decade of Health Information Technology: Delivering Customer-centric and Information-rich Health Care Framework for Strategic Action*. U.S. Department of Health and Human Services. 2004.

## Goal Two: Interconnect Clinicians

An EHR requires a commitment to build a national infrastructure, such as the National Health Information Network (NHIN), to support the free, secure exchange and transport of medical data. Healthcare data standards are essential in order for healthcare IT solutions across all settings to leverage the connectivity facilitated by the NHIN.

## Goal Three: Personalized Care

EHRs must evolve to deliver more consumer access to timely, accurate and effective information so consumers can more intelligently and proactively participate in health decisions.

## Goal Four: Improve Population Health

The aggregation of data will service the public health interests of the nation, providing registries that help focus attention on disease management and prevention, bridging the time gap between science and service, supporting biomedical and health systems research, and enabling early detection and rapid response to bioterrorism attacks.

These goals allow all stakeholders to collaborate on a shared direction. With goals clearly established, the next critical issue is to develop a clear and common definition of an EHR.

## **EHR DEFINED**

While the media has latched onto the EHR acronym, the healthcare industry and general public are confused about the literal definition of the term. Too often, EHR means different things to different people. Some hospitals might define EHR as a document imaging system that provides access to an electronic version of a historical medical record. A physician's office might understand EHR to be a system for documentation and coding support.

To make matters more confusing, there is an alphabet soup of acronyms often used interchangeably with EHR: CMR (computerized medical record), CPR (computerized patient record), EPR (electronic patient record), CCR (continuity of care record), PHR (personal health record). Actually, each of these represents a step along the evolution that will bring us to the EHR.

<i>POTENTIAL USES FOR THE EHR</i>	
<i>PRIMARY USES</i>	<i>SECONDARY USES</i>
Care Delivery Care Management Care Support Administrative Patient Self-Management	Education Regulation Public Health Research Homeland Security Policy
<i>POTENTIAL USERS OF THE EHR</i>	
<i>INDIVIDUAL USERS</i>	<i>INSTITUTIONAL USERS</i>
Patients Clinicians Managers	Hospitals Public Health Departments Accreditation Organizations Educators Research Entities



Without establishing a standard framework for EHR functionalities, the critical component – interoperability – cannot occur. If all stakeholders implemented their own vision of an EHR, the ability to drive information across all systems, all settings of care and all participants and users will be limited. All stakeholders benefit from having a common set of expectations and standards surrounding EHR capabilities.

McKesson endorses Dr. Brailer's framework and the establishment of standards in functionality. It is also imperative to clearly define stakeholders in the development of EHR solutions so that the EHR will deliver value across the broadest possible spectrum of end users.

## IOM AND HL7 EHR STANDARDS

The IOM defines an EHR as delivering:<sup>10</sup>

- A longitudinal collection of electronic health information for and about persons. Health information is defined as information pertaining to the health of an individual or healthcare provided to an individual.
- Immediate, authorized electronic access to person- and population-level information.
- Knowledge and decision support to enhance the quality, safety and efficiency of patient care.
- Support for efficient processes for healthcare delivery.

In 2003, the IOM identified eight core functionalities for an EHR. HL7 then wove these core functionalities into a more comprehensive EHR System Functional Model Draft Standard for Trial Use (DSTU),<sup>11</sup> which HL7 is currently testing. The eight core functionalities identified by the IOM are:

1. **Health information and data.** Clinicians will have immediate access to key information such as patients' diagnoses, allergies, lab test results and medications to improve caregivers' ability to make sound clinical decisions in a timely manner.
2. **Result management.** All providers participating in the care of a patient in multiple settings can quickly access new and past test results to increase patient safety and the effectiveness of care.
3. **Order management.** Physicians will have the ability to enter and store orders for prescriptions, tests and other services in a computer-based system that enhances legibility, reduces duplication and improves the speed with which orders are executed.

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10 Institute of Medicine (2003). *Key Capabilities of an Electronic Health Record System Letter Report*, <http://books.nap.edu/html/ehr/NI000427.pdf>, accessed Feb. 2, 2005.

11 *Health Level Seven (HL7) EHR System Functionality Model, Draft Standard for Trial Use*. Sept. 12, 2004, [http://www.himss.org/Content/Files/EHR\\_Functional\\_Model\\_Ballot.pdf](http://www.himss.org/Content/Files/EHR_Functional_Model_Ballot.pdf), accessed on Feb. 2, 2005.

4. **Decision support.** Reminders, prompts and alerts will help improve compliance with best clinical practices, ensure regular screenings and other preventive practices, identify possible drug interactions, and facilitate diagnoses and treatments.
5. **Electronic communication and connectivity.** Efficient, secure and readily accessible communication among providers and patients will improve the continuity of care, increase the timeliness of diagnoses and treatments, and reduce the frequency of adverse events.
6. **Patient support.** Tools that give patients access to their health records, provide interactive patient education, and help them carry out home monitoring and self-testing can improve control of chronic conditions, such as diabetes.
7. **Administrative processes.** Computerized administrative tools such as scheduling systems will greatly improve hospitals' and clinics' efficiency and provide more timely service to patients.
8. **Reporting and public health.** Electronic data storage that employs uniform data standards will enable healthcare organizations to respond more quickly to federal, state and private reporting requirements, including those that support patient safety and disease surveillance.

Based on this definition and functionality, an EHR is not merely a single point solution, but a complex, interconnected series of technologies, solutions and processes that will lead to a transformation of how healthcare is delivered and managed. Achieving this functionality systemwide will require collaboration among all stakeholders as well as a common roadmap.

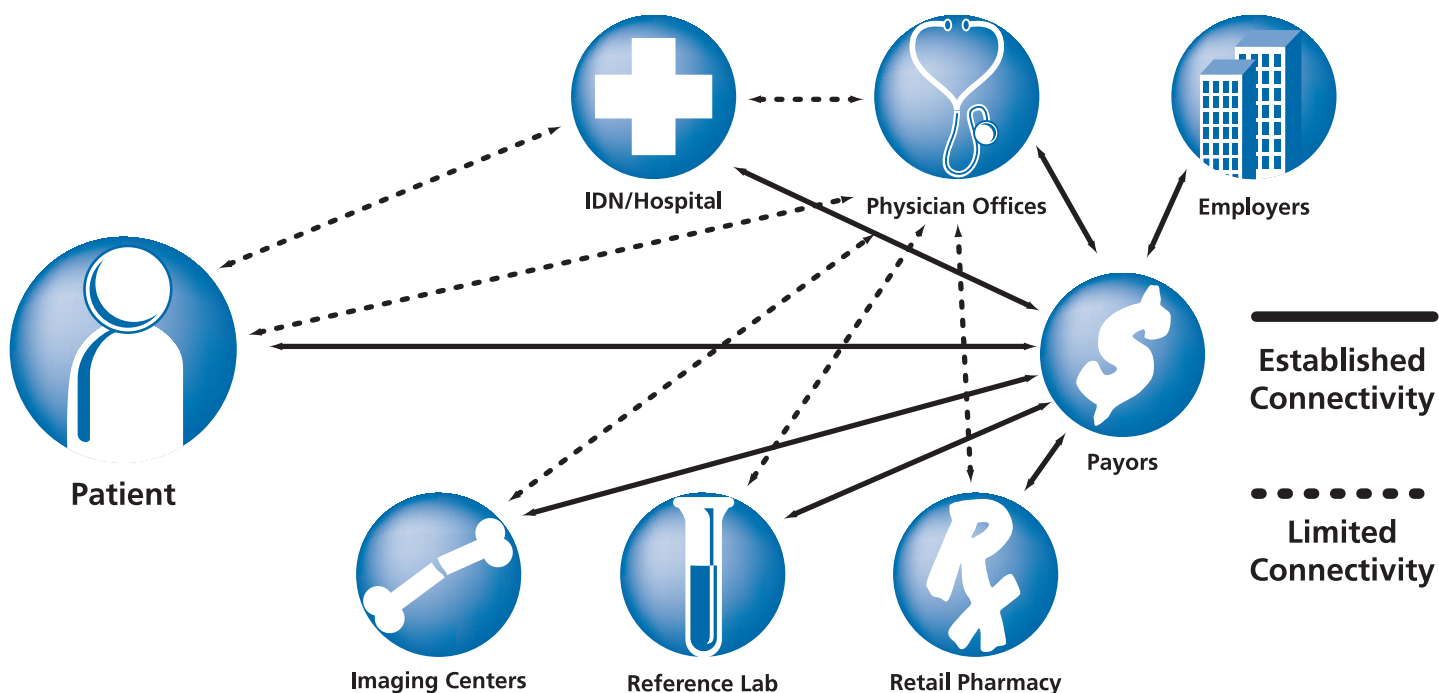


## ROADMAP TO ACHIEVING THE EHR

The national stage is set for technology to drive transformational change in the healthcare industry, yet there is still a long road ahead. The industry does not necessarily need technology innovation, as existing technology can transform healthcare delivery just as it already has transformed many business segments. To achieve the EHR, the industry must continue industry-wide and community collaboration to finalize a standard EHR model and set clinical data standards, as well as develop innovative approaches to funding. These are just a few of the focus points on the national and regional agenda to help drive healthcare to reach the EHR within the next 10 years.

Today many forward-thinking organizations are taking steps toward achieving the IOM's definition of an EHR. These organizations will help guide the rest of the industry while standards and best practices begin to take hold throughout the nation. Currently most hospitals offer a number of services to connect internal systems to their medical staff, typically relying on Web technology to address compatibility issues and simplify time to delivery. The data delivered today is typically basic clinical data mixed with demographic and payor information, and connectivity among clinical systems and healthcare constituencies is limited (See Figure 1). Each day, however, visionary organizations are rapidly expanding the content available, adding decision support capabilities for physician

FIGURE 1: HEALTHCARE IT LANDSCAPE — WHERE WE ARE IN 2005

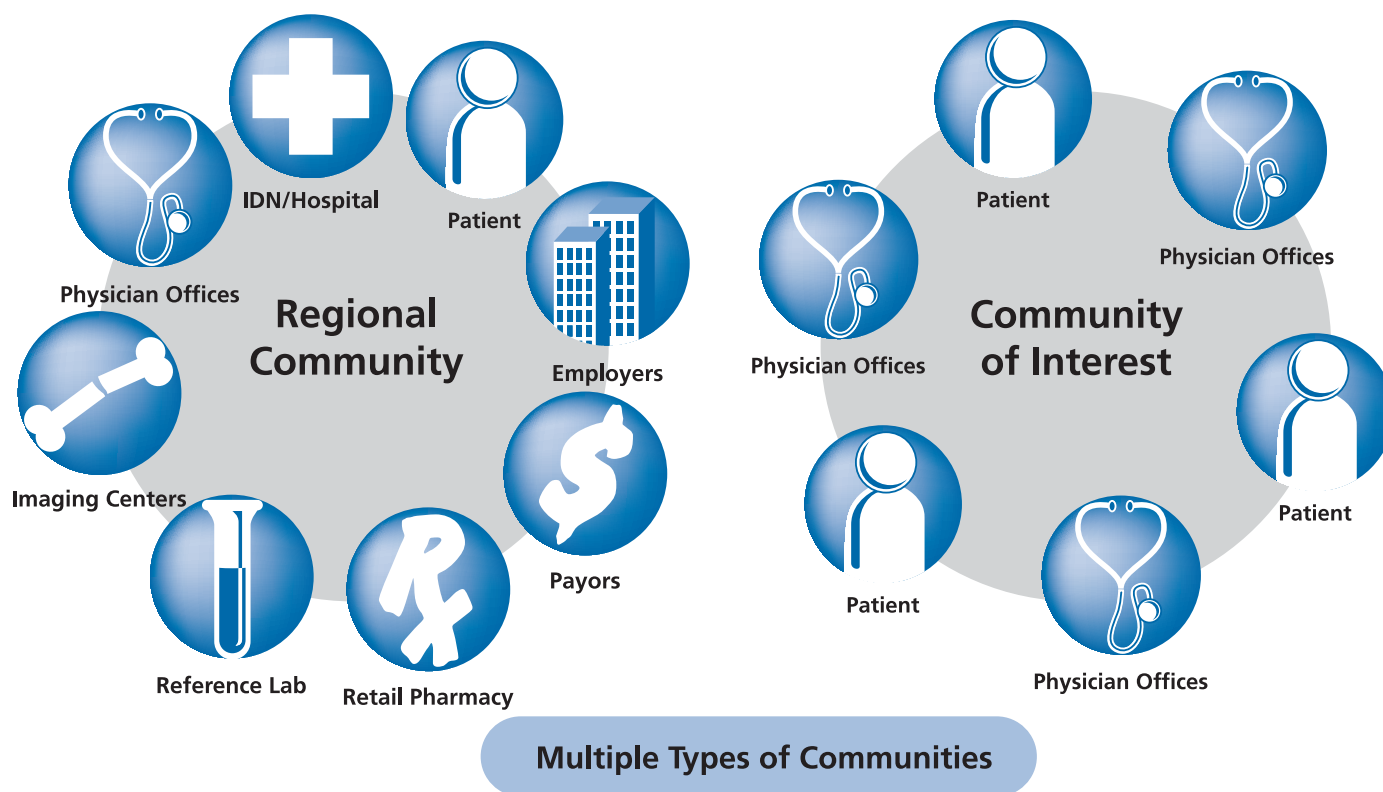


The healthcare industry in general today has strong end-point clinical systems with limited adoption. Additionally, connectivity among entities is either limited, on request or event driven, and there is little interoperability.

order entry and electronic prescribing. As these organizations continue to expand the breadth and depth of their IT functionality, the demand for improved clinical access, particularly in ambulatory settings, increases exponentially. Additionally, today's technologies aid organizations in generating reports required by external organizations such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

During the next five years, support for a more cooperative IT environment will emerge. During that time, information systems will become more porous with respect to collected data as workflow processes and data capture and delivery transcend typical departmental boundaries. For example, specialists working with hospital-sponsored laboratories may be able to access medical images, documentation, coding and billing information that are captured as a by-product of the diagnostic procedure. Information sharing will expand beyond the hospital, and communities will join together to develop regional organizations to facilitate the exchange of healthcare data within a geographic area and continue to gain wider adoption of healthcare IT (See Figure 2). Currently, about 100 such regional implementations are emerging, with the goal of enabling the development of a National Health Information Network (NHIN). Healthcare consumers will continue to take control of their personal health management, which will drive the demand for timely, relevant and secure healthcare information further.

**FIGURE 2: HEALTHCARE IT LANDSCAPE — WHAT'S POSSIBLE BY 2009**

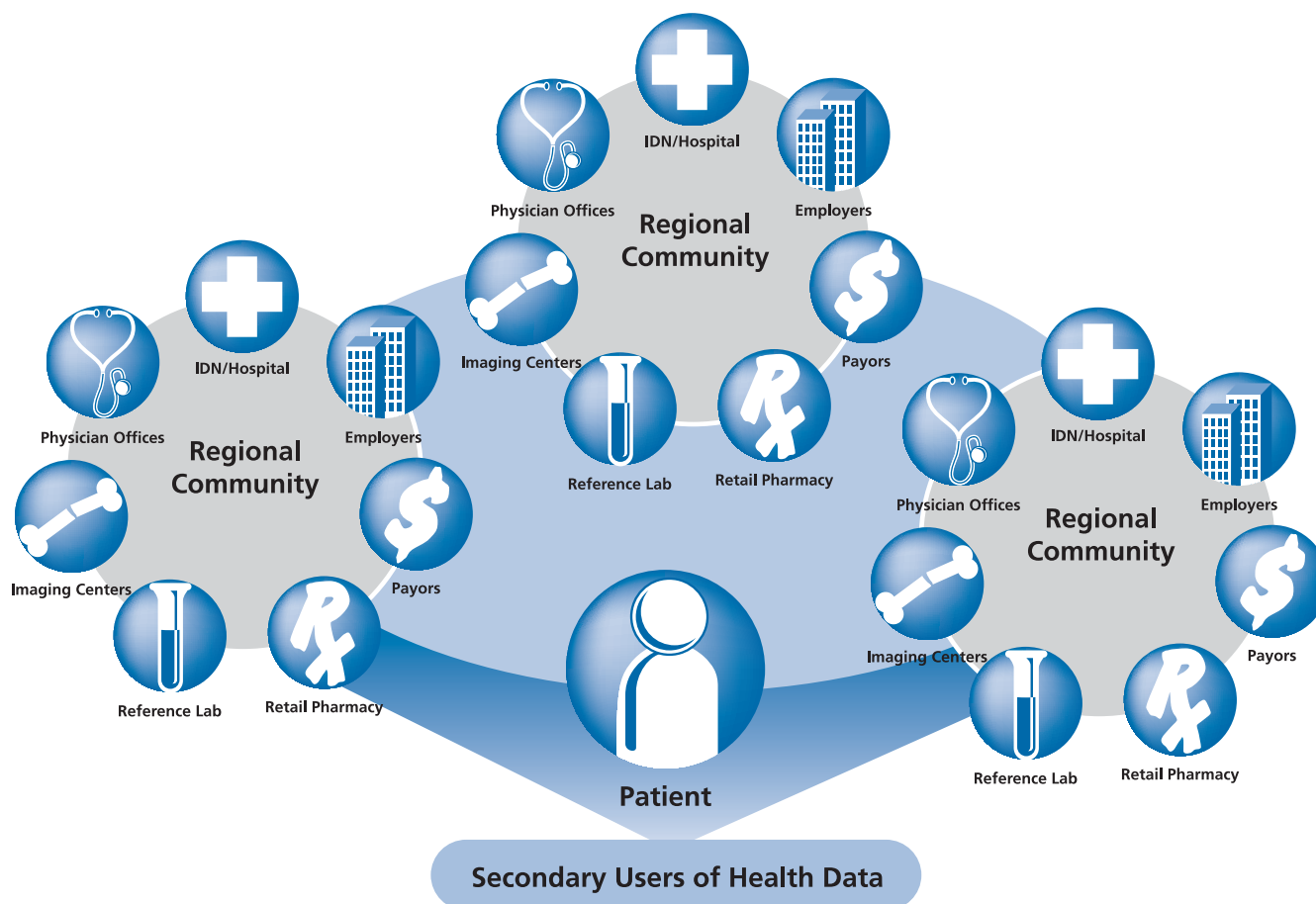


By 2009, information sharing will expand beyond the hospital to communities that will facilitate the exchange of healthcare data within a geographic area or specific interests. This broader-based information exchange capability will drive wider adoption of healthcare IT.

In 10 years, the healthcare industry will be at the height of transformation — similar to the transformation sparked by widespread use of the Internet in the business sector during the late 1990s. The communication channel will increase to include a much broader range of data and processes. Clinical data will be shared through tele-consultations that will improve the efficiency of referrals and gain better clinical interpretations. Secure information will be shared throughout the healthcare system to all relevant stakeholders, including public health organizations and patients/consumers (See Figure 3).

While each organization will have its own migration path dependent on its current information infrastructure, vision, culture and business needs, there are five fundamental competencies that will allow both individual organizations and the industry to simultaneously grow the technology foundation for the future. If all stakeholders address each competency consistently, the industry can build toward the future with flexibility in deployment across the broadest range of geography, resolving the broadest range of business problems.

**FIGURE 3: HEALTHCARE IT LANDSCAPE — DESIRED FUTURE STATE BY 2014**



By 2014, an NHIN will allow full interoperability to deliver a fully realized EHR. Comprehensive capture of health information will drive improvements in public health efforts as well.

The five competencies are:

- Automate individual care settings
- Drive adoption of setting-specific applications
- Provide connectivity between stakeholders
- Automate workflow and processes between stakeholders
- Transform the role of patients

## **Automate Individual Care Settings**

Incorporating information technology at the point of care is crucial to adopting an EHR. The healthcare enterprise must become digital and automated. Digitizing healthcare not only includes document imaging and management but medical imaging as well. Interfaces to recording, diagnostic and lab devices will allow vital information to be automatically captured, stored, delivered and active in the care process. By enabling effective use of technology across all care settings – including physician practices and home health settings – the care provided will become more predictable, precise and productive. Individual care setting solutions form the foundation for building an EHR.

## **Drive Adoption of Setting-Specific Applications**

The extensive regional and national interoperability of an EHR is impossible until technology is used ubiquitously throughout the healthcare system. While adoption of technology is a challenge hospitals face during technology implementations, they have the ability to leverage capital, resources and existing IT infrastructure to help drive the change management required. However, ambulatory practices have not found the impetus to broadly adopt clinical information technology, with only an estimated 6 to 13 percent using deployed technologies.<sup>12</sup> Ironically, these physicians are on the front line for treatment of patients who are chronically ill and, therefore, they have heightened needs for ongoing, coordinated health information that an EHR can facilitate.

Many physician practices are skeptical about the true benefits of information technology. Physicians require solutions that clearly deliver value by creating a previously unavailable capacity that will make their lives more productive. They also need to clearly, visibly, verifiably and significantly reduce current overall operating costs. Solutions must deliver a practice model that is easy to understand, learn and use. However, without the interconnectivity necessary to allow for the effective exchange of health-related information and patient data, and without access to vital functionality such as advanced decision-support solutions, the value of IT will remain elusive.

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12 Markle Foundation (2004). *Financial, Legal and Organizational Approaches to Achieving Electronic Connectivity in Healthcare*, [http://www.markle.org/downloadable\\_assets/flo\\_sustain\\_healthcare\\_rpt.pdf](http://www.markle.org/downloadable_assets/flo_sustain_healthcare_rpt.pdf), accessed Feb. 2, 2005.

## Provide Connectivity Between Stakeholders

One of the biggest challenges organizations will face in implementing an EHR strategy is interoperability. It is critical that new standards and infrastructures have the capacity to leverage existing technology investments. The healthcare industry must develop a common technical framework based on open standards and built on Internet technologies to create a network of networks. All stakeholders hold the responsibility to jointly work toward the creation of those standards and the realization of an NHIN. The healthcare enterprise of the future relies on the knitting together of local networks to serve larger communities.

Research from the Center for Information Technology Leadership (CITL) reports that standardized Healthcare Information Exchange and Interoperability (HIEI) could deliver \$77.8 billion in annual savings in the United States with providers realizing new returns of \$33.5 billion annually. In its analysis of interoperability, the CITL identified four levels of data structuring within which healthcare data exchange could occur:<sup>13</sup>

1. Non-electronic data, such as paper, mail and phone calls
2. Machine-transportable data, such as fax, e-mail and un-indexed documents
3. Machine-organized data, which are structured messages with unstructured content (e.g., HL7 messages and indexed documents, images and objects)
4. Machine-interpretable data, defined as structured messages with standardized content and/or data that can be transmitted or accessed by healthcare IT solutions without need for further interpretation or translation

At lower interoperability levels, data can be used by people; however, automated decision support, active guidance, pattern analysis and opportunities for error and cost reduction based on computerized suggestions are reduced. To enable the next fundamental competency – the automation of workflows and processes between care settings – higher levels of interoperability are required.

The driving need for higher levels of interoperable data is the fundamental requirement for the adoption of data standards across the entire U.S. healthcare industry. Without these data standards, human intervention, along with the accompanying labor intensity, work duplication and potential for error, will remain inherent in the work processes of the healthcare industry. We are making some in-roads. For example, the Health Insurance Portability and Accountability Act of 1996 (HIPAA) requiring data exchange standards between all providers and payors was landmark legislation that began the process of delivering standards to drive efficiencies and remove costs from the healthcare system.

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<sup>13</sup> Center for Information Technology Leadership, <http://www.citl.org/>, accessed Feb. 2, 2005.



## Automate Workflow and Processes Between Stakeholders

Once automation, adoption and connectivity are in place, healthcare IT can automate workflow and processes between settings by using higher levels of interoperable data. This is the point at which the healthcare industry can begin to realize large efficiency gains, cost savings and improvements in quality of care. By driving automated workflow and processes across settings, organizations can close the glaring holes in today's patient care process and drive continuous improvements.

The most notable current "closed loop" process is in the area of inpatient medication safety. Many organizations are already closing the loop on the medication management process to significantly reduce errors at each step where they can occur — prescribing, transcribing, dispensing, administering and monitoring. As a result, these organizations are seeing tremendous improvements in patient safety in terms of reduced medication errors, while simultaneously reducing cost and labor requirements. Leapfrog Group reports that organizations will realize the most benefit from automation when workflow and processes extend beyond the hospital into physician practices and the community at large. As the stakeholders involved across different care settings and the workflows and processes become integrated, the value of healthcare IT investments will become increasingly realized.

## Transform the Role of Patients

Healthcare IT must help transform the role of patients so they can take active responsibility for their health and care coordination. Given that an increasing proportion of the healthcare premium dollar is coming directly from the consumer, it is imperative that consumers are provided timely, accurate and effective information to make intelligent healthcare choices. As consumers become financially more accountable for their own healthcare costs, they will demand the efficiencies, quality and superior customer service they have become accustomed to in other sectors, such as the financial services industry.

With almost 60 percent of American households having access to the Internet, and a projected growth to 73 percent by 2006<sup>14</sup>, consumer demand for scheduling capabilities and online consultations will create an opportunity for healthcare organizations to deliver a clear competitive differentiation and begin the process of patient role transformation.

To help patients further become actively involved in their own health decisions, they must be able to access their personal care plan and medical records, regardless of where care was delivered or a test result produced. Additionally, remote care management systems, along with the ability for physicians to provide their patients with remote consultations or advice, will drive time and cost out of the process.

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14 Klein, J. "HSAs Will Catalyze Adoption of EHRs." *Health Management Technology*. Nov. 2004. [http://www.healthmgttech.com/archives/1104/1104thought\\_leaders.htm](http://www.healthmgttech.com/archives/1104/1104thought_leaders.htm), accessed Feb. 2, 2005.



## **GETTING THERE: HOW TO MEASURE EHR PROGRESS**

The impact of the EHR must be measured by its ability to improve the healthcare system at a macro level. If the EHR fails to substantively affect measures of systemwide cost, quality and satisfaction, then the effort has failed to achieve its ultimate objectives. Any sustainable EHR model must produce real benefits for all stakeholders: public, private and community.

### **Public Sector**

An EHR will significantly improve quality of care and efficiency in healthcare delivery. During the past decade, the public sector has developed sufficient measures that can and should be monitored to ensure that the anticipated benefits of the EHR are realized. The following metrics will define success:

- Administrative costs as a percent of total public sector healthcare expenditures
- Percent of total healthcare spending on duplicative or unnecessary care
- Satisfaction of public sector healthcare program beneficiaries

The successful implementation of the EHR should produce solid evidence that a greater proportion of spending goes to necessary and appropriate care and that the healthcare system's efficiency and quality are clearly improved in the eyes of its beneficiaries.

### **Private Sector**

The private sector stands to gain significant benefits from an EHR as well. The success metric most universal to this sector is containing the rate of cost increase of the healthcare benefit. Appropriate measures should focus on the increase in cost of the healthcare benefit compared to total expense growth. Related but secondary success metrics include the development of a robust market for innovative healthcare solutions. The EHR should enable a broader, more competitive and more robust market for healthcare delivery options and information technology solutions. Increased competition can be a major factor in slowing or reducing the cost of the healthcare benefit.

### **Healthcare Stakeholders in a Community or Region**

Measures of success in the community or region can similarly be considered with regard to their major shareholders: providers and patients. Providers seek a measurable improvement in the quality of their professional lives. They seek reduced malpractice insurance premiums, shortened work days and increased time to spend on the clinical aspects of their practice. Ultimately, the providers themselves will determine when that value is realized, as will be evident in increased IT adoption rates. Patients seek greater and more convenient access to care, a more streamlined care process and a reduction in the growth of the percentage of their personal income that is dedicated to healthcare premiums, services or products.

## ***McKesson's Commitment to the EHR Vision***

McKesson has been delivering core EHR components for more than a decade, ranging from discrete data captured in longitudinal patient health records to medical images, document images and patient profiles. McKesson customers are already making considerable progress toward the adoption of automation and IT for healthcare transformation, and proving that healthcare IT can reduce human error, remove rework, save lives, save lost time and avoid millions of dollars of waste.

For example, logins to our Web-based physician portal – which provides secure Internet access to the patient's lifetime record containing patient information such as laboratory test results, allergies, medication history, medical images and other health information – now total almost 1.3 million per month. More than 3 billion documents are stored electronically in McKesson's document imaging system, which physicians can use to access, review and complete patient charts electronically.

Additionally, McKesson's bar-coded medication administration system triggers nearly 400,000 alerts weekly, which prevent more than 55,000 errors. Our pharmacy robots dispense more than 325 million medication doses per year error-free, and our pharmacy systems process more than 200,000 medication orders daily. More than 534,000 clinical users nationwide use McKesson solutions to process more than 15 million clinical transactions each week. Furthermore, our success in supply chain automation and electronic transaction processing and our experience in e-prescribing exemplify the benefits that can be derived from sustained efforts to improve stakeholder communication and to eliminate duplication of efforts in the healthcare delivery process.

As an industry, we are clearly in the beginning stages of the EHR initiative. To meet President Bush's bold vision for the EHR, we need broad deployment of well-crafted applications wherever care is delivered and the ability for those applications to securely share medical information. To accomplish these goals, McKesson is working to build outstanding point solutions for each care setting. Additionally, we are proactively advocating and collaborating with policymakers in Washington and across the country to make sure that the necessary standards, policies and infrastructure are in place to help drive adoption and ensure interoperability. With the extraordinary cooperation and collaboration required between stakeholders, McKesson is ideally positioned and suited as the world's largest healthcare information technology company to help make the promise of the EHR a reality.

## **McKESSON**

*Empowering Healthcare*

### **McKesson Provider Technologies**

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