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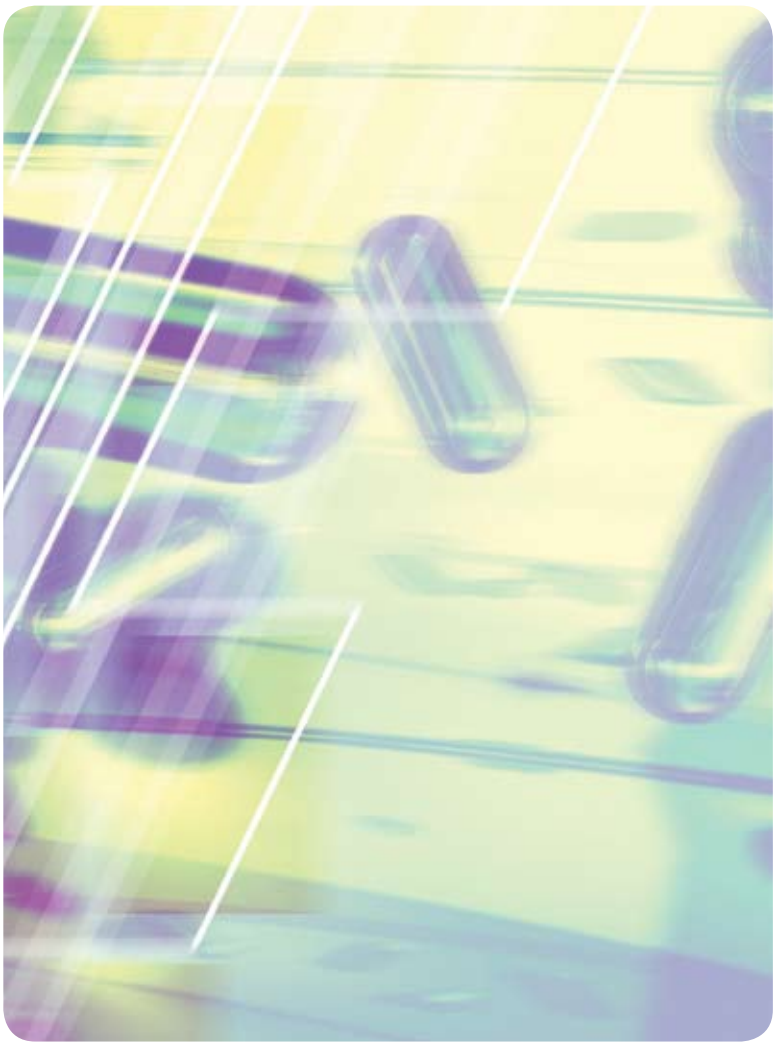
FOCUS ON

HEALTH INFORMATION TECHNOLOGY



A TRENDS IN AMERICA SPECIAL REPORT

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FOCUS ON: HEALTH INFORMATION TECHNOLOGY

Executive Summary

- In 2004, President Bush set a goal for most Americans to have an electronic health record by 2014. The president also called for the creation of a National Health Information Network to connect those records.

- Efforts by the federal government to provide guidance on health IT have received somewhat mixed reviews. Fortunately, states are stepping into the void.

- Since 2004, governors and state legislatures have become actively involved in efforts to nurture health information exchange. Fifteen governors have issued 20 executive orders in recent years. Legislatures passed 36 health IT bills in 2005 and 2006, 30 in 2007, and 13 to date in 2008.

- Three states are recognized leaders in the implementation of health IT. California leads the nation in physician adoption of electronic health records with 37 percent of physicians on board, compared to 28 percent nationally. Delaware is the first state to make significant progress in implementing a statewide health information exchange. Massachusetts is the number one electronic prescribing state in the nation.

Inside the Report

About the Author

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State governments increasingly are concluding that the electronic exchange of health information holds the potential to enhance efficiency, improve the quality of health care and save lives. They are doing so as the $1.7 trillion health care system faces an uncertain future, stuck in a past reliant on inaccessible paper patient files and illegible handwriting. Although the states differ in approaches and degrees of progress, every state is implementing electronic health policies and, in doing so, seeking to bring health information exchange into the 21st century.

A 2005 report by the RAND Corporation, a California-based research company, found that a widely adopted and properly implemented health information technology system could produce:

- **$77 billion or more annual savings nationwide from increased efficiency alone.** Efficiency savings, which primarily benefit health insurance providers, result when the same work can be performed with fewer resources. Reduced hospital stays (as a result of increased safety and better coordination), reduced nurses' administrative time, and more efficient drug utilization would be among the largest contributors to the savings.

- **More than $154 billion in health and safety benefit savings that would reduce illness and prolong life.** Health benefit savings occur when health care providers use health IT to scan patient records for disease risk factors and recommend screenings, vaccinations and other preventive services—helping to identify patients with chronic illnesses who need tests or other services. Much of the savings from increased safety result from alerts and reminders to physicians about potential adverse drug reactions in patients. Implementing health IT systems with such alerts and reminders in all the nation's hospitals could prevent 200,000 adverse drug events and save about $1 billion annually.

But those savings come at a cost. RAND also found that:

- Nationwide implementation of health IT by 90 percent of hospitals and doctors over a 15-year period would cost around $8 billion per year.

- There is a market disincentive for adoption of health IT. The hospitals and other health care providers that shoulder the high cost of health IT implementation may wait for years before seeing a return on their investment. Patients would receive better health care and insurers would benefit from lower costs, but doctors and hospitals would experience both the high implementation costs and the decreased revenues that result from increased efficiency. For example, hospitals may have more empty beds and thus reduced income if health IT reduces adverse drug reactions among their patients.

This brief examines state initiatives on health IT and roles of the federal government and private sector. It details three state success stories in the implementation of three important components of health IT and surveys initiatives of other states.

Why Implement Health IT Now?

On April 27, 2004, President Bush called for most Americans to have an electronic health record by 2014 and called for the creation of a National Health Information Network to connect those records.

The 2014 goal provided added impetus for states to get involved in nurturing health information exchange. Legislatures in 24 states passed 36 health IT bills in 2005 and 2006. More than 200 additional bills were introduced nationwide in 2007. Of those, about 30 were signed into law in 19 states. As of May 2008 86 bills were introduced in 28 states and 13 were enacted. Governors have gotten involved as well; 15 of them have issued 20 executive orders in recent years.

"(State governments) see their role as bringing people together, convening, having a coordinated strategy at the state level, particularly as it relates to things like the role of (the) state as (a) purchaser (with) Medicaid," said Janet Marchibroda, CEO of eHealth Initiative, a Washington, D.C.-based nonprofit organization advocating health IT issues.

She breaks down the bills introduced in 2007 further: "Fifty-seven bills referred to creating a committee or task force or work group," she said. "Eighty-two bills introduced included direct funding, appropriations, loan programs or tax credits … Thirty-eight bills

referred to utilizing health IT to improve the quality of care or the quality of data reporting. Thirty-six referred directly to the use of an electronic health record for the purposes of improving care."

Some states are starting virtually from scratch in developing a statewide health information exchange while others are nurturing existing regional health information networks and private sector initiatives. The success of private sector initiatives in a state is often predictive of the role state government plays in health IT, Marchibroda said. State governments often play a decreased role in states that have experienced success with private sector initiatives, as has been the case in Indiana.

Marchibroda said the initiatives can be broken down into seven stages of progress in implementing health information exchange. Her organization surveyed 130 such initiatives in 2006 and 2007 to obtain the percentages of initiatives in each stage, as reflected in the chart on page 4.

What are the Benefits of Health IT Adoption?

Health experts believe the quality of health care is only as good as the information the physician has during the patient encounter. But many times the amount that is known is much less than what is not known. That knowledge gap can result in medical errors and inefficiencies, both of which substantially increase the costs to the health care system. The Institute of Medicine earlier this decade estimated that as many as 98,000 Americans die each year as the result of medical error.

Studies show that health information exchange and interoperability can provide significant cost savings and improvements in the quality of care. The potential benefits include:

- Reduced redundant tests, delays and costs associated with paper-based ordering and reporting of lab results as a result of interoperability between clinicians and laboratories. Estimated cost savings to the health care system: from $8 billion to $32 billion.

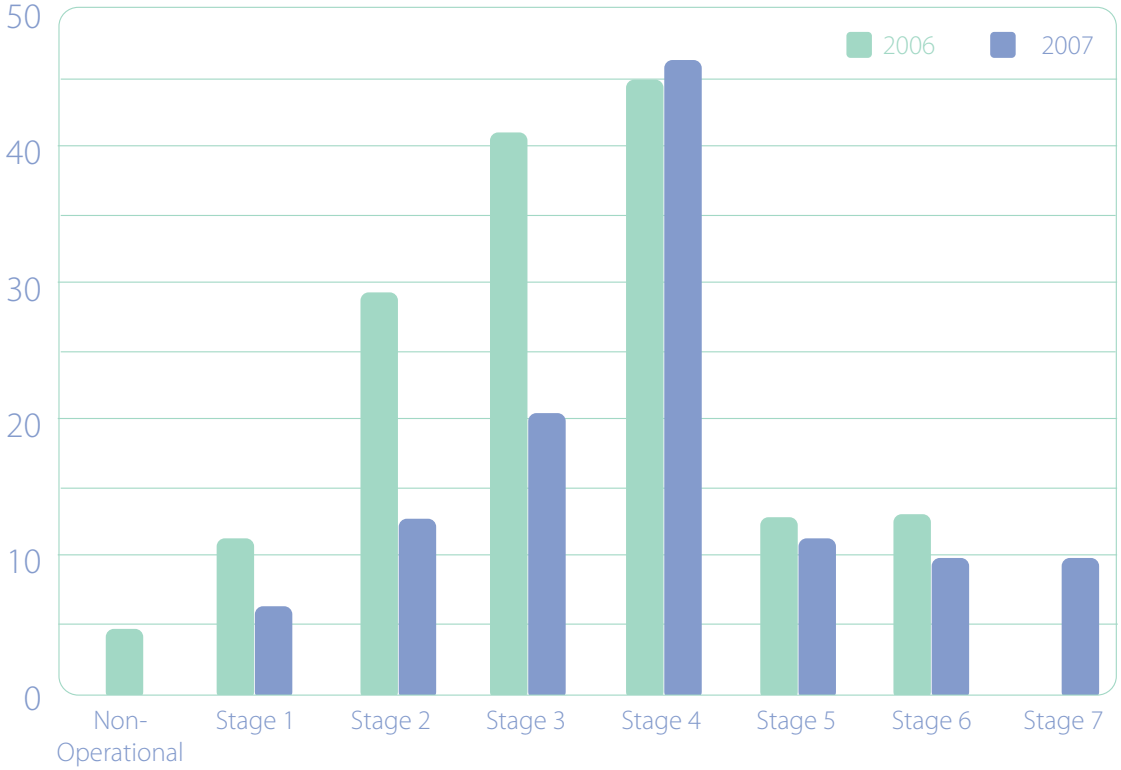
- Better access to patients' longitudinal test results and elimination of errors associated with reporting results orally. (Continues on page 5.)

Key Terms

- **Health IT:** The term is sometimes used interchangeably with Electronic Health—or e-health—and generally refers to both the computer hardware and software used to store, retrieve, share and use clinical information to treat patients. According to the Department of Health and Human Services, health IT "allows comprehensive management of medical information and its secure exchange between health care consumers and providers."
- **Electronic health records:** Containing digitally stored information about a patient's health history, treatments, medications, immunizations, lab results and other information, these records can vary in degrees of sophistication and ability to interact with various medical and patient databases, often referred to as interoperability. They are also called electronic medical records.
- **Health information exchange:** The transfer of electronic health records or other health information between separate health care entities such as from doctor to doctor, doctor to hospital, doctor to lab, etc.
- **Regional health information organization:** A common model of health information exchange which unites a group of health care entities in an area by establishing a standardized network for the electronic exchange of health information. These organizations typically develop operation and financing rules and also seek to ensure the privacy and security of the information exchanged.
- **e-Prescribing:** Process that allows computers to create, transmit and monitor pharmaceutical therapies. e-prescribing software is either a stand-alone product or incorporated into electronic health records systems. Since the prescriptions are transmitted electronically, e-prescribing prevents medication errors caused by bad handwriting on paper prescription pads. If incorporated as part of a comprehensive electronic health record accessible by multiple health care organizations, it can also be used to provide alerts to potentially harmful drug interactions.
- **Computerized physician order entry:** Systems most often used in hospitals that allow health care providers to order not only prescription drugs electronically but also lab tests, services and referrals. The systems also alert prescribers to potential adverse drug interactions, drug allergies and test or treatment conflicts.
- **Clinical decision support systems:** Software tools that offer best practice recommendations for clinical situations, accessing information about the individual patient as well as a database of recommended procedures. These systems are frequently incorporated into electronic health records and computerized physician order entry systems.

Seven Stages of Development in Health Information Exchange Initiatives

(Number of Organizations in Each Stage of Development)



Stage 1 There is recognition of the need for health information exchange among multiple stakeholders in the state, region or community.

Stage 2 Health IT initiative is getting organized; defining shared vision, goals and objectives; identifying funding sources, setting up legal and governance structures.

Stage 3 Initiative is transferring vision, goals and objectives to tactics and business plan; defining needs and requirements; securing funding.

Stage 4 Initiative is well under way with implementation of technical, financial and legal framework. (Pilot project or implementation with multiyear budget identified and tagged for a specific need).

Stage 5 Health information organization is fully operational and transmitting data that is being used by health care stakeholders.

Stage 6 The fully operational health information organization is not only transmitting data that is being used by healthcare stakeholders but it also has a sustainable business model.

Stage 7 The organization is expanding to encompass a broader coalition of stakeholders than the initial operational model.

Source: eHealth Initiative (*http://www.ehealthinitiative.org/2007HIESurvey/StateOfTheField.mspx)*

- Time saved from handling chart requests and referrals between health care providers. Estimated cost savings: from $3 billion to $13 billion.

- More efficient and complete reporting of vital statistics and cases of certain diseases to the U.S. public health system. Estimated cost savings: from $63 million to $195 million.

- Earlier recognition of emerging disease outbreaks.

Many also see the potential for health IT to improve preventive medicine. Computerized records can generate automatic reminders for the patient or physician's health actions. Improved tracking of disease management and treatment coordination are also likely benefits.

What Are the Barriers to Health IT Adoption?

Preliminary results of a nationwide survey of more than 1,500 physicians conducted by the Institute for Health Policy at Massachusetts General Hospital and others last year revealed a number of concerns that act as barriers to the adoption of electronic health records. Sixty-six percent of the respondents cited lack of capital as the largest obstacle. More than half the respondents—55percent—cited trouble finding a system that meets the needs of their practice and 51 percent cited uncertainty of return on investment.

Of those physicians surveyed who already have functional electronic health records in their practice, 30 percent said physician resistance to using the new system was a significant barrier. Twenty-seven percent of that group was also concerned about the loss of productivity brought on by the transition to the new system. Choosing a system and starting up often require a significant commitment of time as well as the addition of new staff and retraining of existing staff.

But 80 percent of respondents said financial incentives could impact their decision to adopt electronic health records, while 82 percent said additional payments would help.

Role of State Governments in Health IT Adoption

State governments are playing a variety of roles in adoption of health IT. eHealth Initiative's 2007 Survey of Health Information Exchange found that states increasingly are focusing on legislation to build the capacity for health IT. Policymakers also continue to support the process of developing the statewide exchange of health information by creating task forces and commissions. A substantial number of bills appropriate funds and/or create loan programs or tax credits for the purchase of health IT tools. And states are beginning to set standards for interoperability of health IT and electronic health record systems purchased with state funds.

As demonstrated by other recent legislation, the health IT policies state officials can champion also include:

- identifying incentives for e-prescribing;

- encouraging physician and hospital implementation of health IT;

- facilitating development of statewide privacy and security policies for health information exchange;

- addressing concerns about the health IT-readiness of the health work force; and

- investing in broadband infrastructure development to ensure the speed of the information flow in health information exchange.

California: Leader in Electronic Health Records

California leads the nation in physician adoption of electronic health records, according to a study by the California Health Care Foundation. Thirty-seven percent of physicians reported using electronic health records in the study. That compares to only 28 percent of doctors nationwide.

The study's authors believe the above-average adoption rate may be attributable to California's high number of doctors practicing in large medical groups, such as Kaiser Permanente. Indeed, the study found that physicians in large medical groups are much more likely to use electronic health records than those in small practices.

But the higher adoption rate isn't stopping the state from working to get that number even higher. In 2006, Gov. Arnold Schwarzenegger signed an executive order to establish a goal of achieving 100 percent electronic health data exchange among payers, health care providers, consumers,

researchers and government agencies in the next 10 years. The governor also made health IT implementation a centerpiece of his proposed comprehensive health care plan last year. The plan, which failed to win support in the legislature in early 2008, called for leveraging state purchasing power and supporting interoperability standards to accelerate health IT implementation in the state.

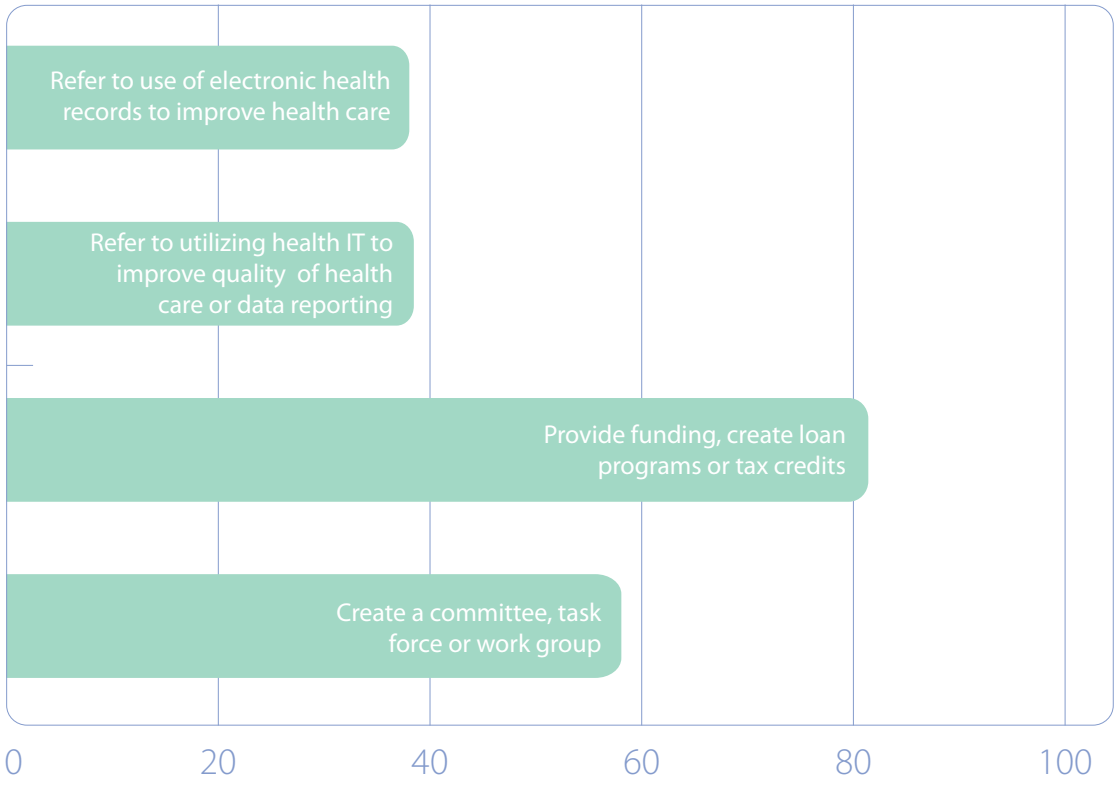
California legislators have also been active in health IT legislation. Assemblyman Mervyn Dymally in 2007 introduced House Bill 53, a universal coverage plan that would "establish electronic health records … that are compatible across systems on a statewide basis." Sens. Elaine Alquist and Abel Maldonado introduced Senate Bill 320, which would require the California Health and Human Services Agency to develop a strategic plan and establish incentives and standards "that foster the adoption and use of electronic health records by … providers and consumers in the state." Neither bill was successful.

Maldonado previously sponsored Senate Bill 1672 that aimed to establish a low-interest loan program for nonprofit health provider organizations purchasing a health IT system. The legislation stalled in committee in 2006.

A report from the state's non-partisan Legislative Analyst's Office last year also called for establishing a low-interest loan program. Among the office's other recommendations for strategies to foster the development and expansion of health IT:

- creating new policies to pay health care providers in the early stages of implementing and transitioning to electronic health records-based operations; and
- establishing a grant program to support health care providers and insurers in the development of regional health information organizations or other forms of health information exchange in the state.

2007 State Legislation on Health IT (Number of Bills Introduced)



Source: eHealth Initiative (*http://www.ehealthinitiative.org/2007HIESurvey/StatePolicy.mspx*)

Other State Leaders in Electronic Health Records

As for other states, analysts believe there is not enough comparable or reliable data available on percentages of doctors currently using electronic health records to rank them.

"This would require a huge national survey of doctors, at huge expense, and no one has done a survey with sufficient sample size," said Dr. David Blumenthal, director of the Institute for Health Policy at Massachusetts General Hospital. "There may be a few states … (that) have made these assessments, but their definitions of electronic health records are likely to vary and their methods of ascertainment as well."

But other states are seeking to increase the implementation of electronic health records. As part of an omnibus health and human services appropriations bill (House Bill 1078) passed in 2007, Minnesota will require hospitals and health care providers to implement interoperable electronic health records by Jan. 1, 2015. The state in early 2008 announced the first two loans under a $6.3 million program to help hospitals, small-town physician clinics, nursing homes and other community providers adopt electronic health records systems. The Electronic Health Records Revolving Account and Loan Program offers six-year, no-interest loans of up to $1.5 million.

Connecticut Senate Bill 88, which would require electronic health records by an unspecified date, was introduced in in 2007. The legislature has not yet passed that bill.

New York awarded more than $100 million in grants to 19 community-based health IT projects (including regional health information organizations, physician groups and hospitals) around the state in March 2008. The goals of the projects include linking Medicaid data to interoperable electronic health records and linking those records to the New York Immunization Registry. New York City has a goal of providing secure electronic health records systems to more than 1,000 local health care providers serving more than a million patients by the end of this year. City officials say they are on track to meet the goal, which would create the country's largest community-based electronic health records network.

Arizona Gov. Janet Napolitano signed an executive order in 2005 to create a committee to facilitate the adoption of electronic health records by 2010, four years earlier than the federal goal established by President Bush. Arizona wants the 1 million Medicaid patients in the state to have electronic health records by 2009.

Delaware: Nation's First Statewide Health Information Exchange

While regional health information organizations have evolved in many states, Delaware is widely recognized as the first state to make significant progress in implementing a statewide health information exchange.

The state received a $4.7 million federal grant from the Agency for Healthcare Research and Quality to begin building the network. State government added $2 million that leveraged another $2 million from three state hospital systems along with North Carolina-based clinical laboratory LabCorp and Blue Cross Blue Shield of Delaware. Software firm Medicity of Salt Lake City and technology supplier Perot Systems are helping build the network. The same team is also building the statewide health information network in California, with additional support from Cisco and Hewlett Packard there.

The Delaware Health Information Network went live in 2007 and allows for the exchange of lab and pathology results as well as radiology, admission, discharge and transfer reports. Participants include three hospital systems and 22 doctors' practices—many of which include multiple sites. As of early 2008, 264 physicians and office managers use the system.

About 30 percent of physicians in Delaware currently have electronic health records systems, but doctors don't need such systems to access the information available on the network. Only Microsoft Windows and a high-speed Internet connection are required.

"One of the things we really are focused on doing is making it as easy for physicians to use (the network) as possible," said Paula Roy, executive director of the Delaware Health Care Commission, which directs the network. "They can have those results sent to them in whatever form is easiest for them. For some large practices that have electronic medical records, those results are pushed right into that patient's (electronic medical record). Some physicians are getting results

through their electronic inbox and there are a few that are just having them auto-faxed to them. But the idea is you're getting your results through one pipe rather than through several."

Roy says Delaware has committed significant resources and time to slowly wean users from paper records.

"What we try to do is be on site and look at what their workflow is and then try to incorporate the (network) in as (non-disruptive) a way as possible," she said.

Delaware's small size and tradition of collaboration are among the elements that made the success of the network possible, according to Roy. That collaboration is seen not only in the careful hands-on approach to bringing new users into the system but also in the decision-making process.

"We have never taken a policy issue to a vote in our executive committee or board of directors because we think that consensus is really the way to go," Roy said. "The minute there is such a disagreement that you need a vote, you haven't accomplished something. You need to go back and take a second look at it."

And Roy says all that collaboration can be time consuming, but it's ultimately worth it. "This stuff takes time. It's hard stuff to do. And that's why you don't have as many of these exchanges. Because it certainly makes sense but as someone told me early on, the problem isn't the technology, it's all the other stuff," she said. "You crawl, you walk and then you run and try to secure trust and build long-term relationships."

She credits the leadership of two former Delaware governors who are now in Congress, Rep. Michael Castle and Sen. Tom Carper, for getting the ball rolling on health IT during their gubernatorial tenures and keeping the spirit of collaboration alive.

"I think just the fact that we had champions in our Congressional delegation and we had real leadership in the private sector really combined to help us spell success," Roy said.

Although the state network was originally created by statute in 1997, a number of obstacles made progress difficult early on. One was determining how the network would be governed.

"We had the legislation in place but even then we spent some time talking about whether we should continue to function under that or (transition into a nonprofit organization) and it just took up so much time," Roy said. "The minute we stopped talking about that and focused on what it was we were going to do, enormous progress was made."

Delaware officials were able to secure a foundation grant that allowed them to hire a project manager to nail down a vision for the network, Roy remembered. "Although it takes consensus and trust and community involvement, you still have to have one person whose job it is to implement all the wonderful things you talk about when you go to meetings."

But the ultimate goal was to improve patient care and it remained at the center of discussions, Roy said.

Patients may not yet realize the impact the network is having on the health care system in Delaware, Roy concedes, but in future phases, they certainly will. Phase 2, currently in progress, will establish patient-centric record histories that physicians will be able to access. But establishing a master patient index and eliminating duplicate names and entries has proved to be a significant challenge, Roy said.

Phase 3, slated for completion by 2011, includes a patient-accessible portal, insurance claims submission services, chronic disease management services, and clinical decision support for providers.

A long-term financial plan to sustain the network has not yet been determined.

"We are beginning some extensive talks about a sustainability plan," Roy said. "I expect that it's going to switch from capital investment to build and expand the system to some kind of ongoing operational model. We're anticipating some sort of subscriber fees and that sort of thing."

According to the eHealth Initiative, most health information exchange initiatives identified as fully operational currently utilize subscription or membership fees from data providers (hospitals and labs) or data users (physicians and patients) to support ongoing operations. Alternately, some charge providers and users a fee for each data transaction. Fee strategies can charge physicians, hospitals, long-term care facilities, and in some cases patients and employers varying sums to access data and participate in the health information exchange. The fees can be proportionate to the benefit the individual subscriber receives. For example, physicians could pay one price to access lab results or e-prescribing functions while patients pay another price to access their health records and health education resources. This requires multiple methods for calculating and collecting the fees.

Other States: Building Databases to Exchange Health Information

AT&T recently announced it will work with Tennessee to create a statewide system that will allow medical professionals to electronically exchange medical histories, prescriptions, X-rays, MRIs and CT scans. State grants will be available to connect doctors to the system. The agreement between the state and AT&T is expected to keep costs down and is seen by some as a potential partnership model for other states to follow.

Many other states are taking a different route, seeking to build statewide networks by incubating regional health information organizations.

An estimated 145 of these organizations have been formed around the country in recent years. A 2007 survey conducted by the eHealth Initiative assessed the progress of 130 of these efforts. It found that 32 were fully operational in 2007, up from 26 in 2006. While the report included 15 initiatives that were new since 2006, it also found that five included in the 2006 survey were no longer progressing in 2007. Overall, the survey found the percentage of initiatives exchanging any data was on the rise as were specific types of data exchanged including emergency department episodes, inpatient episodes, outpatient laboratory results and radiology results.

Many of the initiatives are using a model incorporating multiple, diverse stakeholders including hospitals, primary care physicians, health plans, community health clinics, local public health departments, employers and quality improvement organizations, according to the eHealth Initiative survey.

Challenges for Health Information Exchange

Despite the success of these health information exchange initiatives, more than half the survey respondents said developing a sustainable business model was a very difficult challenge. Respondents also identified securing upfront funding and defining the value that accrues to users—what doctors and hospitals stand to gain from implementation—as significant challenges.

Of the 32 initiatives that were fully operational at the time of the survey, 30 percent received startup funding from state government.

Laboratories for Health IT Initiatives

The Medicaid and Medicare programs, the Defense Department, and the Veterans Health Administration all play key roles in the implementation and development of health IT. Here's a look at what they're doing:

- **Medicaid & Medicare**: Twelve states—Florida, Iowa, Kansas, Louisiana, Mississippi, Missouri, Montana, Pennsylvania, Tennessee, Vermont, Wisconsin and Wyoming—are leading the way in incorporating health IT into their Medicaid programs, according to a report by the Health and Human Services Inspector General. The report said those 12 state Medicaid agencies implemented 16 health IT initiatives including claims-based electronic health records and e-prescribing. Twenty-five state Medicaid agencies are involved in the planning and development of statewide health information exchange networks, the report said. Health and Human Services Secretary Michael Leavitt said he wants Medicare and Medicaid to lead the electronic health records effort, making the records widely available by 2014 not only to improve care but to control costs. The Department of Health and Human Services this year is conducting a Medicare demonstration project to provide incentive payments to physicians for installing electronic health records systems and improving their quality of care.
- **Defense Department**: In 2005, the department launched the Armed Forces Health Longitudinal Technology Application, its global electronic health records system, to potentially serve more than 9 million U.S. service members, retirees and their families. Expected to be fully implemented by 2011, the application will be globally accessible by 60,000 health professionals at military medical facilities.
- **Veterans Health Administration:** Used throughout the Veterans Health Administration (the country's largest single medical system), the Veterans Health Information Systems and Technology Architecture is one of the most widely used electronic health records exchanges in the world. It incorporates e-prescribing, computerized physician order entry and clinical decision support systems. A Congressional Budget Office report last year found that the use of health IT by the Veterans Health Administration helped boost health care quality, reduced wait times and increased customer satisfaction. But the award-winning system, which is based on programming language developed in the 1960s, is aging and the administration is now beginning a slow process of updating the system for today's increasingly mobile doctors and patients.

Another study published late last year in the journal *Health Affairs*, however, offered a more tempered assessment of the status of regional health information organizations. It found that of 145 organizations surveyed, only 20 were functioning on even a modest scale, only 15 were doing so for a broad set of patients, and only 12 were self-sustaining and were no longer receiving grant funding.

A November report by the Information Technology and Innovation Foundation was even more pessimistic. Citing evidence that the majority of the regional networks are financially unsustainable and that there are no clear national standards for sharing medical data, the report concluded that "the strategy of building the (National Health Information Network) from the bottom up by establishing many RHIOs throughout the country is not working."

Recent months have seen the high-profile failures of regional health information organization ventures in Santa Barbara, Calif., Portland, Ore., and northeastern Pennsylvania. But analysts believe these failures provide important lessons about pitfalls to avoid. They cite a number of factors that led to the demise of the Santa Barbara venture, including technical challenges, failed leadership, a weak value proposition, lack of technical standards and legal concerns about privacy and liability. In the Portland initiative's case, financial disincentives and the inability of multiple electronic health records to connect to each other were among the contributing factors. And in Pennsylvania, a lack of startup money and questions about the sustainability of the venture there were cited.

Analysts also say it's important to consider the other end of the spectrum and the continued success of health information exchange ventures such as the Indiana Health Information Exchange, the Cincinnati-based HealthBridge and New York's Taconic Health Information Network and Community.

"The fact that some of (the health information exchanges) aren't moving forward … I think that's normal in any period of innovation or change," said Marchibroda of the eHealth Initiative. "It doesn't make me nervous. It's part of the normal evolution of this work."

The eHealth Initiative last year assembled a team of experts to put together a value and sustainability tool kit for creating successful exchanges. Although the group concluded there is no one-size-fits-all formula and each local market requires specific solutions, it did come up with a step-by-step approach for creating a sustainable business model.

Marchibroda said the most difficult challenge is related to the development of a sustainable business model, because the U.S. health care payment system rewards volume and fragmentation. "We pay folks to do more not do better. And so there's no incentive for docs other than professionalism and the goodness of their hearts … to share information today because that's not how our payment system works. So the guys and gals in these 32 advanced stage initiatives are successful despite the huge barriers around the current way that we pay for health care," she said.

Marchibroda sees it as a positive sign that the top source of upfront funding for health information exchanges is now hospitals, whereas last year it was the federal government. "We're seeing a movement in the industry away from dependency on the federal government overall. When you look at the advanced stage initiatives, three-quarters of them are no longer dependent on grants … I think that's pretty important," she said.

As for the role state government can play in helping to ensure the success of these health IT networks, there may not be a one-size-fits-all approach there either. But the positive influence of state government at various stages in their development is a common theme. Apart from providing seed money, state government can also help convene the stakeholders necessary to get ventures off on the right foot.

Massachusetts: Leader in e-Prescribing

Massachusetts is the number one e-prescribing state in the nation, according to the SureScripts National Progress Report on e-Prescribing. SureScripts, the nation's largest electronic drug prescription network, bases its rankings on the number of prescriptions routed electronically in 2007 as a percentage of the total number of prescriptions eligible for electronic routing.

Massachusetts Sen. Richard Moore said e-prescribing and health IT in general were essential components of the state's landmark health care reform legislation passed in 2006.

"We saw it as critical," said Moore, the chairman of the Massachusetts legislature's Joint Committee

on Health Care Financing who was an architect of the 2006 legislation. And, Moore said, a major commitment to health IT is necessary for a state to enact truly meaningful health reform. "We saw it as one of the ways to help contain costs and improve quality."

Indeed, a study by the New England Healthcare Institute and the Massachusetts Technology Collaborative found that spending $210 million to install computer systems for e-prescribing in all Massachusetts hospitals would reap savings of $275 million.

Massachusetts pharmacies have also made significant upgrades to their computer systems in recent years to help make e-prescribing possible.

"The pharmacies have been the easiest part because right now we have mostly chain pharmacies," Moore said. "The docs have been a little more problematic. For the most part, as you get into the middle age cohort, they're less interested in wanting to learn a new technique."

That's one reason why, as a part of the next phase of health reform in Massachusetts, lawmakers this year are considering a measure to require physicians to develop a certain competency in health IT for medical board registration.

"We will kind of make it so if you want to practice in our state, you better be practicing good medicine and that includes health IT," Moore said. The bill would also require the state to adopt electronic health records. It would set aside $25 million annually to help create a statewide health information exchange network by 2015.

But a number of other initiatives in the state have also played a role in the success of e-prescribing. For example, state agencies collaborated with insurers, technology vendors, pharmacies and other organizations involved in the prescription process to raise awareness of e-prescribing in the state and increase adoption.

"We have a group of probably about 40 different organizations and associations that belong to the Massachusetts Health Data Consortium that have been working on trying to bring all the partners together to really provide the leadership that's needed," Moore said.

Massachusetts' 2008 fiscal year state budget authorized a Medicaid Transformation Grant to fund an e-prescribing pilot project that incorporates real-time decision support for Medicaid providers. By joining the resources of the state's claims processing contractor, Affiliated Computer Services,

By the Numbers: States & Health IT

State	State Ranking for e-Prescribing[1]	% of Prescriptions Transmitted Electronically[2]	Number of HIE Initiatives[3]	Executive Order from Governor[4]
Alabama	36	0.8	1	
Alaska	48	0.2	3	
Arizona	8	2.9	2	Yes (2005)
Arkansas	39	0.6	1	
California	22	1.4	11	Yes (2006, 2007)
Colorado	24	1.2	4	
Connecticut	9	2.6	4	
Delaware	4	4.2	1	
District of Columbia	27	1.2	1	
Florida	19	1.6	9	Yes (2004)
Georgia	38	0.7	3	Yes (2006, 2007)
Hawaii	45	0.3	1	
Idaho	15	2.2	1	
Illinois	28	1.2	4	Yes (2006)
Indiana	33	0.9	3	Yes (2007)
Iowa	40	0.6	2	
Kansas	42	0.5	2	Yes (2004, 2007)
Kentucky	32	0.9	2	
Louisiana	17	1.9	3	
Maine	16	2	1	
Maryland	6	3.2	2	
Massachusetts	1	13.4	4	
Michigan	5	4.2	2	
Minnesota	26	1.2	5	
Mississippi	49	0.1	1	Yes (2007)
Missouri	25	1.2	6	Yes (2006, 2007)
Montana	46	0.2	2	
Nebraska	43	0.5	1	
Nevada	3	7.1	0	
New Hampshire	14	2.3	2	
New Jersey	11	2.5	0	
New Mexico	37	0.8	2	
New York	21	1.6	12	
North Carolina	7	3.1	4	Yes (1994)
North Dakota	51	0.1	1	
Ohio	13	2.5	3	
Oklahoma	41	0.6	1	
Oregon	18	1.7	2	
Pennsylvania	12	2.5	1	
Rhode Island	2	9.1	2	
South Carolina	47	0.2	4	
South Dakota	50	0.1	0	
Tennessee	29	1.1	5	Yes (2006)
Texas	30	0.9	8	Yes (2006)
Utah	34	0.9	0	
Vermont	31	0.9	2	
Virginia	20	1.6	1	Yes (2006, 2007)
Washington	10	2.6	4	Yes (2007)
West Virginia	23	1.3	2	
Wisconsin	44	0.4	4	Yes (2005)
Wyoming	35	0.8	1	

[1] Source: SureScripts National Progress Report on E-Prescribing *(http://www.surescripts.com/pressrelease-detail.aspx?id=132&ptype=surescripts)*
[2] Source: SureScripts
[3] Source: Telemedical.com *(http://www.telemedical.com/rhio.html)*
[4] Source: eHealth Initiative Fourth Annual Survey of Health Information Exchange at the State, Regional and Community Levels *(http://www.ehealthinitiative.org/2007HIESurvey/State_Policy.asp)*

The Federal Government's Role in Health IT

A number of federal and national entities are providing funding and guidance to direct and shape the development of health IT systems in the U.S. They include:

- **Office of the National Coordinator for Health IT:** Advises the secretary of Health and Human Services on health IT policies and initiatives and coordinates the department's efforts to meet the 2014 goal for most Americans to have an electronic health record.
- **National Health Information Network:** The effort to build a secure, nationwide, interoperable "network of networks" of out of state and regional health information exchanges.
- **American Health Information Community:** It was established in 2005 as a federal advisory body to make recommendations to the Department of Health and Human Services on how to accelerate the development and adoption of health IT. Efforts are underway to establish a public-private partnership based in the private sector to serve as a successor to community by fall 2008. The new partnership will develope a unified approach to realize the National Health Information Network.
- **Health IT Standards Panel:** The panel is another public-private partnership that brings together 260 organizations with a stake in health data standards to increase the interoperability of health care systems and information. It seeks to harmonize standards needed to protect the privacy and security of health data as the National Health Information Network is developed.
- **Certification Commission for Healthcare Information Technology:** The independent, nonprofit organization was awarded a contract by The Department of Health and Human Services to develop, create prototypes for, and evaluate the certification criteria and inspection process for electronic health records.
- **Health Information Security and Privacy Collaboration:** RTI International, a research institute, subcontracted with 33 states and one territory to assess privacy and security policies in health information exchange.

and related services under development by MA-SHARE (Massachusetts Simplifying Healthcare Among Regional Entities), providers will be able to access prior authorizations for drugs given to patients, preferred drugs for specific conditions, and other information.

Massachusetts has also sought additional Medicaid grant funding to get e-prescribing up and running throughout the state Medicaid system, which Moore said could save $30 million a year. Public payers, however, are not yet on board with the e-prescribing system, according to Moore.

Moore expects the state to provide low-interest or zero-interest loans to community hospitals to get them past the first two years of implementation.

The private sector has also had a significant impact. A $50 million financial commitment from insurer Blue Cross Blue Shield of Massachusetts helped implement three pilot projects to demonstrate the costs and benefits of widespread use of health IT by outfitting 450 physicians with electronic health records, including built-in e-prescribing, and launching health information exchanges in the three pilot communities. State government provided $5 million to support the pilot projects.

Blue Cross also announced it will require hospitals participating in its quality and incentive programs to implement and utilize computerized physician order entry systems after 2012. The systems alert doctors to possible dosage, drug interaction or allergy dangers in the prescriptions they issue. The systems have an annual estimated savings of $2.7 million per hospital, with a total state savings of $170 million per year.

Other States: e-Prescribing Leaders

As of August 2007, all 50 states plus Washington D.C., allow their physicians and pharmacists to electronically exchange prescriptions. As late as 2004, approximately half the states had laws that were incompatible with e-prescribing due to privacy provisions that considered e-prescribing networks third parties or because written signatures were required for prescriptions.

In addition to Massachusetts, the top 10 e-prescribing states according to SureScripts includes Rhode Island, Nevada, Delaware, Michigan, Maryland, North Carolina, Arizona, Connecticut and Washington State. (For a complete list see page 11.)

An estimated 35 million prescription transactions of 1.47 billion prescriptions eligible were routed electronically between e-prescribing providers and pharmacists in 2007, more than in 2004, 2005 and 2006 combined. More than 35,000 health care providers were active e-prescribers in 2007, and that figure is expected to rise to 85,000 in 2008. More than 40,000 chain and independent pharmacies currently receive e-prescriptions.

SureScripts' National Progress Report attributed recent growth in e-prescribing nationwide to several factors, including:

- the organization of e-prescribing programs by payers, health systems, large clinics and state health departments which raised awareness about the benefits of e-prescribing in the health provider community;
- leadership shown by governors, legislators and departments of health;
- federal funding for state Medicaid programs to establish e-prescribing; and
- a Health and Human Services Department regulation setting a Jan. 1, 2009, deadline for elimination of computer-generated faxes in the Medicare Part D Program.

Only 2 percent of the estimated 1.47 billion new and renewed prescriptions eligible for electronic routing in 2007, however, were transmitted electronically. Electronic routing of prescriptions is predicted to increase to 7 percent in 2008.

The Federal Role in Health IT

The Department of Health and Human Services, through many of its agencies, is guiding the development of standards for health IT systems and providing funding for organizations building these systems. These efforts are all in support of the twin goals of electronic health record propagation by 2014 and the creation of the National Health Information Network by linking state health information exchange initiatives.

But federal guidance and endeavors to reach the goals have received mixed reviews. Earlier this year the California Health Care Foundation surveyed a cross section of health IT stakeholders and experts. The group assessed the federal government's progress in developing four cornerstones of a digitized health care system. Those cornerstones are:

- **Creation of the National Health Information Network:** Many of those surveyed characterized it as either ill conceived or poorly executed.
- **Development of interoperability standards:** The group said the public-private Healthcare Information Technology Standards Panel (see sidebar) has made progress in recommending standards that will allow computer systems to exchange and use data from other systems, but "the speed of the process has been frustrating and limited."
- **Certification of electronic health records:** The Certification Commission for Healthcare Information Technology (see sidebar) developed, and is now implementing, the certification process. Those surveyed broadly agreed the process has been a success, according to the survey.
- **Reconciliation of State and Federal Privacy Laws:** The Office of the National Coordinator for Health IT recently completed an assessment of state and federal policies which create impediments to efficient sharing of health information data. Some say it may ultimately be necessary to establish a new federal privacy standard.

Many expect the federal government, as a major payer and purchaser of health care, will eventually have to play a larger role in encouraging health IT adoption. The policy options may include various carrot and stick approaches including providing incentives for providers, seed funding for health IT systems and perhaps subsidies to support regional health information organizations. The federal government could also set deadlines to deny Medicare or Medicaid payments to physicians who don't incorporate health IT into their practices.

But Marchibroda of the eHealth Initiative believes it's important to note that states aren't waiting for the federal government to address important health IT issues. "I think there are two things the federal government needs to do," she said. "Nail down the (interoperability) standards component of this and they're well on their way … and also looking at changing the way they pay for health care. And with those two things I think the private sector and the states can move. But on the flip side, I don't think we need a lot of regulation."

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