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HEALTHCARE IT LEADERSHIP, VISION & STRATEGY

THE DAWN OF POPULATION HEALTH? HARNESSING DATA FOR THE JOURNEY AHEAD

- THE MOBILE PATIENT
- MDs EYE CLOUD-BASED EHRs
- TIME FOR CIO "REVOLUTIONARIES"



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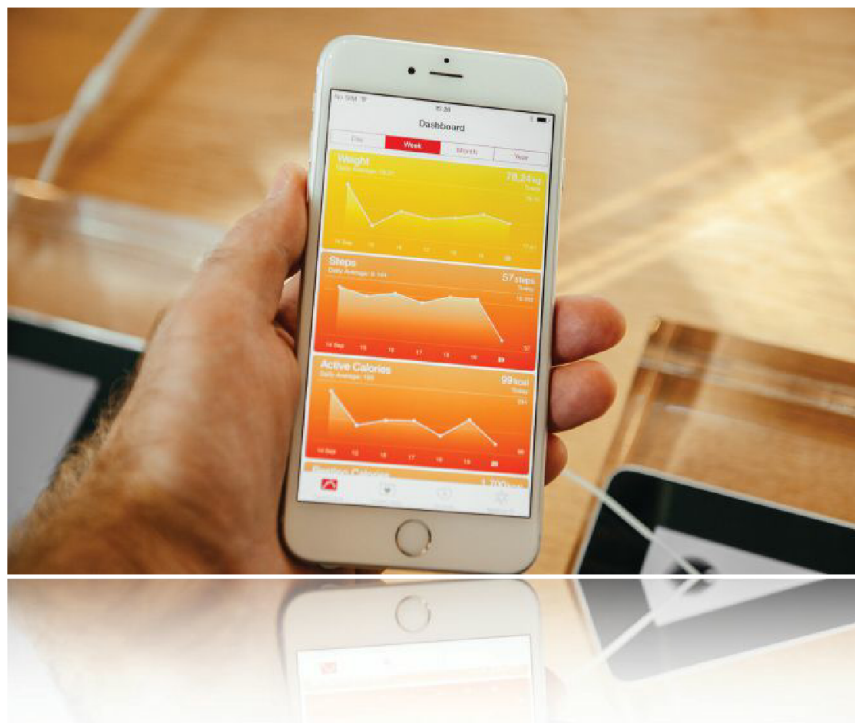


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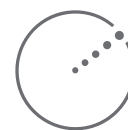
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What Does the Development of Windmill Technology in Medieval Europe Say about Population Health IT?



Mark Hagland

It's fascinating how advances in technology can intersect with social change and societal progress in a very iterative way. Certainly, history is filled with great examples of such iterative processes, from the invention of the printing press to the development of the steam engine, to the creation of the earliest automobiles.

Recently, I've been reading a fascinating book, *The Empathic Civilization: The Race to Global*

Consciousness in a World of Crisis, published in 2009 by the well-known author Jeremy Rifkin, whose previous books, including *Beyond Beef*, *Voting Green*, and *The End of Work*, have proven so thought-provoking. *The Empathic Civilization* is extremely broad in its scope, and packed with many ideas about the evolution of society and the growth of global consciousness. Here, I'm just going to take one tiny snippet of one chapter and connect those points to something going on right now in U.S. healthcare.

In his chapter "The Soft Industrial Revolution of the Late Medieval Era and the Birth of Humanism," Rifkin writes this: "With watermills situated in virtually every available place along rivers and streams across much of Europe, attention turned to the idea of harnessing wind to perform similar functions. The first European windmill was installed in Yorkshire, England, in 1185. Over the next several hundred years, windmills spread across the great plains of northern Europe, becoming a ubiquitous feature of the landscape... Part of the appeal of windmill technology was its free access. Generally the lords' estates encompassed the best water resources. Windmills, however, could be erected anywhere, and the wind is essentially free and unencumbered by the property rights attached to water resources."

In fact, the harnessing of wind technology through the proliferation of windmills led to the beginnings of some

more modern processes that eventually went industrial, Rifkin goes on to write in that chapter. But it is particularly interesting that windmill technology's harnessing of the energy from air, essentially a free form of energy, also contributed indirectly to economic democratization, as it began to decentralize one form of power away from the control of medieval manor lords.

Early on in the development of any new technology, it can be very difficult to see the ways that technology's adoption and spread might change existing patterns in society. Reading that chapter in Rifkin's book made me think of where U.S. healthcare is right now in terms of developing data analytics to support population health management. No, we aren't living in the Late Middle Ages in Europe and trying to figure out how most efficiently to grind our grain for use as flour. We are at a point in the development of analytics tools to support population health management in which everyone is struggling to some degree to develop and use tools that can really effectively power true population health management, as I note in this month's cover story (p. 8).

Right now, we as a national healthcare delivery and payment system are still near the beginning of a very long journey towards true population health management in the most robust sense. It will be fascinating to see how the interplay of rapid IT solution development and clinical performance and process improvement might change how population health management is executed over time; and who knows how IT development might lead to actual changes in care delivery processes in our healthcare system? We'll all look back and wonder at how primitive things were earlier, and what strides we will have made by then—just as we have with wind and water power in the modern world.

A handwritten signature in black ink that reads "Mark H. Hagland".

Mark Hagland
Editor-in-Chief

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Is This Population Health's Moment?

Time for Data and Analytics

By Mark Hagland



The reality, leaders from all stakeholder groups in healthcare agree, is that success in population health will come from helping physicians in practice to use tools to achieve successful care management. The question is, *how best to do that?*

Every year, the annual HIMSS Conference, sponsored by the Chicago-based Healthcare Information and Management Systems Society, offers its attendees a kind of conference-based snapshot of where the U.S. healthcare industry is with regard to the forward evolution of healthcare information technology adoption, as well as a sense of the overall policy and operational landscape of healthcare. Attendees can get a sense of the healthcare IT Zeitgeist through attending keynote addresses, educational sessions, association meetings, and networking-focused gatherings, as well as by wandering the exhibit hall and simply by having meaningful conversations with fellow attendees.

HIMSS15, held at the vast McCormick Place Convention Center in Chicago the week of April 12, offered perhaps the clearest portrait of the current moment that has yet been offered to date. Session after session focused on the shift beginning to take place from volume-based healthcare reimbursement to value-based payment, across a very wide range of mechanisms, between providers and both the public and private purchasers and payers of healthcare, and the implications of that shift for healthcare IT leaders.

Further, as part of the keynote session on Thursday, April 16 in the Skyline Ballroom at McCormick Place, Andy Slavitt, Acting Administrator of the Centers for Medicare and Medicaid Services (CMS), made the intentions of federal authorities crystal clear, when, referencing the statement of Health and Human Services Secretary (HHS) Sylvia Mathews Burwell in January that she wanted the bulk of Medicare fee-for-service payments to providers to shift as quickly as possible over to quality- and value-based payment, Slavitt said, “Our priority is simple: to drive a delivery system that provides better care, smarter spending, and

keeps people healthier. The success in the first five years since the Affordable Care Act has been very encouraging... Our agenda now,” he said, “is to get busy strengthening these gains. That will mean that more providers in more communities will need to be able to transform the care they provide so that they will benefit from value-based reimbursement. And they will need technology to help them get there.”

What’s more, in his keynote address two days earlier, Humana CEO Bruce Broussard had told HIMSS attendees,

YOU NEED A MINDSET FOR THIS. AND WE’RE NOT ALL THE WAY THERE YET. THE PROBLEM IS THAT WE’RE STILL BEING PAID ON FEE-FOR-SERVICE, BUT ALSO BEING ASKED TO CONSTRAIN OUR USE OF REVENUES AND OUR UTILIZATION; AND OFTEN TIMES, TOP-LINE REVENUE DISAPPEARS. —DONALD W. FISHER, Ph.D.

“We have to change the conversation on what we are doing in healthcare from a supply-based system to a system around demand, a system where we put the customer first as opposed to the system. Over the years,” he added, “healthcare has been built by creating more and more supply. I hope I leave today by convincing you that we have to change the focus towards how we improve health for our customers, members, and patients.”

The good news on the solutions side of this landscape is that vendors are rushing forward to provide population health- and accountable care-driven analytics solutions, at a time when such solutions are most desperately needed. Certainly, the hype at HIMSS15 was all around population health, care management,

and accountable care solutions. The only question now, as the U.S. healthcare industry hurtles forward into the near future, is, is this a breakthrough moment for population health efforts? And if so, are provider and health plan leaders ready to effectively leverage the tools to make pop health really happen?

THE LONG JOURNEY AHEAD

Leaders from all sectors of healthcare understand that the journey to population health and value-driven care

delivery and payment success is going to continue to be a long, challenging one. Donald W. Fisher, Ph.D., president and CEO of the Alexandria, Va.-based American Medical Group Association (AMGA), says he and his colleagues are putting the vast bulk of their efforts into helping

prepare physician group leaders for the transition. “We’re not quite there yet, and as we change to a new reimbursement system, even the large, sophisticated medical groups are going to need a few years to make the transition,” Fisher says. “You’ve got to put the infrastructure in place, and the large integrated health systems have been putting those elements in place—EHRs

[electronic health records], alert systems, analytics systems, data warehouses—and some have teams of people mining the data to assess patient status.”



Bruce Broussard

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Even more fundamentally, Fisher says, “You need a mindset for this. And we’re not all the way there yet. The problem is that we’re still being paid on fee-for-service, but also being asked to constrain our use of revenues and our utilization; and often times, top-line revenue disappears.” In other words, he believes, it will take several years of transition, on the policy, business, and technology levels, before physician groups, the key executors of population health management, will be successful on a broad level going forward.

Coming from the payer side, Charles Kennedy M.D., chief population officer at Healthagen LLC, a subsidiary of the Hartford, Conn.-based Aetna, and a health insurer executive helping to

tensive health plan-provider collaboration around data-sharing, data analysis and integration of data sets, for population health.

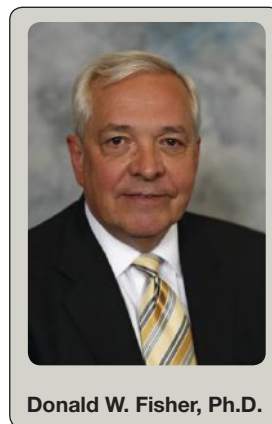
PROVIDER LEADERS LEARN IN THE TRENCHES

Those provider leaders helping to move their patient care organizations forward say that the only way to move forward is to advance step by step, not trying to boil the ocean while early on in the population health journey. “The focus for us has really been keeping it simple, meaning that, because medicine is so

piece of data or information you share with the physicians is actionable. We always ask ourselves, what can we do with this? It either has to improve patient care or make their lives easier,” he says.

When asked about what to focus on with regard to data analytics, Zaniello says quickly, “Go to where the money is, and the money is with claims. And I think the biggest, shortest-term impact you can make on physician behavior and therefore patient health, is with claims data, because the claims data tells you what is actually happening in the system. And the payers have already gone through the process of normalizing that data through adjudication. And almost every physician is seeing Medicare, and can see it. And there’s a direct connection with financial incentives and outcomes. So what you’re doing,” he says, “is that you’re slowly educating your physicians.”

Similarly, Barbara Adams, vice president of the 800-plus-physician Texas Health Physicians Group, the owned medical group of the Arlington, Tex.-based Texas Health Resources (which encompasses 24 hospitals), says of accountable care and population health work, “There are four different building blocks in our world. The first is the EHR [electronic health record]; the second is a data warehouse whose reach spans across all our EHRs in all our clinics; the third is analytical tools, including dashboards, and business intelligence tools. And the fourth, which we haven’t



Donald W. Fisher, Ph.D.

WHAT WE NEED NOW IS REAL-TIME INSIGHTS ON A PATIENT’S HEALTH, INCLUDING WHERE THEY’RE GOING FOR SERVICES AND HOW COMPLIANT THEY ARE WITH THEIR CARE PLANS SO THAT WE CAN ACT ON INFORMATION AT THE TIME IT WILL MOST MAKE A DIFFERENCE IN THE PATIENT’S CARE. —CHARLES KENNEDY, M.D.

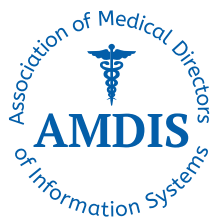
guide dozens of accountable care organizations (ACOs), believes that “One of the most significant challenges to moving to value-based care is complementing the current approach to quality measurement, which is largely retrospective and based on post-hoc statistics about the aggregate cohort of patients. Many dashboards, quality measures, and electronic records today provide retrospective views and value,” Kennedy says. “What we need now is real-time insights on a patient’s health, including where they’re going for services and how compliant they are with their care plans so that we can act on information at the time it will most make a difference in the patient’s care.” Kennedy strongly supports in-

hard, we need to build gradually on a strong foundation,” says Benjamin Zaniello, M.D., medical director, population health informatics, at the Seattle-based Providence Health System, which encompasses 34 hospitals, 476 physician clinics, 22 long-term care facilities, and a health plan with 436,000 members, across Alaska, Washington, Oregon, California, and Montana. “Physicians have such busy lives, and medicine is so hard, that you really have to focus it on keeping it simple and making sure that any



Charles Kennedy, M.D.

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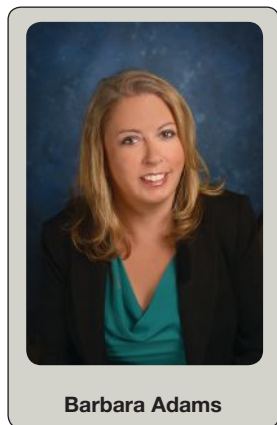


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Key Takeaways on Population Health's Moment

- Whether one's organization calls it population health, accountable care, value-based delivery and payment, readmissions reduction, or care management, the population health journey is inevitably a long, complex one, and the healthcare industry is still very early in that journey.
- Those involved in leading population health efforts in their organizations are taking a very wide range of approaches, but all involve harnessing data from clinical and claims sources, implementing data analytics programs, and linking data and analytics processes to core clinical and operational improvement processes.
- Healthcare leaders moving their organizations forward agree that part of the key is to plan strategically, begin carefully, and build on early successes.

fully implemented yet, is a set of processes around population health management that includes outreach campaigns and processes to close gaps in care. The next step for us," she says, "is to begin to close gaps in care. We're beginning to do that on an ad hoc basis. We don't yet have real-time data going into our data warehouse" or infusing decision support tools at the point of care, she concedes. "So a patient may have an appointment tomorrow, but we don't know that they haven't gotten a needed test, for example. But we're looking to become real-time in terms of closing gaps in care and having [robust



Barbara Adams

trying to develop expertise in terms of determining who the patients in our population are who do not have primary care. In fact, in an academic medical center environment, a lot of patients are actually attributed to us through specialists. We're also doing dashboarding." Given that their physicians are working in diverse EHRs, Berkowitz notes that, "At what point in care you share that information, becomes important. We provide registry information to physicians, high-risk lists. There are certain things we're able to do in real-time. We're focusing on quickly collecting information and sharing it after the fact."

programs] for all the different disease states. We first have to get a strong sense of what's going on with our higher-risk patients," she adds.

Scott Berkowitz, M.D., medical director, accountable care, at the five-hospital, Baltimore-based Johns Hopkins Medicine, says, "We're still in the developmental phase. But we use the data in a lot of different ways, first, in terms of executing on care management interventions. We

determine who the high-risk members of the population are, and we bring in the care managers in real time. We're

determine who the high-risk members of the population are, and we bring in the care managers in real time. We're trying to develop expertise in terms of determining who the patients in our population are who do not have primary care. In fact, in an academic medical center environment, a lot of patients are actually attributed to us through specialists. We're also doing dashboarding." Given that their physicians are working in diverse EHRs, Berkowitz notes that, "At what point in care you share that information, becomes important. We

provide registry information to physicians, high-risk lists. There are certain things we're able to do in real-time. We're focusing on quickly collecting information and sharing it after the fact."

READMISSIONS, ACCOUNTABLE CARE, POP HEALTH WORK: THEY'RE ALL CONNECTED

Not surprisingly, provider leaders who have been plunging into any of three related areas—population health management, accountable care organization development work, or avoidable readmissions reduction work—are finding how intricately connected the three phenomena are, and how strongly each phenomenon is connected to the other two, conceptually and practically.

John Carew, who this spring left his position as assistant vice president of analytics at the Charlotte-based Carolinas Health Care, an integrated health system with 42 hospitals, to become senior manager in Accen-

ture's health analytics practice, says, of his Carolinas team's work, that "We mined our data, and put together a readmissions risk model to predict readmissions for 30 days, looking at all readmissions for all conditions, not just the CMS conditions. So we built a capability with our care management team—they deploy readmission risk scores—within an hour of admission, a patient's risk for readmission was automatically calculated, pulling from data in our EMR system, looking at about 50 different variables, updated on an hourly basis, and updated per condition, which can change quickly."

After going live with the program between January and November 2013—staggered across the health system's various facilities—Carew reports that "We saw moderate improvements, as well as more consistency in our overall admissions rates, with lower fluctuation, and it also helped us understand what patients have benefited from which services."



Scott Berkowitz, M.D.

BROAD LEARNINGS FROM A NATIONWIDE BLUES PROGRAM

Even as individual provider organizations and health plans are documenting early successes in leveraging data for population health initiatives, some nationwide population health programs are providing proof of concept on a broader scale. One example of this is the Blue Distinction Total Care program, an initiative sponsored by the 37 health plan-member Blue Cross and Blue Shield Association, the Chicago-based association of all Blues plans in the U.S.

Antonio Linares, M.D., regional vice president and medical director at the Indianapolis-based Anthem Blue Cross, gave a presentation at HIMSS15 on April 12, in which he described the BCBSA's nationwide initiative. Under that program, Linares explained, "We require that physician groups participate in four areas. First, they have to agree to take on a financial model [involving some risk]; second, they have to guarantee enhanced access to care for their patients," such as evening and weekend hours third, they must provide improved communication" with patients; "and fourth, they must participate in population-based coordinated care management."

Importantly, Linares noted in his HIMSS15 presentation, BCBSA has given physician groups participating in the Blue Distinction Total Care program access to two years of claims data, and with tools to help physicians identify high-risk members, as well as sending to every participating medical group "a patient-centered care consultant, a community collaboration manager to develop learning

collaborative content based on best national practices, and a provider clinical liaison to help practice s develop care management skills."



John Carew

The results after just one year have been impressive, including gross cost savings of \$9.51 per member per month, or 3 percent of gross plan member costs nationwide (net cost savings have amounted to about \$6.00 PMPM); 7.65 fewer acute inpatient admissions per 1,000, 5.4 percent fewer inpatient days per 1,000, a 3.9-percent decrease in acute

admissions for high-risk patients with chronic conditions, and a 4.8.-percent

in the EMR by flagging them, develop an ACO manual with screen shots identifying EMR fields for ACO measure capture, and educate providers on ACO EMR documentation." More broadly, she adds, "Don't be afraid to be vulnerable: ask questions. You are not expected to be the ACO expert; we are all learning. No one has solved it yet and it is still evolving."

Nancy Beran, M.D., chief medical officer at the Katonah, N.Y.-based Westchester Health, a 120-physician multispecialty group that is participating in both the federal Comprehensive Primary Care Initiative and the new Healthcare Payment Learning and Action Network launched on March 25 of this year, says this: "When you start out, it's as though

DON'T BE AFRAID TO BE VULNERABLE: ASK QUESTIONS. YOU ARE NOT EXPECTED TO BE THE ACO EXPERT; WE ARE ALL LEARNING. NO ONE HAS SOLVED IT YET AND IT IS STILL EVOLVING. —BARBARA ADAMS

PMPM decrease in outpatient surgery costs; and significant improvements in patient/plan member satisfaction.

ADVICE: STEP BY STEP, REALISTICALLY

All of those interviewed for this article agree that healthcare IT leaders will need to proceed strategically and thoughtfully going forward. Texas Health Physicians Group's Adams offers several key pieces of advice. "First," she says, "bring IT and governance in early. IT needs a seat at the table so they can partner and strategize with the business on developing ACO plans based on realistic expectations for application and system integration." Second, she says, "If you are pursuing population health via an ACO contract, identify ACO patients

the EMR is the alphabet, and you're just learning to write. And population health is really using the EMR to do aggressive chart review. And we're at the point where if you track things right, you can do aggressive chart review from the EMR, but it requires that you standardize processes across your practice, whether it's big or small. Because if everyone's recording mammograms the same way and not just scanning documents, you can really leverage check-boxes; then the check-box has meaning." In other words, Beran and all those interviewed for this article agree, start with realistic goals, make early gains, engage the clinicians, and most especially the physicians, and build resilience for the long journey ahead. ♦

The Mobile Patient: How mHealth Tools are Paving the Way for Better Care Management

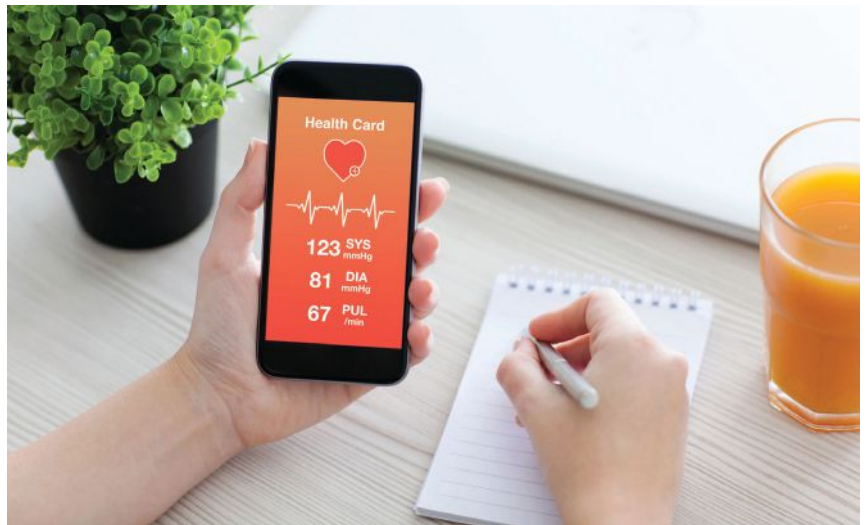
With a sweeping shift to patient-centered and value-based care, mobile health technologies are increasingly being used to improve care in unprecedented ways

BY RAJIV LEVENTHAL

In the new healthcare, one which emphasizes comprehensive, team-based and accessible care, provider organizations will need to make concerted efforts to become more patient-centered. For many providers, patient engagement is no easy task, but it's certainly at the top of mind for healthcare CIOs.

Indeed, according to findings of the 26th Annual HIMSS Leadership Survey, sponsored by the Chicago-based Healthcare Information and Management Systems Society (HIMSS) and released at the annual HIMSS conference this past April, patient satisfaction, patient engagement, and quality of care improvement have raced to the top of healthcare CIOs' and senior IT executives' agendas in the past year, a stark change from previous years which found that health IT leaders were more focused on business and financial goals. Nonetheless, it's been a struggle for physicians to truly engage their patients, especially the 45 percent of U.S. adults with at least one chronic condition.

Enter the world of mobile health (mHealth) to help with care management and patient engagement, a grow-



ing trend in healthcare. In fact, another recent survey from HIMSS found that more than 90 percent of survey respondents are utilizing mobile devices within their organizations to engage patients in their care. The fourth annual HIMSS mobile survey, which included more than 200 healthcare provider employees, revealed that 73 percent of respondents believe the use of app-enabled patient portals has been the most effective tool in patient engagement to date.

Further, when asked about patient-

generated health data (PGHD), 14 percent reported that all or most data generated by mobile devices is integrated into the electronic health record (EHR), while 52 percent reported that some data has been integrated into the medical record. "mHealth continues to evolve as a tool to drive healthcare efficiencies. The proposed meaningful use Stage 3 rule realizes this with the concept of application program interfaces (APIs) and patient-generated health data, and this year's survey showed that the wide spread availability of mobile

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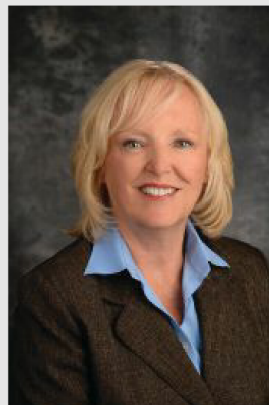
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Edward Marx, MS, FHIMSS
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Jeff Messer
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technology has had a positive impact on the coordination of patient care,” said David Collins, senior director of the HIMSS mHealth community.

Analysts do predict that the wearables market will grow tenfold to \$50 billion over the next three to five years. So undoubtedly, putting personal devices in the hands of patients has begun to change the way patients and physicians communicate with each other. And for each of the major smartphone operating systems, there is now an app for almost every conceivable healthcare need.

What’s more, there are policy implications to consider as well. As HIMSS’ Collins mentioned, the recent meaningful use Stage 3 proposal that calls for more than 15 percent of patients to contribute PGHD or data from a non-clinical setting into the certified EHR technology during the EHR reporting period, will put the onus on providers to collect information from patients, often captured from exercise or fitness devices or recorded on mobile apps.

What does all this mean? For forward-thinking providers, it’s about getting patients to use mHealth tools for more effective care management. Mobile health tools have the potential to create a low-cost stream of highly actionable clinical data, using readily available cloud-connected sensors, ranging from glucose meters to heart monitors to asthma tools. To this end, all sorts of vendors in the market place are working on using mobile devices to get first get patients to track their own data, with the eventual goal to get said data into the EHR. For most vendors and provider organizations though, as noted in the HIMSS mHealth survey, this concept is a novel one.

USING THE DATA

According to Ken Kleinberg, director of health IT membership service at the Washington, D.C.-based The Advisory

Board Company, mHealth vendors are now making it easier on patients to track and share their data than ever before. “These apps are now designed for a small device. You’re no longer trying to open a browser on a tiny screen, but instead you’re looking at an app designed just for that platform, so the data entry and reminders are pretty straight forward,” Kleinberg says. “You may get text message reminders, for example, and these are simple mechanisms that don’t require complex hardware,” he says. Kleinberg adds that there is also a trend involving smartphones with medical devices, where asthma patients, for instance, can have their inhaler with an attachment to it that keeps track of every time the inhaler is used. “This way you can sit down with your provider or look at the data yourself, and sit down and figure out trends,” he says.

To this end, at this year’s HIMSS conference, the Durham, N.C.-based Duke Medicine shared the experience it has had thus far with Apple’s HealthKit, a framework designed to house healthcare and fitness apps, allowing them to work together and gather their data under the Health app. Since HealthKit’s launch, many notable healthcare organizations, including Stanford Medicine, Cleveland Clinic, and EHR vendors like Epic, have all partnered with Apple to work in their own patient-generated data applications.

At Duke, Ricky Bloomfield, M.D., director, mobile technology strategy, has led the effort to integrate Apple’s HealthKit. For providers at Duke, the first step to getting the data integrated with their medical records involved asking patients if they want to share their information, says Bloomfield. Such data, which goes into the EHR via the patient portal, can be from activity trackers, blood pressure devices, glucose monitoring, and many other devices. But then there are limits, he adds. “Patients cannot unilaterally enter their

data into the EHR, and that’s by design. There simply is no way for providers to handle that mass intake of data right now,” he says. As such, the provider enables Apple’s HealthKit for patients right now, and the provider has a flow sheet that keeps the patient-generated data separate from other data in the system, Bloomfield says. This way, you can still do analytics on it, but it’s separate from other clinical data, he says.

Across the country, providers are handling patient-generated data in the same manner. In Palo Alto Calif., Stanford Health Care recently released its MyHealth mobile app that will allow patients to review test results and medical bills, manage prescriptions, schedule appointments, and conduct video visits with a Stanford physician. The app also connects directly with Epic’s EHR system and with Apple’s HealthKit. The idea behind this integration, according to Aditya Bhasin, executive director of software at Stanford Health Care and part of the team that built the app, was to get both doctors patients to be looking at exactly the same sources of truth.

Similar to the process at Duke, providers at Stanford also wanted to keep patient-entered data separate from other data in the EHR. “There has been a lot of discussions with the physician community, and they preferred a model in which you have to have an interaction with the physician before you start [entering data],” Bhasin says. “Physicians can also set boundaries for the duration they want to get that data, for a certain amount of time rather than just pump in anything and everything.”

Plenty of other challenges exist as well when it comes to getting patient data from mobile devices. Regarding privacy/security, a huge issue with PGHD, Duke’s Bloomfield said that the design puts control of the data in the hands of patients directly. “They can turn it off at any time in Epic’s MyChart. Our goal is to make it clear that they

have that control. They can share it with other vendors, apps, healthcare systems that integrate with HealthKit, or with us," he said.

Also at Duke, a modified consent for the MyChart app was created, but points were added so that patients were sure to understand it all, Bloomfield notes. "Will they read all the fine print? That's an open question for sure. When we get data from them, we cannot guarantee that we will view and act on it in real time. This is evolving technology, and we might find that it is so reliable that we can act on a measure of 180/120 blood pressure levels and intervene immediately. Now is not that time though, as we can't be sure of the reliability of the data," Bloomfield says, adding that if providers do see concerning values, they will alert

the patient to seek medical attention. "We don't want to give patients a false of security," he says.

According to The Advisory Board's Kleinberg, providers are not always the most willing to accept data that they didn't ask for. "They will say 'I didn't ask for this,' 'I don't know what you expect me to do with this,' and 'I don't know the circumstances,'" Kleinberg says. "That's the way it's been, which is a challenge, but the organizations that have deployed this stuff at an expense have been careful about which patients they have chosen and educate them about how to exactly collect the data," he says. In the example of a wireless scale for example, it is given to patients who are asked to weigh themselves every day, Kleinberg explains. "If instructions are given to weigh yourself

when you wake up and before you got to bed each day, now the provider has more confidence about what that weight means. If a consumer comes in with data, they don't know how it was captured."

A BURGEONING FUTURE

Challenges aside, the potential for mHealth tools to help with care management is certainly there—a sentiment shared by many in the industry. Recent research published in the *Journal of the American Medical Informatics Association* suggested that patient-generated information could be used to fill gaps in EHR data. The researchers noted that letting individuals contribute to their medical files would increase engagement and build stronger relationships between medical professionals and their

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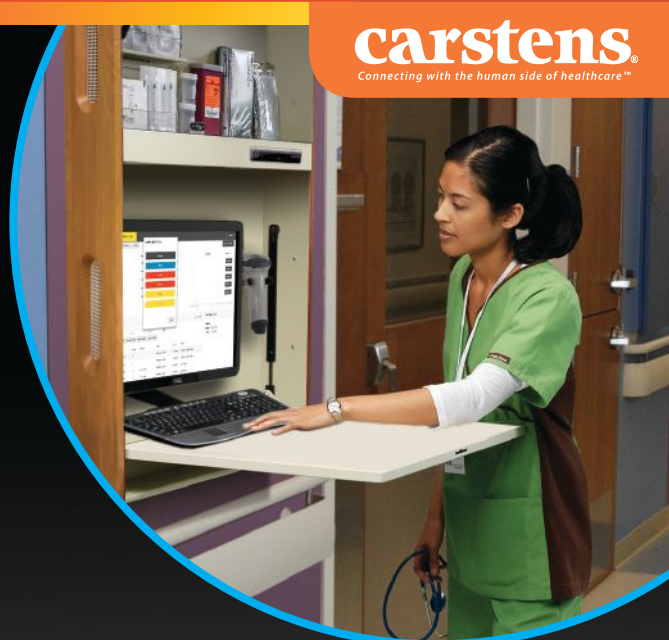
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Which mHealth Apps are Best? Let the Doc Prescribe

Less than two years ago, the Danbury, Ct.-based IMS Health, a big data and analytics company, launched a health app prescribing platform called AppScript, a mobile health platform which works with hospitals to let doctors suggest apps, devices and educational videos for patients (doctors are able to rate apps as well). IMS assessed those tens of thousands of health apps already based on functionality (including security), provider and patient reviews, certifications, and their potential to improve outcomes and lower the cost of care. AppScript reviews each app's functionality, certifications, relevance, and peer and patient reviews. Physicians can then organize these apps based on the types of patients they see and the types of approaches and treatments they prefer.



At the Charlotte, N.C.-based Mecklenburg Medical Group, part of Carolinas HealthCare System, Gregory Weidner, M.D., says he uses the AppScript platform to help patients navigate the digital health environment. "We have a team-based care approach. In addition to two primary care physicians, we have RNs MAs, health coaches, and a nutritionist educator as part of our practice, and we like to use similar approaches and tools regardless of which member of the team is interacting with the patient," Gregory says. "So we can help people solve challenges they have."

Gregory says that nearly all of the apps that they recommend are ones that at least one, if not all of the staff, have used either personally or with patients so there is intimate knowledge about how they work. He says the apps range from lifestyle apps to sleep and stress management to fitness trackers. "These are all crucial elements for people as they try to improve their health and manage chronic conditions," he notes. "With all of the well-designed digital solutions out there, we saw an opportunity to put some context and insights around them for people so they can use them as it relates to managing hypertension or diabetes as opposed to being a general consumer app. They become healthcare improvement tools and in many cases chronic disease management tools."

What's more, the AppScript solution allows physician users to not only prescribe the mobile app, but also bundle it with content that will help the patient, if appropriate. For instance, for a patient looking for help with stress management or physical activity, Gregory says he'll prescribe the appropriate mobile app to the patient's mobile number or email and bundle with content such as a YouTube video. "You would get that 'prescription' from us, put in the code and download the app, so we know that you're getting that app and the content with it," he says.

Down the road, the plan is to use the prescribed apps in integration with EHRs, Gregory adds. "Once we demonstrate this platform's value, that type of integration into a physician's workflow is something we absolutely want to pursue," he says. "Going back years, we have seen a positive impact in using digital tools to engage patients in owning their own healthcare can have. Whether that's tracking steps or nutrition with a mobile app, all of these things engage people in meaningful ways. Better engagement leads to better outcomes."

Gregory further notes that the process has been a big pleaser with patients. "We can help people simplify their lives, whether it's health and wellness or management of chronic diseases. We believe that when used in a context of a trusted healthcare relationship that mobile health technology can profoundly impact people's lives," he says. "The time is clearly here for mobile health solutions to help people become more empowered. This tool helps with that."

patients, while also improving the efficiency of EHRs, according to a blog post from medical product vendor NueMd, which reviewed the research. "Using electronically collected patient-reported outcomes to capture the review of system outside of the clinic visit may not only improve the efficiency, completeness, and accuracy of data collection for the review of system, but also provide the opportunity to operationalize incorporating the patient's voice into the electronic health record," wrote authors Arlene Chung, M.D., and Ethan Basch, M.D., both from the University of North Carolina's School of Medicine.

Another study recently published in the *Journal of Medical Internet Research* further suggests that patients' interest in mHealth for chronic care management has paid off. The research compiles data from more than 100 separate studies on mHealth's effect on diseases such as diabetes, cardiovascular disease and chronic lung disease. Researchers used four main categories to organize mHealth tools: SMS/texting; mobile phone software/applications; phone plus connected instrument; and phone plus wireless/bluetooth-compatible device. Generally, texting tools were the most commonly utilized, followed by mobile apps. Researchers found strong correlations to suggest that the mobile technology did have a noticeably positive effect in helping patients stick to chronic care management regimens.

Undoubtedly, says Kleinberg, the trend is significantly evolving. "Almost every major vendor has something big there to capture that data, but how it works its way for use into clinical decision support will vary. It has to get staged in some way. But a billion smartphones have been bought over the last year, and that provides a whole new platform," he says. "People are sleeping with them! The fact that these smartphone platforms have become so ubiquitous has changed the game." ♦

Larger Physician Groups Eye Cloud-Based EHRs

Speed of upgrades, new services start to outweigh security concerns about cloud

BY DAVID RATHS

"We are not driving a 4-year-old model car anymore. We are constantly driving the newest and coolest as far as technology goes."

-- Andrew Aronson, M.D., Privia Medical Group's chief medical officer

In January, the federal Centers for Medicare & Medicaid Services (CMS) rolled out a new fee schedule for providers taking care of patients with two or more chronic conditions. Within weeks, Privia Medical Group, a 310-provider multispecialty medical group based in Arlington, Va., had electronic health record (EHR) templates for the documentation and coding requirements as well as a 20-page tutorial with screen shots.

To Andrew Aronson, M.D., Privia's chief medical officer, that responsiveness is one of the key reasons the group chose to work with the Watertown, Mass.-based athenahealth for its health information technology needs. "Any update or rollout of new information goes on behind the scenes and is pushed out to all our offices," Aronson says. "It is released quickly and we are off to the races in implementing the new revenue stream. We are not driving a 4-year-old model car anymore. We are constantly driving the newest and coolest as far as technology goes." He adds that having each physician office purchase and support its own hardware and EHR software is an "antiquated approach."

Privia is not alone among midsize



and large physician groups and independent practice associations in taking a second look at either an application service provider (ASP) remotely hosted EHR from a vendor such as eClinicalworks or a software-as-a-service (SaaS) model from vendors such as athenahealth or Practice Fusion. (The SaaS model involves a single, integrated database that is delivered as a service to multiple customers simultaneously via the Internet. In an ASP model, the EHR is delivered over a secure Internet connection but involves multiple separate instances of an application, and customers could be on different versions of the software.)

The Orem, Ut.-based KLAS Enterprises has done ambulatory EHR perception reports for almost 10 years, and has seen the pendulum gradually swing from almost no cloud adoption to much

stronger interest, notes Erik Bermudez, a KLAS research director. "Ten years ago they would say if they got angry at their EHR, they felt better if they could kick a server in the basement," he says. "They were at peace knowing it was all behind their four walls." But that perception has gradually changed. Although many doctors may not understand the distinction between ASP and SaaS models, when KLAS has asked physicians about the umbrella term of remotely hosted EHRs, practices ranging up to 100 physicians are now open to it, he said, "although name recognition and a vendor's size and reach continue to be important criteria for large practices. Practices with hundreds of physicians that have a CIO tend to have an interest in keeping data in-house," he adds.

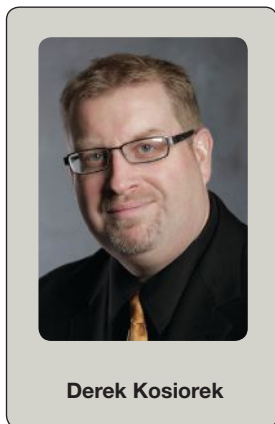
Derek Kosiorek, a principal consultant with the Medical Group Manage-

ment Association (MGMA), believes that cloud-based EHRs are going to become more prominent and widely used. He sees the healthcare software industry as behind those in other industries in developing cloud-based offerings. “You don’t see software in other industries developed in this client/server manner anymore,” he said. “The mentality that the cloud is a new thing is curiously specific to healthcare.”

Concerns about data security might be misplaced, Kosiorek added. People tend to correlate moving records to another company as a point of fear. But security in the cloud provider’s environment is most likely better than in your own office, he says. Cloud-based systems have a vested interest in keeping things secure. If they have a breach, it will impact their reputation forever. “Small to medium-size practices have limited means to invest in security, so they are trusting their IT staff to have all the bases covered with security,” he said, “and the smaller the staff, the tougher that is to take on.”

Rodger Prong, executive director of Oakland Physician Network Services (OPNS) Inc., a 425-member Michigan independent physician organization, notes that many of its members are adopting the free (with advertising) or low-cost cloud-based Practice Fusion EHR.

“I had a lot of suspicion of this platform at first,” Prong admits. “I ignored it for two to three years. The old saying is you get what you pay for. But then I saw several positive independent surveys of doctors. What creates traction is what interferes with physicians the least,” he said. Prong said the process of migrating data to Practice Fusion from other EHRs has gone well.



Derek Kosiorek

The OPNS doctors using Practice Fusion have interfaces to an organization-wide registry and data warehouse. “We like the fact that they do enterprise-wide changes. It helps us not have downstream problems with interfaces,” he says.

Prong said that with some EHR vendors, interface costs are exorbitant. “If they don’t make enterprise-wide changes, then we have different versions out there and every time they change something for a doctor we wind up incurring additional cost to get the interface operational,” he says. “Practice Fusion gave us one price per interface for our entire group. We only pay them once and it works for everybody.”

YOU DON’T SEE SOFTWARE IN OTHER INDUSTRIES DEVELOPED IN THIS CLIENT/SERVER MANNER ANYMORE. THE MENTALITY THAT THE CLOUD IS A NEW THING IS CURIOUSLY SPECIFIC TO HEALTHCARE. —DEREK KOSIOREK

Some provider organizations decide to subscribe to remotely hosted EHRs to avoid costly hardware upgrades and IT personnel costs. East Georgia HealthCare Center Inc., a federally qualified health center with nine facilities and 23 physicians, had been a customer of eClinicalWorks (eCW) for several years as part of the Georgia Primary Healthcare Association, which managed the software from an Atlanta data center. “As EHRs became more robust, and contained more information than we originally used them for, we started running out of resources,” says Herb Taylor, East Georgia’s IT director.

“Computing and processing speed started getting slow. So we could either spend a bunch of money on hardware

upgrades or evaluate cloud-based options. We went with eCW in the cloud. It was a smart decision for us financially and with the IT staff we have.”

Taylor says that performance has improved dramatically. “At the time we moved, a year ago, with 130 employees, we were averaging about 20-40 tickets a week about people experiencing slowness,” he says. “Now we get only a few tickets a month, and those are in the more rural sites and have more to do with latency with the Internet service provider.”

Taylor says the cloud offers him better disaster recovery protection than he previously had. “You as an individual provider won’t have funds to truly be redundant in a disaster situation,” he says. eCW is so big on a national scale it has sites in multiple locations, he added. The data is encrypted at rest and in transit.

You gain the benefit of a larger-scale organization. He also keeps a storage-area network on site, so if there is a disruption, users could keep working and then upload data to eCW’s site later.

For Taylor, it all comes back to financial security. “You may be able to spend that \$300,00 to \$400,000 to get where you need to be this year, but where are you going to be in five or six years when it is time to upgrade all that hardware again? That was the big factor for me. No matter what happens, I am paying x amount of dollars to eCW. It was a no-brainer for us with 23 providers to pay the monthly fee,” he says.

Another physician group that recently signed a contract with athenahealth is Healthcare Network of Southwest

Florida, which has 25 physicians and 250 staff members. In the next six months it will migrate from a GE Centricity system it has been using for the last several years.

Larry Allen, the organization's chief information officer and vice president of information technology, was attracted by the fact that athenahealth can do 12 software upgrades a year. Like Privia's Aronson, Allen talks about some of the advantages of the economies of scale a SaaS vendor can offer on the business side. "Let's say an insurance carrier requires a modifier on an ICD-9 code. When they make that change, you see claims denied, and you have to go back in and reconcile and re-submit it," he explains. "With athena, the first time any provider in their cloud has that denial, they flag it and put a business rule in the system so that the next time we code that, we would see an alert that this claim will likely be denied and a modifier code is required. And the claim gets successfully processed the first time."

Allen said there are pros and cons to consider. "One of the advantages of having your own database is that you can make modifications to it that are unique to your group," he says. On the other hand, with a cloud-based solution, the vendor can study EHR usability issues across all its practices and then make changes that impact all the practices at once, instead of single install of Epic, for example.

Privia's Aronson says another advantage is that by studying keystroke click variations among Privia's providers, athena can help its practices with work flow and train them how to become more efficient in terms of keystrokes. "We have 100 separate practices in our medical group. If they were all on disparate EHRs, we would have no idea what our benchmark was, or be able to compare one to another."

Users also perceive a mobility benefit because they can access the EHR over the web, whether at home or working away from the office. "I can log onto athenanet anywhere I have web access, Aronson said. I don't have to be in the office. That is huge for our providers. They want to get out of the office at the end of the day and finish their notes at home at night, and not have to go through virtual private networks," he said.

MGMA's Kosiorek says that one key challenge is working through contract language with the cloud service providers. "That is the biggest issue groups are going to have with cloud-based systems," he says. "Who owns the data and what format you get it back in if the relationship ends? The contract has to be rock-solid about what happens to the data." ♦



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How Duke is Using HealthKit to Get Patient Data into the EHR

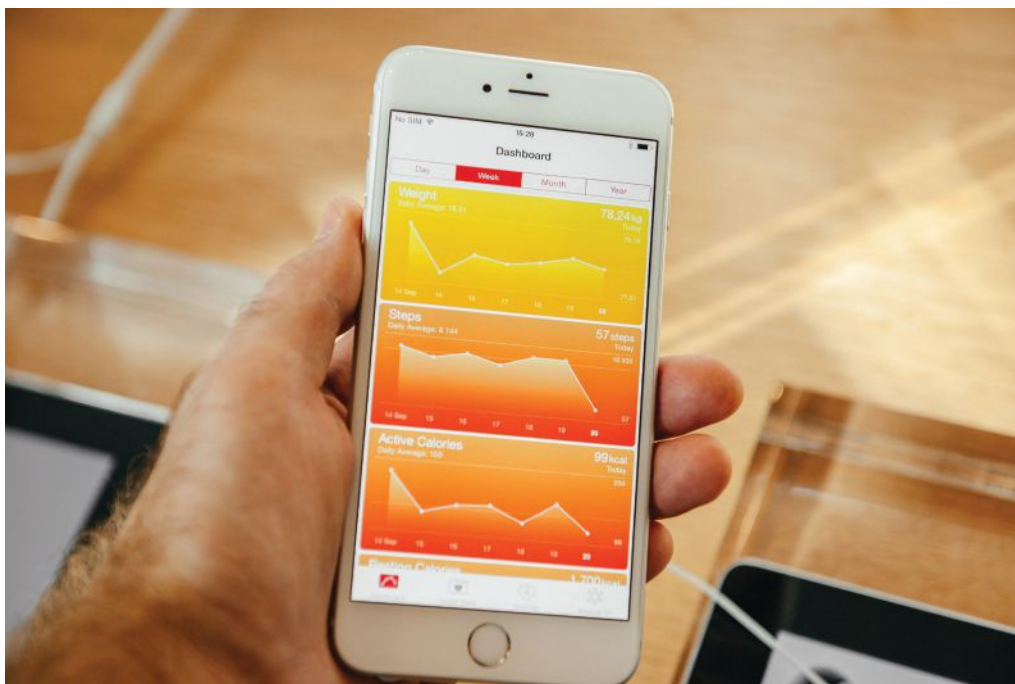
At HIMSS15, in front of an inquisitive audience at the McCormick Place Convention Center on April 15, Ricky Bloomfield M.D., director, mobile technology strategy at Duke Medicine, gave an overview of how Duke is using Apple's HealthKit to get patient-generated data into the EHR. BY RAJIV LEVENTHAL

The recent meaningful use Stage 3 proposal that calls for more than 15 percent of patients to contribute patient-generated health data (PGHD) or data from a non-clinical setting into the certified electronic health record (EHR) technology during the EHR reporting period, will put the onus on providers to collect information from patients who use home medical devices.

Data gathered from consumer-owned fitness trackers also have the potential to be incorporated into the health record; recently, eClinicalWorks,

a Westborough, Mass.-based ambulatory EHR vendor, announced that it has begun to integrate data from wearable devices, from such devices as the Fitbit, iHealth, Jawbone and Withings, into its Health & Online Wellness personal health record. For most vendors and provider organizations, however, this concept is a novel one.

To this end, at the 2015 Healthcare Information and Management Systems Society (HIMSS) conference in Chicago, the Durham, N.C.-based Duke Medicine shared the experience it has had thus far with Apple's HealthKit, a health platform Apple launched last year that aimed to connect personally-generated health data and clinical data. Since HealthKit's launch, many notable healthcare organizations, including Stanford Medicine, Cleveland Clinic, and EHR vendors like Epic, have all partnered with Apple to work in their own patient-generated data applications. At Duke, Ricky Bloomfield, M.D., director, mobile technology strategy, led



the effort to integrate Apple's HealthKit and also the effort to integrate the SMART (Substitutable Medical Applications & Reusable Technology) FHIR (Fast Healthcare Interoperability Resources) platform at the organization, being the first Epic hospital to accomplish that feat.

At HIMSS15, in front of an inquisitive audience at the McCormick Place Convention Center on April 15, Bloomfield gave an overview of how Duke is using HealthKit to get patient-generated data into the EHR. Bloomfield said the idea began gaining steam about a year ago when multiple providers at Duke expressed interest in wanting to get PGHD into the EHR. "Everyone was having this problem, and there wasn't a great solution," Bloomfield admitted. He noted that cardiologists and oncologists were asking Duke's IT people what could be done to get patient data into the medical record as a way to avoid readmissions. "I was honest at the time, and I told them I had no tools for them," said Bloomfield.

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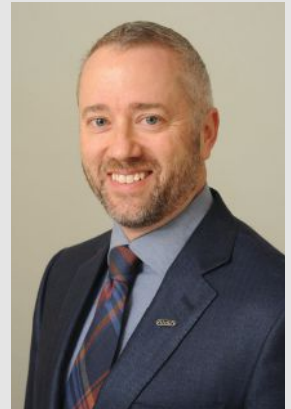
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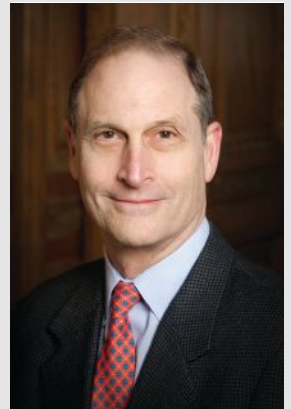
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At the time, he said, there were rumors about Apple launching something, and then in June 2014 when it released HealthKit, Bloomfield saw it as a potential solution to Duke's—and other provider organizations'—problem. Bloomfield noted that the project required the cooperation of Epic, and they were happy to see that the vendor became an early partner with Apple. "We were in a good position to take advantage of Epic right away. We dove right into HealthKit once it became available, and got it working in a few weeks. It was a real testament to the work that Epic did," Bloomfield said. Currently, he added, the initiative is still considered a pilot, with less than 50 patients and providers participating.

GETTING THE DATA INTEGRATED

For providers at Duke, the first step to getting the data integrated with their medical records involves asking patients if they want to share their information, said Bloomfield. "Patients cannot unilaterally enter their data into the EHR, and that's by design. There simply is no way for providers to handle that mass intake of data right now," he said. As such, the provider enables HealthKit for patients right now, and the provider has a flow sheet that keeps the patient-generated data separate from other data in the system, Bloomfield said. This way, you can still do analytics on it, but it's separate from other clinical data, he said.

The providers are then asked for permission to access the data, and when that permission is granted, the data comes through the portal into the EHR. Such data can be from activity trackers, blood pressure devices, glucose monitoring, and

PATIENTS CANNOT UNILATERALLY ENTER THEIR DATA INTO THE EHR, AND THAT'S BY DESIGN. THERE SIMPLY IS NO WAY FOR PROVIDERS TO HANDLE THAT MASS INTAKE OF DATA RIGHT NOW.

—RICKY BLOOMFIELD, M.D.

many other devices, Bloomfield noted. While on the surface it might seem like a lot of data is being integrated with activities as simple and frequent as "steps," Bloomfield said the ability for providers to set how often they want to be notified about the data has been built into the system. "They get messages to their convenience, whether that's once a day, once a week, or never," he said. "We believe providers won't choose 'never' obviously, but it's not something we have dictated to them. We are leaving it up to them; we don't want it to be a burden. It might vary by clinic and provider too. It's really all up to them."

Regarding privacy/security, a huge issue when it comes to patient-generated data, Bloomfield said that the design puts control of the data in the hands of patients directly. "They can

turn it off at any time in Epic's MyChart. Our goal is to make it clear that they have that control. They can share it with other vendors, apps, healthcare systems that integrate with HealthKit, or with us," he said.

What's more, at Duke, a modified consent for the MyChart app was created, but points were added so that patients were sure to understand it all, Bloomfield noted. "Will they read all the fine print? That's an open question for sure. When we get data from them, we cannot guarantee that we will view and act on it in real time. This is evolving technology, and we might find that it is so reliable that we can act on a measure

IF THEY SEE A VALUE IN THE RED, IT GIVES THEM AN OPPORTUNITY TO REACH OUT TO A PROVIDER, BE ENGAGED, AND BE INVOLVED IN THEIR OWN CARE. THE MORE INVESTED PATIENTS ARE IN THEIR CARE, THE BETTER THE OUTCOMES.

—RICKY BLOOMFIELD, M.D.

of 180/120 blood pressure levels and intervene immediately. Now is not that time though, as we can't be sure of the reliability of the data," Bloomfield said, adding that if providers do see concerning values, they will alert the patient to seek medical attention. "We don't want to give patients a false of security," he said.

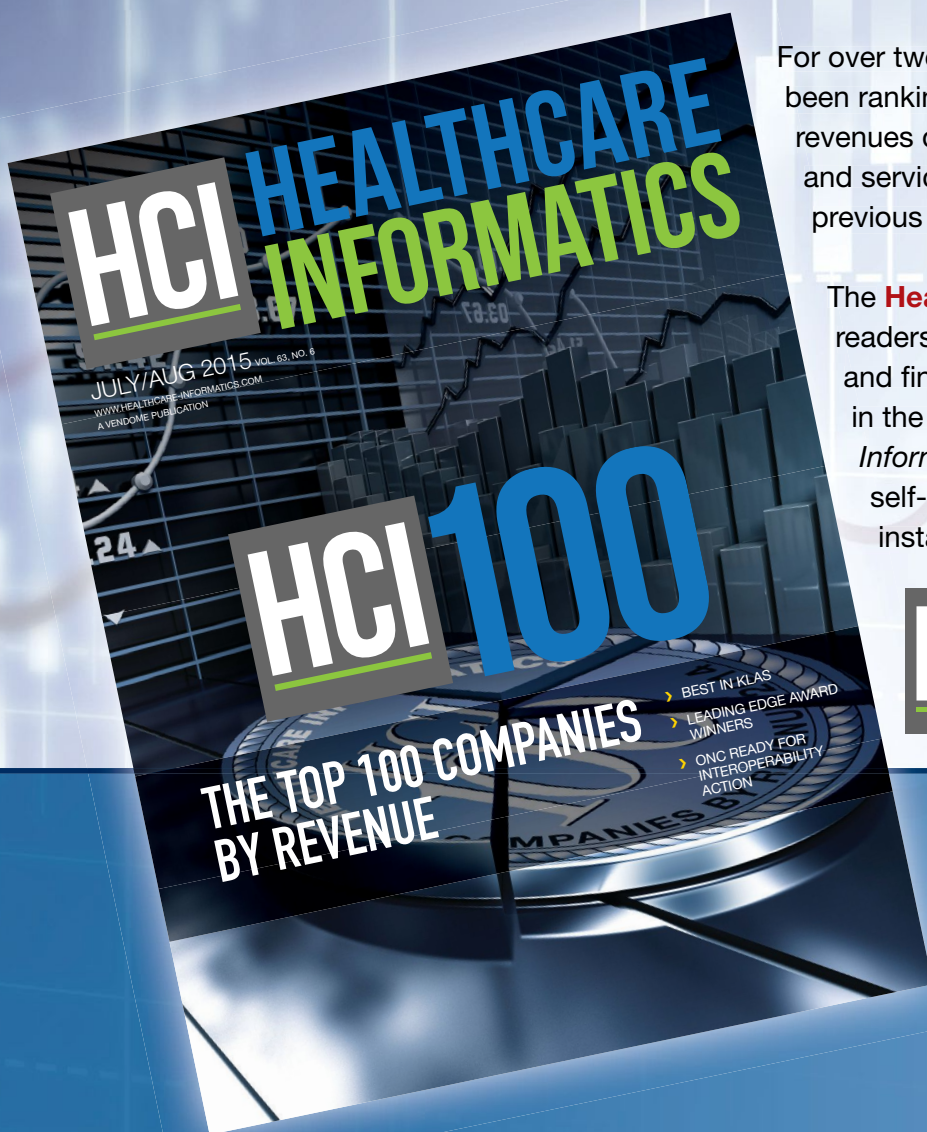
And to that end, the HealthKit app does give ranges of normal values, with Apple's new iOS update, something Bloomfield called "a bold move." But the intent is to put patient safety first, he said. "If they see a value in the red, it gives them an opportunity to reach out to a provider, be engaged, and be involved in their own care. The more invested patients are in their care, the better the outcomes," Bloomfield said.

Moving forward, Bloomfield noted, the biggest issue is the management of the devices. "Right now, we're not providing patients with devices to do this. As soon as you get into that business, you have to provide support too, which requires work with the legal department," he said. "Is giving a device coercive? Because that's not what we're going for." Bloomfield maintained that Duke is not trying to move faster than it should, noting the high expenses associated with devices that have HealthKit enabled. "Connectivity at home is also a big issue for us," Bloomfield said. High-risk populations are most likely to have bad internet connections at home, if they have any at all. "What's our responsibility to help with that? That's another open question right now," he said. "In the future my vision is to partner with the payers, demonstrate efficacy and increase efficiency, at which point the payers will subsidize those device costs." ♦

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HCI HEALTHCARE INFORMATICS

Roper St. Francis Fills Imaging Workflow and Communication Gaps

by Kayt Sukel

It's 1:00am on a Saturday. A patient comes into the emergency room complaining of cough and severe chest pain—hallmark symptoms of pneumonia. The attending physician calls for a chest X-ray. After making a preliminary read of the film, and seeing airspace opacity, the physician says that pneumonia is likely despite the lack of fever. But no radiologist will be available to review the X-ray and confirm the diagnosis until business hours the following day. The patient is sent home with oral antibiotics and instructions to drink plenty of fluids and rest. It's a common enough story. One that can happen in any emergency department, any night of the week.

But what if something more insidious is lurking in that patient's lungs? A small mass or nodule that might be overlooked during a preliminary read—but would definitely be caught by a more exacting radiology review? If such a nodule was discovered, how easy would it be for the radiology department to get back in touch with the emergency department (ED), as well as the patient in question, to make sure that the right diagnosis—and, consequently, the right care—will be provided?

That's exactly the issue that Roper St. Francis, a growing health system in the Carolina Lowcountry with three hospitals and more than 90 facilities and physician's offices, was facing on a routine basis. As films made their way from the ED to radiology and back again, clinicians were faced with a manual and labor-intensive workflow to communicate reads of plain films—a vital piece of clinical information required for accurate diagnosis and treatment.

"If we found something on an ED plain film that we thought was not seen, we had no direct way of finding out what the ED preliminary report was," says William Crymes, M.D., a radiologist at Roper St. Francis and a Physician Champion for Radiology Solutions. "Typically, what we'd have to do is call one of the four emergency departments, ask to speak to the charge nurse, get the charge nurse to look up the patient's chart and then see what the emergency physician did and what he might have noted about the plain film in the chart. It took us a very long way to get what was really a simple amount of information."

A long way to get a simple amount of information. As important clinical information travels from department to department, whether it's a chest X-ray, a mammogram, or other type of image, many clinicians have to deal with disparate healthcare information technology (IT) systems. Too often, these systems create awkward and time-consuming workarounds to get clinicians the patient data they need, when they need it. And that's before a potential diagnostic discrepancy comes into play. Successful health systems need ways to circumnavigate these clumsy workarounds—new, automated clinical workflows that allow them to overcome frustrating communication gaps, improving patient care and lowering healthcare costs as they go.

Using Workflow Intelligence to Bridge the Gaps

Qualitative Intelligence Communication System (QICS)** is a flexible, customizable workflow engine that ties various IT systems together to help provide an optimized workflow even in the face of the kind of communication gaps Roper St. Francis was seeing between its emergency and radiology departments.

"We needed to improve the very manual and labor-intensive form of communication between the ER and our radiology team," says Amy Alexander, Director of Imaging Informatics

at Roper St. Francis. "The challenge was to provide a meaningful tool that would integrate across our electronic health record (EHR) and picture archiving and communication systems (PACS)."



**ROPER
ST. FRANCIS**

Joan Wherley, the Service Line Director for Radiology at Roper St. Francis says they were looking for a tool that would allow them to integrate across the existing systems in ED and radiology—reducing any duplication of documentation and truly enhancing the workflow for clinicians. The idea was to improve upon existing procedures, not add more complicated steps to an already clunky process.

“We needed to find a vendor that could provide a full closed-loop system. So if a discrepancy was identified, it would be reported back to ED and then ED could then say, ‘Yes, I see the discrepancy and I’ve acted on it,’ without requiring any duplication of documentation,” she says. “And we found that workflow solution allowed clinicians the ability to pass documentation between the systems in the ED, notify the ED when a discrepancy was found, and then give the ED options to acknowledge that discrepancy and notate how they followed up to close that result in a way that would let radiology know but also populate their ED record as well.”

With the implementation of the workflow engine, that patient with the suspected pneumonia and confirmed lung nodule wouldn’t get lost in the communication shuffle. When the radiologist does his over-read, a menu pops up on the PACS monitor, where he or she can agree with the preliminary read—but then add information in cases where the patient requires follow-up.

“This allows us to deal with both critical and incidental findings,” says Dr. Crymes. “We have the preliminary report right there. We can find out what the emergency physician said. It’s very simple. The ED doctors don’t have to go into more complicated reads. That’s our job. And if we think there is a discrepancy, we can add the discrepancy to our report with just a click. That then notifies the emergency department that they need to follow-up—and then lets us know when they’ve actually done it.”

Clinician Input, Clinician Control

The key to bridging any communication gap is to receive input directly from clinicians and other key users on how to make the system both useful and usable. At Roper St. Francis, the information technology team looked to both the emergency department clinicians and radiologists to ensure they were creating a help rather than a hindrance. Not the easiest task considering ED and radiology were working with two different systems—and any solution would have to seamlessly interact with both those spaces.

“Our clinicians provided a tremendous amount of input—which was important because the workflow engine is so customizable. They worked with us to create defined categories of how quickly a notification had to take place, what constitutes a clinically significant discrepancy and so on,” says Wherley. “These different physician groups came together to agree on those definitions and worked through the process so that they could make sure to minimize the documentation required, while understanding how the findings would be reported. It took a lot of agreement and understanding between those groups to pull that off in a way that we could meet all those needs.”

Wherley states that having a physician champion, from both the ED and radiology sides of the fence, is crucial to reaching that understanding. Alexander adds that having a documented sign-off on the system’s requirements was also extremely helpful.

“At first, it’s hard because the ED doesn’t know why it’s being asked to work on a radiology system and radiology isn’t sure why they are working on something that isn’t necessarily radiology. But once both groups realized that the system wasn’t one or the other, but rather ‘our’ system, that helped,” says Alexander. “But having documentation that references materials that everyone agreed on, to go back to is incredibly valuable. People can see those panels, those menus, and those workflows and it helps them stay focused on why everyone decided to do it that way originally. It was an indispensable resource as we continued to roll the workflow solution out—and helped get buy-in from the clinical staff.”

Reaping the Benefits

Now that the workflow engine is up and running, Roper St. Francis is able to carefully follow ED/radiology discrepancies. Physicians both in the ED and radiology are seeing great value in being able to manage the discrepancy workflow in a more optimized manner. In fact, one of the ED physician groups went from an 11% report completion rate to 85% in only one month’s time. But Wherley also believes that the workflow solution’s implementation will also provide instrumental data for the health system’s overall quality assurance management.

“Prior to the implementation of the workflow engine, we had no way to quantify our discrepancy rates. As it turns out, there aren’t a lot of national benchmarks to compare ourselves to. There’s not that much information or peer-reviewed studies to create a national benchmark,” says Wherley. “But now we at least know how we are doing internally. We’ve built into our quality performance metrics, for both ED and radiology, performance goals based on their discrepancy information. Now we can actually have a quality program related to these discrepancies and track how we’re doing.”

Alexander says that as the technology matures, Roper St. Francis will be able to look closely at discrepancies and better understand where they come from—and, reduce potentially costly mistakes in the future.

“We may see that there are a lot of discrepancies, for example, coming from a specific body part like skull films or spine films. And, if that’s the case, we can focus targeted education back to the EDs, so they can understand what types of discrepancies occur and where they are occurring. We are going to learn a lot,” says Alexander. “And it’s going to be very interesting to see how we can decrease the rate of discrepancy—and how that will ultimately impact the quality of patient care.”

**QICS is now Conserus Workflow Intelligence™

What Will CIOs Most Need for the Journey Ahead? Halamka and Branzell Urge Them to be “Revolutionaries”

In opening addresses at the CHIME LEAD Forum Boston, John Halamka, M.D. and Russ Branzell urge their CIO colleagues to get the big picture and move forcefully and consistently towards it **BY MARK HAGLAND**

In opening addresses to the CHIME Boston event, cosponsored by the Ann Arbor, Mich.-based College of Healthcare Information Management Executives (CHIME) and the Institute for Health Technology Transformation (iHT2—a sister organization to HCI under the Vendome Group LLC corporate umbrella), two nationally recognized healthcare IT leaders spoke Monday morning, May 18, of the challenges facing patient care organization CIOs today and going into the next few years.

Speaking at the CHIME LEAD Forum, being held at the Hyatt Regency Cambridge in Cambridge (Boston), Massachusetts, John Halamka, M.D., CIO of Beth Israel Deaconess Medical Center (BIDMC) in Boston, and Russell P. Branzell, President and CEO of CHIME, spoke passionately about the need for CIOs to help shape the futures of their organizations—and their own futures. At a time when technology is advancing rapidly, when the U.S. healthcare system is going through a fundamental shift from volume-based to value-based payment, and when CIOs are facing ever-growing “to-do” lists, both Halamka and Branzell, both among the best-known healthcare IT leaders in the U.S., urged CHIME LEAD Forum attendees to focus on strategy and the future, and to keep their eyes on the bigger picture of healthcare system change.

Halamka, whose organization continues to pioneer in so many areas of healthcare IT, noted the difficulty for CIOs of helping to lead change even as their own organizations undergo regular management and other organizational disruptions. “It’s really hard as CIO when things are constantly changing,” he told the audience of healthcare IT leaders. “I’ve had seven CEOs in my term at Beth Israel

Deaconess. So I as a healthcare IT leader try to be as open and consistent as possible. I’ve not ever had a situation that I’ve suddenly changed course in such a way that people are confused,” he said, noting that a certain type of management

SO I AS A HEALTHCARE I.T. LEADER TRY TO BE AS OPEN AND CONSISTENT AS POSSIBLE. I’VE NOT EVER HAD A SITUATION THAT I’VE SUDDENLY CHANGED COURSE IN SUCH A WAY THAT PEOPLE ARE CONFUSED.

—JOHN HALAMKA, M.D.

constancy, allied to perpetual flexibility, will be key for CIO success going forward.

It is particularly difficult now that CIOs are pelted daily with new requests and demands from inside and outside their organizations, Halamka said. “People say, ‘OK, I get it, we need to be prepared for the accountable care future, we need to prepare for care management and care in the home, and even though there’s this cool project that some stakeholder wants, we really don’t have the bandwidth for that.’ And so what not to do” as a CIO “is as important as what to do, because each of us gets this laundry list of hundreds of things that stakeholders wants.”

He said with a bit of humor, “The technique I usually use is not to say ‘no’; ‘no’ is such a negative word, so loaded with emotion. So, I say, ‘not now.’” Meanwhile, he added, “My role on the resource side is not to create fear, uncertainty and doubt, but to explain to the board what we need to do.”

Focusing on the strategic and being a strategic leader, Halamka said, has really helped him help to guide his colleagues forward at BIDMC, where that organization’s culture



John Halamka, M.D.

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—**JOHN HALAMKA, M.D.**

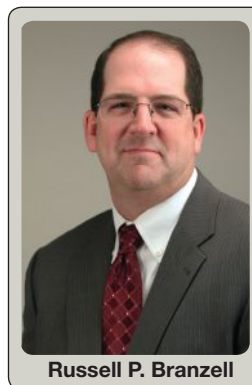
of innovation has been moving forward continuously. For example, his team has just created a new app that interfaces with the smartphones of BIDMC patients and allows the organization to upload data from their smartphones. The organization went live with that app, BIDMC At Home, about a month ago, beginning with the uploading of patient body weight; glucometer data from diabetics will come next. What is important, Halamka emphasized, is to create an environment of transparency, accountability, and true leadership, in which CIOs can be assured that the other senior leaders, and all the organization's stakeholders, will follow their lead in pursuing innovation.

He also shared his perspective that CIOs need to constantly engage with "VUCA": the volatility, uncertainty, complexity, and ambiguity inherent in their operating environment.

Branzell, whose address came immediately after Halamka's, shared a slide that he used to help frame what

he called the journey to the "CIO 3.0." The evolution of the CIO role has been thus, he said: pre-CIO, IT operations directors were technical managers, and their role was advisory. The "CIO 1.0" was a supportive role, focused on being an application purveyor. The "CIO 1.5" is an enabler role as a knowledge purveyor. The "CIO 2.0" role is a driver role, with the CIO functioning as a service broker, project advisor, and venture capitalist. Most patient care organization CIOs, he noted, are struggling to move into and through the "2.0" role phase; his view is that only 10-15 percent of CIOs are "2.0s," in his view, while 40 percent each are "1.0s" or "1.5s." What does the "3.0" CIO look like? The handful of true 3.0 CIOs are truly driving change and transforming their organizations, he said.

Towards the end of his address, Branzell shared his "Rules of the Revolutionary CIO" for his audience. Those five "rules" are: "Don't ever accept the status quo; 'Semper Gumby'—always be flexible; plagiarism [in operating innovations] is a skill, not a crime; don't evolve, revolt!"—and, finally, "Make somebody mad today!!!!" (all four exclamation points his). ♦



Russell P. Branzell

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Moving Data Down I-44 and Making it Actionable

Mercy, a large four-state health system based in Saint Louis, explains how it's leveraging an open-sourced framework to better process large datasets and improve documentation. BY GABRIEL PERNA

Cars and trucks aren't the only thing whizzing along the I-44 corridor in the center of the country. Thanks to Mercy, a large four-state, 35-hospital, and approximately 700-clinic health system based in Saint Louis, terabytes of data are moving along the highway.

Mercy's main Epic (Verona, Wisc.) clinical repository contains 25 terabytes of data, housing information on patients across the four-state region. And as Paul Boal, director of data engineering and analytics at Mercy says, "That's just the starting point." The actual scope of the data goes well beyond that massive number, including another 25 terabytes of data on patients' privacy information that's stored in another database.

The challenge for the health system is taking all of that data, information on roughly eight million patients, and drilling it down to actionable level for individuals. Aggregating data in terms of averages is easy within a traditional database, says Boal. Getting to the point where you can track and analyze outliers is much harder and costlier.

"When you start to drill down and ask, 'Who are the patients

THERE IS A TECHNOLOGY PLAY AT WORK HERE, IN THAT WE'VE GOT A GREAT NEW TECHNOLOGY THAT THE WORLD HAS MADE AVAILABLE AND WE HAVE TO FIGURE OUT HOW TO TAKE ADVANTAGE OF THAT. AND WE NEED TO IMPLEMENT IT. WE NEED TO BE DOING MORE WITH THIS TECHNOLOGY. IT'S POWERFUL. —PAUL BOAL



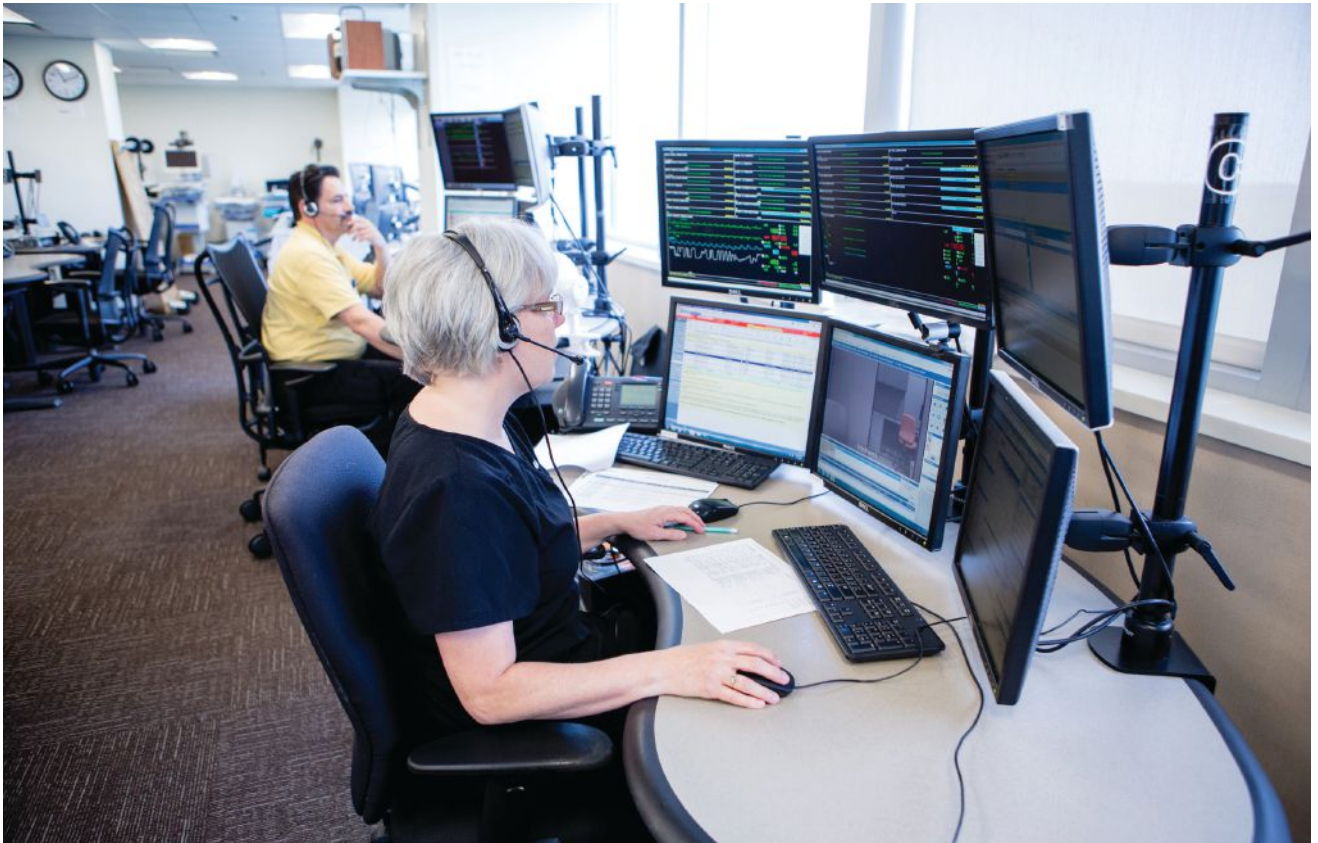
that don't match these criteria?' you find the analysis gets more complicated and everything starts bogging down," Boal says.

OPEN-SOURCED FRAMEWORK

That's why Mercy turned to something called Hadoop, an open-sourced framework for storing and processing large datasets. Using a platform from Hortonworks (Santa Clara, Calif.), the health system replicated and optimized its data from Epic into Hadoop giving providers real-time functionality to analyze and act on it. The platform is interfaced within Epic, meaning providers can pull out information directly within the EHR.

"One of the neat things that Epic allows you in that integration model is you can...create hyperlinks in that report that make the data actionable. I can click that hyperlink and it will pull up a specific page on that patient in Epic hyperspace," says Boal.

The main purpose of using the open-sourced framework, for now, is to improve medical documentation. Boal says that Mercy is aiming to get documentation up to speed by the time the patient is discharged. This not only helps the providers with actionable data but coders, who can get the right information in the chart and create a more efficient reimbursement pro-



Mercy SafeWatch teleICU Credit: Mercy

cess. “[The coders] have better information up front about the patients that are in the hospital right now and which patients they should be focusing on when they do their chart reviews to review with physicians during huddle times,” he says.

They also have a few other Hadoop-related projects ongoing. The labs are consolidating their technology footprint, says Boal, and through Hadoop, Mercy is developing a way to “Google” their way through lab notes. The health system is also planning to move the nearly 25 terabyte privacy database into Hadoop as well.

In the near future, Mercy is planning on using the framework to integrate vitals information from the health system’s large electronic intensive care unit (eICU) into the EHR for preventive care. The platform can allow for more detailed readings of vitals, and in real time, that allows for better analysis.

“What we’re building out is a real-time clinical applications platform, so we’re looking for other opportunities to turn that into decision support,” Boal says. “We’re looking for folks that are interested in device data integration.”

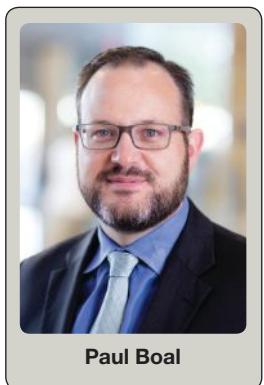
TECH AND BUSINESS

Moving to Hadoop was a whole new learning curve for Boal and his team of technical experts. He said one of the challenging aspects of the implementation was bringing everyone up

to speed on a new technology, since many were either traditional programmers or database developers that wrote SQL for a living.

Despite this, Boal considers moving to this open-sourced framework a “leap forward” in terms of healthcare analytics. Those who are interested in moving in this direction simply have to understand that a two-sided approach to implementation is necessary, he notes.

“There is a technology play at work here, in that we’ve got a great new technology that the world has made available and we have to figure out how to take advantage of that. And we need to implement it. We need to be doing more with this technology. It’s powerful,” says Boal. “At the same time, we need to make sure we understand what are the particular business needs [for this technology]. You can’t just sit and wait for the business part of the organization to tell you to implement big data. The business problems aren’t big data problems or little data problems, they’re business problems.” ♦



Paul Boal

POPULATION HEALTH: THE PATH FORWARD

By Mark Hagland and David Rath

What does the future hold for the population health management concept? The present moment in U.S. healthcare is filled with both challenge and opportunity in this absolutely critical area of endeavor. On the one hand, the population health idea has taken off as it has never before. It is embedded in virtually all the main policy initiatives coming out of all the major public and private purchasers and payers of healthcare, whether in some of the mandates coming out of the Affordable Care Act (ACA), or embedded in the value-based purchasing (VBP) initiatives coming out of the federal Centers for Medicare and Medicaid Services (CMS) for the Medicare program, or from nearly any of the major VBP programs sponsored by virtually all of the major U.S. health plans.

Yet the reality of the moment is that, despite all the policy incentives forcing providers to begin to take action, most patient care organizations are still in the very early stages in terms of leveraging healthcare IT and data to support and facilitate population health. Indeed, on the journey of 1,000 miles, most industry observers agree that we are in the first steps of that journey.

Not surprisingly, mixed sentiments were on display among the industry leaders participating in the 15th annual Population Health Colloquium, held on March 23 at the Jefferson School of Population Health at Thomas Jefferson University in Philadelphia, and chaired by David Nash, M.D., dean of the Jefferson School of Population Health.



“I expect us to talk more about data [in the next couple of years], because I think people are going to be drowning in data,” said Drew Harris, director of the Jefferson School of Population Health. “We are generating so much data that the question is, are we going to be able to turn that data into knowledge and actionable intelligence? We need to have new systems in place to better help clinicians use the data so they can figure out what to do with that Fitbit on somebody’s wrist or the Apple Watch that folks are going to expect somebody to help them analyze.” He also urged fellow participants to focus on patient engagement to make population health become truly successful.

Still, Brian Silverstein, M.D., president of HC Wisdom, a Glencoe, Ill.-based consulting firm, cautioned attendees that, “While I would like to be optimistic, I think next year is going to be tough. We are either going to be schizophrenic or bipolar. I am not sure which one. There is such great work going on and people are going to be aware that it is possible to do things to deliver better care at a lower cost. But some organizations are going to be entrenched in something and not getting results, so there is going to be an increasing level of frustration.”

In that context, said Mark Wagar, president of the Northridge, Calif.-based Heritage Provider Network, which encompasses more than 30,000 physicians in several states, “Sorting and stratify data to focus on a population doesn’t require perfect data. If you are waiting for someone from a big data company to come in and produce it all at once, it is not going to happen. We have 30,000 independent physicians. They are not all on one EMR, and are not going to be anytime soon, and we have patients to serve in the meantime. We have created some off-the-shelf systems combined with some proprietary systems where we can cross-match and collect as much data as possible,” he noted.

Where is the Industry on Population Health Right Now?

- Even as providers, often in collaboration with public and private payers, move forward on population health efforts, they are struggling to organize, analyze, and use data
- Providers are learning that they must create virtuous cycles with regard to leveraging data for continuous clinical performance improvement, and connecting data collection and analysis processes to care management
- Connecting care sites from across the continuum of care remains a major area of challenge

MAKING THE HEALTH IT CONNECTION

That discussion in March at Thomas Jefferson University mirrors countless discussions around policy, strategy, process, and tactics taking place these days. Within the broader context of the push towards population health, industry leaders agree that the healthcare IT needed to facilitate pop health is just now being implemented, and is being implemented very unevenly at that.

For example, says Charles Kennedy, M.D., chief population officer at Healthgen LLC, a subsidiary of the Hartford, Conn.-based Aetna, and a health insurer executive helping to guide dozens of accountable care organizations (ACOs), “Health IT systems which offer the equivalent of a clinical navigation system are woefully under-deployed. Achieving the required information state requires a new HIT infrastructure, supporting integrated administrative, claims and clinical data from all sources reorganized and optimized to assist with value-based care interventions for each individual’s health and care. These records must be not only semantically interoperable, but must also be structured in such a way that provides useful and usable information on each individual patient,” he urges. “Today, however, many EMRs function like electronic file cabinets.”

The key to successfully leveraging health IT for population health management, says Judy Murphy, R.N., is that “The success is not just in the measurement and analytics, but in the ability to impact the health of populations. It’s leveraging the

health IT for actual care coordination.” In October 2014, Murphy became chief nursing officer and director, Global Business Services, at IBM Healthcare. Prior to that, she had been chief nursing officer and director of the Office of Clinical Quality and Safety in the Office of the National Coordinator for Health IT (ONC). On a practical level, Murphy says, “It all starts with capturing the correct data in a data warehouse. And 80 percent of healthcare data today is not structured. So they either have to structure it or run it through natural language processing, or Watson.”

What should CIOs and other senior healthcare IT leaders be thinking about as their organizations begin to pursue population health? “They need to be thinking about what is involved in information-sharing with the post-acute world,” says Charles E. “Chuck” Christian, vice president and CIO at St. Francis Hospital in Columbus, Georgia, and the current chair of the board of the College of Healthcare Information Management Executives (CHIME). “There are a lot of new post-acute care settings we need to think about. Part of the problem,” he notes, “is that some post-acute providers, especially nursing homes, haven’t fully automated yet; but we’re getting there. And we’re developing data sets. So it’s a symbiosis: we’re helping nursing homes and other post-acute providers to help us. If we can appropriately transition the patient to their level of care, that is what’s important.”

IN THE TRENCHES

The most critical questions to consider in transitioning to value-based care with Dr. Paul Taylor, CMIO

Paul Taylor, M.D. has been involved in hundreds of conversations with organizations striving to adopt a value-based care model. Dr. Taylor is a practicing internal medicine physician and Clinical Integration Committee Chairman at Mercy Health, a Trinity Health organization, and co-founder and Chief Medical Information Officer for Wellcentive, a value-based transformation platform for population health management. We asked Dr. Taylor to address the five most challenging questions facing organizations today:



Paul Taylor, M.D.

How can we proactively and concurrently manage multiple quality programs, such as pay for performance, accountable care, and PCMH initiatives?

Rallying your organization around a wide variety of outcomes-based programs requires a solution that supports quality program automation. Meaning, your platform must aggregate data from disparate sources, analyze that data through the lens of a program's specific measures, and effectively enable the actions required to make improvements. Although this is a highly technical and complicated process, when done well it enables care teams to utilize real-time dashboards to monitor progress and identify focus areas for improving outcomes.

How can we support both employed and affiliated physicians and effectively manage our network and referrals?

An organization that demonstrates its value to health-care providers is best positioned to engage and align with them; this means providing community-wide solutions for value-based care delivery. This must include technology, transformation services and support, care coordination processes, referral management, and savvy representation with employers and payers based on experience and accurate insight into population health management and risk.

How do we manage our organizational risk and utilization patterns?

Optimizing episodic and longitudinal risk requires the application of vetted algorithms to your patient popula-

tions using a high quality data set. In order to understand differences in risk and utilization patterns, you need to aggregate and normalize data from various clinical and administrative sources and then ensure that the data quality is as high as possible. You need to own your data and processes to be successful. Don't rely entirely on data received from payers.

Should we implement care management programs to improve individual patient outcomes?

More and more organizations are creating care management programs for improving outcomes during transitions of care and for complicated, chronically ill patients. These

programs can be very effective. It's important to leverage technology and processes across the continuum of care, encompassing both primary and specialty care providers and care teams in the workflows. Accurate insight into your risk helps define your areas of focus. A scheduled, trended outcomes report identifies what's working and where areas of improvement remain.

How can my organization ensure success with value-based reimbursement?

The shift to value-based reimbursement is a critical and complicated transformation—often a reinvention—of an organization. Ultimately, it boils down to leadership, experience, and commitment. The key to success is working with team members, consultants, and vendor partners who understand the myriad details and programs and who thrive in a culture of communication, collaboration, execution, and accountability.

Whether it's PCMH or PCMH-N, PQRS or GPRO, CIN or ACO, PFP or DSRIP, TCM or CCM, HEDIS or NQF, ACGs or HCCs, care management or provider engagement, governance or network tiering, payer or employer contracting, you can find partners with the right experience to match your needs. Because much is at stake, ensure that you partner with the very best to help navigate your transition to value-based care.



\$500 Million

in value-based reimbursements in 2014

30 Million

patients enrolled in quality programs

20,000

active providers

1.3 Billion

monthly data points

3,000

live interfaces



Quality

Bringing quality programs to life by activating data to provide insights, enable workflows, and enhance management of risk-based populations.



Revenue

Optimizing revenue by equipping organizations with analytics and workflows required to master evolving payment models.



Transformation

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FUTURE-PROOFING POPULATION HEALTH MANAGEMENT WITH A SOLID FOUNDATION

By Suzanne Cogan, Vice President, Orion Health

A recent quote attributed to Intermountain CIO Marc Probst describes the current phenomenon in the healthcare industry of organizations fixating on analytics as a “bright shiny object” and “magic” solution. This hits on a critical issue. Analytics tools

available to you efficiently and without degrading their quality. At Orion Health, we have done population health projects all over the U.S. and across the world, and we break them down into six steps:

- Acquisition of data
- Aggregation of data (in a patient-centric, normalized fashion)
- Analytics of data to stratify the population
- Access to the macro-level analytics and micro-level longitudinal patient record by various stakeholders
- Action on the stratified population (e.g. enrollment onto a condition-specific, community-wide care pathways)
- Adoption of the systems and processes to support all of the above. Without adoption by all members of the circle of care (providers, clinicians, and patients themselves), success will be limited.



and surrounding processes do have amazing potential to transform healthcare – and will do things in population health in the next 10 years that we can’t even imagine today. However, healthcare organizations can’t get so focused on analytics that they cut corners on the foundational work that makes meaningful analytics possible, or fail to look beyond the immediate analytics applications they are interested in today. CIOs, CMIOs, and the teams working on population health projects need to first make sure that they are assembling their data properly, and secondly that they are building population health architectures that will be scalable and flexible enough to meet future needs that may not even have been contemplated yet.

Getting your data house in order means speed, accuracy and completeness - making sure you’re tapping into all of the relevant data sources that are

These “Six A’s” build on each other, yet the critical foundation of any population health initiative is in those first two A’s – acquisition and aggregation. Analytics – shiny as it is – works best when it comes later, atop a solid and comprehensive foundation.

Healthcare organizations have so many data sources to tap into and more coming on-line all the time. Many use legacy or proprietary interfaces that make accessing complete data very difficult, and some may not even offer real-time access to data. Traditional sources like EHRs, registration systems, lab systems and pharmacy systems have always been difficult to aggregate together into “apples-to-apples” data sets associated with the right patients, and as we add more new data sources from multiple organizations across the community or from genomic and

biometric data, the complexity and the scale of that challenge escalates dramatically. So, for most population health initiatives, acquiring and aggregating all of the necessary data will be the hardest and most important work for the foreseeable future and will probably represent the majority of effort on the project.

In addition to the acquisition and aggregation of data, the other challenge that many organizations gloss over at their peril as they architect their population health systems is keeping up with innovation. Population health is in its infancy relative to the critical role it will play in the decades to come and we've only scratched the surface of the types of data we will gather and the applications of it that we will employ. While we can't possibly know today everything what we will someday want to do with this data, we can be sure that that the massive onslaught of data will continue to intensify, and that we will need to be prepared to be as flexible as possible to accommodate the applications, integrations and analytics to come.

Future-proofing IT infrastructure isn't easy, but we at Orion Health are focusing on a few things to make sure we are as well positioned as possible: super-scalability using technologies like the NoSQL Cassandra distributed DBMS, support for the latest high-performance interfaces like FHIR, and basing it all on a standards-based platform with open APIs so we can adapt to and accommodate the exciting innovations to come.

One organization we have worked with that really understood this bifurcated challenge of future-proofing while quickly aggregating the underlying data for today's needs is Cal INDEX. Cal INDEX is one of the biggest health information exchange (HIE)/population health initiatives in the world, serving one of the largest and fastest growing populations in the U.S. They knew they needed super-clean, super accurate data for analytics, and they wanted to provide universal access to comprehensive, up-to-date patient information to providers across the state of California. Consequently, those first two A's (acquisition and aggregation) were a top priority. Our Orion Health Open Platform was a perfect choice for them, because it's built on one of the most mature and robust data integration engines



on the market, we have worked with virtually every data source there is in healthcare, and it is highly scalable and flexible to accommodate new data models as they emerge.

Since Cal INDEX also has a very long-term view of the value their initiative will provide to generations of Californians, this scalability and flexibility were essential requirements for their project. They needed open APIs to connect to all of the current and future front-end applications they might employ, and they needed high-capacity, high-performance database technology to handle the very large volumes of data they expect to be moving through their systems. Cal INDEX is off to a great start and has already aggregated an unprecedented amount of data as it promises to become a model for the future of HIE and population health initiatives.

While we are all very excited by the potential of new analytics technologies as we pursue the exciting population health initiatives kicking off all over the country today, we need to make sure that we are not overly distracted by those bright shiny objects. The first and most important step has to be building a solid data foundation that is made up of comprehensive, accurate and up-to-date information. The greatest algorithms in the world are of no use without good data to work on. At the same time, we need to keep an eye on the future and the things we will want to do with our data that we have not even imagined yet. That means investing in solutions that are built with an emphasis on scalability and flexibility. If we do those things right, the sky's the limit for where population health can take us.

Don't Delay, Hire Today

Many in health IT are delaying interviewing great candidates and sitting on offers like it's 2008. Bad move. **BY TIM TOLAN**



Tim Tolan

I recognize that over the past seven to eight years most employers have enjoyed the luxury of being highly selective with candidates in the interview process, often controlling the timing of deciding on the finalist and actually making the offer. In addition, employers have also enjoyed the economic advantages of making ridiculous low-ball offers and loading new hires down with more responsibilities than they signed

up for. That was then...and "my-oh-my" how things have changed. And suddenly; I might add.

The HIT market is definitely heating up and search firms are typically a leading indicator of the improvements in the market. This being measured by the pace of hiring and the number of new assignments they are working on, compared to the YTD activities of same period last year and the year before. It's definitely much busier without a doubt. Here's the problem, there are still hiring managers that don't get it. Yes, there are still laggards that are delaying interviewing great candidates and sitting on offers like its 2008. Bad move. Really bad move. Here are several drivers that could hinder your efforts to hire great people, or if you want to capture, and hire the best talent for your team in 2015, and beyond:

SPEED: The market for HIT talent is very strong and both hospitals and software vendors have increased their hiring. It will only get harder to find great people if you don't adopt a better process for evaluating candidates. While you are taking several months to hire – your competition is streamlining their process down to a few weeks.

LOW OFFERS: Stop trying to ask a candidate to change jobs, adopt a new culture and walk into the abyss for the same salary (or even worse – a lower salary) than they earn today. This strategy is broken in so many ways. I seem to think it's a practice that was adopted circa 2008-2009 that is still relevant to some, but not to the masses. The market has changed. Get real.

PASSIVE CANDIDATES: To find someone who is happy with what they do, and comfortable with their career path, and income, and then convince them to take a chance on a new role where there are plenty of unknowns, requires a differ-

ent way of hiring. If you are using a search firm or an internal recruiter, you have to understand these candidates are not unemployed and it takes some selling on your part to get them in the boat. Make the candidate experience noteworthy.

JOB HOPPERS: Before the market crash, the terrible events of 9/11 and the dotcom debacle in the early 2000-2001 time-frame, all of us avoided interviewing candidates with short stays at their last 1-2 career stops. Those candidates deserve a closer look on your part - and in many cases there is a real explanation for the short hops. You could be passing on a great candidate if you make assumptions before you interview them to learn more. It's not always their fault that there was a

OUR INDUSTRY HAS GROWN BY LEAPS AND BOUNDS OVER THE COURSE OF THE LAST DECADE AND THE FORECAST FOR CONTINUED GROWTH IS EXCITING. TO TAKE ADVANTAGE OF THAT GROWTH, DON'T FORGET ABOUT PROTECTING AND GROWING ONE OF YOUR GREATEST ASSETS. PEOPLE. —TIM TOLAN

reduction in force or organizational changes where they were negatively impacted. Be open.

TALENT SHORTAGE: We've all seen the studies about the boomers retiring at a rate of 10,000/day and the dire predictions of a shortage. In March of 2015 over 500,000 high tech jobs were still open and unfilled. Those numbers will only grow over the coming months and years so by all means pay attention to the metrics and adjust your hiring strategy accordingly. Again, I'm sure your competition will be making aggressive changes to win the war on talent. Be ready to change.

Our industry has grown by leaps and bounds over the course of the last decade and the forecast for continued growth is exciting. To take advantage of that growth, don't forget about protecting and growing one of your greatest assets. People. ♦

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