

New Standardization Effort Targets Test Results

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As communities implement regional health information organizations, they need to make sure that all physicians have access to standard laboratory and diagnostic imaging results. That's because a lack of uniform data could cause serious problems. For example, decision support systems might not send doctors alerts about abnormal test results if the results are sent in multiple formats.

To ensure emerging regional health information organizations provide access to uniform data, three hospitals and multiple physician practices in two Massachusetts communities are working to standardize, or normalize, laboratory and diagnostic imaging values.

Standard Taxonomy

The hospitals and practices use different electronic health records systems. Further, hospitals and standalone labs and imaging centers use proprietary terminologies to document lab results, diagnostic imaging observations and many other clinical observations. One lab system, for instance, might code a potassium test as "WR12839" while another system codes it as "K."

The provider organizations are part of an effort to build RHIOs in three Massachusetts communities, with physician use of electronic health records fueled by a \$50 million commitment from Blue Cross and Blue Shield of Massachusetts.

If successful, the standards could be adopted by other organizations in Massachusetts as part of an initiative to create a state health information exchange. And the standard values could be a model for the nation, contends Sumit Nagpal, CEO of Wellogic Inc., a Cambridge, Mass.-based vendor building the platform for the Massachusetts RHIOs. The firm is mapping the disparate lab values and imaging observations into normalized terms.

The towns building RHIOs and wiring physicians to EHRs are Brockton, with two hospitals, and Newburyport and North Adams with one hospital each.

In North Adams, across the state from the other communities, physicians agreed to adopt EHRs from a single vendor, so they are not participating in the effort to normalize terminologies. But physicians in Brockton and Newburyport use EHRs from six companies, which prompted the normalization effort.

After six months of work by a team of 20 clinicians and information technology professionals, Wellogic has cross-mapped almost 18,000 lab values or clinical observation codes to 4,000 uniform values and codes for lab and diagnostic imaging results, Nagpal says.

Now, hospitals in Brockton and Newburyport will test the uniform, or normalized, codes with

community physicians. The tests will start with four practices using EHRs from the same vendor and then expand to practices using disparate EHRs.

Hospitals will continue to use their proprietary terminologies to report lab values and diagnostic imaging observations. But they will send the results to the RHIO platform from Wellogic, where they will be mapped to normalized terminologies for physicians.

Consequently, physicians will receive the same terminology for the lab or imaging results regardless of where exams were taken. That means potassium levels, or values, for a patient will be standardized for physicians-and placed in their EHR-regardless of where the test was conducted. This will enable easy comparison and trending of test results, Nagpal says.

"They can be viewed longitudinally on flow sheets and graphs rather than individually on separate lab reports."

Having normalized values will improve the efficiency and quality of care, says Kevin Lamphear, M.D., president of Newburyport Family Practice, which will be a pilot site.

That's because one lab may call a particular test a "Chem 7," a second may call it a "Chem Profile" and a third may call it a "Smack 7," he explains.

"If we can have standardized reporting, then it will be much easier to translate that information into useful data for the patient," he adds. "It will be easier to see at a glance what values are out of range."

Because most patients in a community use the same lab, specialists who treat patients from multiple towns will see the biggest advantage of normalized values if the practice eventually becomes commonplace, Lamphear adds.

The real value of normalized data, however, may be in populating electronic health records systems to drive decision support, says Micky Tripathi, president and CEO of the Massachusetts eHealth Collaborative, which is working to establish EHRs across the state.

Many physicians, he notes, are accustomed to seeing disparate results from various labs and imaging centers and then translating them.

But normalized reports mean doctors will now get the same data to express a particular lab value regardless of where the lab test was taken. By transmitting normalized results directly into EHRs, decision support software will have the uniform data needed to send alerts to physicians about abnormal lab or imaging results, Tripathi notes.

"An EHR has to recognize the data. It needs a data dictionary that recognizes the data coming in," he adds.

Hospital Tests

This fall, 123-bed Anna Jaques Hospital in Newburyport was testing connectivity between its lab system and the Wellogic platform in preparation for tests starting with physicians late this year, says Robert Buchanan Jr., CIO. "We're working on getting the results routing working."

Using the Iatricis Connect integration product from Iatricis Systems Inc., Boxford, Mass., the hospital pulled codes from its hospital information system from Westwood, Mass.-based Medical Information Technology Inc. and sent the codes to Wellogic.

The vendor then mapped the terminologies from Anna Jaques Hospital and the other hospitals to a self-created standard terminology, creating an electronic community catalog of normalized lab values and diagnostic imaging observations.

Patient Data Too

Wellogic also is normalizing disparate patient identifiers and adding them to the community catalog to aid in tracking patients through their encounters with multiple providers.

Hospitals' internal catalogs map to the community catalog, which is loaded into physician EHRs.

After values are generated for a test, they are mapped to the community catalog so the results get converted to the normalized values or results. With patient consent, a physician will see normalized results from tests throughout the community.

When the project is done, "there will now be for the first time a single, coherent record not just existing in documents that were scanned, but in real actionable data," Nagpal says.

While the bulk of the work has rested with the vendor, there's still plenty of preparation for participating hospitals, Buchanan notes. "We had to review and approve the catalogs they created because it's our data."

One information technology analyst who also moonlights as a medical technician in the lab at Anna Jaques Hospital spent a considerable part of his time for two months working with the vendor to finalize the catalog.

The technician brought clinical knowledge critical to successfully creating a new terminology, Buchanan says. "He can look at values and descriptions, and verify the descriptions are accurate and would make sense to physicians."

The pilot program will start with physicians using electronic health records software from eClinicalWorks Inc., Westborough, Mass.

But Anna Jaques Hospital, which operates the primary lab for the community, is working to interface its systems with EHRs from GE Healthcare, eMDs, Hill Associates, McKesson and NextGen Healthcare Information Systems.

"We'll work with Wellogic and the vendors to ensure data accurately is presented in the EHRs," Buchanan says. "There's certainly a lot of work involved to make sure results go from one system to another."

Working with multiple EHR vendors is a challenge, he says, because the different systems have different capabilities. But Wellogic's experience with interfacing has helped. "They're knowledgeable about what works and what doesn't. Some of the vendors are still learning about

interfacing as they go."

Wellogic has released its process for normalizing terminologies into the public domain "as an informal standard others can use," Nagpal says.

The vendor also is introducing normalized terminologies in four other communities where it has contracts to build RHIO platforms, he adds. "This has become the informal standard for some of us even though that's not what we set out to do."

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