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Inside

EHRs drive health IT

For a time, the advances in health IT that were promoted in the 2009 American Recovery and Reinvestment Act (ARRA) seemed in doubt as reactions to the proposals ranged from confusion to outright resistance. The eventual impact of the proposals was unclear and many parts of the U.S. health industry, particularly providers, pushed back against the costs and complexities involved in implementing them.

Saying that suddenly everything is much clearer is perhaps going too far, but 2011 will at least be seen as the year when the commitment to using health IT finally solidified. At the beginning of the year, a survey by the Office of the National Coordinator for Health IT (ONC) found that four-fifths of U.S. hospitals and over 40 percent of office-based physicians said they would take advantage of federal incentives for the adoption and meaningful use of certified electronic health records (EHRs).

Office-based physicians and other eligible professionals can obtain EHR incentive payments of as much as $44,000 under Medicare or $63,750 under Medicaid. Under both Medicare and Medicaid, eligible hospitals may receive millions of dollars.

It's been known for some time that EHRs could improve patient care while lowering costs, said David Blumenthal, who was the national coordinator for health IT at the time of the study, but adoption by health care providers had remained stubbornly low. However, the survey showed "we are seeing the tide turn toward widespread and accelerating adoption and use of health IT," he said.

Later figures for the program showed the adoption trend continuing. Participation in the meaningful-use incentive program jumped 30 percent in August to 90,000 providers from the 77,000 recorded in July, according to

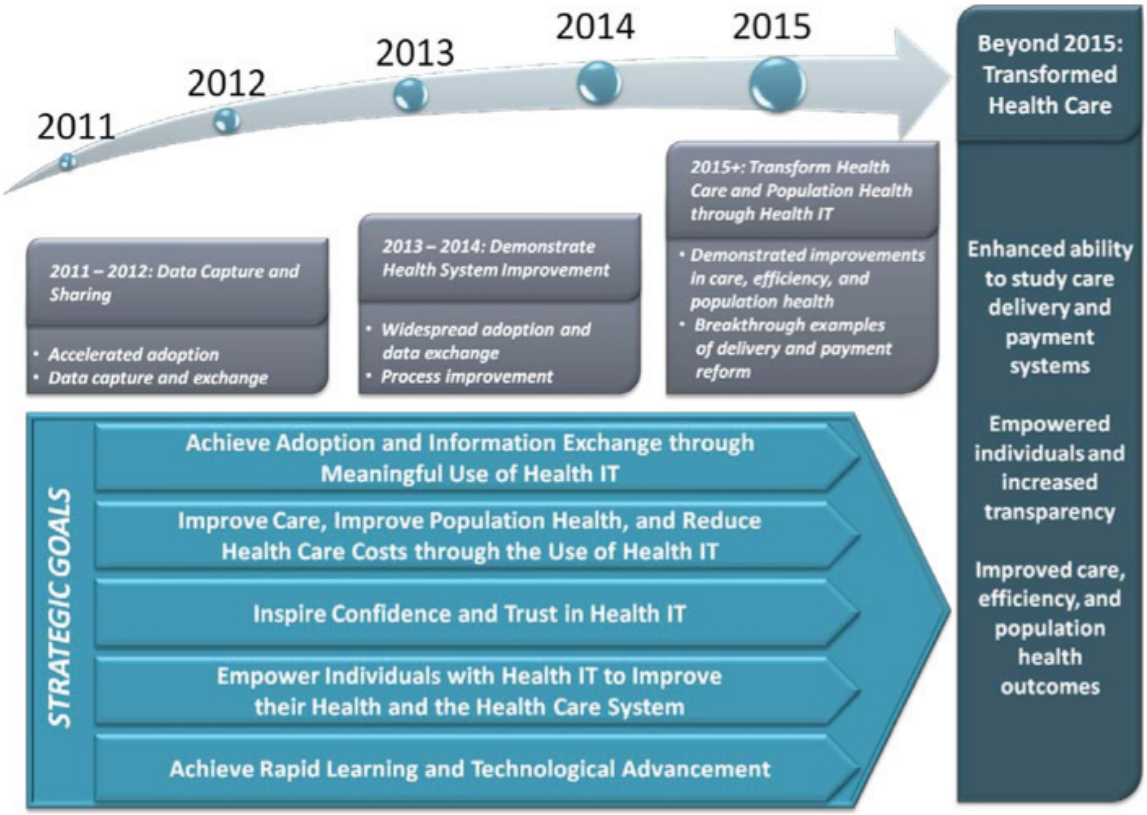

Figure 1; Federal Health IT Strategy Map

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the Centers for Medicare and Medicaid Services (CMS). Medicare EHR incentives were paid to 1,000 physicians in August, a figure that doubled over each of the previous two months. Medicaid payments were made to 1,300, some 23 percent more than in July.

At least some of that growth has to do with the deadlines imposed on the meaningful-use program. To get the maximum incentive under the Medicare program, for example, eligible professionals have to begin their participation by 2012. And those who don't demonstrate meaningful use of EHRs by 2015 or don't participate will have their Medicare payments cut.

The Medicaid incentive program is voluntary by state, and the last year an eligible hospital can begin its participation is 2016. As of August, 23 states had begun their programs with larger states such as California still to announce.

EHRs are key to the future of health IT

The success of the EHR incentive program in expanding the use of health IT among providers is the key to the government's broader plan to transform health care in the U.S.

In its "2011-2015 Federal Health IT Strategic Plan," published in September, the ONC made its first goal to "achieve adoption and information exchange through meaningful use of health IT" and called that the centerpiece of the government's health IT strategy over the next five years.

"Meaningful use' is much more than just adoption," ONC said in the plan. Providers "will also be required to maintain data confidentiality, share information securely with each other, engage patients with their electronic health information and improve care."

With that and other efforts to provide support to providers, workforce training and information exchange — particularly for the small group practices, community health centers, and others such as providers in rural and underserved areas — the overall goal is to "create a tipping point — that the adoption and meaningful use of EHRs will become ubiquitous across the nation."

However, ONC officials said, the plan should be viewed as a living document that will be updated as needed based on experience with the first stage of the EHR inventive programs. What happens with that, and particularly the essential goal of getting providers to adopt and become meaningful users of certified EHR technology, will determine how future versions of the plan might change.

However, there are more unexpected signs that the program has broader appeal than it was considered to have before. In its August report, CMS saw indications that older providers are participating much more actively than expected, even those close to retirement. This segment of the provider population was expected to largely forgo implementing EHRs, preferring to give that responsibility to younger and more tech-savvy colleagues.

And despite tough budget scenarios, states also seem committed to following through on their commitments. Many state governments are leery of or outright opposed to broader measures in the Obama administration's health reform legislation, but they still consider health IT as necessary to drive efficiencies in health programs. Health care, including health IT, was No. 3 on state CIOs' list of concerns for 2011, according to the National Association of State CIOs (NASCIO).

In August, the Obama administration added another support, by linking budget-constrained rural hospitals and clinicians to existing capital loan programs so they can more easily pay for health IT hardware and software.

To make sure the point is not lost, administration officials have been busy trying to drive home the critical nature of current health IT programs to an increasingly austerity-minded Congress.

The EHR incentive programs are not about technology for its own sake but are an essential tool for helping hospitals and physicians bring about a transformational improvement of the health care system, said Farzad Mostashari, Blumenthal's successor as head of the Office of the National HIT Coordinator, in testimony in June to the House subcommittee on health care and technology.

There are plenty of ideas about how to improve the way care is delivered, he said, but "I would maintain that an absolutely essential component to making any of these strategies work effectively is they must be supported by the robust use of health IT." ▲

Toward a single military EHR

The jewels in the government health IT universe have long been the Defense Department's Armed Forces Health Longitudinal Technology Application (AHLTA) and the Veterans Affairs Department's Veterans Health Information System and Technology Architecture (VistA), both of which have decades of development behind them. They'll eventually merge to become a single military electronic health record, by far the largest EHR in the country.

Along the way, they'll also break other ground. The new, integrated EHR (iEHR) will be the first major government health IT project to be developed as an open-source project, though traditional software acquisition approaches could still be used for some elements of the EHR.

Both of the current DOD and VA EHRs use a lot of proprietary and custom components, so trying to merge them as they are would be a nightmare. Going the open-source way will get around that and also produce something that should be much easier to maintain and scale for future needs.

"Moving to an open-source model invites innovation from the public and private sectors," said Eric Shinseki, VA secretary, in announcing the start of the program in June. "It is an important element of our EHR collaboration with the Department of Defense and an important part of our strategy to ensure that VA clinicians have the best tools possible, and that veterans receive the best health care possible."

The Open Source Electronic Health Record Agent was launched at the end of August to be the governing body for the open-source community that will help develop the iEHR.

The goal is to provide service personnel with a single health record that will follow them from the moment they enter the military to the end of their lives. The trick will be to provide a single architecture for the EHR while still enabling both the DOD and VA medical people to work with the AHLTA and VistA components they still find useful.

To that end, the VA issued a request for information in September to gather ideas from industry on what the graphical user interface and associated Web services might look like for the integrated EHR.

There is an interim joint EHR of sorts. The Virtual Lifetime Electronic Record (VLER) was launched after President Barack Obama ordered in April 2009 that DOD and VA create a single, lifetime EHR for the armed services. However, the VLER focuses on sharing medical information between the two, building on previous data sharing initiatives between VA and DOD. However, it doesn't use the single architecture envisioned for the iEHR, so it is limited in what it can do.

Still, what it will do is provide DOD and VA with the experience of operating a joint EHR, in addition to giving service members and veterans an idea of how the iEHR will work for them. In September, VA said it was expanding its VLER pilot and was on track to implement a health information exchange at 11 of its VA medical centers and to partner with both DOD and private health care entities by the fall 2011.

VA said its goal is, by the end of the fiscal year, to have 50,000 veterans who are VA patients authorize the sharing of their records.

It might not be all smooth sailing. Apart from the technical complexities of merging the two EHRs, how easy it becomes may depend on how well both DOD and VA convince congressional committees that they'll be able to pull off the move to the new record.

The House Military Personnel Subcommittee, in its May markup of the 2012 National Defense Authorization bill, held back all but 10 percent of the money the Military Health System had requested for the iEHR work, saying

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it first wanted to see a transition plan that detailed how the transition would be done in an efficient and cost-effective way.

That followed a report in February from the Government Accountability Office that criticized both VA and DOD for not having specific plans, goals or time frames for their joint health IT needs.

Nevertheless, both DOD and VA seem committed to the iEHR. As was noted at the time in early 2011 when Shinseki and then DOD Secretary Robert Gates agreed on the concept for the integrated record, 90 percent of the medicine used by DOD and VA is the same, so why not have a single EHR and have taxpayers pay to build it once? ▲

Telehealth as a game changer

The combination of an ever-greater reach of the Internet and wireless technologies, the need to deliver health care services to isolated populations and the movement to reduce costs is pushing telehealth — health care delivered at a distance — into a more prominent role.

It's been around in some form for many years, but it's always been a relatively small niche in the overall health care universe. But that will soon change, according to United Kingdom-based market watcher InMedica, which predicts a more than $1 billion worldwide market for telehealth by 2016, which could jump to $6 billion by the end of the decade.

Home monitoring of patients, particularly to manage chronic diseases such as hypertension, diabetes and congestive heart failure, is one big reason underlying this expansion, said Diane Wilkinson, research manager at InMedica.

"Many public health care systems now have targets to reduce both the number of hospital visits and the length of stay in hospital," Wilkinson said. "This has led to a growing trend for health care to be managed outside the traditional hospital environment, and as a result, there is a growing trend for patients to be monitored in their home environment using telehealth technologies once their treatment is complete."

There have been some large-scale trials in Europe and the United Kingdom, but by far, the most established market for telehealth is in the United States.

The Veterans Health Administration (VHA), for example, has set a goal of having 92,000 of its patients using telehealth services by 2012. At the end of September 2010, just over 71,000 veterans were enrolled in the VA Care Coordination/Home Telehealth program.

A service called Clinical Video Telehealth (CVT) is also being used to provide treatment for remote and rural veterans who might not be able to travel to VA hospitals and medical centers and whose closest outpatient clinic might not have the staff or facilities available at a regional VA medical center.

CVT has proven especially adept at delivering treatment for veterans in this situation who suffer from post-traumatic stress disorder. Since 2007, well over 100,000 veterans have received mental health services via CVT, according to the VHA's Office of Rural Health.

The active military is also looking to telehealth to help it better deliver health services to its personnel, particularly those out in the field and in remote locations. One example is the Army's Tele-behavioral Health System, which aims to deliver mental health services to soldiers on the battlefield. A pilot program began in October 2010.

Col. Hon Pak, the Army Medical Department's chief information officer, traveled to Afghanistan last year to try to gain a better understanding of the technology challenges in those warfighting conditions and to see what IT solutions could be used to deliver better medical care there.

"I learned a lot about behavioral health on the battlefield," he said in an interview with the Military Health System's magazine, The Gateway. "We are still learning about reducing the perceived stigma of behavioral health, the importance of local leadership and its impact on mental resiliency in a very difficult environment, such as Afghanistan."

The Tele-behavioral Health Initiative will be one component of a Comprehensive Behavioral Health System of Care campaign that the Army is rolling out, Pak said.

The Health and Human Services Department is actively involved in trying to establish a number of regional telehealth resource centers around the country that will provide assistance to health care organizations, health

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care networks and health care providers to implement telehealth programs to serve the needs of their rural and medically underserved populations.

The HHS' Health Resources and Services Administration recently awarded three grants of close to $1 million each to organizations launching telehealth centers in Maine, Indiana and Michigan. Those new centers will join nine other regional centers already established in other areas.

What's been missing so far are incentives that would push providers to using telehealth more. Private insurers, Medicaid and Medicare pay for some telehealth practices, mainly for interactive consulations. But the American Recovery and Reinvestment Act does not include telehealth in the meaningful-use incentives for adoption of health IT, which are aimed mainly at hospital and physician adoption of electronic health records.

Neither are health regulations as now written all that amenable to physicians using telehealth. Although providers can use telehealth over wide areas and across state lines, the requirements to enable them to do that can be onerous. To work across state lines using telehealth, providers have to be licensed in each state that they use the technology and they may have to meet specific, individual state regulations.

HHS is at least trying to meet some of these objections. Medicare, for example, will now allow telemedicine to be delivered by a provider who is credentialed with a distant hospital as long as there are telemedicine agreements in place between hospitals. Previously, hospitals had to credential each physician to use telemedicine.

Once better regulations and incentives are in place, the situation is primed to meet the kind of future for the market predicted by InMedica.

About 200 telemedicine networks in the United States already connect hospitals with nearly 2,000 outlying clinics and community health centers in rural and exurban areas, according to a recent paper from UnitedHealth's Center for Health Reform and Modernization. However, these links are now mostly used for education or to perform administrative functions, it said, and fewer than 10 percent of rural hospitals are engaged in remote monitoring of patients. ▲

The mHealth wave comes ashore

There is no getting around the fact that computing and communications in general is fast going mobile, fueled by the expansion of wireless networks and the astonishingly quick uptake of high-powered devices, such as smartphones and tablets. Health IT will not be immune to this.

Some might say that the mobile health revolution is already here. Consumer health applications available for Apple's iPhone will probably go over the 13,000 mark by next summer from just 9,000 today, according to a MobiHealthNews analysis of data from Apple's online AppStore.

Medical professionals are also catching the wave. Over 75 percent of U.S. physicians are thought to have smartphones, and software and attachments for them are turning those phones into a range of medical devices such as heart monitors, blood pressure readers, stethoscopes and glucose meters.

And worldwide, government use of mobile health devices is accelerating. About 100 of the World Health Organization's member countries offered at least one mHealth service in a survey reported by WHO in June, and many offered between four and six. It all indicates a groundswell of activity for mHealth, WHO said in its report.

In the United States, government agencies are starting to pick up on the potential of mHealth. In April, the Veterans Affairs and Defense departments, for example, launched the PTSD Coach smartphone app, intended to help military personnel and veterans learn about and manage symptoms that commonly occur after people suffer trauma.

It provides information about PTSD and lets users track their PTSD symptoms, enabling them to link to both public and personal sources of support. It also teaches users helpful strategies for managing PTSD symptoms on the go.

Tools like this are badly needed to help stem things such as suicides among members of the military and veterans, the rate of which has increased more than 50 percent since 2001 and for which PTSD is thought to be a leading cause.

Judging by the response, it's also something that will be quickly taken up by service members. Some 5,000 people downloaded the app in the first month of its launch. Within two hours of it going live, a veteran had called the Veterans Crisis Line using information provided through the app and was provided an appointment at a local VA medical center.

The app is the first in a series that VA and DOD intend to produce to help service members and veterans manage their readjustment challenges and to get assistance.

In September, the Health and Human Services Department's Office of Minority Health said it was partnering with the American Association of Diabetes Educators (AADE) and AT&T on an initiative to see if mobile devices could be used to deliver diabetes self-management (DSMT) to minority communities.

Nearly 26 million people in the United States, some 8.3 percent of the total population, have diabetes, and 79 million adults 20 years of age and older have prediabetes, according to the Centers for Disease Control and Prevention. Racial and ethnic minorities have a higher rate of incidence.

"Telehealth and mHealth have the potential to greatly increase access to health services such as DSMT, which has been proven to reduce complications associated with diabetes," said AADE CEO Lana Vukovljak.

Diabetes educators will deliver DSMT to patients using a video application on smartphones, and through a collaborative learning process, people with or at risk of diabetes can then get the knowledge and skills they need to modify their behavior and self-manage the disease.

Smartphones will only continue to get more powerful, with more processing power and memory and better graphics capabilities to go along with things such as Global Positioning System location capabilities. And

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market observers such as Berlin-based research2guidance expect smartphones to dominate the mHealth field, with a recent survey showing that still likely to be the case in 2015, though tablets such as Apple's iPad will start to make inroads into the market by then.

In many ways, government is forcing the issue with mHealth. The Army, for example, wants to provide each of its soldiers with a smartphone. As a result, the service's Telemedicine and Advanced Technology Research Center is evaluating medical apps in order to have them ready when the Army actually distributes the devices. It also wants to have a medical app store ready from which soldiers can have various options to choose from and download.

And if anyone had any doubts that mHealth apps were becoming a major consideration, the Food and Drug Administration in July issued draft guidance for the health industry and device manufacturers about what mHealth apps it would consider regulating as medical devices.

The apps that could be regulated include those that enable the inflation and deflation of a blood pressure cuff, control insulin delivery through a pump, transform the phone into an actual medical device using attachments or various sensors, or perform some kind of diagnosis using patient data. ▲

Competing for health IT innovation

No matter what health IT environment the government and industry builds, if you don't have innovative health-related applications to take advantage of it, then you're in danger of building an expensive flop, and the goals set for that new environment — to improve health outcomes and reduce costs — won't be met.

Health and Human Services Secretary Kathleen Sebelius said as much at her department's second Health Data Initiative Forum in June. The U.S. health system is suffering from high public and private costs and mediocre health outcomes, she said, and the key to changing that is innovation.

But the pace of innovation is at a crawl, she told attendees at the forum. Basically, she said, things in health care are about where they were 30 years ago, despite all of the advances in medicines and medical technology over that period.

The Obama administration is trying to change that. In June, it announced the launch of the Investing in Innovations initiative, which uses prizes and challenges "to accelerate the development of solutions and communities around key challenges in health IT."

It's the first administration program to use prizes and challenges to advance an agency's mission, which was made possible by the America COMPETES Reauthorization Act that President Barack Obama signed at the beginning of 2011. The act makes money available to invest in innovative research and development that will improve the competitiveness of the United States.

The initiative will have $5 million available, which will support a series of up to 15 prize competitions a year. It's the harbinger of what Tom Kalil, deputy director for policy at the White House Office of Science and Technology Policy (OSTP), called a new paradigm in which prizes and challenges become a strategic tool in every agency's innovation portfolio.

For example, he wrote in a June White House blog post, as far as health IT is concerned, the competition under the initiative might challenge software developers "to build new tools for the seamless exchange of health information among hospitals, clinics, and physicians with tailored privacy settings, or to create new blue-button apps that enable patients to download and reuse their clinical information."

The initiative builds on the solid success of similar competitions held under the HHS Community Health Data Initiative and Substitutable Medical Apps, Reusable Technologies Apps for Health challenge that closed at the end of May 2011.

SMART focused on the idea that an open platform could transform the health IT market by reducing the distribution costs for entrepreneurs. With just $5,000 in prize money and a tight 90-day competition, it attracted over 300 supporters and 15 quality submissions, Kalil said.

It "garnered a wide level of attention and attracted a wide field of innovators with what promises to be a significant catalyst for spurring a breakthrough, innovative health IT platform," he said.

Two recent challenges under the program were announced in September.

The Ensuring Safe Transitions from Hospital to Home challenge asks competing teams to create browser-based applications that will allow patients to access critical information prior to discharge from a hospital. They should also be able to easily transmit that data through the application to another care provider such as a nursing home, home care agency, hospice or specialist.

The winner will get $25,000 from a total $40,000 purse and will have the chance to showcase their application at a major health care conference.

The Reporting Device Adverse Events challenge is aimed at giving patients an easy way to record adverse events associated with implanted medical devices and other devices used in the hospital, clinic or home. The winning system, which will also get $25,000, should support the

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exchange of health care data with existing EHRs and other hospital information systems.

"Adverse events related to medical devices are significantly underreported given the difficulty of reporting data in real time," said Indu Subaiya, co-chairman and CEO of Health 2.0, which is managing the program for the Office of the National Coordinator of Health IT. "The winning entry in the Reporting Device Adverse Events challenge will improve the reporting of adverse events via Internet-ready devices such as mobile phones, tablets and PCs."

Although the money involved seems relatively small, ONC said the use of prizes and competitions is widely regarded as a powerful tool to attract innovators from all walks of life, and it makes it possible to have a rapid response to emerging issues that difficult to address with more traditional funding opportunities.

Another component of the initiative will support analysis of the current health IT environment in order to track and model relevant clusters of innovation, while also identifying connections between what appear at first to be disparate innovator communities. That will "identify technology development trends in a fast-moving sector to inform future advisory and policy-making activities," ONC said. ▲