

Information Technology Reform *IS* Health Reform

Steve Cline, DDS, MPH

The computer is fast becoming one of the most important instruments of modern medicine for providers of all types. The federal government is using health information technology (HIT) to drive health reform. New HIT developments will result in changes to how health care is delivered that are designed to increase quality, improve health outcomes, control costs, and empower health care consumers.

With a few notable exceptions, health care providers have, so far, been slow to embrace the “information age,” and this is true in North Carolina as well. Medical *care* technology is advancing at a staggering rate. Medical *information* technology has made similar advances, but they are much less evident in health care practices. We readily accept and even expect sophisticated utilization of personal electronic information in other parts of our lives. For example, Amazon.com knows what books I purchased online five years ago and sends me an email notice about similar books as soon as they are published. They also have all my contact information and confidential billing information so I can have the book on my doorstep in two days with just the click of the mouse. In addition, I can look up all my previous transactions at any time. My local grocery store uses information technology through my bar-coded loyalty card to know what foods I typically purchase at different times of the year and reminds me when they are on sale. The grocery store uses this data to perform complex analyses of their market demographics and purchasing trends so they can predict consumer behavior. There are very few things more sensitive or more critical than our personal finances, yet I can manage all of my banking needs instantly from any computer in the world by simply accessing the secure internet. In summary, we live in a highly automated world. If you don't believe me, ask a teenager. Why is HIT lagging behind?

Some might say—and I would agree—that health care and groceries are not the same. However, from a technology

perspective, collecting, securing, and analyzing sensitive private information is the same no matter what purpose it is used for. The computer recognizes secure data as secure data. Technological capacity is not the issue. It is more an issue of people's comfort level with new technology and a fear of change. The technology already exists to allow us to better use information technology that will improve health; we just need to learn how to use it.

Patient privacy and security of personal health information is required for any HIT system to be effective. Confidentiality and protection of information must be addressed to achieve consumer confidence. I believe there are three additional

True health care reform cannot happen without HIT reform. North Carolina is well-positioned...to take full advantage of federal funding and the tremendous opportunity that health reform and HIT investments can offer.

driving forces that will shape the success of HIT reform in North Carolina and therefore the success of health reform:

(1) Value Proposition for Electronic Medical Record (EMR) Adoption. The first step and the cornerstone for building an effective statewide HIT network of systems is how successful we are in getting health care providers to adopt EMRs. The patient-specific clinical information needed to coordinate care, prevent unnecessary duplication of efforts, and build a system of continuous quality improvement is based on having the right information at the right time in the right place. This information must be captured in the EMR

Steve Cline, DDS, MPH, is the deputy state health director in the North Carolina Division of Public Health. Dr. Cline was also recently named the state HIT coordinator. He can be reached at [steve.cline \(at\) dhhs.nc.gov](mailto:steve.cline@dhhs.nc.gov).

so it can be collected, shared, and used appropriately; these bring value to the use of IT. This is no small task. Converting and fully utilizing EMRs in an established health care practice is hard work and costs money to implement. It will fundamentally change how care is delivered, how patients flow through the office, and how the business of health care is managed. Health care providers must see a return on investment for making these difficult changes.

(2) Information Overload. Thanks to advances in medicine and information technology, the knowledge bank surrounding health has expanded exponentially. It is no longer humanly possible for health care providers to know everything they could possibly know about every patient, their family history, their history of health care services, and the most current research on every disease process without computer assistance. When molecular medicine comes of age, it is also reasonable to expect that health care providers will want access to the patient's entire genotype which is a staggering amount of information. This is what computers do best. They manage large amounts of data from multiple sources and can, if well-programmed, distill it down to what is important for each situation. Better information leads to better decisions and better health outcomes, but health care providers need practice-based, user-friendly computers to help them manage the information overload.

(3) Advanced Analytics. How we describe the use of information has evolved. First we talked about collecting data electronically for ready access, but then we realized that both bad data and too much data are no help at all—and can even be harmful. Next we talked in terms of turning volumes of data into useful information—information that helped decision-makers to manage the problems they were facing. Now the industry buzz is turning an endless supply of information into knowledge. Most of the data currently used to understand health and health care are retrospective studies and claims-based data from clinical assessments of patients and health services delivered in the past. This is not adequate for putting the best knowledge possible into the hands of providers who must predict what is best for the patient now and in the future. Knowledge is the combination of complex statistical analysis, predictive data modeling, and the ability to forecast with some degree of certainty what will happen to the patient. The health care provider, with the help of effective HIT systems that deliver knowledge at the bedside, will be able to take advantage of the best scientific evidence as they make decisions about their patient's health.

HIT is not a magic bullet. Practicing good medicine will always be the art of combining an understanding of the individual patient's situation and the provider's knowledge and ability to apply sound science on a case-by-case basis. What is increasingly true is that the breadth and depth of relevant science is growing vastly. New HIT tools can make more and better information readily available to guide decisions. And, as an added benefit, the experience of one provider taking care of his or her patient will be added to the

knowledge bank for the next time any other provider is faced with a similar situation.

The American Recovery and Reinvestment Act of 2009

Health reform is intimately associated with health information technology, but the investment in IT started before March 2010. The federal government is using provisions of the American Recovery and Reinvestment Act of 2009 (ARRA) to drive changes in HIT that they believe are essential to transforming health care. ARRA contains authorization for approximately \$38 billion in funding for HIT infrastructure over the next six years. The specifics of how this unprecedented investment in HIT is to be spent are set forth in the Health Information Technology for Economic and Clinical Health (HITECH) portion of ARRA. The overall goal of the HITECH provisions is to create a nationwide health information infrastructure that enables electronic health information to be recorded, shared, and utilized in a way that improves health.

Of the total authorized funding, the largest portion—roughly \$34 billion—is entitlement funds in the form of incentive payments by Medicare and Medicaid to eligible providers (including hospitals) for implementing HIT in their practices. More specifically, to qualify for these incentive payments, providers must adopt a certified EMR system and demonstrate meaningful use of the EMR in their practices. There is a complex graduated payment formula for these payments that begins in 2011. If an eligible Medicaid provider fully satisfies the criteria for meaningful use, they would receive \$63,000 over four years, \$44,000 for Medicare providers, and hospitals would receive even more. In 2016 the incentive payments will end and providers would receive reduced payments if they are *not* utilizing HIT appropriately.

The majority of the remaining portion of ARRA funding—roughly \$2 billion—was appropriated to the Office of the National Coordinator (ONC). North Carolina has aggressively and successfully pursued federal funding to support these HIT initiatives. In fact, very few states have received funding in as many competitive categories as North Carolina. The category of funding available and North Carolina's successes include:

HIT Regional Extension Centers

In February 2010, the North Carolina Area Health Education Centers (NC AHEC) Program at the University of North Carolina at Chapel Hill was awarded \$13.6 million dollars over two years to establish the North Carolina Regional Extension Center (NC REC), which will allow NC AHEC to reach at least 3,465 priority primary care physicians and assist with practice assessment, workflow redesign, and the selection and implementation of electronic health records. NC AHEC will expand its consulting workforce throughout the nine regions of the state to help practices implement technology and/or use previously existing technology to

meet the federal standards of meaningful use in order to achieve incentive payments from the Centers for Medicare and Medicaid Services (CMS) between 2011 and 2015. NC REC is collaborating with the Carolinas Center for Medical Excellence, the North Carolina Medical Society Foundation, and the North Carolina Institute of Public Health.

State Health Information Exchange

Governor Perdue's Executive Order No. 19, dated July 16, 2009, authorized the North Carolina Health and Wellness Trust Fund Commission (HWTF) as the State Designated Entity (SDE) to apply for and receive federal funding under HITECH. The HWTF Commission established the HIT Collaborative with specific membership to provide a representative body to advise and guide the application for HIT funding under HITECH. On September 11, 2009, the HWTF submitted a Letter of Intent to the ONC expressing the state's intent to submit a completed application for the North Carolina Health Information Exchange Program (HIE) by October 16, 2009. The application was completed and submitted to ONC and included an HIE Strategic Plan to be followed by an HIE Operational Plan. On February 8, 2010, HWTF was notified that North Carolina had been awarded \$12.9 million for building HIE capacity.

Subsequently the HWTF Commission worked with the Governor's Office to establish a new CEO-level governance board as part of a new nonprofit organization. This new HIE organization is a public-private partnership that is responsible for execution and oversight of the North Carolina HIE strategy. This includes establishment of a state HIT coordinator position in state government and submission of a NC HIE Strategic and Operational Plan by August 31, 2010.

State Medicaid HIT Plan

The North Carolina Division of Medical Assistance (DMA) is responsible for building the system that evaluates the provider's meaningful use of EMRs and administers incentive payments to eligible Medicaid providers. DMA submitted the Advanced Planning Document (APD) to request the initial funding for system design to the CMS on January 29, 2010 and was approved by CMS effective February 4, 2010. CMS approved a budget of \$2,288,648, of which \$255,512 is in state matching funds. The North Carolina Office of Medicaid Management Information Systems is managing the contract with an HIT vendor to accomplish this eight-month planning project. The vendor is responsible for developing the Implementation APD which will support the request to CMS for funds to build the new system. The Implementation APD is expected to be submitted to CMS before the end of the year.

Workforce Development

The ONC released a funding opportunity announcement for \$80 million to build the capacity of training programs nationwide. A collaboration of educational institutions led

by the North Carolina Community Colleges System, North Carolina Area Health Education Centers, and the Governor's Office met to coordinate an application for North Carolina workforce development. North Carolina was grouped with other southern states to submit one regional application.

Pitt Community College (PCC) successfully applied to become the lead institution in the ARRA funding opportunity, Information Technology Professionals in Health Care: Community College Consortia to Educate Information Technology Professionals in Health Care for the 13 state region comprised of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas and as a partner with several other organizations applying for the lead capacity for this same funding opportunity. PCC will receive \$10.9 million for HIT training programs in 21 colleges in the 13 states.

In addition, Duke University, in partnership with East Carolina University, successfully competed for the ARRA Information Technology Professionals in Health Care Curriculum Development Centers funding opportunity. Duke will receive \$1.8 million to develop curricula for the new training programs and \$2.1 million to develop highly specialized HIT training programs.

Both of these grant programs will help provide thousands of health care and IT professionals with the skills necessary to take advantage of new HIT in their practices.

Broadband Technologies Opportunity Program

Through ARRA, \$7.2 billion in funding was allocated to the US Department of Commerce and the US Department of Agriculture to promote the deployment and use of broadband technologies to underserved populations in the United States. The Department of Commerce administers \$4.5 billion of this broadband recovery funding through the National Telecommunications and Information Administration's (NTIA) Broadband Technologies Opportunities Program (BTOP). The majority of this funding is for deploying last mile and middle mile broadband infrastructure to underserved consumers and to community anchor institutions such as schools, libraries, health care facilities, and other facilities of public importance.

The Microelectronic Center of North Carolina (MCNC) is the lead agency for the ARRA broadband initiatives. MCNC is a nonprofit organization established by the North Carolina General Assembly in 1980. One of MCNC's main activities is to operate the North Carolina Research and Education Network (NCREN). NCREN provides broadband communications technology services and support to all 115 K-12 school districts, 20 of 58 North Carolina community colleges, all 17 University of North Carolina system institutions, 24 of 36 of North Carolina's private colleges and universities, and public health facilities across the state.

On January 20, 2010, the NTIA announced that MCNC had been awarded \$28.2 million (BTOP infrastructure) in

Shared Vision

The Governor's Health Information Technology Strategic Planning Task Force

June 24, 2009

In April 2009, Governor Perdue authorized the Health Information Technology Strategic Planning Task Force to develop a statewide vision and strategy for advancing health information technology (HIT) to improve health. The HIT Task Force envisions a future in which all residents of North Carolina are afforded ready access to and equal opportunity for accurate and secure health information wherever it is needed. Technology exists to design and build a fully integrated and connected health information system that will enhance efficiency, quality, and effectiveness of the delivery of health care. Setting aside the issues of cost, these are the guiding principles upon which such a system must be founded. Each of these issues must be adequately addressed before HIT will be widely used and accepted.

Privacy and security must be guaranteed. *Individual personal health information must be protected. The public will accept sharing sensitive personal information if it is done on their behalf to assure that the right information is shared, at the right time, and for the right reasons.*

Automating what we already do will not work. *We can not expect to get better health outcomes by simply applying information technology on top of the existing system of inefficiencies, silos, and uncoordinated care. A reengineered HIT system seeks to eliminate the costs associated with redundant care or care not supported by clinical/scientific evidence.*

Better health, not just better health care, must be the goal. *Better health requires looking beyond just HIT and the traditional practices of health care providers and payers to create a virtual "health home" where care is coordinated and collaborative. Prevention is the key. It must be a shared commitment of public and private employers, non-governmental organizations, communities, and individuals.*

HIT investments must support improved individual health as well as population health. *Use the federal stimulus funds to drive the changes needed in the overall system that will create sustainable and continuous quality health improvements. The new HIT system should leverage existing investments in technology and take advantage of innovations that already exist.*

The system must be patient-centered. *Engaged patients will have easier access to and more control over their individual health records, and they will be able to play a more active role*

in managing their own health. Sharing information between multiple providers and across disciplines will improve the decisions providers make and continuity of care. The system must allow every North Carolinian access to a personal health record.

The system must be inclusive. *The system must be standards-based. Whether physical or behavioral health, long-term or short-term care, public or private provider, insured or uninsured, veteran or civilian, rural or metropolitan, all can be part of the system. The HIT system is provider-neutral. Its design and implementation does not favor or disadvantage any provider type.*

The system must be collaborative. *No single entity can accomplish the HIT vision alone. Working together, North Carolina's hospitals, providers, educational institutions, public agencies and non-profit organizations will improve the health of residents and communities. Collaboration among communities will enhance North Carolina's response to public health threats, disasters, state and national emergencies. The ability to analyze and share data across entities will result in reduced duplication of services, identification of best practices, better utilization of resources, better practice management, and inform future policy and planning decisions and expenditures.*

Innovation will be required. *Ongoing research and analysis of changing needs and technologies will keep the system dynamic and timely. Implementation and continuous improvement strategies will require an iterative approach that maximizes resources and follows national standards and certification requirements.*

Sustainability is the key. *The system will be sustained by a network of supports to provide technical and professional training and consultation. The long-term stability of HIT will be built upon financial incentives and value added functionality rather than a mandate to participate.*

This is a marathon not a sprint. *HIT systems will be built incrementally. Every stakeholder in the process must be able to move ahead from where they are on the continuum of minimum HIT to fully electronic. This means the small independent community practitioner is making progress by deciding to implement an EHR in the practice while progress for a large hospital health system with a sophisticated IT would mean something very different.*

middle mile broadband recovery funds. MCNC's funded proposal includes the construction of 500 new miles of fiber in 37 counties in the rural southeastern and western parts of the state. The main goal of this fiber build will be to offer virtually unlimited amounts of bandwidth to the public education institutions served by NCREN at stable costs for the next two decades, even though demand for

bandwidth among these institutions is growing at 30%-40% annually.

Because of its success in round one, MCNC has been asked by the state to apply for round two BTOP funding for the middle mile fiber build in additional counties. No funding decisions for round two have been announced to date.

Beacon Community Program

On December 3, 2009, United States Department of Health and Human Services Secretary Kathleen Sebelius announced plans to award \$220 million in HIT grants to 15 communities that can serve as models for the development of a national HIT network. Applicants must demonstrate a track record of collaboration and leadership in the adoption and meaningful use of EMRs including sharing clinical health information and quality reporting. Four North Carolina communities submitted applications to be considered for one of the 15 communities nationwide to receive Beacon Community funding: (1) Western North Carolina Health Network; (2) Sandhills Community Care Network; (3) Southern Piedmont Community Care Plan; and (4) Coastal Connect Health Information Exchange.

The funding awards were announced on May 4, 2010 and the Southern Piedmont Community Care Plan (SPCCP) in Concord, North Carolina was one of the funded communities. SPCCP will receive \$15.9 million to improve care coordination for patients with diabetes, heart disease, hypertension, and asthma by engaging patients and providers in bidirectional data sharing through a health record bank, empowering patients to participate in self-management, and expanding access to care managers.

North Carolina Telehealth Network

The North Carolina Telehealth Network (NCTN) is a collaboration of North Carolina health care providers, both public and private, that organized prior to ARRA for the purpose of responding to federal funding opportunities with the Federal Communications Commission. The North Carolina Institute for Public Health is taking a leading role in coordinating the multiple partners and stakeholders. The NCTN has developed a statewide plan using a subscriber-based sustainability model and matching funds to connect

hospitals, health departments, community health centers, and free clinics. The NCTN is in the RFP stage of development.

Comparative Effectiveness Research

Multiple academic medical centers and researchers across the state are preparing individual applications for federal comparative effectiveness research funding based on their specific expertise and area of interests. ARRA designated approximately \$12 million to the Agency for Healthcare Research and Quality for this purpose. There is currently no centralized approach for North Carolina agencies to apply.

Loan Program

The ARRA legislation included the concept of a state loan fund to provide financial support to health care providers to purchase and implement EMRs in their practice. The Office of the National Coordinator for Health Information Technology has not yet released details on how a state-based loan fund would operate. The executive director of the North Carolina Health and Wellness Trust Fund convened a group of private foundations in North Carolina to discuss the potential for a North Carolina-specific loan fund to assist health care providers with the upfront costs of acquiring and implementing an EMR. However no decisions have been released pending the funding announcements from ONC.

True health care reform cannot happen without HIT reform. North Carolina is well-positioned with strong health partnerships, expertise, and infrastructure to take full advantage of federal funding and the tremendous opportunity that health reform and HIT investments can offer. All told, more than \$90 million in federal funds are already coming to North Carolina for HIT-related development. The promise of HIT is great; the challenge is getting us there all together. **NCMJ**