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Healthcare Informatics

September 2013

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COVER STORY

DEPARTMENTS

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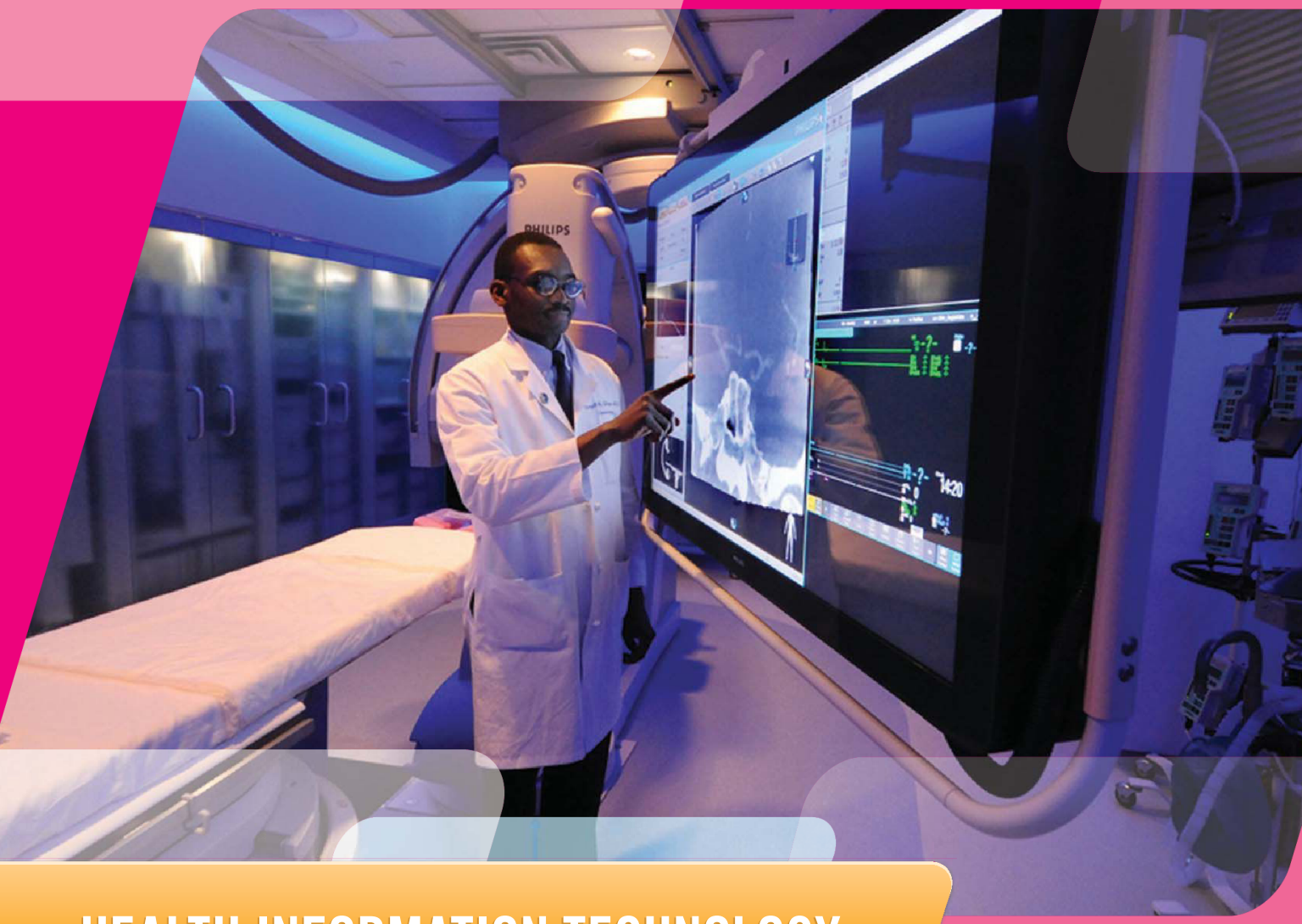

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[1] The Joint Commission Sentinel Event Alert Issue 49, August 8, 2012. [2] Taenzer AH et al. *Anesthesiology*. 2010;112(2):282-287. [3] Taenzer AH et al. Anesthesia Patient Safety Foundation Newsletter Spring-Summer 2012. [4] Ramsay et al. *Anes & Anal*. 2013. † Since expansion, no patients suffered irreversible, severe brain damage or died as a result of respiratory depression from opioids over a 5-year period.

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INSIDE

HIEs, Policy Mandate Mania, Vendor-Neutral Archives

With the dramatic growth of health information exchanges over the last few years, healthcare leaders are debating the most effective way to overcome continuing obstacles at the granular level of data exchange, while some are asking if the appropriate time for federal intervention is now. In this month's cover story, which begins on page 10, Editor-in-Chief Mark Hagland reports on the crucial next steps for HIE.

Meanwhile, healthcare CIOs are busily juggling an unprecedented number of policy mandates with fast approaching deadlines. In the feature story on page 16, Associate Editor Gabriel Perna examines how experts are mapping out the best way forward through a thicket of competing priorities.

On page 22, Hagland interviews the CMIO of a New Jersey physician group that has leveraged its participation in a groundbreaking patient-centered medical home project, which it used as the basis for a broader strategy for physician mobility.

Senior Contributing Editor David Raths takes on the issue of HIE sustainability in the article on page 26, with the intriguing possibility that HIEs could provide a value-added—and revenue producing—platform as a patient portal that crosses health system boundaries.

Imaging informatics is the subject of the article on page 28, where consultant (and regular *HCI* blogger) Joseph L. Marion proposes a practical framework for a vendor neutral archive as an effective way of addressing clinical content.

Meanwhile, Assistant Editor Rajiv Leventhal takes a look at the future of healthcare as it approaches the era of individualized, precision medicine. On page 44, he interviews Michael Blum, M.D., CMIO of the University of California, San Francisco, about that organization's new Digital Health Center and its precision medicine initiative.

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Healthcare IT Leadership, Vision & Strategy

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What Does a Car Look Like?

LOOKING AT THE HEALTH INFORMATION EXCHANGE CONUNDRUM: A HISTORICAL PERSPECTIVE


Mark Hagland

It's fascinating to learn about the early history of such modern technologies as automobiles, airplanes, and telephones. The first cars, just like the first airplanes and telephones, were essentially created entirely "custom"; there were no models or templates of any kind. Karl Benz, generally acknowledged to be the father of the modern motor car, spent decades thinking about the idea of creating a motorized personal vehicle and then inventing the first thing we would recognize as the embryonic form of the car. Along the way, he patented the concepts of the speed regulation system, the sparkplug-driven ignition system, the carburetor, the clutch, and the gear shift, and then guided his series of inventions forward until by 1888, he offered the first commercially available automobile in history.

IN FACT, HIE IS STILL A VERY YOUNG PHENOMENON, RELATIVELY SPEAKING, AND WHAT'S MORE, IT IS EMERGING OUT OF AN ALMOST MIND-BENDINGLY COMPLEX HEALTHCARE SYSTEM IN THIS COUNTRY.

Still, it took until 1902 until the first large-scale, production line-based manufacturing of affordable automobiles emerged, when Ransom Olds opened his Oldsmobile factory in Lansing, Mich. And of course, the version we're all familiar with, the Ford assembly line, debuted by Henry Ford at his factory, didn't come about until 1914.

There are similarities, too, between the development of the commercial automobile and the history of the telephone. Though everyone has heard about Alexander Graham Bell's experiments in the 1870s that led to his 1876 application for a patent for his invention of the electromagnetic telephone (and indeed, Innocenzo Manzetti had introduced the idea of a "speaking telegraph" as early as 1844), it wasn't until the last two decades of the nineteenth century that the first fledgling metropolitan telephone switchboards came into being, and they faced all sorts of hurdles at the start.

I remember watching a fascinating documentary on the history of the telephone on PBS a few years ago. One segment of that documentary focused one of the first public telephone switchboards, in Kansas City, and the immediate problem that arose when four different startup telephone companies came into being there. Subscribers could only speak to others who were subscribers to the same companies. This meant, of course, that if you and your Aunt Edna had different subscriptions, you couldn't talk to each other!

It took a few years to work out that problem. Ultimately, the resolution of the problem came via the creation of the Bell system, which eventually was broken up by the federal government for antitrust reasons, many years later.

In short, the development of technologies we consider essential to modern life have involved long journeys on the part of every technology; and that's to be understood, given not only the complexity of the technologies themselves, but also all the process and even societal changes that had to take place to fully accommodate their presence.

It's relatively easy to compare the stories of these trajectories to that of the development thus far of health information exchanges (HIEs) in the United States. Very difficult issues around standards development, interoperability with electronic health records, driving physician consensus and culture, and resolving questions around HIE governance and sustainability, among many other issues, seem to be coming to a head these days. In fact, HIE is still a very young phenomenon, relatively speaking, and what's more, it is emerging out of an almost mind-bendingly complex healthcare system in this country. So, as we consider where HIE is going right now (cover story, page 10), we should put this all into historical perspective, and understand that there are good reasons why HIE feels like a very complex, challenging thing. Just think of the first automobiles, and it will all make sense in a new way.

Mark Hagland
Editor-in-Chief

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Health Information Exchange: Are We At an Inflection Point?

AS HEALTH INFORMATION EXCHANGE EVOLVES FORWARD, INDUSTRY LEADERS AND EXPERTS DEBATE WHAT TO DO ABOUT SOME OF THE CONTINUING OBSTACLES TO GRANULAR-LEVEL DATA EXCHANGE. SHOULD FEDERAL OFFICIALS INTERVENE? BY MARK HAGLAND

The concept of health information exchange (HIE) is far from new; indeed, as those who have been around the healthcare industry long enough can attest, we are already into our third iteration of the concept, with community health information networks (CHINs) first emerging in the early 1990s, followed in the first decade of this century by regional health information organizations (RHIOs). With core problems around governance, local market competition, financial sustainability, and basic information technology plaguing CHINs, most died a relatively quick, though painful death; and most RHIOs faced severe governance and sustainability issues.

In contrast, the number of HIE organizations nationwide has grown dramatically in the United States in last few years, with the federal Agency for Healthcare Research and Quality (AHRQ) estimating that there are currently over 280 HIEs, and that more than 50 percent of the hospitals in the country are participating in HIE organizations. The same article on the AHRQ Web site that cites those figures (http://www.innovations.ahrq.gov/content.aspx?id=3944) cites achievements that have already been documented for HIEs. These include "reduction of duplication and operational costs"; "improvement of quality and health outcomes"; "improvement of public health surveillance"; and "strengthening of links between health-related research and actual practice."

What's more, virtually all responsible leaders across the U.S. healthcare industry support the concept of health information exchange; and HIE is enshrined in the Health Information Technology for Economic and Clinical Health (HITECH) Act, through the meaningful use process.

Even as HIEs continue to grow in number and in breadth of scope, healthcare leaders within and outside HIE organizations see stumbling block after stumbling block facing the sector in the next few years, and are asking what, if anything, could be done at the federal level to address the problems they see as hampering the long-term success, stability, and sustainability of health information exchange. Among the problem areas they see are:

- The lack of highly granular data-exchange standards—with some in the industry arguing for federal government intervention in that area;
- The broad lack of interoperability between HIE processes and electronic health records (EHRs);
- A combination of financing and governance issues that speak to long-term sustainability problems: many existing HIEs got their start through federal and/or state grants, many of which are now expiring or have expired; and un-

less consensus-driven strategies can be developed, many HIEs will falter once the grant money runs out;

• Underlying this, a failure to achieve alignment of goals among the stakeholder groups in HIE organizations; and

• A failure on the part of vendors, according to many industry observers, to provide the leading-edge technologies needed to break through EHR interoperability-related and other barriers.

All of these issues are becoming clearer at a time of intensifying need for HIE, in order to support accountable care organizations (ACOs), bundled-payment contracting, patient-centered medical home (PCMH) care models, clinical integration, value-based purchasing, and myriad other strategic goals in U.S. healthcare. In short, say many healthcare IT leaders, health information exchange is at an inflection point of its evolution in the current policy and operational environment.

THE MESSAGE FROM MAINE

If there's anyone in the U.S. who can speak to where HIE is right now, where it should be, where it's been, and where it's going, it might be Devore (Dev) Culver, executive director of the Portland, Maine-based HealthInfoNet, the statewide HIE for Maine, which has all 38 hospitals in that state under contract. Incorporated in January 2006, HealthInfoNet has benefited from clear-sighted vision, broad stakeholder consensus, and clearly articulated need, in a state that, outside of a few cities, is largely rural, and where market competition is less of a factor than in many states.

Not only is HealthInfoNet a beehive of data and information exchange, with 3 million messages transmitted a week, and 84 percent of the state's 1.3 million people represented (there are actually 1.2 million lives in the HIE, but some are also vacationers); Culver and his colleagues are currently building analytic tools to sit on top of their HIE's data warehouse.

The key lesson so far in HealthInfoNet's success? "The single most important early lesson was initially building that trust framework that allows information to be shared across competitors," says Culver. "The second lesson is to treat this like a business. At the end of the day, if I can't add tangible value, you're probably not going to pay me. That's the root challenge across the country when we look at health information exchanges. So here I am, a not-for-profit organization, but revenue has to exceed expenses, or we'll go out of business. Over the last three or four years, the concept of an enterprise exchange has come onto the table, where a group of hospitals or providers reach out and build a private exchange."

Jody Cervenak, a Pittsburgh-based principal with the Denver-based Aspen Advisors consulting firm, agrees,

adding that "The reality is that I think that the major underlying obstacle comes down to aligning incentives, because if we align incentives" among stakeholders, "progress on standards and models will take place." Offered the metaphor of a long aisle of cereal brands at the grocery store with regard to all the different IT infrastructures in HIEs right now, she says, "I love your mentioning the choices in the cereal aisle at the grocery store. You're right, there are so many types of cereal at the store, right? But they've all agreed to put standardized UPC [universal product code] codes on their cereal boxes, for improved efficiency of store management. That standardization was created because everyone in the food industry had aligned incentives: they wanted to get the product to the consumer, faster, cheaper, better. What needs to happen in healthcare," she says, "is to break down the silos of patient health information and data. And that would mean that my height, weight, age, problem list, allergies, etc., would be presented in some standardized fashion across all the different databases in healthcare. The problem is that we have technology vendors that may not yet have aligned incentives."

Dev Culver

AT THE END OF THE DAY, IF I CAN'T ADD TANGIBLE VALUE, YOU'RE PROBABLY NOT GOING TO PAY ME. THAT'S THE ROOT CHALLENGE ACROSS THE COUNTRY WHEN WE LOOK AT HEALTH INFORMATION EXCHANGES. —*DEV CULVER*

THE CDA AND THE C32: TECHNICAL OBSTACLES TRIPPING UP HIE LEADERS

Meanwhile, interoperability and standardization continue to be a core challenge at the technical-operational level. Tony Gilman, CEO of the Austin-based Texas Health Services Authority, which facilitates health information exchange at the state level, helping the 12 HIEs in Texas share data among each other, puts it this way: "Interoperability and standardization continue to be a problem, particularly as we're working with providers using products that existed before meaningful use and thus have deployed pre-meaningful use standards. Those products are making progress, but aren't moving fast enough. ONC and CMS [the federal Office of the National Coordinator for Health IT and the Centers for Medicare & Medicaid Services] are really focusing on the consolidated CDA"—the Clinical Document Architecture, an HL7 standard—"and they've focused on that standard for patient summary exchange."

Russ Branzell

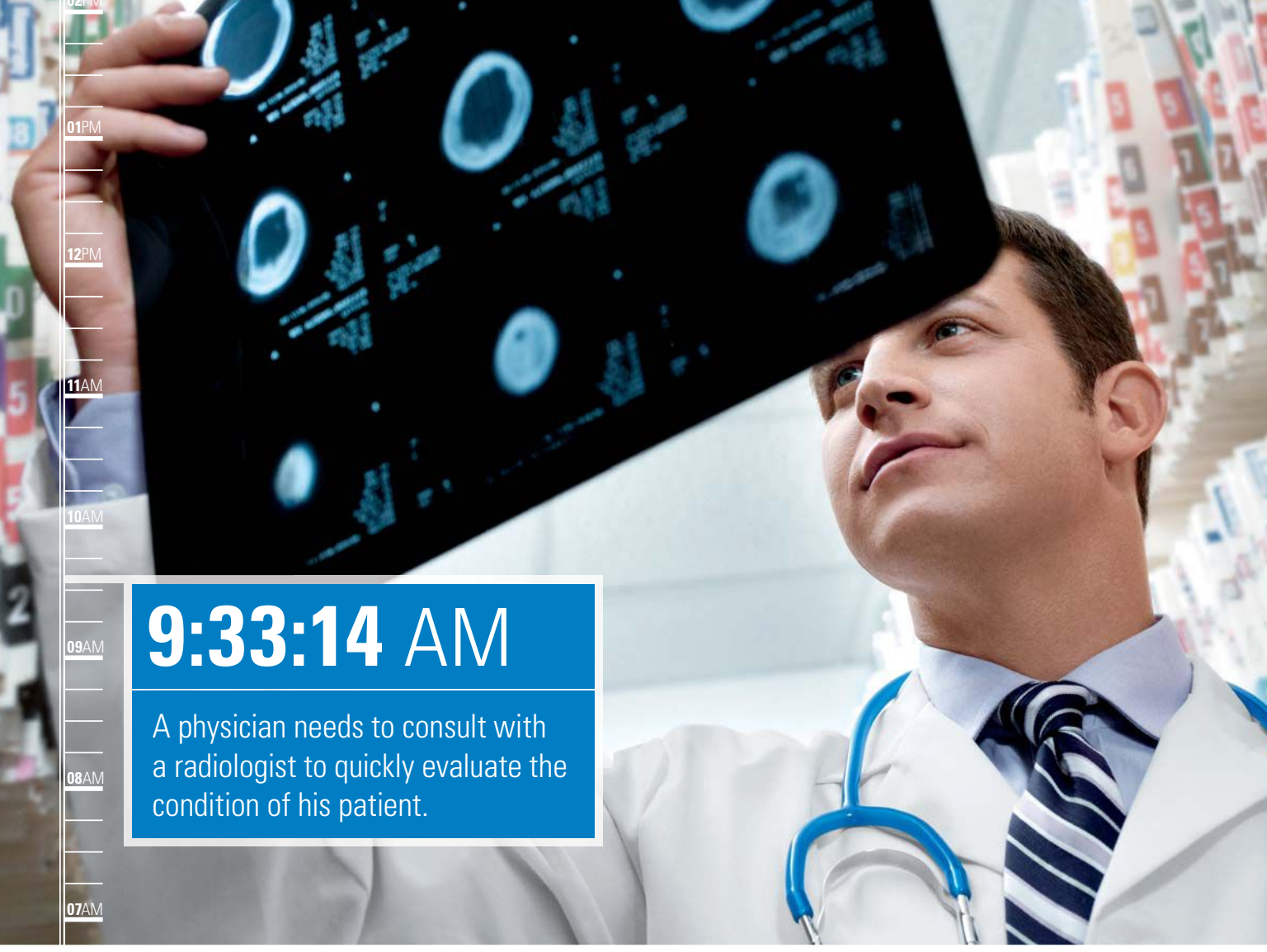
Federal approval of broad standards is in itself a good thing, Gilman says. "But the problem is that the vendors aren't there yet, and the systems in place [products] don't support that. So a lot of them can exchange a C32 document"—the HITSP 32 Summary Document using the HL7 Continuity of Care Document standard—"but that document often doesn't include problem lists, allergy information, or the level of detail you would expect; a lot of it is just demographic information." In other words, Gilman notes, there is a level of standardization of approach at the broad policy level, but that has not yet translated into true ground-level interoperability.

In other words, there remains rather a large gap between policy-level and EHR-level adoption of standards across the U.S. healthcare industry. Many HIE leaders agree that the transmission of CDA-level data across organizations continues to stumble when it comes to moving the data in such informational packets into EHRs, because of ongoing differences in display presentation at the individual data field level. Or, as Mark Frisse, M.D., professor of biomedical informatics and director of regional informatics initiatives at Vanderbilt University in Nashville, puts it, "Most EHRs can't really fully accept documents. They can receive lab results, but when they receive inbound documents, the question arises, whose record do we attach an inbound document to?"

Further, Frisse asks, "How do I make sure Joe Smith's inbound documents get to Joe's record? If there's a request, then I get it in my world. But do I put it in my record or not? Presumably, you could take a whole CDA and throw it in there as a PDF blob, but most institutions have policies that say, it's not a part of my legal medical record. There are just a million logistics issues on the ground. The problem there is when the Stage 2 regs say that 10 percent of my summaries have to go out in electronic form that means that 10 percent of my referring docs have to receive it in electronic form. People are saying, OK, if you can receive it as a fax, that's OK"—which means that some of the hoped-for automated patient data flow is still not happening. "People in the policy arena believe that can you solve 30 years of issues around clinical practice with a few conference calls and meetings," Frisse adds.

CALL IN THE FEDS? THE FEDS THEMSELVES AREN'T SO SURE

Russell P. Branzell, a former CIO who this spring became CEO of the Ann Arbor, Mich.-based College of Healthcare Information Management Executives



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(CHIME), has been speaking out publicly, including in May at the *Healthcare Informatics* Executive Summit in San Francisco, about what he sees as the need for federal government intervention in this area. As Branzell, who calls himself a "small-government kind of guy," sees it, ONC or CMS needs to intervene, soon, to establish data-exchange standards at a far more granular level in order to address the kinds of concerns described above by Mark Frisse. In late May during a visit to Washington, D.C. to meet with federal legislators and agency officials,

Jody Cervenak

Branzell reported that "We had a specific discussion with CMS, and the key to HIE success will be standards, standards, standards," Branzell says. "We're still working with a level of standards that is not granular enough to eliminate variability; there is still tons of variability at the EHR level. In my view of the world," he adds, "this is a rare example of where you want the government to be as prescriptive as they possibly can," in order to help resolve this EHR-level interoperability problem.

Judy Murphy, R.N.

But do the feds want to step in? Judy Murphy, R.N., deputy national coordinator for programs and policy, says that everyone should pause to consider what's being asked. "Russ is coming from the standpoint of ease of implementation," Murphy says, "and what he's describing, actually, is constraining the standards, so that we would specify, Use Block A, Use Block B, and Use Block G. Some folks have gathered together to start to do that. For example, there's a collaborative in New York that is constraining the standards; and then it becomes more plug-and-play, because you're using a specific standard, and therefore, the implementation is actually easier." But, she adds quickly, "Basically, I do not believe that there is an appetite in our industry for a lot of specificity in this space. The reason I say that is that there already has been a lot of discussion of this through the Standards & Interoperability Framework, which was launched in January 2011 by the ONC [http://wiki.siframework.org/]. And we have not heard a call for that in that space," Murphy adds. "In fact, the folks developing standards have wanted to use a building-block approach or the option of being able to pull standards in; and more importantly, using a consensus-based process for building those standards. Unless the appetite of the entire industry changes dramatically in this space, I'm not sure that we're going to get a lot of support for changing this model."

WHAT NEEDS TO HAPPEN IN HEALTHCARE IS TO BREAK DOWN THE SILOS OF PATIENT HEALTH INFORMATION AND DATA. AND THAT WOULD MEAN THAT MY HEIGHT, WEIGHT, AGE, PROBLEM LIST, ALLERGIES, ETC., WOULD BE PRESENTED IN SOME STANDARDIZED FASHION ACROSS ALL THE DIFFERENT DATABASES IN HEALTHCARE.
—JODY CERVENAK

MOVING FORWARD, STEP BY STEP

In the meantime, HIE leaders across the country continue to move forward to build sustainable HIE infrastructures and process. For example, Chris Carmody, president of ClinicalConnect, has been leading a broad regional HIE based in Pittsburgh, one that encompasses nine health systems, three long-term care facilities, one pediatric rehabilitation hospital, and one pediatric physician practice, in western Pennsylvania. In fact, Carmody has a dual role; he continues to serve as vice president of infrastructure at the Pittsburgh-based University of Pittsburgh Medical Center (UPMC), one of the founding member organizations in ClinicalConnect.

Data exchange went live among ClinicalConnect members in June 2012; and in addition to the nine health systems participating, the HIE counts about 8,000 physicians, more than 6,000 of them employed by or affiliated with UPMC; the data exchange at ClinicalConnect already encompasses more than 8 million unique patient records in western Pennsylvania. The biggest challenges? According to Carmody, establishing trust among member organizations that are robust market competitors, and developing a comprehensive HIE on a relatively lean budget. He and his colleagues have been partnering with the Pittsburgh-based dbMotion and the Chicago-based Initiate Systems (now a part of the Armonk, N.Y.-based IBM). Carmody says that "I see a bright future ahead of us, with 10 to 20 more organizations joining us in western Pennsylvania.

On the eastern end of that state, the University of Pennsylvania Health System (Penn Medicine) is participating in the HIE sponsored by the Delaware Valley Health Council, which encompasses 44 hospitals in southeastern Pennsylvania, confirms Michael Restuccia, vice president and CIO of Penn Medicine. At the same time, Restuccia

notes, Penn Medicine is using the CareEverywhere data exchange capability built into the core EHR solution from the Verona, Wis.-based Epic Systems Corporation.

Asked what he sees as the most important core strategies for a complex multi-hospital health system like Penn Medicine, Restuccia says, "As an organization, you have to define what data you want to exchange. First and foremost, we should focus on exchanging the clinical patient data. If you put the patient at the center of the universe, what do you want to be exchanging first? I think it becomes a fairly easy question to answer." Core lessons learned so far? "Don't underestimate the complexity of being involved in a regional HIE. It costs money, so there's funding; there are unnatural alliances, such as between providers and payers—that have to be managed. And there's a whole staffing issue involved."

Michael Restuccia

DON'T UNDERESTIMATE THE COMPLEXITY OF BEING INVOLVED IN A REGIONAL HIE. IT COSTS MONEY, SO THERE'S FUNDING; THERE ARE UNNATURAL ALLIANCES, SUCH AS BETWEEN PROVIDERS AND PAYERS—THAT HAVE TO BE MANAGED. AND THERE'S A WHOLE STAFFING ISSUE INVOLVED. —*MICHAEL RESTUCCIA*

Meanwhile, in Rochester, N.Y., John Glynn, senior vice president and CIO of Unity Health System, has been leading his colleagues in Unity's participation in the 18 patient care organization-member Greater Rochester RHIO, since 2006. Not only was Unity Health well-positioned to participate in the Greater Rochester RHIO because of its early implementation of EHRs across its continuum; it has had a very strong motivation for HIE participation, because of its involvement in a state grant-funded community diabetes collaborative based on patient-centered, coordinated care models.

John Glynn

WE'VE BEEN SUCCESSFUL WITH OUR HIE DEVELOPMENT WORK BECAUSE WE ENGAGED ALL OUR STAKEHOLDERS EARLY AND UPFRONT, AND BECAUSE HIE DEVELOPMENT HAS NOT BEEN AN 'IT PROJECT,' BUT BECAUSE IT'S BEEN A CLINICAL PROJECT, ONE TIGHTLY LINKED TO OUR BROADER STRATEGIC GOALS. —*JOHN GLYNN*

An absolutely key learning? "We've been successful with our HIE development work because we engaged all our stakeholders early and upfront, and because HIE development has not been an 'IT project,' but because it's been a clinical project, one tightly linked to our broader strategic goals" around care management and community health, Glynn emphasizes.

WHAT HEALTHCARE IT LEADERS SHOULD DO

Given some of the policy, process, and vendor-market uncertainties, what should CIOs and other healthcare IT leaders in patient organizations be thinking about, as they determine whether and how to pursue HIE opportunities? The Texas Health Services Authority's Gilman says that patient care organization leaders "really have to understand internally what they're trying to accomplish in terms of health information exchange. So they need to do an internal process to understand where they are and where they want to go, and how that benefits their communities. For example, in Texas, we have a lot of transient patients who go from one healthcare system to another. And there's value in competing healthcare systems to exchange information to support their patients."

ClinicalConnect's Carmody adds this: "If they're thinking of starting their own HIE now, it's probably too late. The market is already flooded with different HIEs popping up across the country. If they haven't decided whom they're going to connect with, I would first look at what their governance model/structure is—private, public, or a public/private hybrid form. A lot of HIEs got their start with federal grants and are now struggling. You want to make sure you connect with the right HIE, because another one might go out of business. We'll see more consolidation going forward. Finally, this isn't easy; it's a difficult process, and it requires a commitment to exchange data. Where a lot of key work will happen is in leveraging current EHRs and other clinical information systems to move data from current systems into HIEs." ◆

FEATURE

Crowded Plates: For CIOs, Policy Mandates are Piling Up

JUST HOW MANY POLICY ISSUES ARE HEALTHCARE IT LEADERS FACING?

BY GABRIEL PERNA

If you put the industry's best-known thought leaders in the same room, they might not agree on much.

They might differ on whether or not the attestation timeline should be extended or even be delayed for Stage 2 meaningful use of electronic health records (EHRs) under the Health Information Technology for Economic and Clinical Health (HITECH) Act. They might differ on whether the transition to the ICD-10 code-set can be done by October 2014. They might even differ on the color of the wall.

But there is one thing that everyone would agree on, and it doesn't matter if it's the CIO of a big-time health system in an urban area, an outside consultant, or someone who works in a smaller, rural setting. They would all agree that CIOs are dealing with a serious number of policy issues coming down the pipeline, all of which have overloaded their already crowded plates.

Healthcare Informatics Associate Editor Gabriel Perna recently spoke with seven industry insiders and leaders, many of whom testified on meaningful use in front of the Senate Finance Committee in Washington. These lead-

ers—a cross-section of CIOs and policy experts—talked about everything from the impact of a possible Stage 2 altered timeline to compliance with security provisions of the Health Insurance Portability and Accountability Act (HIPAA) and payment model reform under the Affordable Care Act (ACA).

Implementing the IT that complies with and supports these broad policy mandates, while dealing with day-to-day responsibilities, is the reality at provider locations across America. During the course of these interviews, thought leaders unfurled the challenges that surround each measure and looked to answer that pervasive question: which one should come first?

FROM WHAT I'VE HEARD, AND I DON'T THINK THIS IS SPECIFIC TO RURAL, THERE ARE QUITE A FEW ORGANIZATIONS THAT ARE NOT READY TO ATTEST TO STAGE 2. SOME OF IT IS, THEY HAVE SO MANY THINGS ON THEIR PLATES. —*RANDY McCLEESE*

STAGE 2 DISCUSSIONS

In the past few months, there have been ongoing, industry-wide discussions about Stage 2 of meaningful use. The initial wave of noise began in May when the Ann Arbor, Mich.-based College of Healthcare Information Management Executives (CHIME) sent out a proposal for a one-year extension of Stage 2. CHIME CEO, Russell Branzell, offers that this policy change is not an unreasonable request to make of the Office of the National Coordinator for the Health IT (ONC) and the Centers for Medicare and Medicaid Services (CMS).

"Our argument to the ONC and CMS…is we're not asking for huge leniency or a break. We're saying make the timing reasonable, give some time to the people who are actually using this to settle in and get some benefits from it. We want the program to be successful. We think the investment in HIT is dead on target. What's occurred, though, is over time, we've gotten a little off track in putting this in and what we're doing with it. It gives them [the government] and us a reasonable chance at success," Branzell says.

This is especially the case with regard to Stage 2, Branzell says. While Stage 1 set the groundwork, the clinical quality measurements (CQMs) in Stage 2 will require significant resources, both from an IT and clinical standpoint, to be managed on a continual basis. In addition, he says, there is the issue of vendor readiness.

Both Branzell and George T. Hickman, executive vice president and CIO of Albany (N.Y.) Medical Center and CHIME's board chair, say there are various reasons why vendors might not be ready for Stage 2 requirements. This includes, they say, technologies around transitions of care and patient portal integration.

WE'RE NOT ASKING FOR HUGE LENIENCY OR A BREAK. WE'RE SAYING MAKE THE TIMING REASONABLE, GIVE SOME TIME TO THE PEOPLE WHO ARE ACTUALLY USING THIS TO SETTLE IN AND GET SOME BENEFITS FROM IT. WE WANT THE PROGRAM TO BE SUCCESSFUL. —*RUSSELL BRANZELL*

"I don't want to implement two portals, so I'm trying to integrate my portal implementation to two separate electronic health records. While I know some portal providers out there can do that, what's been going on is that EHR vendors are bringing their preferred partner to the table and it may or may or may not be agnostic to your circumstance," says Hickman, who cites as an example the Chicago-based Allscripts and its portal partner, Jardogs (which Allscripts acquired).

"For example, I need to integrate Jardogs with the Siemens EHR, and they haven't done that before. And they haven't done it with a bunch of others. And the same thing can be said about other like partnerships," he says.

In rural Kentucky, Randy McCleese, vice president of Information Services and CIO at St. Claire Regional Medical Center, concurs with the sentiments of Branzell and Hickman. Like them, he says the timeline might be pushing vendors too fast and the government should give providers more time to attest.

"From what I've heard, and I don't think this is specific to rural, there are quite a few organizations that are not ready to attest to Stage 2. Some of it is, they have so many things on their plates. I was talking to a CIO last week and they have moved other things into higher priority than Stage 2, because they don't feel the payback is there," McCleese says.

Discussions on Stage 2 are at a fever pitch, says CHIME's director of public policy, Jeff Smith. "The awareness of the meaningful use policy is the highest I have ever seen on Capitol Hill," he says. Anita Samarth, president of Clinovations, a Washington, D.C.-based consulting firm, is betting on some kind of delay or extension. However, most experts are unsure whether or not all the talks will amount to anything.

ICD-10: A SCARY REALITY

As CIOs weigh the decision of whether or not to attest to Stage 2, many are moving ahead full force on ICD-10, which will have to be implemented by Oct. 1, 2014 or providers will see an effect on their Medicare reimbursement. Boston-based Beth Israel Deaconess Medical Center CIO, John Halamka, M.D., goes as far as to say ICD-10 is a

higher priority, along with HIPAA, than meaningful use.

"Ask yourself, 'What are the things you cannot miss?' If you delay a go-live of an application; your users may be frustrated. If you don't get your compliance and regulatory mandates, you may go out of business. ICD-10, if you don't do it on time, you can't send bills out. If the Office of Civil Rights believes you aren't safe guarding data, you get huge fines. It's the regulatory and compliance mandates, specifically around ICD-10 and security, which are the top priorities," Halamka remarks.

Branzell of CHIME says that many CIOs in advanced electronic environments who have already attested to Stage 1 are asking, "Why do Stage 2, considering the financial risk of ICD-10?"

At Texas Health Resources, senior vice president and CIO Ed Marx confides that his organization is moving forward with ICD-10 as if the Oct. 1, 2014 date isn't going to change, even as some associations continue to ask for a delay (CMS officials have been clear in their intention not to delay the required transition date beyond Oct. 1). "We're feeling pretty good with our vendor, with our internal HIM, that we're going to make those dates," says the industry veteran.

Other CIOs have similar mindsets.

MANY THINGS THAT WE DO, DON'T KEEP ME UP AT NIGHT; THIS ONE DOES. THERE ARE SO MANY MOVING PARTS TO IT, AND SO MANY INTERRELATIONSHIPS. —*GEORGE T. HICKMAN*

Randy McCleese at St. Claire Regional says his organization is preparing for the transition as if the date was cut in stone and it's become one of their big focuses. Hickman says that at Albany Medical Center, ICD-10 testing will force the organization to put a freeze on plans to bring in new software by April or May of next year. He adds that even though the organization is on track to transition to ICD-10, a lot of work left remains.

"Many things that we do, don't keep me up at night; this one does," Hickman acknowledges. "There are so many moving parts to it, and so many interrelationships."

The difficulties of this ICD-10 transition and the fact that most don't see the compliance date being moved again have made it an inescapable reality for CIOs. HIPAA compliance, mentioned by Dr. Halamka, is another looming policy element that is top of mind for many CIOs. Texas Health's Marx says the organization has "doubled down" on its security measures.

ACO FORMATION

If it's not meaningful use, ICD-10, or even HIPAA, then it's payment model reform under the ACA, including the voluntary accountable care organization (ACO) program and the mandatory value-based purchasing program. For many organizations, like McCleese at St. Claire Regional Medical Center, ACO formation is a front-and-center issue.

This year, the center is joining with the Bon Secours Health System to form an ACO. To help with data reporting and analysis, St. Claire hired an analyst to focus on the ACO. The analyst told McCleese that he didn't initially understand the extent of the ACO initiative.

"He said, 'I had no idea it was anywhere near this big.' I said, 'Now you understand why I said you need to go out of your analyst role into this role to make sure we can get the data we need,'" recalls McCleese. "We as an organization, and I think I'm hearing this in the industry, this is the future of healthcare and the way we are going to get paid. So we want to make sure we get it right."

While Marx's Texas Health Resources pulled out of the CMS Pioneer ACO to avoid paying a penalty, he says the organization is focusing on it and pursuing other arrangements. Halamka

(Continued on p. 47)

More on the Web!

Much of what was said by these industry leaders was left on the cutting room floor. However , Gabriel Perna is publishing several of his extensive interviews at www.healthcare-informatics.com. Read what else Samarth, Marx, Hickman, and Branzell had to say. Also, take the *Healthcare Informatics* poll and let us know if you think Stage 2's attestation timeline should be altered in any way.

Intermountain Healthcare and Deloitte—UsingComparative Analytics to Help Clients in Their Efforts to Improve Patient Outcomes,Create Efficiencies, and Develop New Therapies

The Data-Driven Transformation of Healthcare

Healthcare systems face immediate pressure to quickly transition care delivery models to respond to reimbursement changes that shift risk to providers from government and commercial payors such as readmission payments, bundled payments, and Accountable Care Organization (ACO) contracts. Pharmaceutical companies face similar pressure to demonstrate clear benefits from proposed new treatments. Analytics can help to accelerate the containment of ballooning costs in healthcare delivery and can help build evidence to demonstrate the value of new treatments. Conforming to being data-driven is becoming imperative across the healthcare ecosystem.

Transformation will require leadership to establish rapid and radical changes in how patient data is analyzed and applied to achieving outcomes. Existing databases, processes, and experience provide high value resources for meeting the demand. But unlike other industries facing Big Data challenges, the complexity of healthcare systems and velocity of innovation can benefit from new models and collaborations.

Healthcare Informatics spoke with executives from Intermountain Healthcare, one of the nation's top integrated healthcare systems, and Deloitte Consulting LLP, one of the nation's largest healthcare consultancies, about unlocking the power of Big Data and translating clinical information into meaningful insights. Deloitte and Intermountain Healthcare recently formed a landmark alliance to provide data services and analytics insights that can improve patient outcomes, create efficiencies, and inspire new therapies.

What is the significance of the alliance between Intermountain Healthcare and Deloitte?

Asif Dhar, Chief Medical Information Officer and Principal, Deloitte Consulting LLP: Intermountain Healthcare has worked over the course of three decades to master the process of using combinations of data across the continuum of care to reduce costs by increasing quality. They are the recognized pioneers in this critical area for success in a new healthcare economy. Deloitte is expected to invest through acquisitions, alliances, and development over the next five years to expand beyond our traditional consulting capabilities to generate new integrated solutions for healthcare working with various technology and collaborators.

For example, together with Intermountain we are launching new comparative analytics offerings to translate data and knowledge through subscription access to a new class of tools focused on helping achieve improved processes. Unlike benchmarking tools that compare organizations to an average performance at an institutional level, we are focusing on the specific value institutions are seeking from comparative tools – actionable insights into subpopulations. We can provide this because we are incorporating detailed models for measurement constructed at Intermountain during years of experience breaking down factors that impact quality within processes.

What prompted Intermountain Healthcare to align with Deloitte?

Marc Probst, Chief Information Officer, Intermountain Healthcare: Intermountain Healthcare operates 22 hospitals,

200 clinics, an 1,100-physician Medical Group, and a health plan. We are proud to be widely recognized as a leader in transforming healthcare through high quality and sustainable costs. Intermountain has amassed one of the world's largest repositories of clinical and financial data from 40 years of longitudinal Electronic Health Records (EHR) and other systems, including laboratory, administrative and supply chain data. Moreover, we benefit tremendously from Intermountain Healthcare's Homer Warner Center for Informatics Research, which includes more than 70 IT professionals working on data analytics to support evidence-based clinical decision making. We aligned with Deloitte because we want to create more value for the community we serve as well as help others apply what we have learned to provide better, more sustainable healthcare. We want to help others understand that significant savings, and cutting the costs of healthcare, can result from better quality of care to patients. And after evaluating multiple potential associates, we determined that Deloitte could play a critical role in helping us and others realize this vision, given its shared values, complementary competencies and scale.

The catch phrase Big Data has been widely used in the IT community. What does Big Data mean for the nation's healthcare system and this collaboration?

Peter Emerson, Principal, Deloitte Consulting, Recombinant By Deloitte: Big Data has focused on classifying "Big" through four V's – volume, velocity, variety, and validity. Each is critical in healthcare and impacts many specific use cases. In healthcare, the most important "V" relating to data is value. Our clients want to look beyond the buzz and ask us how we can help them mine the emerging treasure trove of clinical, financial, and research data to produce better care for patients.

Recombinant By Deloitte.

Intermountain Healthcare has collected a repository of data spanning several decades. You have spoken about creating a data ecosystem across the healthcare space. Can you elaborate?

Probst: Having access to ample clinical and financial data is good. But there is plenty of other data that can and should be brought to bear. By broadening the base of people and institutions engaged in the discussion, by including insights from pharma and device manufacturers, research institutions, and other select healthcare constituents, Intermountain and Deloitte can create richer insights and ultimately enable studies that improve care. As a doctor or a patient, you can be more confident that the required information is available and being appropriately used. Physicians won't have to depend on memory-based medicine anymore. Instead, they can start leveraging smart data to fill in those gaps in the evidence-based approach.

Is your comparative benchmarking limited to Intermountain Healthcare or will it include other providers?

Dhar: Overall we are focused on 'value' rather than 'volume' in our subscription offerings. But a critical mass of evidence or cohorts can provide high value in certain areas such as genomics and to understand what process improvements translate between institutions. Subscribing institutions will be included in benchmarking activities that expand on a solid foundation and we will facilitate convening collaboration outside of the technology.

What are some specific examples of healthcare innovation the application of Big Data can foster?

Probst: Some of the most valuable healthcare initiatives include population health, comparative effectiveness and translational research. As genomics moves from the research domain primarily to clinical care, it will exacerbate the data management challenge so healthcare systems should be planning well beyond their EMR deployment and think about how data management and analytics platforms can be just as critical.

What is the timeframe for the Intermountain Healthcare/Deloitte alliance to bring solutions to market?

Dhar: The solution and services are available now. OutcomesMiner is analytics software that allows users to extract data from leading health systems. The solution provides a population view of associated outcomes and allows users to filter for subpopulations using particular phenotypic characteristics and specific medical associations. Importantly, OutcomesMiner provides access to insights derived from detailed patient healthcare data without the risk of exposure to Personal Health Information (PHI) by employing an innovative, double-blinded data format.

Two additional services – Retrospective Analysis and Prospective Studies – are also available. Retrospective Analysis connects our customers to some of the world's leading researchers and a community of healthcare providers for patient-level analyses that can provide a better understanding of the causality of clinical process level outcomes. Prospective studies enable users to conduct observational or interventional prospective research that taps into the same patients who initially drove the insights generated by OutcomesMiner.

Advancing Mobile Computing: How One New Jersey Group Has Moved Forward

AT THE 15-PHYSICIAN VANGUARD MEDICAL GROUP IN NORTHEAST NEW JERSEY, PCMH PARTICIPATION HELPED SPUR A BROADER MOBILE STRATEGY BY MARK HAGLAND

The number of patient care organizations across the U.S. in which physician mobility is moving forward is growing daily. Among that throng is the 15-physician, three-location Vanguard Medical Group, based in Verona, N.J., and with three patient care locations, in Verona, in Cranford, and in Montville, all in northeast New Jersey. The organization encompasses 15 physicians and 10 mid-level providers, working in the three specialties of family medicine, internal medicine, and geriatrics.

At Vanguard, Thomas McCarrick, M.D. is chief medical officer and CMIO. In the case of Vanguard, the path towards mobility began with the group's participation in a groundbreaking patient-centered medical home (PCMH) program with Horizon Blue Cross Blue Shield of New Jersey, which ultimately required Vanguard to become certified as a PCMH; and that necessitated better connectivity. That led to McCarrick's developing an increasingly comprehensive strategy and policy around deployment of mobile devices and their securitization, particularly around what's being called the "BYOD"—bring your own device—phenomenon.

It's all rather subtle and complex, McCarrick notes, because a balance must be struck between the ideal and the practical, with regard to how physicians really practice, and

to the kinds of policies to which they can realistically adhere. McCarrick spoke with *HCI* Editor-in-Chief Mark Hagland about mobility. Excerpts from the interview appear below.

THE GENESIS OF BYOD

Healthcare Informatics: Can you share with us how your "BYOD" policy has been developed?

Thomas McCarrick, M.D.: It's an evolving thing. It started with the EHR [electronic health record]. We started with an EHR eight years ago, from the Austin, Texas-based e-MDs. At the beginning of this process, we just wanted remote access; we weren't extracting data out or anything; but in 2010, we got involved with a PCMH program with Horizon Blue Cross Blue Shield of New Jersey. They invited us to participate in a diabetes program that would require us to become NCQA-certified [certified by the Washington, D.C.-based National Committee for Quality Assurance] as a PCMH, so we had to start identifying those patients and reporting on those metrics. In 2011, we were invited into a larger rollout for a PCMH across all disease states, with Horizon. Once we started reporting for these programs, we started having new problems making connections.

THE PHYSICIANS, PHYSICIAN ASSISTANTS, AND NURSE PRACTITIONERS WHO SEE PATIENTS—EVERYONE WANTS TO HAVE A COOL NEW DEVICE—TABLET OR SMARTPHONE—AND EVERYONE WANTS ACCESS TO THE OFFICE. —*THOMAS McCARRICK, M.D.*

About two years ago, we started a home visit program, in which a geriatrician and geriatric nurse practitioner visit homebound patients to take care of them. That creates other issues, because you want them to work within the EHR remotely, but they have documents at home, medical directives and such—the patients. Any person who had to do data entry, we decided needed to own that device, and that it needed to be fully encrypted. The people who visit remotely will have a scanner with them and will scan the advance directive or other documents into the EHR remotely, so there will be data at rest on those devices.

YOU HAVE TO TEACH PEOPLE THE HIPAA PRINCIPLES; BECAUSE YOU'LL ALWAYS FIND SOMEBODY WHO WILL UNDERMINE THOSE IN SOME UNEXPECTED WAY IF THEY DON'T UNDERSTAND. —*THOMAS McCARRICK, M.D.*

They have a Lenovo device, and it's fully encrypted. That's only a small part of their practice, though. I have a couple who work remotely to call patients and stuff like that and those devices have to be fully encrypted.

The physicians, physician assistants, and nurse practitioners who see patients—everyone wants to have a cool new device—tablet or smartphone—and everyone wants access to the office. That's the challenge we're facing; we're working with our IT vendor to make sure those connections are secure; if they're using remote access, we're not requiring the device to be encrypted if no patient data sits on the device.

HCI: Have you developed formal policies? And does everyone understand those policies?

McCarrick: We're doing that now. My thinking on it has been changing depending on the issue involved. At one point, I wanted to have every device encrypted; then I realized that that was too much. We are trying to put together some kind of policy; right now, it's just in my head. Most importantly, you don't want to have somebody not understand what your policy is, and then do things that inadvertently subvert it.

HCI: In that context, you and your colleagues need to be more mobile, and have embraced mobile devices, right?

McCarrick: Yes, we have to. Everybody in our practice wants to be mobile. They're using devices in their personal lives already.

BALANCING PRIVACY CONCERNS AND INFORMATION ACCESS

HCI: What lessons you and your colleagues learned so far?

McCarrick: You have to teach people the HIPAA principles [related to the patient health information security requirements of the federal Health Insurance Portability and Accountability Act of 1996]; because you'll always find somebody who will undermine those in some unexpected way if they don't understand. Having policies and rules is not enough. They need an understanding of the principles.

HCI: What advice do you have for your colleagues nationwide, CMIOs, CIOs, and other healthcare IT leaders, as they start to work through all of these processes and issues?

McCarrick: While security and patient privacy are very, very important, the priority is access to information, because that's what allows us to take care of patients. People measure the breaches, but don't keep track of the time when our having better access to patient information has helped to save the lives of patients; so that's the balance, and it's not an obvious balance. ◆

Life after the Beacon

SAN DIEGO BEACON TRANSITIONS INTO A REGIONAL HIE ORGANIZATION

BY GABRIEL PERNA

The three year period in which the Office of the National Coordinator of Health IT (ONC) will fund the Beacon Community Program is coming to an end, and one Beacon is preparing for the "after-life."

The Beacon Community Cooperative Agreement Program was enacted in 2010, with the ONC providing $250 million over three years to 17 selected communities across the country. The communities had already made "inroads" to develop secure, private, and accurate systems of EHR adoption and health information exchange (HIE). While each of the Beacons had separate goals, and received different amounts of funding, they all aimed to increase health IT infrastructure and exchange.

Dan Chavez

In many cases, that has been achieved. *Healthcare Informatics* has featured many of the Beacons and some of their innovative projects. In Colorado, leaders of the Colorado Beacon Consortium have leveraged powerful analytics and health information exchange tools to support region-wide, physician practice-based population health, for the benefit of patients scattered across the Rocky Mountain west. The folks at Crescent City Beacon Community (CCBC) in New Orleans have used the power of EHRs to facilitate a metropolitan area-wide patient-centered model of care.

I THINK THE BEACONS REALLY WANTED TO SHOW PROOF OF CONCEPTS IN TERMS OF DEMONSTRATION OF VALUE. WE'RE TRYING TO MAKE AN IMPACT AT A COMMUNITY-LEVEL. MY GOALS HAVE TO DO WITH ADOPTION AND UTILIZATION. I'VE GOT TO BRING UP THE NODES OF THE NETWORK. —*DAN CHAVEZ*

In San Diego, leaders of the Beacon Community have taken on a number of initiatives. They reduced their readmissions rates by facilitating successful transitions between hospital and home, improved childhood immunization rates, increased the speed in which patients received cardiac care, and drew together a number of local health systems and providers to form a regional HIE.

THE MALL OF HIE

It's the work from the latter HIE-focused initiative that will continue long after the federal money dries up. To help kick-start the transition, Dan Chavez was brought on as the executive director of the not-for-profit entity of the San Diego Regional Health Information Exchange, an organization created to provide oversight of San Diego Beacon.

"The grant funding ends at the end of September. That provides us the start-up capital to start up the new organization and pay for the transition," Chavez says. "Going forward, after October first, my anchor tenants, the major healthcare providers in San Diego, will pick up the costs of my budget based on their relative size determined by revenue on a contribution basis."

Over time, Chavez plans to make HIE sustainable. By the start of 2016, he says, San Diego Regional Health Information Exchange will have a business model based on utilization and appropriate costs. This may be a price per record shared, price per physician, a subscription model, or something else.

"To be determined," he says. "The point is to stand up the HIE in 2014 and 2015, have a good sense of the utilization—who is using it for what and where the values are—make that assessment and propose a new fee structure to the membership in 2016."

Trust is the most important element to HIE success

Chavez sees going forward. Since being brought on in March, Chavez has attempted to build a culture of trust within the HIE by hiring a security/privacy officer and working on vendor and provider relations.

For an HIE, Chavez says trust means keeping the major providers in San Diego happy and ensuring the smaller providers remain competitive. The big providers, he says, which include University of California, San Diego Health System, Rady Children's Hospital San Diego, Scripps Health, Sharp HealthCare, Kaiser Permanente San Diego, and a few others, are like the anchor tenants at a shopping mall.

"They (the anchor tenants) have to be happy with the mall because they pick up the vast majority of the fees of operating it. The smaller providers, they are your specialty stores and they all compete. And you know that you can buy shoes at the department store, the shoe store, or the athletic store. So you have to recognize that these people all compete, but you have to keep them happy and keep the traffic flowing," Chavez says.

In healthcare, San Diego Regional Health Information Exchange was created (the lead grantee for the federal Beacon funds was U.C. San Diego) for the purpose of ensuring that all these different providers are happy and to ensure the exchange of data is flowing. Not only will Chavez and co. have to do this going forward, but it will have to do it with a small, five-to-seven person staff.

DIFFERENT MINDSETS

The mindset of what the San Diego Regional Health Information Exchange has to become and what the San Diego Beacon was created to be are completely different. The Beacon, Chavez says, wasn't chartered to be self-sustaining or sell services. To that point, on the HealthIT.Gov Web site, the key word under the Beacon Community description is demonstration. The programs are a demonstration. The San Diego Regional Health Information Exchange is a self-sustaining organization.

"I think the Beacons really wanted to show proof of concepts in terms of demonstration of value," Chavez says. "We're trying to make an impact at a community-level. My goals have to do with adoption and utilization. I've got to bring up the nodes of the network." Getting providers in the community on board will expand the scope of patient data available in the HIE, he adds.

Like any beacon, the Beacon Communities have provided a guiding light, laying the foundation of the work that will be done over the coming months and years, Chavez says. As he wraps up the transition and grant activities in an "orderly manner," through reporting to the federal government in these final months, a new Post-Beacon era will attempt to shine under its own lights. ◆

HIEs See Role as Patient Portal Providers

HIE AS POSSIBLE ALTERNATIVE TO PATIENT PORTALS BY DAVID RATHS

Health information exchange (HIE) executives spend a lot of time investigating possible sources of revenue to guarantee their sustainability beyond the era of federal grants. Could providing a patient portal that crosses health system boundaries be one of the value-added services they provide? Patients who see eight to 10 providers a year do not want to create their own records by cobbling together information from multiple health systems.

Health IT leaders in Indiana who have been working on patient engagement believe HIEs can play a valuable role.

STEPPING UP TO THE CHALLENGE

With a challenge grant from the Office of the National Coordinator for Health IT (ONC), the state has worked with its five HIEs and an Indiana-based personal health record (PHR) vendor, NoMoreClipboard (based in Fort Wayne), to launch a dozen pilot projects involving multiple use cases, such as patients with different chronic diseases.

Speaking at a July 16 webinar put on by the National eHealth Collaborative, Andrew VanZee, statewide health IT director for the state of Indiana, said the effort has brought many stakeholders to the table to leverage the funds that ONC provided. After two years of work, he said, the participants have a clear idea why ONC called it a challenge grant. "There were some significant challenges along the way," VanZee said. "We hope that based on what we learned, other states can avoid the pitfalls and accelerate their initiatives going forward." In Indiana, this project has spun off into other consumer engagement efforts in the state, including a project by the state Department of Health to make vaccination records available to patients.

Jeff Donnell, president of NoMoreClipboard, said that although HIEs have gotten good at provider-to-provider exchange, it has been rare so far to have the patient as part of the equation. The HIEs have already done the hard work of aggregating data from multiple providers, Donnell stressed. This could save patients from the tedious effort of trying to get data from all their different doctors and hospitals.

"Patients are begging for easier ways to manage their health information," he said. HIEs can offer services to providers looking for alternatives to tethered patient portals offered by EHR vendors. They can add value by providing a single place to go, and this could provide them with a new revenue stream, he said. HIEs can help providers meet meaningful use requirements involving patient engagement and attract interest from new stakeholders, including employers interested in their employees using PHRs.

THERE WERE SOME SIGNIFICANT CHALLENGES ALONG THE WAY. WE HOPE THAT BASED ON WHAT WE LEARNED, OTHER STATES CAN AVOID THE PITFALLS AND ACCELERATE THEIR INITIATIVES GOING FORWARD.
—ANDREW VAN ZEE

Talking about lessons learned from the pilots in Indiana, Donnell said the first is crawl, walk, run. "The tendency is to get bogged down in complexity," he said. "We suggest focusing on high-value activities first such as helping providers meet meaningful use requirements. At the same time, you can think ahead of how the HIE can support ACOs and patient-centered medical homes and chronic disease management efforts. Get patients used to accessing their data," he said. "Once data starts to flow, it won't take long for them to tell you what they want next. Be careful not to invest in things they won't find valuable."

WE HAD TO ACCOUNT FOR DIFFERENT RULES FOR EVERY SYSTEM THAT FED DATA INTO THE HIE. OUR PROGRAMMERS WOULD SAY THAT WAS THE MOST DIFFICULT COMPONENT. THERE WERE A LOT OF ARCHITECTURAL CONSIDERATIONS TO SUPPORT RULES AND BUSINESS LOGIC COMPONENTS.
—JASON BUCKNER

PLENTY OF POLICY DEVELOPMENT WORK

Donnell advises others not to underestimate the heavy lifting involved in policy development work before data is shared with patients. For instance, data use agreements for the HIE were crafted before the participants contemplated including patients. "It required going back to those agreements and the work is not trivial," he said. In some cases it required renegotiating with each individual provider entity and adding amendments and agreements, which took months.

Participants have to decide which information they are going to share and which they will not.

The Indiana HIEs have had lively discussions with stakeholders about what would be shared: lab results? Information on STDs? Abnormal results? Radiology? Physician notes?

"These are thorny issues that takes a fair amount of time to unwind," Donnell said. Providers hold widely different beliefs about sharing data. "In this day and age, some providers still operate in blissful ignorance about HIPAA requirements and believe they have no legal obligation to share information with patients," he said.

Jason Buckner is vice president of operations for HealthBridge, which provides HIE connectivity for the greater Cincinnati tri-state area and five other HIEs. His organization delivers 3 to 5 million clinical messages a month and connects more than 30 hospitals and 800 physician practices.

He said at first the health systems were apprehensive about joining the PHR project, but full support was gained after several discussions. "They were wondering if they really wanted to send data to PHRs they don't have control over," Buckner said. "Those conversations were not insignificant or quick."

Many of the health systems already had patient portals and had defined the business logic, timing and software filtering about sharing results. "Of course, none were the same," Buckner said. "We had to account for different rules for every system that fed data into the HIE. Our programmers would say that was the most difficult component. There were a lot of architectural considerations to support rules and business logic components."

Another challenge was dealing with a variety of legal requirements that are different in the three states that HealthBridge serves around issues such as sharing health data of minors.

NoMoreClipboard's Donnell said the key thing that patients appreciate is getting an account already pre-populated with most of their health data. "They don't have to start from ground zero in creating one by trying to get data from multiple providers." Initial surveys of providers at pilot sites suggest that patients with PHRs are more engaged in their care, and more compliant with their medications. "The nature of the conversations is changing," he said. People tend to come to doctors' appointments better prepared and with good questions.

Stakeholder education is imperative, Donnell said. If an HIE's goal is data sharing with patients two years from now, they should get started now, he added. "There is immense danger in underestimating how long the process can take." ◆

A Framework to Aid VNA Implementation

VNAs ARE AN EFFECTIVE WAY TO ADDRESS THE CLINICAL CONTENT THAT IS GROWING IN IMPORTANCE AS EMRs EVOLVE AS PART OF MEANINGFUL USE

BY JOSEPH L. MARION

As imaging data throughout the enterprise grows, so does the need for a vendor neutral archive (VNA) for more cost-effective storage. Selecting and implementing a VNA can be daunting. First requirements must be defined, and then vendor claims need to be assessed to achieve a good match. Although this can be challenging, finding ways to simplify and refine the process can be rewarding. A workable framework could help better define requirements and assess alternatives.

Framework objectives include:

- Improving the ability to more thoroughly define VNA requirements;
- Enhancing the mechanism for assessing a vendor's match to a site's requirements;
- Providing a set of common definitions of VNA functionality; and
- Encouraging users and vendors to use the framework.

FRAMEWORK PROPOSAL

This article proposes a workable VNA framework by identifying VNA elements and testing them with VNA vendors and users for substantiation. Starting with the constitution and delivery of services, a draft framework was circulated among a number of vendors and users for comment. Figure 1 illustrates the framework. An explanation of the framework parameters and examples of using the framework follows.

The primary core of a VNA is a services layer that manages storing and accessing variable content hosted on various computer storage infrastructures, and accessed by viewing applications. There are various approaches to acquiring the technology, including capital and operational models.

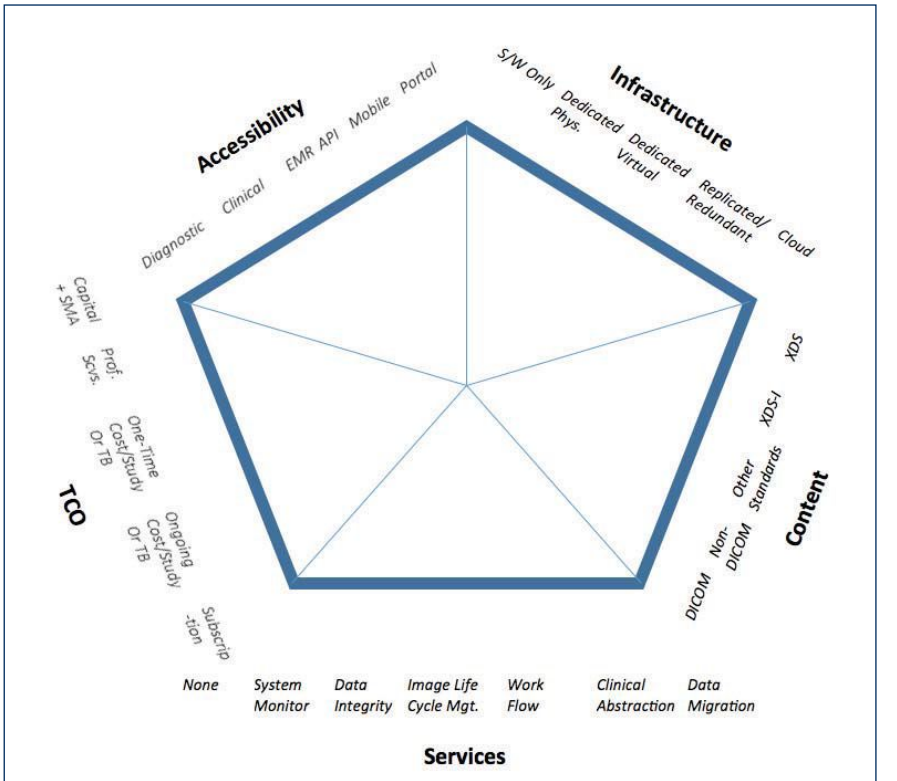


Figure 1. Unstructured content management and accessibility framework model. (Scope of capabilities determines the degree of fill for each object face.)

Axis definitions are summarized as follows:

Services: Services represent the system processes for managing content and infrastructure. Vendors themselves may provide services, or resell the services of others. Services definitions are as follows:

System Monitor: Monitoring services monitor system operation, notify of impending problems, and perform system auditing and reporting.

Data Integrity: Data integrity assures data is stored correctly.

Image Life Cycle Management (ILM): ILM rule sets manage how long data is stored to satisfy the legal retention period, as well as retention of minors, mammography, and environmental studies.

Workflow: Workflow rules address access rights and pre-fetching rules. Application workflows address how patient demographics are matched to images.

Clinical Abstraction: Data from multiple sources may require manipulation for storage. For example, some systems may include proprietary data sets that the VNA will need to handle as part of storing the data, enabling data that is accessible from the VNA without being tied to the originating device.

Data Migration: The ability to handle how data is converted, either into the VNA or exported to another environment, is an important aspect of a VNA Service.

Content: The Content axis addresses the extent of content managed by the VNA. Departmental solutions require only DICOM images, whereas enterprise-scale solutions may address non-DICOM and other industry standard formats (JPG, TIF, BMP, MINT, etc.) as well. In multiple entity environments, support for the cross-enterprise document sharing of images (XDS-i) and cross-enterprise sharing of documents (XDS), Integrating the Healthcare Enterprise (IHE) profiles, and health information exchange (HIE) standards may be necessary.

Infrastructure: The Infrastructure axis represents a range of equipment environments. The simplest is a software-only solution, while others may address both a software and hardware (turnkey) solution. Hardware can be physical or virtual, more sophisticated applications may be replicated or redundant hardware. Cloud-based services are growing in importance, and may include private and public clouds.

Accessibility: Independent access to stored

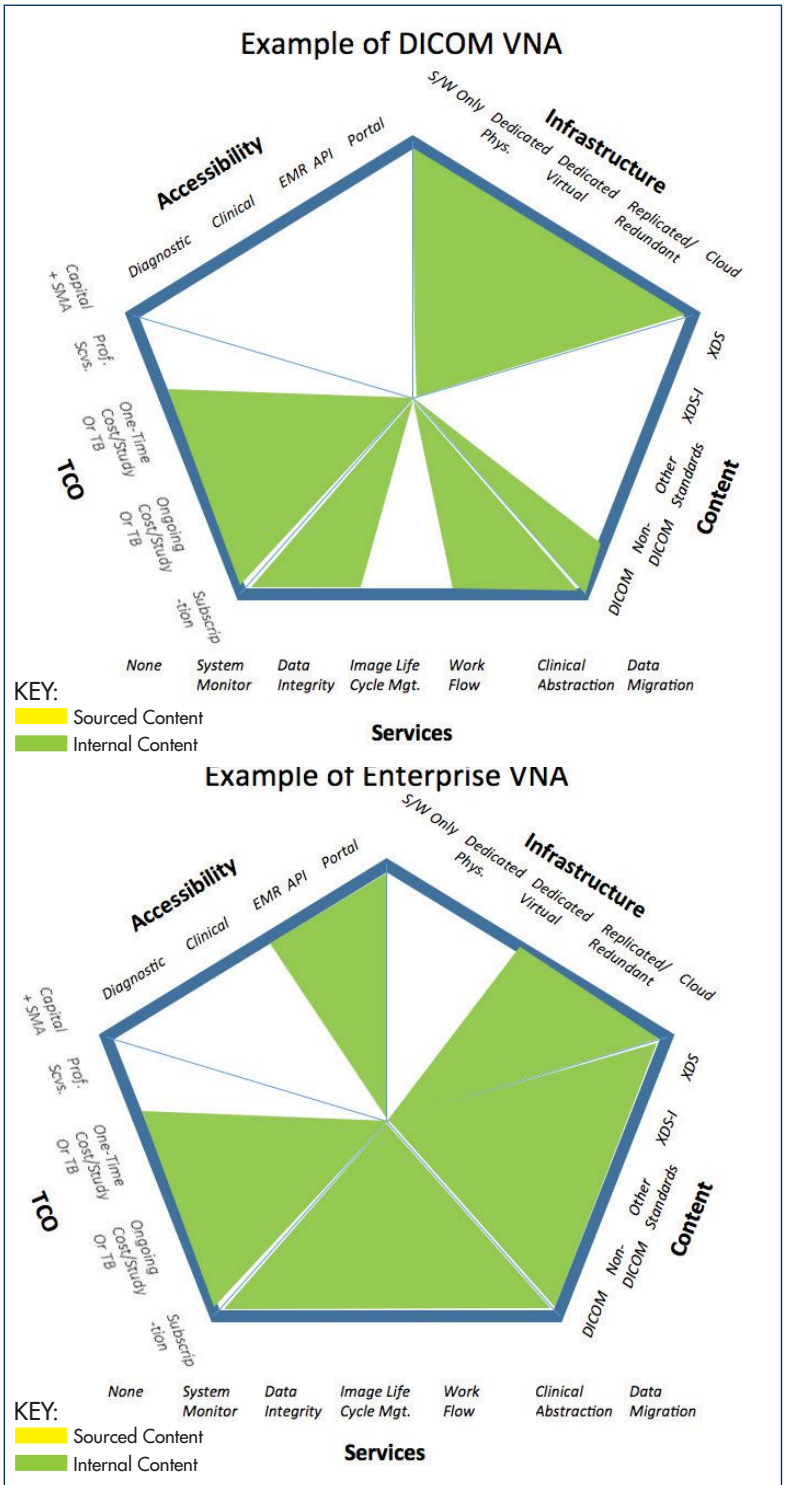


Figure 2. Two different VNA applications are contrasted by the different area under the shape.

content can make it accessible to a number of different users for multiple viewing purposes. Access independent of the originating system is important when the originating system is not available. New applications such as advanced visualization might access images from a VNA instead of an existing PACS. There can be diagnostic applications, clinical viewing, or universal image access such as through a linkage to the EMR. Mobility is increasing through "zero footprint" viewers that can be launched from a number of portable devices such as tablets or smart phones. Adding viewing capability to facility Web portals for access by either clinicians or patients will expand clinical content accessibility.

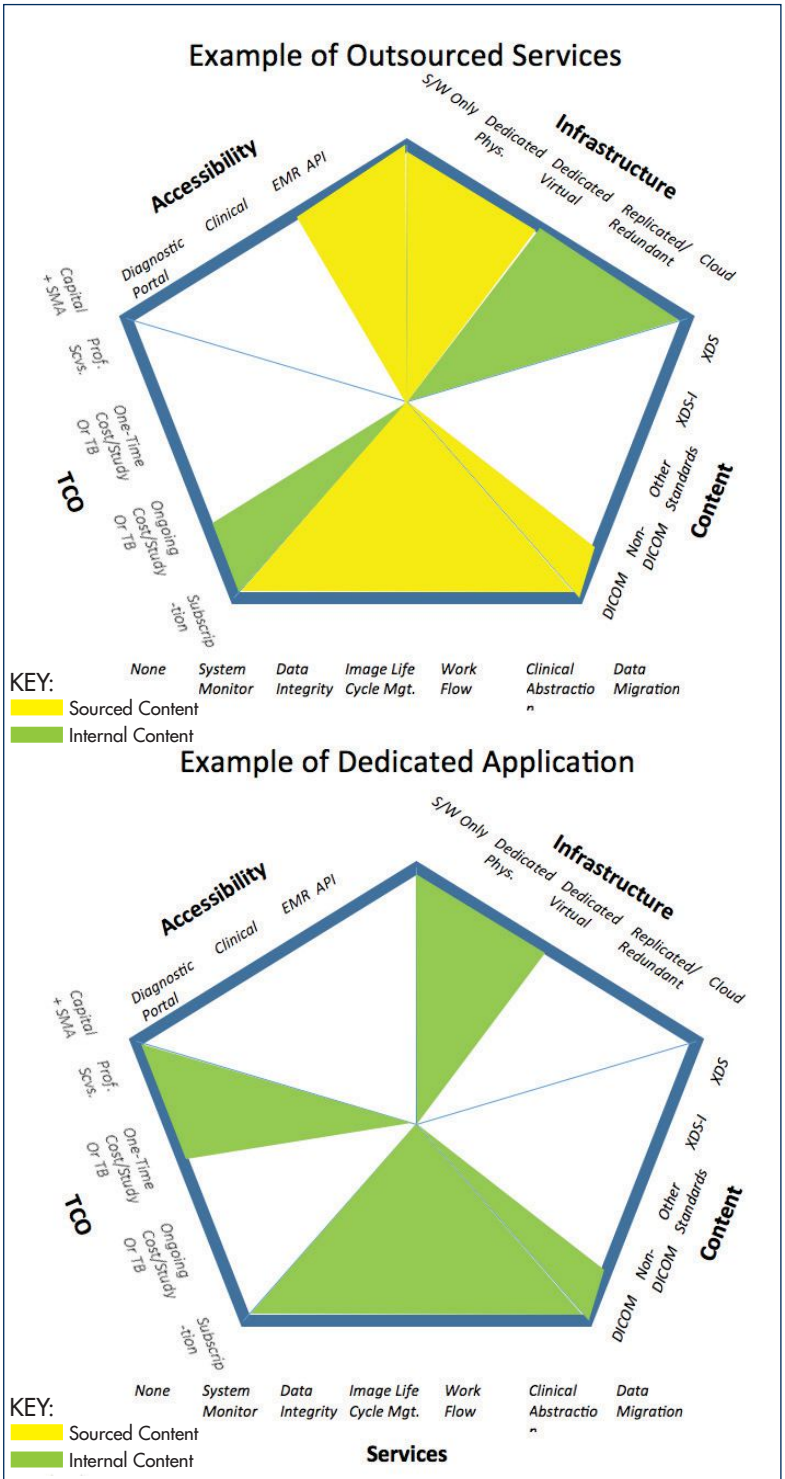


Figure 3. The framework could be used to represent different VNA vendor segments.

Total Cost of Ownership (TCO): TCO addresses options for financing and operating a VNA. Local applications on existing hardware favor a capital approach. There may be associated setup or professional services fees. Alternatively, the fee-for-service model is popular, either as a cost per study, or a cost per amount of information stored (gigabyte or terabyte). Some services only charge an "ingestion" fee, while others have additional fees for long-term storage. Subscription fee models essentially level-load charges over a fixed period (monthly) for an estimated volume level. Fees may vary month-to-month if volume varies.

The axes form a shape (pentagon), and the area within the shape can be used to visually represent and contrast VNA scenarios. For example, applications can be differentiated by how much of each axis is shaded. Colors can represent such parameters as internally developed versus sourced applications.

The first example in Figure 2 is a replacement archive in a single clinical service, for strictly DICOM data. It doesn't need to address life cycle management, and it can span the full range of infrastructure. It is most likely is cost per study or subscription based pricing. If used for disaster recovery, no incremental display is necessary.

The second example represents an enterprise archive spanning multiple service areas. Support for cross-enterprise sharing might be important and rely on XDS content. Because it may span multiple entities and services, replicated or cloud infrastructure is preferred, separate EMR and/or portal viewing are important, and pricing is most likely a per-study or subscription basis.

The first example in Figure 3 emphasizes a

vendor who outsources services and display technology, and leverages its own infrastructure. The second example shows a vendor focused on providing the core VNA application as a software-only solution applied to a client's infrastructure. Note the use of different colors to represent sourced versus internal content.

REAL WORLD FEEDBACK

A theoretical model is one thing, but industry feedback improves the likelihood of acceptance and utilization. Initial contact with a number of VNA vendors provided them the opportunity to critique the framework. Figure 4 summarizes companies generous enough to provide feedback on the framework.

Company	
Acuo Technologies	GE Healthcare
Agfa Healthcare	GNAX
AT&T	Iron Mountain
Carestream	LifeIMAGE
ClearDATA	Logicalis
DeepWell Archival Services	Mach 7 Technologies
DICOM Grid	Merge Healthcare
eHealth Technologies	TeraMedica

Figure 4. Vendors that have provided feedback on the framework

The following summarizes vendor observations:

- Vendor discussions revealed no opposition to the framework, and vendors encouraged it as a means for improving market consistency of definition.
- Vendors confused "accessibility" to include areas such as user rights. This was clarified in the context of adding a "services" category for workflow, preserving the accessibility axis for visual access to stored content.
- Initial categories for infrastructure did not address virtualization. Changes were made to reflect either physical or virtual and replicated or redundant hardware configurations.
- Discussions were instrumental in adding work flow, and system monitoring to the services axis. A further segmentation was suggested between "system" services such as data integrity, and "clinical" services such as work flow.
- Pricing originally reflected only a capital versus a fee-for-service model. Discussions differentiated fee-for-service model and subscription models. Vendors suggested adding a "professional services" category to reflect implementation expenses incurred for both capital and operational models.
- Portal viewers were seen differently from an EMR API, reflecting patient-based portals not directly associated with an EMR.

VNAs ARE AN EFFECTIVE WAY TO ADDRESS THE BURGEONING AMOUNT OF CLINICAL CONTENT THAT CONTINUES TO GROW IN IMPORTANCE AS EMRs EVOLVE AS PART OF MEANINGFUL USE. EMPLOYING A FRAMEWORK TO DEFINE THE VNA MAY BE A TOOL TO OPTIMIZE UNDERSTANDING OF REQUIREMENTS AND ASSESS VENDOR CAPABILITIES.

How did vendors feel about the value of the framework? Lenny Resnik, director of Enterprise Imaging and Information Systems, Agfa Healthcare, stated "The framework… will help providers carefully examine their needs and establish an overreaching strategy while accomplishing their individual goals in a way that will result in meeting their ultimate needs in the shortest timeframe and the lowest cost." Jim Prekop, CEO of TeraMedica said, "The terminology usage of 'VNA'…has grown significantly among healthcare providers and technology vendors. We applaud…the… real-world approach to objectively aligning specific customer needs (both today and tomorrow) with the optimal solution." Bob Mack, director, US&C Business Management at Carestream, points out that "customers are still singularly based on individual components of a VNA…and not focused on the big picture. The framework helps focus on the big picture." Shannon Werb, chief technology officer for Acuo Technologies feels "[the framework] provides bigger buckets/areas that people should be looking at when making VNA decisions."

Overall, vendors felt the framework addressed the "bigger picture" of VNAs, which is beneficial to an enterprise-wide viewpoint. Consumers of VNA technology had similar sentiments, and raised implementation concerns. Phil Wasson, president and CEO/CIO, TriRivers Health Partners in Rockford, Ill., feels the "framework…really outlines the benefit of an independent vendor neutral archive very well." He feels it is important that their VNA vendor "didn't sell the other PACS components and only function on the archiving of PACS images and helping to manage the storage and workflow behind all of that." Conversely, Richard Green, Clinical Imaging Enterprise Architect for Hospital Corporation

of America (HCA), is "not so much concerned with vendor neutrality as with leveraging existing company relationships, and ensuring that their data is managed by an entity that is financially stable and able to support them."

THE TERMINOLOGY USAGE OF 'VNA'…HAS GROWN SIGNIFICANTLY AMONG HEALTHCARE PROVIDERS AND TECHNOLOGY VENDORS. WE APPLAUD…THE… REAL-WORLD APPROACH TO OBJECTIVELY ALIGNING SPECIFIC CUSTOMER NEEDS (BOTH TODAY AND TOMORROW) WITH THE OPTIMAL SOLUTION.
— JIM PREKOP

Christopher Roth, M.D., vice chair of radiology for information technology and clinical informatics, Duke University Medical Center feels that "it is important [for the VNA] not to be tied to a particular PACS" so the VNA can address the enterprise needs for storage and accessibility. Greg Pilat, system director of imaging services, Division of Clinical Transformation, Advocate Healthcare, raises concern with respect to implementing a VNA—the need for quality checks, metrics, and working definitions. Obviously, there are different facility motivators and factors for selecting a VNA that may present the need for additional framework elements.

Development of the model and securing real world feedback resulted in a realization that VNA vendors can be segmented as follows:

- The most common form of VNA vendor is the application provider. These vendors develop their own VNA service and content management applications. The vendors may offer software-only or complete turnkey solutions. Application provider vendors probably have the greatest degree of knowledge with respect to VNA applications, as they are responsible for the general capability that constitutes the VNA. Real-world examples include Acuo Technologies or TeraMedica.
- Typically an application provider does not have the infrastructure to support remote or cloud-based VNA applications. The infrastructure provider leverages existing infrastructure through partnerships with VNA Application Providers to provide cloud-based VNA applications. Most infrastructure providers leverage their infrastructure for many different applications, and may be attractive to facilities that have multiple applications or are attracted to a cloud-based environment. Real-world examples include DeepWell, Iron Mountain, or Logicalis, to mention a few.
- Integration providers have an infrastructure and a partnering relationship similar to an infrastructure provider, but go one step further to include integration services, or special customization of a VNA application with an HIE. An integration provider can be thought of as going beyond merely exploiting its infrastructure. Integration provider vendors include Dell and GNAX.

In summary, VNA's are an effective way to address the burgeoning amount of clinical content that continues to grow in importance as EMRs evolve as part of meaningful use. Employing a framework to define the VNA may be a tool to optimize understanding of requirements and assess vendor capabilities. Segmentation can further assist in assuring that clinical requirements are properly met. CIOs may want to consider the proposed framework to further an understanding of VNAs and aide in effectively differentiating vendor VNA offerings. As noted with respect to implementation, the framework should be thought of as a "living" framework capable of being adapted to changing requirements. ◆

Joseph L. Marion is principal, Healthcare Integration Strategies LLC, Waukesha, Wis.

Shining a Light on Patient Engagement

HOW ONE HOSPITAL PLACES THE TOOLS FOR ENGAGEMENT IN THE HANDS OF THE PATIENTS BY RAJIV LEVENTHAL

While everyone in healthcare is talking about patient engagement, many are struggling to come up with strategies to achieve it.

Stage 2 of the meaningful use electronic health records (EHR) incentive program requires 5 percent of patients to log into and upload data via a portal or personal health record for providers to earn incentive payments from the program. Last year, the National eHealth Collaborative created the Patient Engagement Framework, which was vetted by over 150 healthcare stakeholders, and is meant to help providers understand how to start and continuously improve a patient engagement initiative. According to the lead authors of the framework, a properly implemented patient engagement strategy should transform the way a health system delivers care.

To further push the patient engagement movement and give recognition to those medical centers that make a true commitment to getting patients invested in their own health, Axial Exchange, a Raleigh, N.C.-based health IT software provider, ranked U.S. hospitals state-by-state, based on an analysis of publically available data in three categories: personal health management, patient satisfaction, and social media engagement. Personal health resources was given the highest weight and took into account tools that hospitals make available to patients like Web sites, mobile apps, or interactive tools to help them manage their health.

Axial has constructed a Patient Engagement Index (PEI) in three states thus far—Florida, Texas, and California—with rankings for the other states coming in the next several months. The company says that while the *U.S. News and World Report* has produced its popular hospital rankings for 23 years running, those rankings don't include patient satisfaction. Consumerization in healthcare is driven not only by the transparency brought about by the Internet, but also by rising deductibles and a boom in patient engagement. The term "patient engagement" has been so widely used that its true meaning has been diffused; people speak broadly about improving patient engagement, but have not done the analysis and research to determine exactly what types of patient engagement programs improve outcomes, Axial officials say.

PARRISH: EASY ACCESS TO HEALTH RESOURCES

Axial decided to focus on Florida first because the state's demographics are a "bellwether" for the rest of the U.S. As such, in Titusville, Fla., Parrish Medical Center (PMC), a 210-bed acute care hospital, landed atop the Florida PEI, which included 74 major hospitals in the state. PMC scored 89 out of 100 on the index, one of just three Florida hospitals to score above 80.

Natalie Sellers

For Axial's index, maximum points in the personal health management category are awarded to health systems that not only offer electronic access to patient health records, but also provide resources needed for the day-to-day management of disease. The best health systems offered these tools via the device of the patient's choice: desktop, tablet, and mobile. The information was gathered from publicly available Web sites and mobile applications.

Natalie Sellers, chief communications officer at PMC, says the medical center's HealthBridge program—an online patient portal designed to be the community's "bridge" to manage all of their health needs—"provides a health management platform that helps to coordinate care in a way that enhances the overall healthcare experience and provides easy access to personalized health resources including education, breaking news, personal messages from your physicians, and health tracking tools all delivered via your smartphone, tablet, computer, or by mail."

HealthBridge includes the following features: a personalized page based on health interests; communication whichever way the patient wants it; one-click access to an exclusive health education video library; the ability to RSVP online for events and classes; and, for patients of Parrish Medical Group physicians, the ability to e-mail physician offices, request prescription refills, schedule office appointments, and view lab results.

"We use patient relationship management technology (also known as customer relationship management, or CRM) to engage the right patient, at the right time, with the right information based on an individual's specific health profile. We use that technology to deliver personalized health management education and tools from anywhere, at any time," says Sellers.

In other attempts to improve patients' personal health management, PMC has launched a series of online presentations, called Emmi, that make complex medical information easy to understand, says Sellers. "We empower patients to take action around their particular healthcare event or condition in language they understand, at a time when they are ready to learn, and through the devices they already own. Using a soothing voice, animated graphics, and easy-to-read text, Emmi programs take you through your upcoming procedure or help you manage your chronic condition."

A further example of personal health management at PMC is its Ask 3 Initiative, which urges patients to ask the following three questions every time they talk to a doctor, nurse, or pharmacist: What is my main problem? What do I need to do? Why is it important for me to do this?

HIGH PATIENT SATISFACTION

The patient satisfaction category is based on industry response from public patient satisfaction data collected by Centers for Medicare & Medicaid Services (CMS). The survey is called the Hospital Consumer Assessment of Health Plans Survey (HCAHPS), with the intent to provide a standardized survey instrument and data collection methodology for measuring patients' perspectives on hospital care. The points awarded in this category are directly driven by HCAHPS performance. According to some studies, higher patient satisfaction via the HCAHPS survey is associated with improved guideline adherence and lower inpatient mortality rates.

Based on assessments of 2,985 hospitals by the CMS, PMC is Central Florida's No. 1 hospital in areas of clinical care, patient's hospital experience, and low cost, says Sellers. "Each month, every hospital department reviews a matrix of quality, service and safety measurements related to our strategic plan. We call it our game plan, and it has enabled PMC's care partners to earn numerous quality distinctions."

The last criteria, social engagement, is the extent to which health systems engage with their communities via social networking channels. Maximum points are awarded to health systems that not only have a social media presence, but also have engaged a relatively large audience that expresses positive sentiment towards the health system.

According to Sellers, "Since experiences on the internet and in social media are held to the same standards of excellence as any other experience with the medical group, PMC made a deliberate decision to not rush into social media without first understanding what our community really needed to manage their health with social media platforms. PMC chose to listen first and thanks to social media's broad reach, we can hear our community's voices more today than ever before."

Certainly, patient engagement, like many other aspects of healthcare, is still an emerging concept, but according to Sellers, it's not the notion of engaging patients and their families to achieve their best health that is new to healthcare. "[Instead], what is 'new' are the ever-advancing technologies that break through access barriers to reliable information and tools that serve to engage and empower people to manage their health from anywhere and at any time. However, the challenge is not to keep pace, but to lead the race." ◆

Why the Idea of a Patient Portal Sells Itself

A PATIENT PORTAL THAT MEETS PATIENTS' EXPECTATIONS OF CONVENIENCE, ACCURACY, AND COMMUNICATION FOR THEIR HEALTHCARE

BY GABRIEL PERNA

At Saint Vincent Health System, the patient portal is just another cog in the machine. It's another mechanism that helps the Erie, Pa.-based, 427-bed tertiary care and teaching center carry out its overall strategy.

That strategy is centered on patient-centered care. "We don't exist without our customers and our stakeholders, and that begins with patients. We're in healthcare, we're here to heal," says Richard Ong, CIO of Saint Vincent.

For information technology, this often means implementing systems that allow providers to run operations efficiently, whether it's scheduling, billing, or prescription refills. The patient portal exemplifies that to a T: the system, from the Cary, N.C.-based Intuit Health, keeps the patient connected to their provider round-the-clock through many of those capabilities—and vice versa, the portal gives the provider the patient's problem directly from the horse's mouth.

"It's not diluted or interpreted from a third party," says Ong, who has been at Saint Vincent for nearly three years.

Healthcare Informatics Associate Editor Gabriel Perna recently spoke with Ong on the portal as an effective communication tool, how it connects to the electronic medical record (EMR), how meaningful use Stage 2 plays into the system's configuration, and strategies to get patients connected to it. Below are excerpts from that interview.

A MULTI-FACETED ELECTRONIC TOOL

Healthcare Informatics: Explain what the patient portal has been able to do for Saint Vincent.

Richard Ong: It helps with our patients being able to share their story, share their health information with a lot more clarity, and put it in their own words. From a financial side, it helps with online bill pay. There is a patient expectation that you should be able to pay online. We as business people and as part of society right now expect to do it electronically. It's everywhere we go, and patients want to know what we're doing is more modern and conducted in a secure manner.

Operationally, it provides the patients with additional options, and also helps by reducing the number of phone calls coming in the office. Not that we don't like talking with our patients, but now that that communication can occur asynchronously and happens within a different layer of the organization, it can help to reduce the number of phone calls so we can sort and organize them, and make sure they are processed as efficiently as possible.

When you are talking about these ambulatory outpatient situations, we can probably admit that not everything out there is urgent at times of high call volume. We don't always have time to make requests and wait on the phone for 10 minutes. It's nice having an avenue or portal where you can make a request whenever you have time, even if you are up at two in the morning.

THERE IS DEFINITELY GROWING APPETITE FOR TOOLS THAT MAKE LIFE MORE CONVENIENT. HEALTHCARE IS NO DIFFERENT. OUR INDUSTRY IS ONE OF THE MOST COMPLICATED AND WE WANT TO MAKE SURE PATIENTS HAVE THOSE TOOLS. —*RICHARD ONG*

HCI: Does the portal connect to the EMR?

Ong: Technically, we want to make sure there is some kind of interoperability and there is with this system. (Intuit) is a trusted partner with Allscripts. It adds a little more value and definitely has been welcoming. We take the technology for granted a lot of times, but we certainly don't take it casually. Keeping patient information secure and accurate is a primary tenant at Saint Vincent's.

WE DON'T EXIST WITHOUT OUR CUSTOMERS AND OUR STAKEHOLDERS, AND THAT BEGINS WITH PATIENTS. WE'RE IN HEALTHCARE, WE'RE HERE TO HEAL. —*RICHARD ONG*

HCI: How many patients have connected to it?

Ong: I do not have the exact percentage of patients, but we've pretty much seen a lot growth over the last year. We're seeing 300 to 450 new enrollees per month. As of June 2013, we have 5,128 people enrolled or that have accounts on the portal.

GETTING PATIENTS TO SIGN ON: A VALUE PROPOSITION

HCI: What strategies have you employed to get patients to connect with it?

Ong: I think it begins with by actually demonstrating its value. [Showing them that] this is definitely not a concept that is in development. It's not like some kind of conceptual prototype. This is a working solution; to be able to demonstrate the benefit of it, sells itself.

People want more features. I don't know anyone who wants less ability, fewer tools in healthcare. There is definitely growing appetite for tools that make life more convenient. Healthcare is no different. Our industry is one of the most complicated and we want to make sure patients have those tools. So I guess we don't have to try too hard to get them to adopt it, because it pretty much sells itself.

We do make it easier, by providing instructions to get them enrolled online.

HCI: When designing and reconfiguring the portal, have you been looking at the regulatory demands of meaningful use Stage 2, which has a lot of focus on patient engagement measures?

Ong: It's definitely been a focus and a factor for us. Patient engagement, their ability to have information secure, is part of normal compliance in terms of privacy. In terms of governmental incentive programs, those are certainly significant factors that we take into consideration as we build our entire portfolio, which includes the portal.

HCI: What plans do you have for expanding the portal?

Ong: Now that it's in place, we want to optimize it to ensure that it's being utilized properly. This means showing how it can be integrated into the patient's entire longitudinal record. We use Allscripts on the outpatient/ambulatory side and McKesson on the inpatient side. Future plans mean making sure that information is shareable so that we can grab any clinical value from that patient interaction on the portal.

Right now, it only integrates with Allscripts. We're looking to integrate it the McKesson in the future. But whether it's clinical or financial information, it's important that we operate better as a healthcare practice.

HCI: What advice do you have for other CIOs trying to implement a portal?

Ong: It probably doesn't even apply to just the portal, but my advice to any IT leader would be to make sure what they're trying to implement aligns with the business objectives from their healthcare organization. Make sure patients are afforded some kind of tool that they probably expect, when it comes to technology that provides convenience, accuracy, and communication to their healthcare. ◆

M.D. Documentation: Where the Rubber Meets the Road

AN EMERGENCY PHYSICIAN'S PERSPECTIVE ON TECHNOLOGY AS AN ENABLER BY MARK HAGLAND

Reid Conant, M.D., wears several hats these days. He practices half of his time as an emergency department (ED) physician, and in that role, he is also CMIO of the Tri-City Emergency Medical Group, a 23-doctor emergency physician group in Oceanside, Calif. Tri-City provides emergency physician coverage at Tri-City Medical Center, a 400-bed community hospital in Oceanside. Conant also consults privately through his firm, Conant and Associates, where he focuses on the optimization and deployment of physician documentation solutions.

At Tri-City Emergency Physicians and Tri-City Medical Center, Conant has been leading the implementation and optimization of physician documentation, including through the Dragon Medical speech recognition solution from the Burlington, Mass.-based Nuance. He also has a business relationship with Nuance through his consulting work. Conant

spoke recently with *HCI* Editor-in-Chief Mark Hagland regarding his and his colleagues' experiences with physician documentation and speech recognition. Below are excerpts from that interview.

Reid Conant, M.D.

TECHNOLOGY IS MAKING INROADS

Healthcare Informatics: In your view, are the requirements of physician documentation in the ED as onerous as before?

Reid Conant, M.D.: There's been significant improvement in adoption, primarily because of new technologies, but also in the understanding how to train and re-train physicians to adopt these technologies. One thing we encountered at my facility was an initial reluctance to document electronically, because of all the pointing and clicking. Now, since we've added speech recognition as an element, we've made it so that it's no longer all points and clicks; and that has enhanced adoption. The documents were more meaningful to the hospitalists or ICU nurses; they were more meaningful when we added Dragon to it, because we were able to add more to the narrative. I'm a decent typist, but I'm nowhere able to get near the level of efficiency that's possible using speech recognition solutions.

I do think that we're in a transitional period right now as an industry, including medical informatics and clinical practice in total. The reason is that we have requirements for problem list management and for diagnosis list management, as well as core measures and other regulatory requirements. It's not just completing these, but documenting them thoroughly as well; so there has been an increased burden for providers not only to deliver care consistent with clinical guidelines, but also to document that one has done so. We're in a transitional period in which the technologies are catching up with the requirements, but they haven't entirely done so yet.

OCTOBER 2014 IS THE DEADLINE FOR COMPLIANCE WITH ICD-10 DOCUMENTATION, AND IT'S COMING AT US LIKE A FREIGHT TRAIN. IN ORDER TO DEPLOY THESE TECHNOLOGIES TO ACHIEVE THOSE STANDARDS, PROVIDERS MUST BE DOCUMENTING ELECTRONICALLY. —*REID CONANT, M.D.*

HCI: Can you speak a bit more specifically to the transitional aspect of this?

Conant: For a while, we've been working in an environment with fairly regimented formats, which was necessary because the technology was not yet there to capture data from unstructured text. Now, we can get structured data out of narrative text, because of natural language processing. In an ideal world, the physician would be able to create a document, guided by a framework or template consistent with a presenting condition or care plan, but they're able to add patient-specific narrative that could then be mined and accessed to create discrete data elements. That's kind of the best of both worlds—the necessary flexibility to make providers efficient—along with the ability for the technology to capture discrete data elements.

A FOCUS ON PHYSICIANS

HCI: How frustrated are most emergency physicians right now, with having to move forward in the electronic documentation world?

Conant: Well, there's a bell curve in that regard. Those sites that have deployed documentation solutions in a strategic manner, with the right tools, and with the tools optimally configured, can make that transition quite seamlessly. I've also seen sites struggle, unfortunately; and we were one of those, when we went up six or seven years ago. The addition of speech recognition and the optimal configuration of the electronic health record, have helped.

For example, the creation of commands within Dragon to help speech-enable steps that we repeatedly use within the electronic medical record: to add an order, to sign a note, many other examples. We can also build content into Dragon that can facilitate and streamline or work as well; if I have a code status discussion, such an advance directive or end-of-life direction discussion, with a patient. In that instance, there are multiple items I would cover in that discussion on a regular basis; so why should I repeat that instruction over and over, when I can rely on a pre-created element? There are many other examples, such as operative report details, procedure notes, assessments.

HCI: How complicated is it to build speech-recognition elements into these templates?

Conant: It's something that we're able to train our physicians to do, and can be done on an individual-user level or on an organizational level. It's very doable at the user level. As consultants, my colleagues and I have also put together a bundle of about 2,000 different starter commands over 50 subspecialties.

HCI: Could you provide an example of a bundle of starter sets?

Conant: Code status discussion, smoking cessation discussion,

(Continued on p. 46)

A Physician-First Approach to Clinical Documentation Improvement

A REGIONAL HEALTH SYSTEM'S CDI INITIATIVE ENLISTS PHYSICIANS WHILE MEETING INSTITUTIONAL AND CULTURAL NEEDS BY RAJIV LEVENTHAL

In today's healthcare, clinical documentation improvement (CDI) has become a strategic imperative at hospitals and health systems across the country. Documentation is critical for patient care, as it validates the care that was provided, reduces the rework of claims processing, and thus impacts coding, billing, and reimbursement.

Documentation improvement programs were formed in an effort to work with care providers to appropriately reflect the quality of patient care while increasing accuracy in coding and reporting. Health information management (HIM) and clinical staff form the core of CDI programs working within a multidisciplinary team to provide guidance on documentation challenges.

A UNIQUE APPROACH

One health system in Coral Gables, Fla., Baptist Health South Florida, demonstrates that a CDI implementation is not a "one-size-fits-all" scenario. Baptist Health South Florida is the region's largest not-for-profit healthcare organization, with more than 13,000 employees working across six hospital campuses and multiple satellite locations. Baptist Health has deployed a unique approach to CDI, using a physician-first technique at the point of care to help providers ensure financial integrity, reduce risk, and improve patient outcomes.

When Lorena Chicoye, M.D., corporate medical director of managed care, network development and medical management at Baptist Health, joined the health system a few years ago, she noticed that its documentation and utilization benchmarks needed improvement. Having past experience with Nuance, a Burlington, Mass.-based vendor at her previous position in a health system in central Florida, she recommended the introduction of a comprehensive CDI program.

"In Florida, what's unique is that the state has a large number of international medical graduates that are licensed to work as physicians under the supervision of already [estab-

lished] licensed physicians," says Chicoye. "We found that several of these international physicians were working in our hospitals looking for growth and opportunity, so we decided to recruit them for our CDI specialist roles."

The origin behind this unique approach, says Chicoye, was that physicians were less likely to bump heads with other physicians, especially ones who they knew or have worked with in the past. "Applications began to stream in and the majority of them were from our international physicians," says Mauricio Palma, M.D., director of CDI at Baptist Health. "While this is a different approach, we found that hiring international physicians as documentation specialists was a perfect fit for us."

WHILE THIS IS A DIFFERENT APPROACH, WE FOUND THAT HIRING INTERNATIONAL PHYSICIANS AS DOCUMENTATION SPECIALISTS WAS A PERFECT FIT FOR US. —*MAURICIO PALMA, M.D.*

The physicians are from all over the world, with many coming from Egypt, Peru, Columbia, Nicaragua, and the Dominican Republic. All of them have Educational Commission for Foreign Medical Graduates (ECFMG) Certification, and Baptist Health has given them the understanding that if in fact they continue to look for residency and find a job, they are encouraged to take it, says Chicoye. "We don't want to hold them in these positions when they can become licensed physicians in the U.S. We had that happen with one person here already, and part of the reason he got the job was because of his experience here as a CDI specialist."

AROUND THE COUNTRY, SOME SMALLER HOSPITALS DON'T HAVE THE ABILITY TO PAY FOR OUTSIDE SOURCING WHEN IT COMES TO THESE TYPES OF THINGS, BUT WHEN ICD-10 COMES CRASHING IN, WE THINK WE'LL BE RIDING THE WAVE PRETTY EASILY. —*LORENA CHICOYE, M.D.*

Currently, with 15 full-time documentation specialists (one critical care nurse and the rest international medical graduates), Baptist Health South Florida's CDI program is structured in a way that meets the cultural and institutional needs of this health system. "In our system, most of our CDI specialists have an M.D. badge, as well as a CDI badge. Physicians look at the M.D. badge, and its instant credibility," notes Palma.

And while most systems face some degree of physician resistance to CDI, Baptist Health has received accolades both privately and in public forum for the work the specialists have done for the hospitals and the physicians, says Chicoye. "We find this type of acceptance very unique. The physicians and CEOs of our hospitals always make a point to applaud the CDI specialists for the hard work that they are doing."

IMPROVED DOCUMENTATION

As far as results go, Chicoye says the health system has "cleaned up." The quality of the documentation in the medical records has significantly increased, making it a much better record and less likely to be pulled by the search," she says. "The charts that our people our touching, we're making a difference on."

While M.D.-licensed CDI specialists have strong medical knowledge and are used to working collaboratively with physicians, a lot of organizations have not wanted to use other physicians as CDI specialists, Chicoye says. "One reason for this is that, to be honest, physicians trained in the U.S. have huge egos. That is something that has grown and fostered. When physicians communicate with other physicians, there is a tendency to play doctor rather than deal with the issue at hand, which is the documentation piece. That's my understanding as to why a lot of systems have preferred to use nurses or coders in those roles as opposed to physicians. So for us, it wasn't all sunny and roses in the beginning, but the few physicians who did complain are the same people who wouldn't want to listen to anyone."

Baptist Health's CDI program is only gaining momentum as the ICD-10 transition nears. At Baptist Hospital of Miami, specifically, the baseline Medicare Case Mix Index (CMI) prior to implementation was 1.56, and the current Medicare FY 2013 CMI now stands at 1.74, according to Nuance.

The CDI team works to improve accuracy on an ongoing basis. For example, it reviews charts that were flagged by Medicare recovery audit contractor (RAC) auditors for medical necessity. "We review those charts and assess if we touched the patient, and ultimately want to know if we could have done something additional to avoid the RAC audit," says Palma.

And as ICD-10 comes bearing down, Chicoye says Baptist Health is ramping up its preparations. "We have a separate vendor that trains our CDI specialists, and assists with the coordination of all the various moving pieces within our hospital system for ICD-10, including IT, which is obviously a huge component. We're also doing dual coding for ICD-10 as we speak. Around the country, some smaller hospitals don't have the ability to pay for outside sourcing when it comes to these types of things, but when ICD-10 comes crashing in, we think we'll be riding the wave pretty easily." ◆

Helping Consumers Navigate Claims Data

AN INITIATIVE AIMS FOR TRANSPARENCY IN HEALTHCARE COSTS

BY GABRIEL PERNA

If the age of medical cost transparency is in fact upon us, then perhaps Oct. 27, 2009 might be cited as one of the key dates for this burgeoning movement. It was on that date that an organization by the name of Fair Health was created.

Fair Health is a non-profit organization developed in large part to the efforts of then-New York State Attorney General, Andrew Cuomo (now Governor of New York). Cuomo, who was investigating how out-of-network claims were being priced, settled with the various insurance companies out of court. From that settlement, the insurance companies agreed to establish a non-profit organization that would feature an independent database of healthcare charge information.

Robin Gelburd

Unlike the database that was allegedly being used by health insurance companies to determine "usual, customary and reasonable" (UCR) charges for out-of-network services, the one assigned to Fair Health was to be "fair" and "neutral." After a few years of development, Fair Health and a number of partnering research institutions went live with the database in January of 2011. While the transparency ideal is important, Fair Health says contextualization is big.

WHENEVER DATA IS BEING MADE AVAILABLE TO CONSUMERS, IT'S IMPORTANT THAT IT'S PROPERLY CONTEXTUALIZED SO CONSUMERS CAN UNDERSTAND WHAT THEY ARE LOOKING AT, AND THEY UNDERSTAND HOW THEY CAN EVALUATE IT INFORM BETTER DECISION MAKING. —*ROBIN GELBURD*

"We've realized…that whenever data is being made available to consumers, it's important that it's properly contextualized so consumers can understand what they are looking at, and they understand how they can evaluate it inform better decision making. Just making data available can actually create more confusion if you're not comparing the right elements and properly contextualized," says Fair Health President Robin Gelburd.

LARGE DATABASE

Since its go-live, the database has been able to collect charge information on more than 16 billion billed medical and dental services covering 129 million lives from 60 different contributors. It's constantly updated, reveals Gelburd.

"Some of that data is updated monthly, some quarterly, and some of it is updated twice-quarterly. We have to have systems and storage and processing capabilities that are extremely sophisticated and standardized disparate data elements because obviously every data contributor may have different ways to organize the data," says Gelburd, who was recruited to be CEO of the organization back when it was formed in 2009.

Fair Health uses infrastructure from the San Jose, Calif.-based networking provider, Brocade, and other software and hardware solutions, and integrates the capabilities with algorithms and methodologies acquired from the scientific and research community. According to Gelburd, the settlement from 2009 actually required the organization to integrate the expertise of statisticians, economists, and other experts into the work it does.

Gelburd credits Fair Health's chief technology officer Ben

Casado for adopting strategies from other industries to help create the database.

"We tried to bring over into the healthcare industry some of the architecture that we have been using in the financial market for a decade now. We have sophisticated, state-of-the-art low-balance data centers, we have sophisticated warehouses, and we have stored the data that comes in from contributors into fast, smart storage units. On top of that, we have a processing layer and an application layer, that's how we maintain and continue to grow, by capturing the data and studying it," Casado says.

Currently, the database is just claims data, but Gelburd says there are efforts under way to create patient portals to access electronic medical records (EMRs). She expects this to lead to better health outcomes, less duplication of tests, and lower cost for the patient.

OTHER USES

Along with making available the data for consumers for free, Gelburd also says Fair Health serves payers, third-party administrators, not-for-profits, researchers, and policymakers, by licensing different sets of data. This licensing allows Fair Health to integrate the proper technology that keeps the database updated and accurate. It also opens it up to people who could use it for a greater good, Gelburd adds.

"Researchers are using it in a variety of ways. They're using it to detect emerging trends, like for instance, around Type 2 diabetes. They can look at the data to detect where diabetes is increasing at alarming rates and that could help form different types of educational campaigns," explains Gelburd. She adds policymakers can use the database to determine the unintended consequences of public health laws and regulations, while providers can use to figure out clinical trends in certain regions.

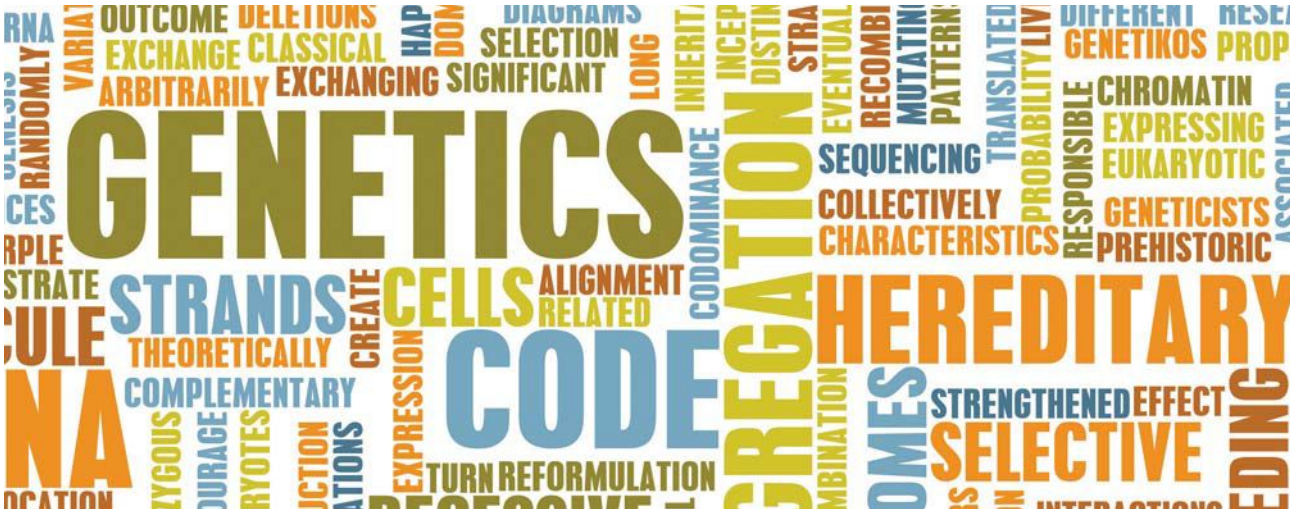
The recent decision by the Centers for Medicare & Medicaid Services (CMS) to release data on hospital outpatient charges and Medicare spending and utilization was met with overwhelming approval at Fair Health. Gelburd says she senses that this movement is beginning to start a number of constructive dialogues around the country between patients and providers, patients and payers, and other stakeholders.

"Cost is now one element that consumers are raising, that providers are raising, to help inform and flesh out these talks. Likewise, cost transparency is helping inform conversations between the consumer and health plan to help understand benefit design so they can be more proactive in the way they navigate that insurance landscape, so there are no surprises," Gelburd says. ◆

Digital Health Center at UCSF Clears the Path for Innovation

THE NEW INITIATIVE AIMS TO DRIVE PRECISION MEDICINE FORWARD

BY RAJIV LEVENTHAL



In May, the University of California, San Francisco (UCSF) announced it was creating a Center for Digital Health Innovation (CDHI) to lead the transformation of healthcare delivery and discovery from empiric, generalized, disease-based diagnostic and treatment approaches to the era of individualized precision medicine.

Precision medicine is an emerging field that aims to harness the wealth of data available from the human genome and research into the molecular basis of disease and integrate it on both a personal and global level with information on environmental factors and patients' electronic health records (EHRs). The practice of precision medicine would allow scientists to share emerging research findings faster, drug companies to develop more precise therapies, and clinicians and patients to make more informed decisions about treatments that would ultimately improve care, save lives, and reduce healthcare costs.

As such, the focus of the CDHI will be to develop new technologies, apps, and systems that, along with the explosion of social media, will generate enormous new data sets. In recent years, UCSF has invested heavily in the development of a variety of information technology and management resources to give healthcare providers, educators, scientists and students the tools to succeed in the rapidly evolving digital age.

UCSF Chief Medical Information Officer (CMIO) Michael Blum, M.D., has been tapped to lead the CDHI in the new position of associate vice chancellor for informatics. In his new role, Blum, a cardiologist and clinical professor of medicine, will coordinate and leverage UCSF's information technology assets. Recently, *HCI* Assistant Editor Rajiv Leventhal had a

chance to speak with Blum about the goals of the CDHI, projects they are working on, how to best manage the social media digital deluge, and the key in advancing precision medicine. Below are excerpts from that interview.

THE UNIVERSITY AS AN ENABLER

Healthcare Informatics: What are the main goals of the CDHI?

Michael Blum, M.D.: In terms of the overall goal, it's threefold. One is to create a front door where internal faculty innovators can bring in their new ideas, concepts, and creations, and get supported with development and technology expertise. There has always been the issue of, "I have this great technology, how do I wedge it into healthcare?" versus "I have a healthcare problem and have an idea on how technology can help fix it." Historically, people have had good ideas but fear that the university is an ogre. And when that happened, the inventor would go outside the university to talk to a brother or cousin who would set them up with a developer and that would usually lead to failure since it would get developed in someone's garage. In reality, yes the university does technically own the intellectual property since they pay you to work here, but at the same time, the university is very flexible and progressive in forming agreements with the inventors of the property that allow everyone to benefit from it. So creating that front door is the first big piece.

Michael Blum, M.D.

The second aim is about validating the functionality and accuracy of new digital health devices, sensors, and technologies, and evaluate whether they bring value to patients and the healthcare system. We get approached by external investors who tell us they have a great new digital technology to revolutionize healthcare. We'll then ask them, "How do you know it does what you say it does?" They'll respond by saying, "Well, we had world-class engineers build it." Then we will ask, "Were they healthcare engineers?" You have to validate that it measures what you're saying it measures—that's the first step. I'm not interested in new technology that increases the cost of care. Instead, I want to decrease the cost of care and bring better outcomes. If it doesn't bring true value to the healthcare system, then no thanks.

I'M NOT INTERESTED IN NEW TECHNOLOGY THAT INCREASES THE COST OF CARE. INSTEAD, I WANT TO DECREASE THE COST OF CARE AND BRING BETTER OUTCOMES. —*MICHAEL BLUM, M.D.*

The third aim is to incubate important new digital technologies, apps, sensors, and systems, and bring them to market via collaborations with start-ups and industry and capital partners. We're good at developing proof of concept, we're good at bringing things to the pilot study level and piloting them internally, but we don't fancy ourselves as industry partners.

HCI: The CDHI is working on several digital health projects. Can you explain some of them?

Blum: First is GreenDot, which collects data from various diabetes-related devices into one location, allowing both web and mobile applications to leverage the data for analytics and better visual displays for patients and physicians. This was co-founded by faculty and technologists, who were personally interested in juvenile diabetes because they came from juvenile diabetes. Typically, kids with juvenile diabetes have visits four times a year with providers, and there isn't much that can be done with these reams of data in just 15 minutes. But now, you're getting deeper data analytics that provide information, so there can be a discussion in those visits. And this is something that will be worked into the clinical workflow— building the connections to the EHRs so you can integrate it into the provider workflow is a big piece. Providers need information and knowledge; what they don't want is more data being thrown at them.

Next is Health eHeart, a social media-based cardiovascular study in which we are developing a scalable social media clinical trials platform that integrates with the campuses' clinical and research information resources. The Health eHeart Study expands on the Framingham Heart Study, [which tracked 5,209 men and women in Framingham, Mass., starting in 1948]. That study tracked participants in one city; think about that model on a global scale and taking the collected data to treat heart patients so precisely that we can account for their gender, age, ethnicity, and lifestyle factors.

Then there is CareWeb, which is a collaborative, team-based clinical communications platform. Think of this as changing the game from an individual sport (patient-doctor relationship; doctor-nurse relationship, etc.) to a team sport, where there is a whole team caring for you. Think about Facebook for healthcare—no one wants to use Facebook for privacy reasons obviously, but imagine a secure platform that integrates with the EHR so the entire care team could see everything.

HEALTHCARE IN THE AGE OF SOCIAL MEDIA

HCI: Expanding on that, how do you plan to manage the social media digital deluge?

Blum: While healthcare has not experienced the full force of the social media revolution, it will shortly. It has already changed the way we fundamentally communicate as a society. But how is that going to play out in healthcare? Well healthcare isn't typical or traditional communication, so no one is putting his or her healthcare information on Facebook, right? But what they are doing is using Facebook to talk about it and gather information. So the question is, "How can we use the fact that people are communicating about healthcare and looking for information to get them to engage in healthcare more effectively?"

We are also studying what creates stickiness in social media around healthcare. People in social media tend to be very in and out and very transient, and that's not how you want to do healthcare. Transient doesn't maintain wellness. It's about stickiness, about persistence, and about true lifestyle change. We need to learn how to assess which apps, systems, and sensors will be reliable, persistent data sources, and which will be a flash in the pan. Some of these tools will be incredibly valuable and will change the way we understand and deliver care, but most will not. There are a whole variety of ways in which social media can change things, but you need to understand its place in healthcare.

WE NEED TO LEVERAGE OUR DIGITAL ASSETS TO BUILD THE KNOWLEDGE NETWORK AND INFORMATION COMMONS THAT ARE THE FOUNDATIONS OF PRECISION MEDICINE.
—MICHAEL BLUM, M.D.

HCI: Ultimately, what is the key to advancing precision medicine?

Blum: We need to leverage our digital assets to build the knowledge network and information commons that are the foundations of precision medicine. The knowledge networks not only link sources together but then bring this knowledge to providers at the time they're providing care.

When I have a patient in front of me now, I can go to different risk calculators, and say, "Based on your family history and risk factors, you have a five percent chance of having a heart attack in the next 10 years." Although that is better than nothing and sometimes it might motivate a patient to change behavior, it's ultimately not enough. What I really need to be able to tell them, based on what we know, based on the censored data, the biomarker data, and the 100,000 patients similar to you—genetically and life wise—your risk is actually 50 percent, or your risk is actually a quarter of a percent. We need to make those strong predictions, and prescribe the right drugs that they'll respond to. That's the real move to precision medicine. ◆

PHYSICIAN DOCUMENTATION UPDATE *Continued from p. 39)*

procedure notes, critical care notes. It could really be any form of documentation that can be used repeatedly. Those provide a starting point for users, where they can go in and customize those for themselves. The beauty of it is that when you take tools like those and apply natural language processing to them, we're then able to dredge data out of otherwise-unstructured text. For example, Cerner and Nuance have taken Nuance's natural language processing solution and have put it into a tool that will provide real-time feedback to physicians on the quality and appropriateness of their documentation, related to necessary ICD-10 elements. As you know, there's a necessary increase in specificity and acuity documentation related to ICD-10. That's going to be a major challenge for us, both in the ED and everywhere in medicine. When we have tools like NLP [natural language processing] embedded into the EMR [electronic medical record], as is the case now with Cerner, that's an advance.

THERE'S BEEN SIGNIFICANT IMPROVEMENT IN ADOPTION, PRIMARILY BECAUSE OF NEW TECHNOLOGIES, BUT ALSO IN THE UNDERSTANDING HOW TO TRAIN AND RE-TRAIN PHYSICIANS TO ADOPT THESE TECHNOLOGIES.
—REID CONANT, M.D.

HCI: What would your advice be for CIOs, CMIOs, and other healthcare IT leaders, at this moment in time?

Conant: October 2014 is the deadline for compliance with ICD-10 documentation, and it's coming at us like a freight train. The interesting thing is, in order to deploy these technologies to achieve those standards, providers must be documenting electronically. With that said, we need to be focusing now on getting the docs into the record and documenting electronically; so now, the next six months, is the time to focus on getting them into adoption in the EMR and in physician documentation.

HCI: Is there anything else you'd like to add?

Conant: That is key right now, getting them in, increasing adoption rates; but also planning to apply these recently developed and developing technologies to assist the providers with regard to the increased scrutiny that will be applied relative to ICD-10, because as physicians, we're not going to be able to do it alone. We already get constant feedback from coders; and the stakes will be higher when ICD-10 comes, so it's time to put those tools into place, in order to meet those regulatory elements. ◆

CROWDED PLATES *(Continued from p. 19)*

What is the Top Regulatory Priority?

Randy McCleese, CIO and vice president of information services at St. Claire Regional Medical Center
"There are like three or four things that I have to focus on. One is the ACO, which I have to get up and running and make sure we get what we need. The other is our EMR implementation, we're doing that in three different groups, making sure we get that up and running. We're focused on the usability and optimization of that. Those are at the top. Right underneath that, as we implement the EMR, is Stage 1 and Stage 2, and also ICD-10."

John Halamka, M.D., CIO at Beth Israel Deaconess Medical Center in Boston
"ICD-10, if you don't do it on time, you can't send bills out. If the Office of Civil Rights believes you aren't safe guarding data, you get huge fines. It's the regulatory and compliance mandates, specifically around ICD-10 and security, which are the top priorities."

Ed Marx, Texas Health Resources, senior vice president and CIO
"They are all important but I think though, the new payment models and thinking about how you leverage IT to enable clinical and business success in the brave new world? That's what we look at a lot. We look at our peers, and what we need, and what's the gap and how do we fill the gap?"

Jeffery Smith, CHIME's director of public policy
"Honestly, I think you're looking at the money and you're focused on ICD-10, and you're probably focused on payment reform. I would argue that there are probably very few hospitals who don't have some kind of bundled purchasing agreement or shared savings program on the horizon, that's where the focus is at."

Want to add your own opinion? Head to our LinkedIn Group to let us know your top priority.

says the focus on ACO creation is important because not only does it relate to Medicare reimbursement, but private insurers are moving from fee-for-service contracts to wellness, pay-for-performance measures.

It might not be that easy though, says Branzell. The clinical side of ACO formation, at-risk contracting, and other long-term efforts in this vein are often directly at odds in terms of resources and requirements with optimization on the current platform within the current payment system. "Those two are constantly butting heads," he says.

What's clear, if CIOs are able to agree on one thing, it's the fact that each policy issue presents a set of specific challenges, which sometimes interfere. Which one should take the highest precedence? Well, that's where the answers differ (see sidebar).

For John Halamka, M.D., there is something he advises every CIO to do every so often to counter the stresses and pressures of this ongoing reality. Shovel manure.

"I own a farm, so at the end of the day of complex policy and technology activities I can go shovel manure. My advice to every CIO is make sure you have whatever your equivalent is of shoveling manure," he says. ◆

ADVERTISER INDEX

The Value of Back-Channel References

HOW TO USE 'BACK CHANNEL' CONTACTS TO SHED LIGHT ON JOB CANDIDATES BY TIM TOLAN

Tim Tolan

We conduct reference checks for clients regularly, and for the most part those references come directly from the candidates we have sourced, screened, interviewed, and vetted. If you think a candidate is going to give you every person he or she has worked with or for—think again. Your list of references will likely be handpicked, well-vetted references, who have already been prepped in advance of your call, and who already understand the script they will deliver. If you ask deep probing questions of references on this preferred list, be prepared for some pushback, as you have now taken them off script. After all, this is supposed to be a layup call!

For these and other reasons, a back-channel reference becomes very important if your network is to provide the reach you will need to validate Mr. or Mrs. Wonderful. A back-channel reference (short and simple) is a path for you to get the inside scoop on a candidate who is known by someone you know or by some other connection in this space who knows your candidate. These are the references you've never heard about and who were left off the list given to you by the search firm or by your internal recruiter. There is real value in being able to validate someone's potential by a simple phone call; yet while this important tool is great, most hiring managers don't want to invest the time to dig a bit more. You should find the time!

THERE IS REAL VALUE IN BEING ABLE TO VALIDATE SOMEONE'S VALUE BY A SIMPLE PHONE CALL. WHILE THIS IMPORTANT TOOL IS GREAT, MOST HIRING MANAGERS DON'T WANT TO INVEST THE TIME TO DIG A BIT MORE. YOU SHOULD FIND THE TIME! —*TIM TOLAN*

At the same time, while the back channel is important, if used improperly it can have serious consequences that are not ideal for the candidate you are vetting. Here are a few standard questions asked by many search firms during a reference call:

- *Tenure/relationship*: How long have you known the candidate and where did you first meet?
- *Overall style:* How would you describe (in a single sentence) the overall style of the candidate if you could?
- *Work ethic:* Describe the candidate's work ethic.
- *Major accomplishments:* Is there a particular career achievement that you can think of for the candidate while they worked with or for you? What was it?
- *Best way to manage the candidate:* What is the best way to manage the candidate to get the greatest results from them?
- *Communication skills:* Describe their oral and written communication skills.
- *Management/leadership skills:* How does this candidate lead?
- *Strengths:* What is the single greatest strength of the candidate and why?
- *Areas of improvement:* Everyone should be in a constant state of improvement in their career. If you could hire or work with this candidate again—what would be the one area that you would coach them on based on your prior experience in working with them?

That is a fairly good list and one that will give you much of what you are looking for, but the back channel reference generally will either give you a thumbs up or down on your hiring decision. Psychometric testing, candidate questionnaires, education, previous experience, and references are pieces of the search process. Remember they are all data points for you to consider when making that critical hiring decision.

Adding a back channel reference to your process can usually validate the correct course you should take. ◆

Tim Tolan is senior partner at Sanford Rose Associates-Healthcare IT Practice. He can be reached at tjtolan@sanfordrose.com or (904) 875-4787. His blog can be found at www.healthcare-informatics.com/tim_tolan.

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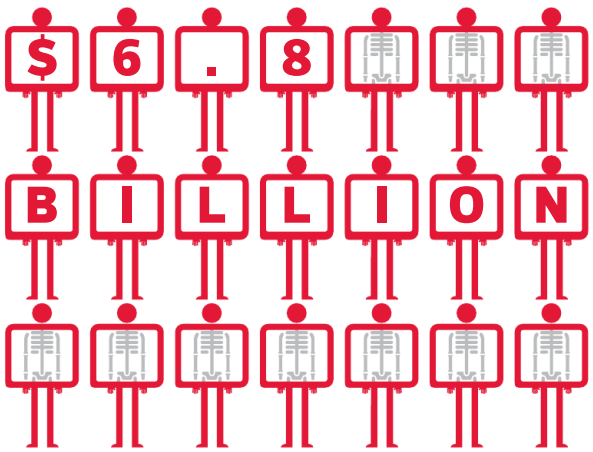

60% of patients think their doctors are rushing through exams.[2]

$8,750 The average cost added to a hospital stay due to a preventable adverse drug event.[3]

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[1]Study by Mount Sinai Medical Center and the Weill Cornell Medical College in New York; as cited in Kaiser Health News, October 31, 2011
[2]NPR, *What's Up, Doc? When Your Doctor Rushes Like the Road Runner*, May 24, 2012
[3]*Technology Tackles The Patient Safety Challenge*, A CDW White Paper