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Government Funding, Technological Advances Transform Healthcare

As the nation's leaders grapple with the extent of healthcare reform measures, one thing has become increasingly clear - no matter how far reform measures go, it's unlikely the U.S. will see a transformation in healthcare without the successful implementation of advanced technologies to reduce costs and improve the provision of healthcare services.

As David Blumenthal, M.D. and National Coordinator for Health Information Technology at the Department of Health & Human Services said in a recent speech at a conference of the National Committee on Quality Assurance, making healthcare IT part of the accepted culture for providing healthcare isn't far off. "Medical students today are not likely to accept paper records as the standard for use in their profession, when electronic means of information exchange and recordkeeping already pervade the rest of their lives," he explained.

> "To improve the quality of our health care while lowering its cost, we will make immediate investments necessary to ensure that within five years, all of America's medical records are computerized."
>
> *– President Barack Obama, January 2009*

Clearly, leveraging technology will improve decision making and make it quicker and easier for doctors and patients to send/receive records and speed the diagnosis, treatment of illnesses and accuracy of healthcare practices in the coming years. "An evolution is taking place as we move from paper records to electronic ones in parallel with networking the information, or making it 'interoperable,'" said Dr. Robert Wah, Vice President, CSC Government Health Services and Chief Medical Officer NPS – Civil and Health Services Group. Eventually, he continued, "we will be able to use the digital information for population analytics and personalized care."

While the American Recovery and Reinvestment Act (ARRA) is credited with making the key downpayment on healthcare IT's advancement, Wah said, there are many contributing elements to the current growth wave. Health IT will grow at a combined annual growth rate of 11 percent through 2013, according to consulting firm Scientia Advisors. The firm projects health IT will be the fastest growing segment of the $1 trillion global healthcare market, expanding from $35 billion in 2008 to more than $60 billion by 2013.

Transformational Elements

Key technological tools and/or services that will aid the government's healthcare transformation include:

- **Electronic Health Records (EHRs)** – the conversion from paper to electronic medical records is seen as the crucial first step. Despite the pain involved in adapting EHR into the current workflows of physicians and other healthcare providers, recent surveys indicate 90 percent of doctors who adopted EHR were satisfied. Providers cite the avoidance of adverse drug events and duplicate tests among the key reasons they favor the use of EHRs.
- **Health Information Exchanges (HIE)** – the crucial networks that must develop across the country to aid in the exchange of all kinds of medical information, including EHRs. The federal Office of the National Coordinator (ONC) to Health Information Technology has already rolled out funding for every state in increments from $4 million to $40 million, to plan for and implement statewide HIEs.
- **Healthcare analytics tools** – once information is digitized and networks established, healthcare providers will be able to analyze health data across an array of various populations to facilitate faster diagnosis and treatment. One example of this is in the Centers for Disease Control and Prevention (CDC) National Electronic Disease Surveillance System (NEDSS). CSC helped the CDC integrate data from more than 100 federal, state and local entities. Now the system is used to quickly identify and track infectious diseases and potential bioterrorism attacks. NEDSS also plays a vital role in the investigation of outbreaks and the monitoring of disease trends.

Each of the key healthcare IT elements produce enormous benefits, from improving individual patient care to reducing medical costs through the elimination of redundant tests. Providers gain the ability to securely exchange patient information, and can collect reminders of services due to facilitate e-prescribing, to speed prescription fulfillment and further reduce errors. Other important components of the

ongoing healthcare transformation include the development of key industry standards for electronic records and the secure exchange of information online. (See related standards article, on page s4 of this special report.)

In the coming year, state and local governments are considered pivotal players. "The states are tasked with playing a key role in securing and coordinating ONC funds, presenting a tremendous opportunity for visibly enhancing health IT and ultimately, patient care," Wah said. Over the past 12 years, CSC has been involved in numerous projects to understand and harmonize local, state and federal regulations and policies. With a health information policy framework used as the starting point for CSC's HIE planning, the company helps government organizations focus on strong local accountability, as well as clear accounting for all disclosures of health information, which can be adapted to support each state's requirements.

The growth of HIEs at the state/local level will likely be among the big stories of 2010. A wave of stimulus funding will kick in later in 2010, providing incentives for physician practices and hospitals able to demonstrate the 'meaningful use' of EHRs. Starting in October 2010, physicians will be able to apply for $44,000 from Medicare or $60,000 from Medicaid when they convert from paper to EHR systems.

Also important will be the advancement of health insurance exchanges. CSC worked with the Commonwealth Health Insurance Connector Authority to establish the nation's first health insurance exchange after Massachusetts enacted its universal coverage law. The authority, governed by an independent board and working closely with commercial payers in the state, worked with CSC to establish a brand separate from state government to help Massachusetts residents shop for coverage under the law. CSC created a separate web portal, www.mahealthconnector.org, in less than six months. Several health reform proposals in Congress were based on the Massachusetts Connector model, calling for federal funding of states that create 'gateways' similar to the Massachusetts model. Integrating health insurance providers into the mix will play an increasingly critical role in ongoing reform over the coming years, Wah said.

> "Healthcare improves when the people making decisions on care – physicians and other healthcare providers, as well as patients and their families – have good information."
>
> *– Dr. Robert Wah, Vice President, CSC Government Health Services*

On the downside, sources said current stimulus spending may spread funds too thinly across numerous small projects, when it would likely be best to concentrate investments on a few larger implementations that are more likely to gain the traction/visibility that will build momentum to advance healthcare IT nationwide.

It's increasingly clear, however that in the not too distant future, healthcare providers will want to invest in healthcare IT on their own, and electronic health records will become part of daily operational practice. One day soon, "providers won't expect federal subsidies for healthcare IT," Blumenthal said.

Once medical information is migrated from paper to electronic medical records on an interoperable network, digitized information becomes a powerful thing. Healthcare organizations will be able to conduct population analyses and provide more personalized medical care. "There will be an explosion in targeted information for treating patients," Wah explained.

And that kind of information will drive costs down, while simultaneously improving the quality of patient care. ❑

HITECH/Health Reform: Key Milestones for States, 2009 - 2015

August 2009 – ONC released RFPs for states and regions to apply for federal HITECH Act grants/funding.

January 2010 –Estimated project start for Regional Extension Centers and Health Information Exchanges.

Early 2010 – Estimated passage of health reform legislation.

October 2010 – First incremental Medicare and Medicaid revenue available for providers who can meet "meaningful use" criteria.

January 2013 – Second set of "meaningful use" criteria applies.

January 2015 – Final set of "meaningful use" criteria takes effect. Providers hit with penalties for non-compliance.

Early 2015 – Anticipated compliance with health reform regulations.

Source: CSC

Growing Urgency in Developing Healthcare IT Standards

As the Department of Health and Human Services works to simplify currently cumbersome and complex standards for health information technologies, especially regarding standards that govern the exchange of information about patients, overarching concerns about privacy and security continue to grow.

In recent months, the Health Information Technology Policy Committee, for example, reached a consensus on the definition of 'meaningful use' recommended to describe what healthcare providers must do with their e-health systems to qualify for financial incentives the federal government will offer starting in October 2010. For instance, hospitals must generate 10% of their orders via computerized physician order entry by 2011 to qualify for a portion of the more than $20 billion Health Information Technology for Economic and Clinical Health (HITECH) portion of the American Recovery and Reinvestment Act.

One barrier to standards adoption so far has been the lack of a unique set of standards. Except for standards already federally mandated, such as those governing Health Information Privacy Act (HIPAA) transactions, there are a number of competing and overlapping messaging and data vocabulary standards and in many cases, CSC officials assert that none sufficiently address current healthcare IT requirements. CSC officials cited LOINC or SNOMED for medical lab tests. LOINC adequately addresses the lab test orders but SNOMED is needed for the test results. CSC officials report there's a strong need for ongoing work to build upon, create new or harmonize existing standards schemas.

Separately, HHS officials understand that standards and certification are needed to identify and harmonize technical specifics related to health information exchanges. To accomplish this, HHS reports there is a need to oversee the development and presentation of use cases, to coordinate work with the Health IT Standards Panel (HITSP) and the Nationwide Health Information Network (NHIN) effort, and to support the certification efforts of the Certification Commission for Healthcare Information Technology (CCHIT) in its certification and accreditation activities. Commission-approved criteria and test scripts, developed during the current development cycle, have been published on the web site, www.cchit.org.

HITSP, for example, is a multi-stakeholder, consensus-based body designed to provide a process for representatives from all aspects of healthcare to select and harmonize standards to support specific healthcare priorities. Currently, volunteers from over 500 healthcare-related organizations support and participate in HITSP. In 2009, HITSP focused on 'meaningful use' and ARRA's eight priorities, which include:

- Technologies that protect the privacy of health information;
- A nationwide health information technology infrastructure;
- Use of a certified electronic record for each person in the U.S. by 2014;
- Technologies that support accounting of disclosures made by a covered entity;
- The use of electronic records to improve quality;
- Technologies that enable identifiable health information to be rendered unusable/unreadable;
- Demographic data collection including race, ethnicity, primary language and gender;
- Technologies that address the needs of children and other vulnerable populations.

Meanwhile, CCHIT certifies provider-based ambulatory care, EHRs and inpatient EHRs through a public-private process that develops specific criteria for health IT systems and then rigorously evaluates them to determine whether they meet criteria for:

- **Functionality** – ensuring that the systems can support the activities and perform the functions for which they are intended;
- **Security** – ensuring that systems can protect and maintain the confidentiality of data entrusted to them; and
- **Interoperability** – ensuring systems implement the recognized standards and can exchange information and work with other systems.

In 2010 and beyond, healthcare IT standards development will largely hinge on an open source market-driven process – underscored by the need to understand operational goals in building each product or service. According to recent research from INPUT, federal government spending on open source software is expected to grow from $290 million in 2009 to $430 million in 2014, (a CAGR of eight percent).

At a recent Harris Corp.-sponsored Washington D.C. conference on healthcare IT, Brian Behlendorf, a Collaboration Advisor within the Office of the National Coordinator for Health Information Technology said the development of standards for healthcare IT will largely depend on the creation of new open source technologies,

and will replicate the success of other technologies currently on the market, such as open source web servers and browsers. "FHA has very aggressive goals to achieve nationwide health information exchange, which means we must create reusable technologies in as many places as we can," he said.

Meanwhile, he added that licensing code may seem an obscure place to start in advancing standards, but it's a model previously used by Linux, Apache and other software development efforts and is now a basis for commercial ecosystems. "As open source code is public and processes for development are public, the CONNECT community is developing features that can be vetted and brought to use more quickly," he explained.

The primary benefit of this community-based development approach is that the technology used is 'commercial-off-the-shelf,' and based on industry standards, which sharpens each supplier's ability to focus on services delivered. "Security will be provided through transparency, using a network that can be trusted as it centers on a high degree of confidentiality surrounding patient records and security," Behlendorf explained.

Using a community approach to developing new standards for healthcare software and services means the solutions will be vetted, and address key privacy and security concerns, rather than waiting for a new product cycle from a single industry supplier, he explained. The community of stakeholders, providers, payers, agencies and state/local governments will drive the development of key health IT services. "FHA's role is as facilitator of the process," he said. And by the looks of it, FHA is having great success. At recent code-a-thons that took place in late 2009, FHA pulled programmers from a variety of organizations to developer events that were attended by more than 10 times the originally expected number of software developers.

Ultimately, the process of accelerating the adoption of health IT standards will not happen overnight. It's an ongoing effort that will require the participation of all stakeholders in order to succeed. The standards required within the HITECH provisions of ARRA will force changes to existing applications and interfaces, along with the adoption of yet-to-be-finalized new standards to meet interoperability requirements, CSC officials maintain. Compliance to those standards is tied to the financial incentives offered, so it's critical for state and local governments and healthcare providers to assess their current installations and begin planning for what will be needed to meet the 2011 incentive deadline. ❑

A Beacon for Healthcare IT

In December, the Office of the National Coordinator for Health Information Technology (ONC) announced the availability of $235 million in funding for the Beacon Community Program.

The Beacon Community Cooperative Agreement Program will establish $220 million in cooperative agreements with communities to build and strengthen their health IT infrastructure and health information exchange capabilities to achieve measurable improvements in health care quality, safety, efficiency and population health.

An additional $15 million will provide for technical assistance to the communities and to evaluate the success of the program.

The grant program will seek to advance a health information technology infrastructure that will support the nationwide electronic exchange and use of health information in a secure, private and accurate manner.

Communities funded through the Beacon Community Program will be expected to build on an existing infrastructure of interoperable health IT and standards-based information exchange to advance specific health improvement goals declared by each community.

Approximately 15 cooperative agreements will be awarded to qualified non-profit organizations or government entities representing a variety of health settings and populations, including rural and underserved communities and other vulnerable populations. Applicants must be U.S.-based, non-profit organizations or a government entity falling into one of the following five categories:

- State, local, tribal or territorial government entity with a public health focus;
- Integrated delivery network or health system with broad community partnerships;
- Independent physician association or consortium of medical groups;
- Public/private partnership aimed at health system improvement and/or community health improvement;
- ONC-funded regional extension center with the capacity to expand its services.

Applications are due February 1, 2010. Award decisions for the Beacon Communities are anticipated in March and programs will last for a 36-month period.

The 2010 Vision for Health Information Exchange: An NHIN Update

When it comes to understanding the value of technology in transforming healthcare in the U.S., one example that stood out in 2009 was the National Health Information Network (NHIN), which has garnered early success as a government health information exchange.

Driven by the overwhelming need to improve the sharing of healthcare information, NHIN, first built in 2007, now boasts support from more than 20 federal agencies that are implementing a common solution to connect internal systems and share information.

NHIN's goal is three-fold – to provide better patient care via the online exchange of information, reduce costs and improve access to care. With $2.1 trillion spent on healthcare and costs rising each year, there's an enormous need find ways to use technology to assist in controlling the cost of healthcare. Officials estimate costs will rise to $35,000 per year for a family of four in 2015, up from $5,800 in 1990.

Since 2007, the Federal Health Architecture has worked to help implement information exchange and ensure the operational infrastructure is in place to leverage the NHIN. In 2010, FHA plans to release version 3.4 of its base software, called Connect, which will incorporate impending 2011 requirements for meaningful use. "Early success of the FHA's NHIN has led to a fast growing community interested in advancing the overall goal of building a healthy ecosystem of buyers and sellers who want to advance the concept of HIEs," said Vish Sankaran, FHA's program director in an interview with 1105 Government Information Group Custom Media contributing editor, Barbara DePompa.

Sankaran's vision for NHIN in the coming year includes a new primary goal, "to ensure the federal government is a stakeholder, not the sole owner of the NHIN," he said.

To help achieve this goal, a work group was recently formed to make NHIN available to the broadest possible audience of stakeholders. "We are working to expand the usefulness of NHIN to insurance payers, pharmacies, state governments and other entities, such as device manufacturers to help build the NHIN into a true ecosystem enabling national information liquidity," he explained.

FHA is also gathering requests from other cross agency initiatives that want to learn more from FHA on how to accomplish such a healthy environment for cooperation. Also in 2010, FHA will make sure the features of the virtual lifetime electronic record initiative announced by the President last Spring are incorporated into the NHIN. And another initiative includes integration of the Physician Quality Reporting Initiative (PQRI), he said.

Sankaran hopes to replicate NHIN's success in multiple domains in coming years. Where there now is an ecosystem of companies providing services to government institutions such as Medicaid, Medicare and even the DoD, via its Data Exchange program, FHA's Connect program helps support all of these activities, he explained. FHA has made its Connect software available for download, spurring several state and local governments to join the collective, including the New York State Department of Health, the Washington state Department of Health and MedVirginia, among others. More than $600 million in grants are currently available to state and local governments, and as of December, approximately 15 more organizations were investigating tying to the NHIN.

Extra Help Needed

Meanwhile, Sankaran is hoping industry suppliers will step up to implement solutions for the NHIN. "Once data is freed for information exchange, more edge solutions, much like the one unveiled by Cisco, which has incorporated Connect into a single device, will be made available," he said.

In mid-2009 there were 13 suppliers in the Connect community. By November, that number jumped 50 and more than 1,200 attendees attended the first Connect software developer 'code-a-thon' last fall. At code-a-thons, open source developers from outside government have started contributing code to Connect, Sankaran said. As solutions are developed for NHIN users, FHA will post industry supplier names on its Connect web site to ensure users can learn more about services as they become available. Agency personnel and other interested parties should also note more demonstrations of Connect and NHIN are planned for the HIMMS 2010 conference in March. ❑

Tracking Pandemics - A Closer Look at Healthcare Analytics

It's estimated more than 300 systems at federal, state and local agencies currently monitor disease outbreaks, and the 2009 H1N1 influenza outbreak is currently being tracked by the Centers for Disease Control (CDC), as well as networks set up by state and local governments.

While industry observers maintain the many varied systems often don't communicate, and it has been challenging to gain a clear snapshot of disease outbreaks, the role of the CDC has evolved to include working with the various systems, as well as state and local networks to aggregate and analyze collected data. Typically, the CDC conducts flu surveillance from October to May, when it gathers data from 150 laboratories, 3,000 outpatient care sites, and 56 state and territorial health departments. The data is reported weekly on the CDC's web site.

Increasingly, healthcare analytics is being used to leverage information available across multiple federal, state and local government organizations to assist the CDC in tracking disease. And the potential for this technology is considered enormous. Healthcare analytics could save lives and improve patient care by providing better information to patients, doctors and healthcare organizations and assisting in improving the accuracy of diagnosis, providing more personalized care, and tracking disease outbreaks.

For instance, since September, the CDC has been securely exchanging public health data via the Nationwide Health Information Network. In this pilot project, the CDC gathers flu symptom data from health care providers in Indiana, New York and Washington state. The CDC worked with Harris Corp., and Cisco Systems to demonstrate it could upload flu symptom data from three state health departments. Researchers aggregate and analyze the information looking for trends. The results are made available to state public health officials. According to news coverage, plans call for the CDC to expand use of this solution to include other states and diseases.

Meanwhile, the CDC has also reportedly partnered with the International Society for Disease Surveillance and the Public Health Informatics Institute to create a tracking system, called Distribute, that aggregates nationwide data from state and local health departments on emergency room patients with flu symptoms. Distribute provides the CDC with detail on geographic and age-specific trends. And in yet another separate project, the CDC is working with the Department of Health and Human Services, along with the DoD and Veterans Affairs, the FDA, NIH, the Health Resources and Services Administration and the Indian Health Service to track adverse effects following immunization for the 2009 H1N1 influenza. According to HHS's web site, the goal of the monitoring program is to ensure the H1N1 vaccine's safety. Data from various military and civilian databases will be merged at the patient level and 'the rate of events will be assessed,' according to HHS reports.

Healthcare analytics is being used to leverage information available across multiple federal, state and local government organizations to assist the CDC in tracking disease.

According to Dr. Robert Wah, Vice President, CSC Government Health Services, CSC partnered with the CDC to create the National Electronic Disease Surveillance System, which protects the nation's health by monitoring disease trends, quickly identifying and tracking infectious disease outbreaks, and thwarting bioterrorism attacks. "This type of system won't prevent the flu, but it can help the CDC as well as states and local governments to understand how and where the disease is moving," Wah said.

NEDSS integrates data from more than 100 entities. The system informs public health officials of emergency room visits for specific diseases and monitors lab results to detect increases in the frequency of certain conditions. Because electronic data is transmitted automatically, reporting time for communicable diseases has shrunk from around 24 days to three days. ❑

Clarification:

CSC built the NEDSS base system. The CDC built NEDSS.

10 Tips to Assist in the Health IT Migration

Financial incentives from the federal government create a unique opportunity for state and local governments and healthcare providers all across the U.S. to invest in improved clinical, administrative and quality management processes.

While the challenges involved in achieving meaningful use are considered daunting, CSC officials offered several tips and best practices to help guide the way to more modernized, efficient healthcare operations.

1. Don't wait for further information to get started – For the most part, its clear what healthcare providers must do to invest in healthcare IT, although not all of the details about how compliance will be measured have been ironed out.

2. Remember it's the right thing to do – Despite the financial incentives at the end of the journey, meaningful use isn't just about money. It's important to send a clear message, both in words and through personal involvement, that this is the right thing to do for patients and a must for each healthcare provider's future.

3. Put clinical and operational executives out front – Because achieving 'meaningful use' is a huge clinical and operational change project, it's important to ensure clinical and operational executives take the lead, and make them accountable for success.

4. Make sure the work toward 'meaningful use' is highly coordinated – The transformation won't work well in a series of separate projects, because clinical care is one complicated process with many interlocking subprocesses.

5. Pay close attention to process nuances, data and EHR functions – It's critical to commit sufficient time and resources to ensure these elements are addressed in a way that supports clinician workflow and is workable for every patient care unit.

6. Consensus building takes too long – Tackling process improvement in a prolonged consensus building process doesn't work in this case. Learn from the experience of others and make key strategic decisions upfront to guide the process and empower knowledgeable, credible representatives of departments and clinicians to decide upon the operational and tactical details.

7. Be prepared to take a hard line on standard practices – Workarounds abound and 'our unit is different' is often a long-held belief. It's crucial to get everyone to adhere to newly standardized practices that are in line with industry best practices.

8. Address multiple aspects of EHR simultaneously – There is no time for multiple iterations and rounds of rework. Address new process and the role, look and feel of the EHR simultaneously, and create operational models that are understandable for workgroup sign-off.

9. Don't leave out the users – Physicians and nurses especially will be affected by the transitions involved in achieving meaningful use. Always look at plans for rollout with these user groups in mind to minimize relearning, optimize their work and gain patient care processes that function efficiently.

10. Get the job done right the first time – Getting to meaningful use is a challenging journey and shortcuts and workarounds will lead to frustrated staff, stalled efforts and possibly even unsafe care. Always put 'getting it right the first time' ahead of 'just getting it done.' ❑

Source: CSC

Meaningful Use Addresses Five National Health Policy Priorities

- Improve quality, safety, efficiency and reduce health disparities;
- Engage patients and families;
- Improve care coordination;
- Improve population and public health; and
- Ensure adequate privacy and security protections for personal health information.

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