NHIN Show and Tell

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by Gina Rollins

Contractors in the NHIN trial implementations are working toward a demonstration of a "network of networks" this fall. Along the way they are generating specifications and refining issues.

In October 2007 the Health and Human Services Office of the National Coordinator for Health Information Technology (ONC) took a significant step in advancing the development of a nationwide health information network (NHIN) when it awarded contracts totaling $22.5 million to nine organizations for trial implementations of the NHIN.

The trial implementations are a crucial link in what ONC has described as a series of progressive steps to achieving the NHIN. The work of the contractors is illuminating real-world challenges and opportunities in accomplishing secure and timely exchange of health information in keeping with privacy laws and standards. It also is identifying and refining policy issues that must be addressed as the NHIN develops.

This fall the contractors will demonstrate data exchange and make available the specifications they have developed.

Removing Obstacles, Building Trust

ONC's preceding step in advancing the NHIN involved development and demonstration of prototype architectures. That phase culminated with live demonstrations of prototype architectures in January 2007. The demonstrations also validated key principles surrounding the current approach to the NHIN, such as the NHIN operating as a network of networks without a centralized database or services and the need for common standards, especially at the interface between networks.

The NHIN trial implementations will extend that work by testing actual data exchange, further defining standards, and identifying policy implications. "Our goal is to try to remove all obstacles going into production and to develop a chain of trust so that people and organizations are assured we're doing due diligence to ensure that data is safely and securely transmitted," says John Loonsk, MD, director of interoperability and standards at ONC.

The contractors are responsible for assisting in the development of specifications for core services and data use and reciprocal support agreements, conducting cooperative exchange testing, demonstrating network capabilities, and evaluating the overall activities of the trial implementation.

Core services consist of data services, consumer services, user and identity management services, and management services. Data services examples include data delivery, summary record exchange, and patient look-up within and between health information exchanges. User and identity management services include user identity proofing and authentication and authorization for connected organizations; management services include system and trusted user protection.

Each contractor also is responsible for developing exchange capabilities around at least two use cases defined by the American Health Information Community, the health IT advisory body to Health and Human Services. The use cases include consumer registration and medication history, results reporting, and biosurveillance.

The contractors also are participating in work groups centered on core services required for the trial implementations, including data use and reciprocal service agreements (DURSA), core content, leadership and communications, testing, and technical and security.

Additional work groups are focused on the broader themes of the use cases, including provider perspective (encompassing medication management and results reporting), consumer perspective (incorporating patient registration and medication history,

as well as consumer access to clinical information), and population management (including biosurveillance and the role of an electronic health record during emergency response activities).

The capstone event of the contract is a live data exchange planned for September 2008. However, this real-time experiment may not be a flip-the-switch type of experience, says Loonsk. “We may have a couple of networks start together at a smaller level. It may not be a Big Bang implementation,” he advises.

ONC will host a series of public forums outlining the progress of the trial implementations. All information pertinent to the implementations will be posted online or otherwise made available publicly, according to Loonsk.

The contracts are for one year with two optional one-year extensions. Contracts may be extended to other organizations that have a stake in exchanging health information, such as integrated delivery systems and health plans, Loonsk says.

Earlier this winter the Centers for Disease Control and Prevention in Atlanta awarded $38 million to three contractors who also will participate in the NHIN trial implementations, with a focus on biosurveillance. This spring, ONC awarded an additional 10 grants of $100,000 to expand specification testing, connectivity demonstrations, and use case implementations. Collectively the contractors comprise the NHIN Cooperative.

NHIN Trial Implementation Participants

ONC Initial Contractors

- CareSpark, www.carespark.com
- Delaware Health Information Network, www.dhin.org
- Indiana University, www.regenstrief.org; www.ihin.com
- Long Beach Network for Health, www.lbnh.net
- Lovelace Clinic Foundation/New Mexico Health Information Collaborative, www.nmhic.org
- MedVirginia, www.medvirginia.net
- New York eHealth Collaborative, www.nyehealth.org
- North Carolina Healthcare Information and Communications Alliance, www.nchica.org
- West Virginia Health Information Network, www.wvhin.org

CDC Contractors

- Health Research Inc., www.hrinet.org
- Indiana University School of Medicine, Regenstrief Institute, www.regenstrief.org
- Science Applications International Corporation, www.saic.com

Strength in Diversity

The trial implementation contractors represent a variety of regional health information organizations (RHIOs) in different stages of development, with different prototype architectures and standards, and unique challenges. The service area of CareSpark in Kingsport, TN, straddles two states, for example, so its leaders have been particularly concerned with exchanging protected health information in an environment of differing state legal and regulatory requirements. The West Virginia Health Information Network in Charleston faces connectivity issues, as certain parts of the state currently do not have broadband capability. (The state has received a grant from the Federal Communications Commission to enhance connectivity.)

The New York eHealth Collaborative in New York City is unique in that its participation involves exchanging data between two RHIOs (New York Clinical Information Exchange and Long Island Patient Information Exchange) as part of the larger trial implementations. The Delaware Health Information Network in Dover brings to the cooperative its experience as a statewide health information exchange.

The trial implementation contractors also represent different stages of data exchange. MedVirginia in Richmond implemented its health information exchange, MedVirginia Solution, in January 2006 and now has at least 1,150 users transmitting more than one million messages per month, according to Michael Matthews, CEO of MedVirginia.

The West Virginia Health Information Network, on the other hand, was established in June 2006 and has not exchanged data. Participating RHIOs were not required to be actively exchanging data at the time the contracts were issued, but they had to demonstrate the capability of doing so during the contract period.

The differences in scale and maturity of the participating RHIOs are enriching the experience for all contractors, according to Gina Perez, executive director of the Delaware Health Information Network. “There was a preconceived assumption that the collaboration of nine organizations that were disparate for many reasons would be tough. But everyone is open and interested in working together and learning from each other. It’s been great to come together and break down some of the key issues,” she says.

Contractors also see participation in the NHIN trial implementations as an opportunity to advance their individual goals and build on existing successes. The New York eHealth Collaborative viewed it as a way to “focus on specifics and clarify what our priorities should be,” says Rachel Block, executive director. The consortium includes 26 RHIOs statewide and more than 40 vendors. Based on experience from the NHIN trial implementations it plans to roll out health information exchange between all participants over time.

The West Virginia Health Information Network is using experience gained from the request for proposal process and subsequent participation in the NHIN Cooperative to develop its overall business plan, according to Sallie Hunt, the network’s executive director. Funding was a crucial component for most organizations, too.

The Tech Issues and Beyond

Much of the work in the initial months of the contract was spent in the work groups hashing out practical and policy issues surrounding the implementations. Some of the most significant discussions have taken place in the DURSA work group, which has addressed all-important privacy and security issues in the context of varying national and state regulations. Deliberations on this topic have been aided by ONC analyses of variances in state laws and by input from the State Alliance for e-Health, says Loonsk.

While the DURSA group has worked on data use agreements that would be acceptable across state lines, Loonsk sees the reconciliation of divergent regulations as an incremental, longer-term process. The Health Information Security and Privacy Collaboration, also under contract to ONC, is currently at work on harmonizing privacy practices to facilitate data exchange between states.

DURSA participants decided whether the first exchange should involve real-time or synthetic data, according to Hunt. “[The group] initially contemplated using real data, but the decision was made that if we started with synthetic data it would give everybody a comfort level with the technology. From there we could make incremental change,” she says.

Another discussion revolved around the type of data standards to use. “There was a lot of back-and-forth about whether we should push the envelope and adopt most of the Health Information Technology Standards Panel standards out there or take the lowest common denominator for easier adoption and functionality by most people,” explains Block of the New York eHealth Collaborative.

The standards harmonization panel represents another key organization in ONC’s coordinated attempt to align the pieces of the NHIN puzzle. Depending on the level of standards adopted in the trial implementations, RHIOs that have been in operation longer may face the challenge of reworking interfaces and the like to comply with the new specifications.

The contractors faced considerable work in finalizing and testing technical specifications. While such details are essential to realizing coast-to-coast health information exchange, participants are quick to note that technical issues are not the most challenging matters in organizing and sustaining the RHIOs that support health information exchange. Far more vexing, they say, are people and financial factors.

"Even if we have 100-percent success in addressing technology problems, we're still introducing [health information exchange] into a stressful, busy clinical environment. It's not like you can stop the activities of hospitals and physician practices and go train everyone, so fitting it into busy work schedules is a key consideration," explains Leisa Jenkins, executive director of CareSpark.

CareSpark, which is developing use cases for medication management and consumer empowerment as part of the trial implementations, is taking pains to educate providers and the public about the reasons for and benefits of health information exchange, as well as specifics about how it will be accomplished. It has a very active marketing and communications committee developing patient and physician education materials as well as a media campaign, Jenkins reports.

Buy-in from the community is critical to sustaining health information exchange efforts, says Perez of the Delaware Health Information Network. "The planning that goes into consensus-building can't be underestimated. When you don't have broad representation you have the potential to be catching up with organizations that feel they weren't included," she explains.

"With a broad coalition, you can create a plan that all can agree to," Perez continues. "Some get what they want early, and others know they'll have to wait but will get what they want eventually. It keeps them all interested and participating." The Delaware network is developing use cases for biosurveillance and laboratory results reporting as part of the trial implementations.

A critical issue that participants do not expect to see resolved as part of the trial implementations is a business model for individual RHIOs or networks as well as the overall NHIN. "The larger question is how you capture value [of health information exchange] at the front lines. Those involved need to see value; otherwise they won't participate," explains New York eHealth Collaborative's Block.

The NHIN trial implementations will demonstrate the value of resources expended on the infrastructure of the NHIN—core services like data standards and user and identity management—but individual RHIOs still will face the challenge of substantiating value to their participants and securing funding, she contends. "We have to get to the value proposition real quick. Just using health information exchange for results reporting is not enough," Block adds.

MedVirginia's Matthews agrees that the onus will be on each RHIO to prove its worth, but he sees the NHIN trial implementations as one more in a series of factors positively affecting the viability of health information exchange.

"There's a fundamental change in the marketplace regarding investment decisions [in e-health]," he says. The maturing of both EHR software and the EHR industry, development of standards and testing of systems against those standards a la the Certification Commission for Healthcare Information Technology, and changes in reimbursement formulas to recognize providers that implement EHR and use data to demonstrate outcomes are all "complementary" in capturing the attention of the medical community, he says.

The NHIN trial implementations add another piece to the puzzle by testing real-time data exchange according to industry-endorsed standards, Matthews explains. "The revenue streams that support each RHIO will vary, but it's important to have the courage to get started," he says. "The ability to have conversations with physicians and hospitals dramatically improves after you're not using a slide show but demonstrating an operational system."

Further information on Health and Human Services NHIN programs, including information on the trial implementations, is available at www.hhs.gov/healthit/healthnetwork/background.

The Use Cases

In addition to implementing a set of core services, each contractor in the NHIN Collaborative will demonstrate at least two use cases as part of the trial implementations. The use cases represent priority areas identified by the American Health Information Community:

- Emergency Responder–Electronic Health Record
- Consumer Empowerment–Consumer Access to ClinicaI Information
- Medication Management

- Quality
- Personalized Healthcare
- Public Health Case Reporting
- Response Management
- Remote Consultation
- Remote Monitoring
- Referrals and Transfer of Care

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