Hiring wave of ONC college program grads coming this summer. PAGE 6

Cloud craze rolls into government, to wipe out physical datacenters. PAGE 16

GOVERNMENT HEALTH IT

PUBLIC/PRIVATE HEALTHCARE CONVERGENCE
www.govhealthit.com

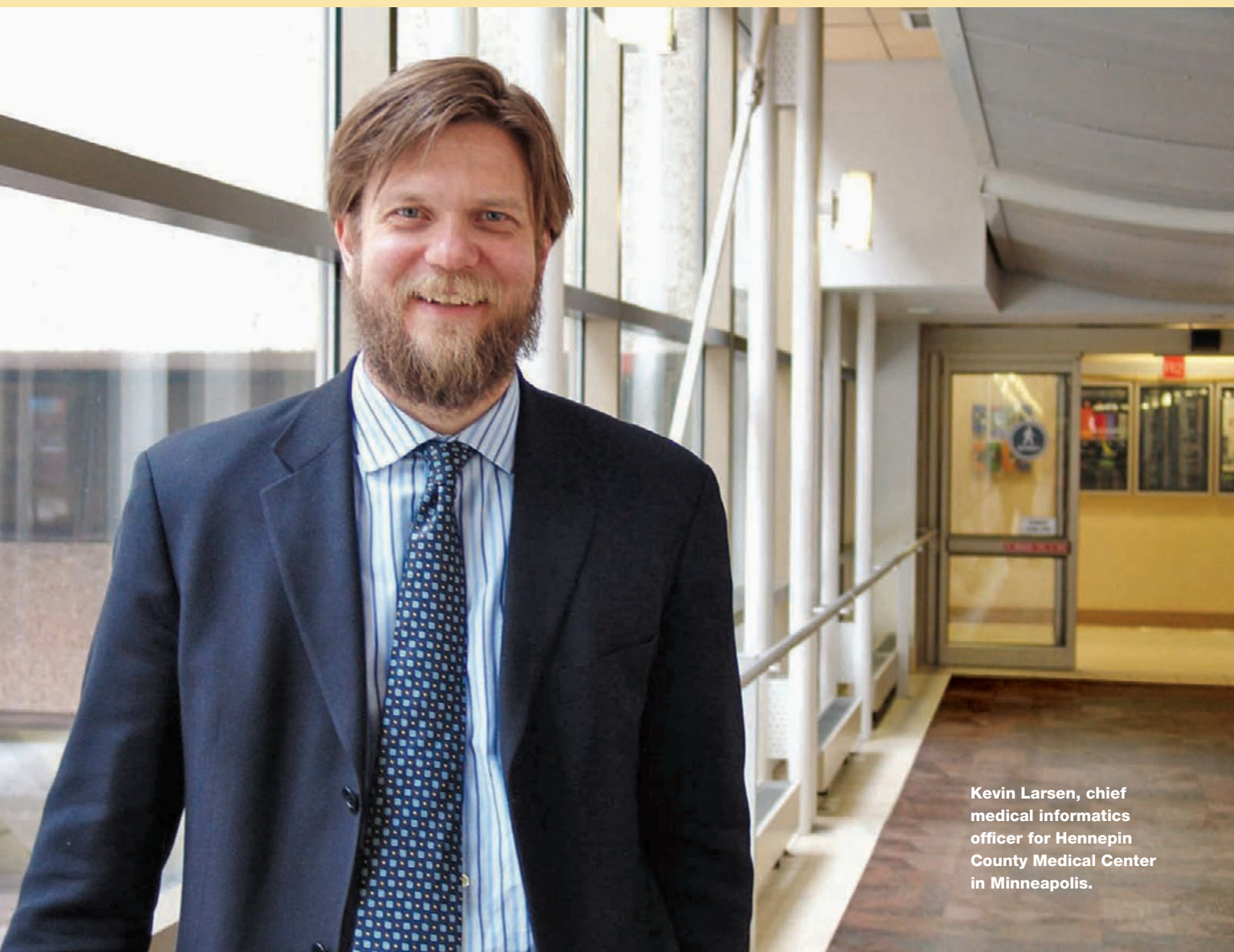
MAY/JUNE 2011 · VOLUME 6 NUMBER 3

Directing Patient Data to EHRs, HIEs

Laura Adams and others involved in the Direct project promise to deliver relevant patient information to doctors when they need it. PAGE 10

A DIRECT ROUTE

to more pertinent patient information



Kevin Larsen, chief medical informatics officer for Hennepin County Medical Center in Minneapolis.

Beyond its secure e-mail beginnings, the Direct Project constitutes a technological foundation of something much larger: EHRs that automatically update each other's patient information and populate statewide databases, thus putting that elusive grail of interoperability within reach

BY JOHN MORRISSEY

A doctor in Rhode Island, per his daily routine, has just updated and closed a patient's chart in the practice's electronic health record. As he punches up the next record or heads to the exam room, a routine of another sort is underway between the EHR and the state's health information exchange database.

The EHR signals the HIE network to send what amounts to a self-addressed envelope, attaches the record and automatically moves the message to a gateway that applies the patient's pre-set consents to share information fully or with limitations. Then it's on to the HIE, which detaches the record, breaks it into discrete data, checks for and eliminates elements previously entered in the database and uploads the rest.

No interfaces were built between the two points of exchange. Instead, it's a direct, uncomplicated, but securely conducted event.

"What's exciting about that is that it's all behind the scenes – no doctor has to remember to do it. It doesn't get involved in their workflow," said Laura Adams, president and CEO of the Rhode Island Quality Institute, which operates the HIE network.

And it would not be possible without the technical capabilities built into a simple e-mail protocol called, aptly, Direct.

Direct technology, however, is a mere backdrop for the comprehensive patient information that doctors will be able to access.

Direct is "efficient, it's cost-effective, it's inexpensive and it really enhances care," said Holly Miller, chief medical officer for MedAllies, a healthcare information service provider serving New York's Hudson Valley. "It's getting the right information at the right time at the right place for the right patient, but across systems."

UPSIDE POTENTIAL: SURPASSING EXPECTATIONS

The Rhode Island doctor is by no means alone. Indeed, the Direct project is gaining widespread traction, with more than 20 states and 60 healthcare organizations pledging support as of May, according to the Office of the National Coordinator for Health Information Technology (ONC) – encouraging numbers because they comprise some 90 percent of the market share covered by participating health IT vendors.

The ONC gave such technology providers a booster shot of finalized specifications for Direct. These include core requirements and details about how EHRs and other health IT systems can tap into Direct's standards and services to exchange messages and information securely.

The RIQI is one of several organizations piloting the freshly-minted protocol for a range of information-sharing projects, from populating HIE networks and healthcare registries to communicating patient details critical to safe and effective transitions between providers.

Developed over a 10-month period of intense collaboration in the health IT industry – convened and supported by ONC – Direct has given IT pros "a simple-to-use, secure, publicly available, nonproprietary protocol which can be adopted across the industry," said John Feikema, president of Ability, a healthcare a healthcare information service provider (HISP) that is participating in a pilot to automate immunization reporting to and from the Minnesota Health Department.

On the surface, the basis of the Direct protocol is just a garden-variety Internet message – a simple mail transfer protocol, or SMTP. Another component of the Direct specification is the common standard for sending e-mail attachments, called multipurpose Internet mail extensions, or MIME.

The potential is not so much that

providers now can send secure e-mail but that the uniform use of the protocol by the healthcare industry opens up countless ways to automate exchanges of information in the background of clinical routines without having to set up dedicated transfer networks using all manner of proprietary linking technology. It's as simple as hooking up one Direct address to another.

A MORE DIRECT, AND DIRECTED, ROUTE

Other industries already use computer-generated e-mail, Feikema said. It could be a notice to check in at an airline terminal, a bill notification or a message acknowledging payment received. It also works as a way to reply to Web sites, where the e-mail is automatically digested by the receiving system. The same types of transactions now are possible through uniform use of Direct in the clinical sector, fortified by the higher level of security it contains for sensitive personal health information.

"Within non-healthcare corporate America, e-mail is embedded in so many workflows, invisible to the users, that they don't even realize how ubiquitous it is," Feikema said. "Now the power of that is being made available to healthcare professionals, not just inside the hospital but between hospitals, between hospitals and clinics and between clinics and patients. That's something we've never had before."

Lack of simple standards hasn't deterred the determined. Take Hennepin County Medical Center in Minneapolis, for example. "We do quite a few of what I call transaction-based exchanges where we submit information to and from one organization or multiple organizations around a specific thing like immunizations or radiology or certain infection (detecting) lab tests," said Kevin Larsen, the hospital's chief medical informatics officer. "But we invent a new way to do that exchange for each and every one of those transactions."

For immunization reports, health departments typically use a spec from the Centers for Disease Control and Prevention called the Public Health Information Network Messaging System, or PHINMS. That means getting a copy of the software from the local health agency, installing it, obtaining a transmitting address and setting up an account at all the locations that report immunization activity, Feikema said.

In the Minneapolis pilot project that began early this year, the route to the health department has been simplified with Direct-enabled addresses at both ends. "Now the provider doesn't have to go through the hassle of figuring out the PHINMS," Feikema said. Instead, the data is sent in simple Direct format. By means of a Direct-to-PHINMS translator that Ability devised, the health department can receive the outside data but continue internally using the CDC's reporting software, which is a common messaging alternative for public health.

At Hennepin, a large integrated delivery network, the stage is set for using Direct in other data transfers as exchange partners get with the program. "By having one nationally endorsed way to do that, that becomes faster and easier for us because all the people we're communicating with are doing that format as well," Larsen said.

> Direct is "efficient, it's cost-effective, it's inexpensive and it really enhances care. It's getting the right information at the right time at the right place for the right patient, but across systems."
>
> **HOLLY MILLER,** chief medical officer for MedAllies, a healthcare information service provider serving New York's Hudson Valley.

AUTOMATICALLY POPULATING A DATABASE

The same nationally endorsed protocol is music to the ears of HIE pioneers in Rhode Island, where attempts to orchestrate data-driven improvements in healthcare are ahead of the national curve but had been constrained by the difficulty of linking up with the scores of disparate EHR systems that have proliferated in the nation's tiniest state.

A survey that RIQI conducted in 2004 discovered there were 62 different vendors of EHRs operating in the Ocean State. The HIE network, known as Currentcare, could handle interfaces to the largest provider organizations and labs, but serving every provider in the state was impractical, Adams said. "We began cost-defining that challenge and thinking, 'Is this going to be an expensive, hard-to-maintain, in some cases impossible interface to hundreds of EHR vendors?'"

New businesses were springing up to supply a single platform for aggregating EHR systems across a region, but that covered only part of the challenge, she said. It was no simple task for the aggregators to hook up the diversity of systems.

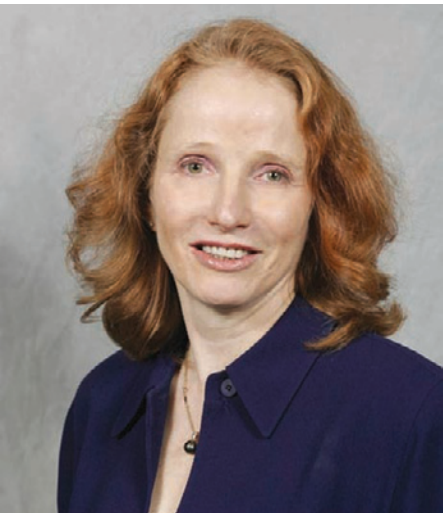
Given the tendency to customize the products, even practices using the same EHR vendor were problematic "when everybody was doing a little permutation in their own practice, including sometimes differences among physicians in the same practice," Adams said.

The quality institute, she said, was "getting discouraged" in late 2009 as the challenges of connecting EHR platforms to Currentcare became clearer. It then learned about the group convening to resolve how to simplify information

exchange for the rollout of meaningful use objectives central to earning HITECH incentives. The provider-to-provider focus didn't describe the RIQI's problem at the HIE level. But by combining the Direct messaging standard with the existing capabilities of EHR systems, a solution was born.

The brainstorm: Build the Direct protocol into an EHR and then position information for transmission to the HIE network through a simple Web call, triggered by a definitive action. The first EHR vendor trying out the protocol elected to embed the call any time a physician closed out the record entry on a particular patient, a function called locking the record.

That's the point at which the self-addressed Direct message is issued. It gathers that now-closed record, lifts it



straight to the consent-checking gateway and on to the quality institute, Adams said. "The doctor doesn't have to push a button, he doesn't have to hit 'send to the HIE.' All the doctor has to do is the normal workflow, and as soon as he locks the chart, it generates that call out to the Internet."

As a matter of practice, it's up to the vendor to set the trigger event, for example as nightly batches instead of record by record, as long as it provides timely updates and doesn't have to be initiated by the provider, Adams said.

The record at the receiving end "is not a PDF, it's not a document; it's

THE NEXT STEP: Seeding EHRs with the Direct protocol

With a standard solution to the technological challenge, the key to spreading Direct capabilities lies in developing a system to incorporate the protocol in as many existing EHRs as possible. That, in turn, could make the embedding process a routine step in implementing new systems.

"You get an account, you get authenticated (as an authorized provider) and you're in business, being able to send something as long as somebody else has an address," said Laura Adams of the Rhode Island Quality Institute. "Of course, it's like the early days of the fax machine – when only five other people in town have a fax machine, it's not quite as valuable as when everybody does."

The institute has the advantage of being the operator of both the state's health IT regional extension center and a federally supported Beacon Community of 50 physician practices. It's leveraging those two initiatives to embed within the practices' EHRs the protocol and the trigger function for exchange with its HIE network, in partnership with at least five EHR vendors.

Once the spread to physician and hospital clinical IT systems is underway, there's the matter of establishing an authoritative, up-to-date directory of Direct e-mail addresses to facilitate exchange on demand and handle the reality that clinicians join or leave practices over time.

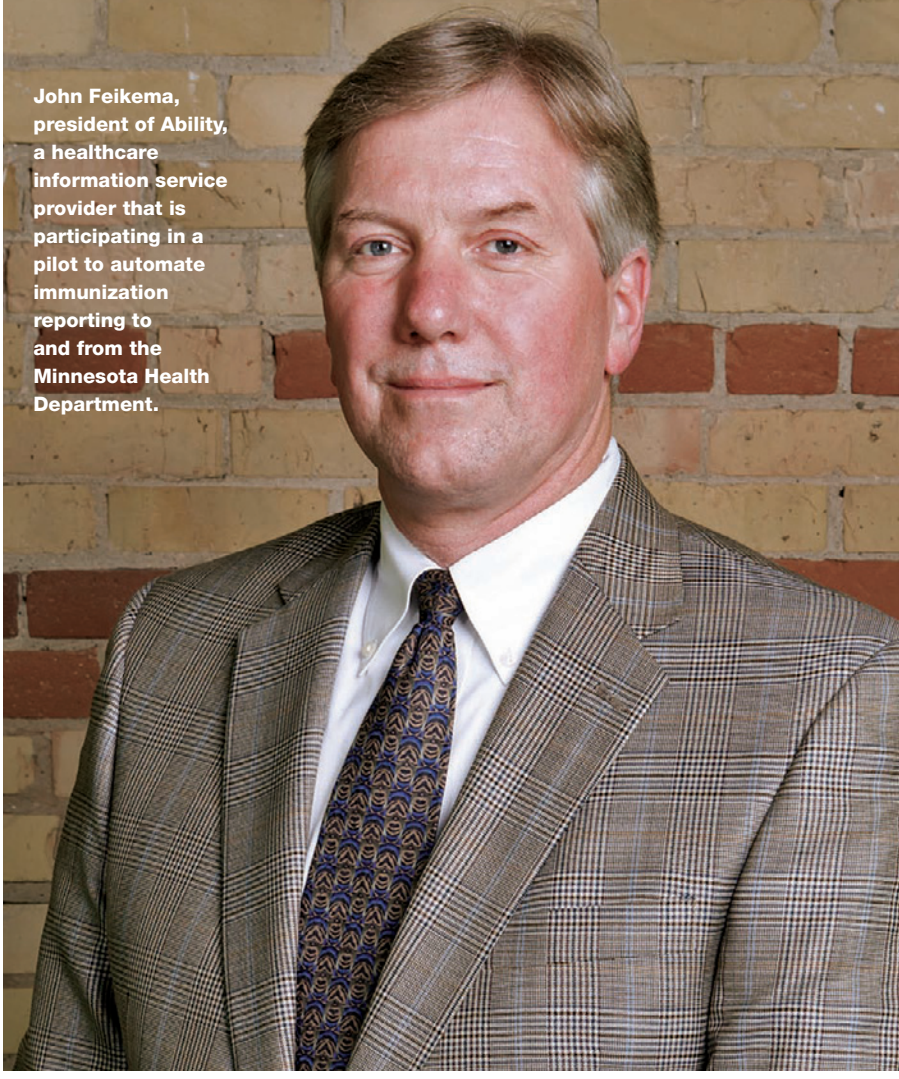
MedAllies is planning to piggyback on the normal care-and-feeding relationship of EHR vendors with their provider customers by first getting Direct protocols added to new software releases and then using the information on users garnered during that process to populate and manage a directory, said John Blair, MedAllies' CEO.

EHR vendors typically ask users for a list of identifiers – a DEA number, a copy of a prescription pad for e-prescribing, and so on – and establish them as a destination on the EHR network. A healthcare information service provider (HISP) could add a few more requests for information to that list and get what it needs to create a Direct address for the doctor or other clinician, Blair said.

Monitoring vendor/user activity also would tap the most current information, he said. For example, if a clinician leaves a practice, the practice manager tells the vendor right away, not wanting to be charged a monthly maintenance fee on the departed member. Conversely, the practice would hurry to fill out and submit the necessary information forms to the EHR vendor on a new user because it can't add the clinician to the network until that's done.

The result is a system allowing providers, labs and other participants in information exchange to search and find the Direct address of intended recipients – through an EHR vendor's directory, a HISP in a region, or even custom-assembled in a practice to reach specialists to whom they regularly refer, Blair said.

That would work much the same way as using a list of bookmarks on a Web browser or putting an often-reached colleague on speed-dial. ■



John Feikema, president of Ability, a healthcare information service provider that is participating in a pilot to automate immunization reporting to and from the Minnesota Health Department.

discrete data," she said. The industry-standard Continuity of Care Document (CCD) is parsed, or disassembled, into as many as 17 different data elements and routed to appropriate places in the HIE database.

The next challenge is that every EHR has to have the Web call, which requires going vendor to vendor to enable Direct for all doctors, hospitals, labs and other HIE participants. Following a period of testing with doctors using an EHR system called EpiChart in their practices, the RIQI is enlisting other vendors to embed the specs in their products. "We know how to do it, and we know that it was as easy as we hoped—which almost never happens," Adams said. "Now, how fast can we spread it?"

INFORMATION EXCHANGE AMONG EHRS

A similar campaign to embed Direct functionality into EHRs is underway in the seven-county Hudson Valley, but for a different purpose. More than 2,000 physicians whose practices have implemented electronic record systems from six different vendors since 2007 have escalated their use of the technology's clinical capabilities within the bounds of their offices, but they're asking for more, said John Blair, CEO of MedAllies, the HISP serving the area's 4,000-physician Taconic Independent Practice Association.

Doctors, he said, were finding they could "do all the stuff that creates efficiency in the office" – such as send e-prescriptions or order lab tests themselves rather than hand off to a nurse, task the front desk to check insurance eligibility, create a smooth routine for preparing a referral, set up an appointment – but "when they're done with the patient, they hit 'print,' it prints out the reason for the referral and the information, and the patient carries it to the doc."

The biggest request from EHR-equipped doctors was "to be able to do their transitions electronically," he said.

The HISP has operated an HIE network in the region for 10 years, which is "heavily utilized, particularly in emergency situations," Blair said. What doctors sought was not a separate search process but rather a way to use EHRs to communicate with outside sources as simply as they did within their own practice. Generalists wanted to push information right out of their EHRs, and specialists wanted to receive it in theirs. "Direct dropped in our laps as we were trying to figure out how to do this," Blair said.

In conjunction with several primary-care and specialty practices plus Albany Medical Center, a pilot project is focusing on sending referral requests, getting the consultation results back and communicating inpatient discharge summaries on patients to their personal physicians, all using Direct with CCD attachments. "The message is truly going into the practice, and that message is so configured, and has enough data in it, that the system can take it and figure out where it goes," Blair said. "That's a big deal, because on initial receipt, those who need to act on it can act on it."

One doctor, for example, can arrange to see every incoming message, while another can also direct it to a care coordinator or a scheduler. At the end, the CCD can be opened up and the receiver can upload structured data into the EHR.

"It's not just e-mail. The message itself can be consumed by the other EHR and it basically marries the two EHRs," he said.

As in Rhode Island and Minneapolis, the function's penetration into the healthcare field is limited only by the percentage of EHRs embedding the Direct protocol and the development of a reliable and up-to-date directory of addresses. When that's accomplished, the system for transitions can operate on its own, without the extra step of HIE infrastructure, which Miller likens to creating a virtual IDN where care is delivered in small practices.

"No one wants to hook up every single little practice," Miller said, echoing Adams. "But this will do it. This hooks them up." ■