




Health Information Technology

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What is health information technology, and why is it important to legislators?

Information technology has revolutionized the U.S. economy, but the health sector lags behind. **Health information technology (HIT)** refers to the use of technology to electronically collect, store, retrieve and transfer clinical, administrative and financial health information. Since health care now represents more than one-seventh of the economy—and one-fourth of most state budgets—anything that makes it more effective and efficient will boost the economy.


HIT also is a key part of efforts to improve health care. The ultimate goal of HIT is to bring together vital pieces of patient data that are scattered across providers. Ideally such a system provides a patient's complete medical history at the point of care, wherever it may be, to support high-quality care and avoid duplicate tests and procedures. The flow of information is integral to quality and safety improvements. However, policy concerns arise about what data enters the system, how data is compiled and aggregated, and what systems need to be in place so that information can be safely exchanged. 



What kind of information is involved?

From President Clinton's health card with a magnetic stripe to President Bush's call for **electronic health records (EHR)**, it has been an article of faith that personal control of digital health data would improve health care quality and lower costs. During the last decade, a swipe card for insurance or health savings accounts has become commonplace, and digital exchange of administrative data—personal records related to billing and services, and health system data such as inventory, productivity and access—has become well established.

Clinical information has been slower to make the leap from paper to electronic form, but the pace is picking up. A number of pieces of the health system are going digital. Most prescriptions and diagnostic test results are transmitted electronically at some point between the initial order and delivery to the patient. **Computerized physician (or prescription or provider) order entry (CPOE)**, the electronic entry of patient prescriptions, has been touted to reduce prescription-related medical errors, one of the most common quality problems. In addition to ensuring that orders are legible, such systems may contain clinical decision support systems that can flag drug interactions (computerized electronic alert system), incorrect dosages and other errors. They also may automatically flag which prescriptions are covered by a patient's plan. Patients also want and increasingly get on-line communication with their providers and access to information about their conditions on the Web. A growing number of doctors dictate notes that then are digitally transcribed, or they enter information about patient care directly into clinical information systems. The proportion of physicians who use various electronic health record systems remains low, however, with estimates ranging from 11 percent to 40 percent. Even hospitals and large group practices have been relatively slow to implement HIT.

Today, HIT policy is concentrated on bringing clinical information online. State and national policymakers are wrestling with how personal health data should come together for each patient (using electronic health records and variants) and how health care providers can connect to share information so it will come to one place when it is needed, either through **regional health information organizations (RHIOs)** or **health information exchanges (HIEs)**. 


Where does the health information come from? What do you call it when the information is brought together?

Several terms for collected personal health information are in use, reflecting different sources and purposes. The terminology is still changing, but at least three models are emerging. These can be separate systems, or different aspects of one system.

- **Electronic medical records (EMRs)**, which are similar to traditional medical records, contain clinical data created through medical encounters. An EMR might include test results, interpretation of the implication of the results for the patient's health, and the provider's recommendation. It also may include digitized images and output from remote monitoring. Longitudinal data can be used to track changes over time. Typically, each provider has its own medical record system, which creates an obstacle to sharing information. If these systems can share information—or become interoperable—relevant clinical information can be brought together from different sources at the point of care.
- **Electronic health records (EHRs)** organize a patient's information from various sources and, over time, create a record that is centered around a patient rather than around treatment. Interoperable **health information exchanges (HIE)** are supposed to bring information from EMRs together to the point of care to form an EHR. Short of true interoperability, EHRs can

be started by using claims to add encounter information from providers who may not yet be able to share clinical data. Unless they are interoperable with EMRs or are created by a health plan that manages both claims and clinical data, payment-based systems may show what tests have been conducted, for example, but not the results.


- **Personal health records (PHRs)** are maintained by or for individual consumers and also may include personal entries about factors such as diet and exercise and community-based health matters. They could include personal notes about maintaining a regimen recommended as a result of tests, use of complementary and alternative medicine, and information about covered care and care that was paid for out of pocket. They also may incorporate electronic health record and electronic medical record data.

Early experience shows that the goal of interoperability is much more complex than expected. Each party involved has concerns about sharing data. Patients fear that personal information will be inappropriately shared, while payers and providers worry that they will be harmed by competitors that combine data to their own advantage. To allay fears and begin the process of exchange, some have suggested that a relatively stripped down set of information be shared, at the same time that more detailed data is retained in separate records controlled by providers, payers and patients, respectively. 

Does health information technology save money? How?

The RAND Corporation has estimated that implementing clinical and administrative HIT systems will save the health system \$162 billion annually, and an industry group has estimated savings of \$78 billion per year after a 10-year implementation period. Paper administrative costs can be as high as 20¢ per \$1, yet the health care sector spends only 2 percent to 3 percent of revenue on information technology, compared to double-digit investments in retail and groceries, for example. Since health spending represents one-fourth of most state budgets, any savings will be important. The savings result from administrative efficiencies and lower costs in filing and processing claims, improved care, better prescription safety, fewer redundant tests and treatments due to better documentation, better use of preventive services, and chronic disease management.

Not everyone agrees that savings will materialize. Proponents hope that better care over the long-term will lead to lower costs, but critics point out that the systems also can be used to maximize reimbursements. Studies of actual systems have shown mixed results.

Those who study why providers have been slow to adopt HIT argue that the “business case” for doctors has yet to be made. Although payers are likely to see lower costs due to better outcomes and fewer cases of redundant care, doctors see both short- and long-term new costs. Up-front costs of both hardware and software are high, and it may be costly to maintain the systems. Because it may take time to learn and use the systems, doctors’ efficiency may be reduced. At the same time, if HIT reduces the volume of services, it actually may decrease business for providers. Exchanging information electronically also raises the prospect of unpredictable new liability risks, either because care is scrutinized more closely or because of misuse or inadequate protection of patient information. 

Does health information technology improve quality? How?

Health information technology is expected to improve quality and safety by improving the flow of information about treatment options, treatments and patients. Clinical decision support systems provide

health professionals with advice on how best to treat a patient. Computerized physician order entry, in which physicians electronically enter patient prescriptions, is expected to reduce adverse drug events by eliminating illegible prescriptions, drug-drug interactions and patient drug allergies. A “low-hanging fruit” of HIT quality improvement, adverse drug events are estimated to cause 770,000 preventable injuries and deaths in hospitals each year. Another 2 million preventable adverse drug events occur in ambulatory settings.


Some states are considering ways to help providers share in overall savings to the system by rewarding them for quality—for example, by paying them more for better outcomes of care such as improved control of chronic health conditions. HIT is an integral part of payment systems that reward good care. However, a recent experiment with pay for performance concluded that it is difficult to assign credit to one provider.



What are the obstacles to health information technology use?

There are technical and policy challenges to overcome. Most providers and buyers have some—and often multiple—systems in place. The challenge of making these different systems work together, both within and across providers—interoperability—is an obstacle to realizing the promise of health information technology.

Interoperability has technical dimensions. Legacy systems—information systems from various eras that store data using differing media and formats—and different sets of definitions for terms used by the data systems must be matched up. Interoperability also has dimensions that policymakers may be able to address, however. Two major obstacles to the rapid flow of information are consumer concerns that personal health information will be misused, and provider and carrier concerns that information about their operations will become available to competitors.

Of key concern for consumers are the privacy and security of their health data. Sensitive information related to dire or stigmatized diseases—such as cancer or HIV/AIDS, sexually transmitted diseases or behavioral health disorders—are subject to differing laws. Consumers fear stigma and risk losing coverage and employment if confidential data were to be disclosed. In the case of substance abuse, privacy rules are explicitly designed to protect privileged information from criminal prosecution. Despite a patchwork of protections, accidental or malicious releases of sensitive health information and social security numbers are the subject of frequent headlines, further undermining confidence in the system. In addition to consumer fears, provider anxiety about liability in case of accidental disclosure adds to reluctance to place masses of data online and create systems that facilitate the flow of data. Data mining—exploring large data sets collected for another reason in order to find meaningful patterns—can lead to provider profiling and targeted marketing. These fuel a growing reluctance to permit secondary data use. Because analyzing aggregated data can also improve public health, raise quality and speed medical discovery, states have a vital role in solving patient data privacy and security concerns. 


What is the difference between a regional health information organization, and a health information exchange?

To get information from different points of care into a patient’s record, competitors are being brought together to find ways to collaborate around HIT in experiments across the country. **Health information exchange (HIE)** is the electronic movement of health-care information among organizations in a system



that assures that the information is understood in the same way wherever it goes. A **regional health information exchange (RHIO)** provides the rules, governance structure and technology to allow health information exchange at a defined local level. The term may be applied to full-fledged, free-standing organizations that enable health information exchange. Other activities and entities—such as exchanges among a limited number of entities or for narrow purposes—may simply be called health information exchanges, a term that is beginning to be used interchangeably with “RHIO.”

Patients generally visit providers that are within a reasonable driving distance from their residence. Because providers in this geographic area often serve the same patients, they may find it useful to be able to exchange patient data. A RHIO may be an entity that brings together stakeholders to select standards and operating methods, or it may be a direct provider of health information exchange services. RHIOs generally are guided by a board composed of representatives from the various stakeholder groups (payers, providers, government agencies, consumer groups). Because no model exists for the structure and make up of a RHIO, they can vary considerably, depending on which stakeholders are involved and how local markets are organized. States can shape the membership of these governing boards through enabling legislation, grant conditions or executive orders that establish RHIOs.


In the start-up phase, some RHIOs receive state or federal grants; others may receive funding from private organizations. Creating a sustainable model for continuing operations is one of the biggest challenges these organizations face. Some successful exchanges focus on specific business needs of potential users such as hospitals and insurers, but states will want to ensure that state-level policy interests also are served. They may seek to designate or create an exchange at the state-level that can carry out state policy functions related to health information exchange, such as developing statewide standards for interoperability or managing the exchange of public and population-level data. 

How are health information exchanges organized? Where does the data go?

Two models represent the poles of how exchanges may be organized, and many communities are building intermediate models.

- In the **federated model**, health information is retained by each participating health care provider, facility or group, and is exchanged with other members as needed. Making such a system work is dauntingly complex, but it will address providers’ proprietary concerns.
- In an intermediate version, a centrally maintained **record locator service** or **master patient index** allows authorized providers that are participating in the system to quickly find records related to a specific patient, wherever they may be in the system.
- In a **repository system**, all health data is stored in a central location or data warehouse.

Any of these models can provide successful, secure exchange of health data. A key concern in any model is to ensure that information can be accessed by authorized users but is not available to others. The choice among the models is based on local needs, and states can help the various interest groups reach agreement on the model that best suits their need.

Some states have collected certain health information, such as hospital discharge data, for several decades. Unlike RHIOs and HIEs, which are designed to enable providers to share data in real time, these health data organizations are stand-alone entities that collect and analyze data retrospectively. In some states these entities provide core expertise and mobilize crucial support for state HIE policies. 

Who sets standards for health information exchange?

Several efforts are under way to develop nationwide approaches to health information exchange. Many efforts seek to balance a need for uniformity—in order to allow interoperability—against concerns that the market and technology still are emerging and that premature standardization will dampen innovation. As experts in balancing national and local concerns, states have a key role in the evolution of health information technology.

In 2004, President Bush laid out his vision for most Americans to have access to EHRs by 2014. The **Office of the National Coordinator for Health Information Technology (ONC)** was established in the Department of Health and Human Services to coordinate federal efforts on this initiative. The time-limited **American Health Information Community (AHIC)**, an advisory board comprised of HIT interest groups, provided recommendations to the secretary of Health and Human Services about how to make electronic health records interoperable and secure. A parallel process, funded through an ONC contract with the National Governors Association, convenes state-level policymakers in the **State Alliance for eHealth**. NCSL works with the Alliance, and four state legislators serve on this high-level state policy council.

ONC contracts support four other health information technology projects designed to accelerate movement toward the 2014 goal. The **Healthcare Information Technology Standards Panel (HITSP)** is tasked with setting interoperability standards for health information technology. The **Health Information Security and Privacy Collaboration (HISPC)** has conducted studies in 34 states to develop security and privacy standards that will allow state laws to vary, yet still enable interoperability. The **Certification Commission for Healthcare Information Technology (CCHIT)** is creating and applying certification criteria and establishing an inspection process for HIT. These projects provide some of the vital building blocks necessary to create a **Nationwide Health Information Network (NHIN)** that will allow nationwide exchange of health information among providers and patients. 🏛️

Can states use Medicaid to pay for health information technology?

Current Medicaid law provides for 90 percent federal financial participation (FFP) for design, development or installation, and 75 percent federal financial participation for the operation of state mechanized claims processing and information retrieval systems—administrative data systems—approved by the secretary. States are seeking to apply these resources to clinical data collection and transformation of Medicaid infrastructure to allow for health information exchange with other organizations. Medicaid transformation grants are encouraging state innovations, which may include using HIT to improve such things as prescribing safety and quality. 🏛️


Tell me again why this issue is important for states?

Much of the action on health care continues to occur at state and local levels, with support from the federal government and national and local philanthropies. Many states begin by forming a commission to develop an action plan for HIT and, most significantly, bring together the various interested parties. Since 2005, almost one-third (17) of the states have created such commissions. The next stage for many states may be a pilot project, where various aspects of HIT—from e-prescribing to electronic health records systems—are tested. The Agency for Healthcare Research and Quality (AHRQ) and the Centers for



Medicaid and Medicare Services (CMS) have funded grant programs to states and localities. The grants are used to experiment with different approaches at the same time that they create opportunities for various groups to build trust by working together.

In 2007, some states have staked out ambitious efforts to accelerate HIT adoption. Missouri is implementing CyberAccess, an EHR system for recipients in its Medicaid program. CyberAccess is a Web-based utility that will allow physicians to view patients' medical history, e-prescribe, obtain medical prior authorization and receive clinical decision alerts. Missouri hopes the program will be the foundation for an EHR system for all patients in the state.

Minnesota has set two HIT implementation deadlines for those involved with health care. Minnesota is the first state to require all health care payers and providers to submit claims and eligibility transactions in a common electronic format, setting a 2009 deadline for converting to this system. Minnesota also will require all hospitals and health care providers to have an interoperable electronic health records system in place by 2015. The state intends to follow federal standards (that are being developed) as it sets interoperability standards to be used by 2009. 

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Other Sources

NCSL Health Information Technology Champions—Project HITCh
www.hitchampions.org

National Governors Association State Alliance for eHealth
www.nga.org/center/ehealth/

Agency for Healthcare Research and Quality National Resource Center for HIT
<http://healthit.ahrq.gov/>

Office of the National Coordinator
<http://www.hhs.gov/healthit/onc/mission/>

Healthcare Information and Management Systems Society State Dashboard
<http://www.himss.org/statedashboard/>

eHI
<http://www.ehealthinitiative.org/>

Centers for Medicaid and Medicare Services – MITA
<http://www.cms.hhs.gov/MedicaidInfoTechArch/>

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http://www.naccho.org/topics/infrastructure/PublicHealthInformaticsGlossary_000.cfm

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