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# SHOW DAILY

## LENGTH OF TIME IN FIELD

LENGTH OF TIME IN FIELD	COUNT	PERCENT
<1 year	154	1.8%
1 to 5 years	1087	12.7%
6 to 10 years	1496	17.5%
11 to 15 years	1467	17.2%
>15 years	4327	50.7%

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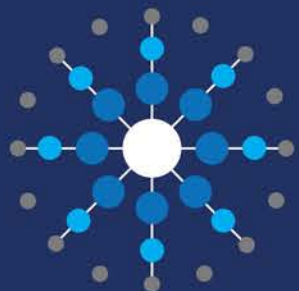
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## Digital transformation is needed for patient engagement

Stanford Health Care has seen a surge in enrollment thanks to a digital platform that was created in-house, with the specifics of the market in mind. **By Jeff Lagasse**

Consumerism means customers have expectations of convenience, flexibility and ease of use. In healthcare, the customers are the patients, and healthcare organizations that want to attract business are increasingly looking to technological innovation to bring patients into the fold.

Aditya Bhasin, chief of web systems and vice president of software design and development at Stanford Health Care, spoke at HIMSS19 Tuesday about his organization's attempts to do just that, emphasizing the importance of innovating from the inside – to better to create something that fits a provider's specific ecosystem.

"If you start looking at how these new consumer experiences are rolling out, these companies aren't going to establish vendors in those verticals and say, 'Hey, give me a solution for this.' They're innovating from the inside. Amazon didn't go to Walmart and say, 'We want to buy your big box experience.'"

The way the healthcare system is fragmented has been a barrier to internal innovation to this point, but Stanford's own efforts suggest it's possible.

Stanford has rolled out an app called MyHealth that mimics some of the conveniences found in other industries. Patients are able to schedule appointments on their phone, engage in video-based telehealth visits with caregivers and pay their bills online. They can also get personalized directions to their final destinations and have the care team notified when they arrive.

Developed in-house, the impetus came from the patients themselves. Stanford utilizes a patient advisory forum to weigh in on matters such as this.

That expanded the initial objective of the digital transformation initiative, which was simply to speed up the check-in process. The other components – the directions, the bill pay options – came from the patients themselves. Reducing no-shows and staff burnout were also added to the list of objectives.

The development of the app consisted of a "Frankenstein" of different methodologies. The team used Lean UX for design, Agile to build, Devops to speed up the build, and so on.

"You can look at these tool sets and determine what works best for your organization for how these things stitch together," said Bhasin.

With a more clearly defined mission, Stanford could determine what to do technologically on the back end. The goal was to go for a seamless experience.

"We rolled out bits and pieces and gradually pieced them together," said Bhasin.

It has now been rolled out across five campuses, and when a new location opens at the end of the year, it will debut there as well.

The result? Enrollment is up 300 percent, and an estimated 75 percent of the system's patients are on the platform.

"Patients are engaging with us digitally about three times for every physical confrontation," said Bhasin. "The digital platform is the key to execution. You've got to have a flexible, scalable digital platform. We tried to come with something that is unique to us." ●

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# CONNECTIVITY: THE VALUE OF INTEGRATED SOLUTIONS AND THEIR IMPACT ON PATIENT CARE

W. Perry Flowers, RPh, MS, is Vice President of Medical Affairs, Enterprise Medication Management at BD. With more than 27 years in pharmacy and leadership experience, he joined the company in 2018 to advance BD's mission to transform medication management in meaningful ways. Flowers discusses the need for connected solution models when a single platform is not enough.

## What is the medication management process and how should CIOs approach it?

The medication management process is the full end-to-end life of a medication, starting with procurement and concluding with administration to a patient in a care space. The intermediate steps along this process are medication storage and preparation occurring within pharmacy areas and then medication distribution to patient care spaces. Historically, these process segments have been addressed by various technologies requiring any number of interfaces that increase an organization's IT footprint in additional support and maintenance. I believe that CIOs should establish a set of requirements regarding the medication management process that focuses on meeting patient care quality and safety concerns. For example, by reducing the various number of interfaces and ensuring the integrity of a complete clinical database, the organization might be able to reduce costs and its IT footprint in addition to more effectively meeting cybersecurity standards.

## When it comes to medication management, how should we evaluate a connected solution model compared to a single-platform model?

While the headlines have tended toward a single platform model in the last several years, many high-risk health processes, like medication management, continue to demand an increased level of examination in both regulatory scrutiny and accreditation risks. This is where a connected model can address what a single platform struggles to do: absorb all the process segments within a high-risk process and integrate these steps into a single stream to ensure better patient care. For example, a single-platform model like the EMR cannot meet the necessary documentation in the preparation of medications and of controlled substances handling. We have found that to meet the increased scrutiny and risk around medication, effective medication management can only be achieved through a connected process model.



*"I believe organizations and their EMR vendors should recognize the utility of co-existing with an integrated approach."*

Perry Flowers | VP Medical Affairs, Enterprise Medication Management | BD

## My organization has made a considerable investment with an EMR vendor. Can other vendors co-exist with an integrated, end-to-end approach?

Yes. I believe organizations and their EMR vendors should recognize the utility of co-existing with an integrated approach. Together, these two models can strategically lessen the technology infrastructure burden of an organization by reducing, removing or consolidating servers and interfaces. To support this, a strict evaluation of the medication management process would produce a deliberate design to connect all parts of the medication management process from procurement to point-of-care administration. To meet the requirements for highest quality control, organizations should establish a co-existence framework where their EMR platform remains the foundational base upon which a connected solution model can run quality controls, and enhance their clinical databases and operational analytics. Organizations might also consider that the specialized capabilities of an integrated model can help them meet the increased demand for regulatory and accreditation bodies, enhancing the considerable investment they made with their existing infrastructure.

## What are a few examples of the quality and patient safety issues related to the medication management process?

The medication management process continues to be held to higher standards amidst a handful of serious and tragic medication-related misadventures

dating back to the Institute of Medicine (IOM) report "Preventing Medication Errors" published in 2007 as part of their Quality Chasm series. This report identified medications as an important contributor to patient harm. Some of the most startling examples of safety issues cited were when concentrated medications were incorrectly administered to newborn babies and when adult medications were administered through an incorrect route. More than a decade later, we're still struggling with many of these same issues and we continue to see examples too close to the reality of that 2007 report. The transition to the EMR platforms was an important first phase in improving patient care and safety, but now we need connected solutions like medication management for those process segments that pose high-risk safety concerns.

## Why BD?

When we consider the hundreds of thousands of medications making their way through a single hospital or health system each day, it's no wonder that medication errors and inefficiencies, as mentioned above, arise. At BD, we are committed to simplifying the medication management process to break the cycle of medication error and offer safe, quality patient care. Our integrated platforms and point-of-care technologies aim to reduce inefficiencies in the medication-use process (from pharmacy to the patient's bedside) and improve safety across the continuum of care.



### About BD:

BD is a global medical technology company that is advancing the world of health by improving medical discovery, diagnostics and the delivery of care. BD leads in patient and healthcare worker safety and the technologies that enable medical research and clinical laboratories. The company provides innovative solutions that help advance medical research and genomics, enhance the diagnosis of infectious disease and cancer, improve medication management, promote infection prevention, equip surgical and interventional procedures and support the management of diabetes.





David Vawdrey

# Why hospitals and health insurers are really turning to the cloud

It's not for cost-savings on storage and compute. Instead, NewYork-Presbyterian, Mercy and Humana are harnessing the cloud to improve patient and clinician experience. **By Tom Sullivan**

There's little debating that healthcare and technology are at an interesting intersection right now. So many big ideas, so much promise. But wide-scale transformation doesn't just happen.

"All the ideas need doers, those who enable action to shift ideas to execution," said Aashima Gupta, Google Cloud's director of global health solutions, here at the Cloud Computing Forum on Monday.

Three such doers also took the stage to offer a glimpse of how they are using cloud computing today and hints about the future: NewYork-Presbyterian, Mercy and Humana.

"By 2022, we're expecting to move the majority of our applications and infrastructure to the cloud, leaving just 20 percent on-premises," said David Vawdrey, vice president for analytics and clinical systems at NYP.

It's not merely embracing the cloud for cloud's sake. Vawdrey said it's to improve patient experience, make the hardest parts of tech invisible to users and equip them with patient-facing technologies such as virtual visits.

"Imagine you are asking financial advice. You call the 1-800 number, and Warren Buffett answers the phone," Vawdrey said. "This is the vision we're trying to create with telehealth."

Antonio Melo, director of Humana's Digital Experience Center, said it's working to shift from an institution-first model to one that is person-first.

"We're interested in providing care where people spend the majority or a lot of their time," Melo said. "How do we reinvent who is improving care in the home? How do we create contextually relevant experiences for what might be considered low-level care? We're talking about lifecare, and it's an entirely different thing."

While acknowledging the cultural shift required to move con-

siderable data sets into the cloud, Curtis Dudley, vice president of integrated performance solutions at Mercy, said that moving to the cloud has also enabled the system to commercialize its cloud services and, in turn, offer them to other hospitals.

Cloud-based "descriptive analytics has led to the development of data science, AI and machine learning," Dudley said. "Our goal is analytics at the speed of thought so they can walk into meetings to actually make decisions."

Next up for Mercy?

"Our future on the cloud side is going to be more and more healthcare data in the cloud. We're working with Epic, Azure [and] Google, and our view is the cloud analytics competent is reaching inside four walls of the hospital and accessing the data in our datacenter. We are sharing data with third parties today through the cloud, in more than 200 different places," Dudley said. "The more we do, the more people want, internally and externally."

Humana Edge CTO Jeff Hawkins said that embracing the cloud opens doors to innovation.

"Cloud is important for the future of how we engage our consumers. We're taking an approach of automation over lift and shift," Hawkins said. "We are not moving to the cloud for speed and resiliency, though we think we'll achieve those. The fundamental drive of the cloud is to improve the experience of our consumers."

NYP's Vawdrey agreed that it's about patient and caregiver experience.

"We want to provide a more comfortable, relaxed environment, where caregivers can deliver high quality, high satisfaction for low acuity patients," Vawdrey said. "That's using tech to re-humanize rather than de-humanize healthcare." ●

## ST. LUKE'S REVENUE CYCLE DIRECTOR SAYS AUTOMATION, PATIENT SELF-SERVICING EMPOWER PATIENTS AND YIELD STRONG RESULTS

Michael Rawdan of St. Luke's Health System told his HIMSS19 audience they can cut costs and improve yields at the same time by improving patient financial experience. **By Beth Sanborn**

When you're a major health system in Idaho, a state that didn't expand Medicaid and has both a low-income and education level, and you're operating with 1,100 beds, 14,000 employees and a 40 percent risk-based revenue model, there's a big incentive to be efficient.

Beyond efficiency, Michael Rawdan, senior director of revenue cycle and patient experience at St. Luke's Health System, told attendees of his Revenue Cycle Solutions Summit presentation "The Patient Behind the Bill: Creating a More Satisfying Financial Journey" that redefining a patient's financial journey is worth the effort because not only does it influence patient satisfaction, it also boosts payment performance.

Following a paper and digital survey on St. Luke's financial/billing experience, the writing was on the wall, with only 28 percent of patients expressing satisfaction. That's a pretty solid "F", according to Rawdan, who is also a college professor.

Patients said they didn't understand their bills, endured long waits when calling into call centers, got inconsistent answers from those call centers, and were frustrated with the lack of a digital pay or view bill option. He shared the information with the system's senior leadership.

"When I showed them this information, the answer was, 'Wow, we need to do something about this,'" Rawdan said.

They knew they had to get charity applications turned around faster and develop longer-term payment plans, as well as improve in other areas, and they sorely needed a digital platform. Patients wanted to be able to pay online, make payment arrangements online after viewing their options and even have the ability to marry the accounts for different family members under one account with a head of household function so that one person could manage the whole family's dealings.

They also installed scoring and segmentation into revenue cycle operations and focused their resources on those who were most likely to pay to increase efficiency.

St. Luke's listened and implemented a digital solution that had these capabilities and, since 70 percent of its patients were still using paper statements, it overhauled those statements to make them easier to interpret.

It worked. Rawdan said St. Luke's went from 28 percent satisfaction to 57 percent, with patients at least saying it is doing a lot better than it was.

St. Luke's also saw a 29 percent improvement in its yield, and cost to collect dropped 57 percent.

Rawdan said the morals to their story are that financial experience can improve yields and costs at the same time and it's important to listen to your patients and empower them to help themselves through automation and self-servicing.

"We treat all patients different from a clinical perspective," he said. "Why would we think we should treat them the same financially?" ●



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**Kate Milliken is the host.**



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## PRESENTATIONS – WEDNESDAY, FEBRUARY 13

9:40 – 10:10 am	My DaM Data's Useless If It Doesn't Come in Standards
10:30 – 11:00 am	HL7 FHIR Bulk Data API
11:10 – 12:10 pm	Da Vinci Project Panel: Members Discuss Defining Payer/Provider Collaboration using HL7 FHIR
12:20 – 12:50 pm	What Is CIMI Up to and How Does It Fit In?
1:00 – 2:00 pm	HL7 FHIR Solutions Showcasing Real-World Implementations Panel 1 Discussion
2:10 – 2:40 pm	The Future of Standards for Clinical Quality Measurement and Reporting
2:50 – 3:20 pm	HL7 FHIR Project Update
3:30 – 4:00 pm	FHIR Genomics – What You Need to Know for Project Implementations
4:10 – 4:40 pm	What's Next for Blue Button 2.0 and FHIR?
4:50 – 5:20 pm	Blockchain and Healthcare Standards

*Please note: presentation schedule is subject to change.*

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# OPTIMIZING HEALTH IT TO IMPROVE DELIVERY

*Missy Mitchell is the Vice President for Managed IT Solutions in the Leidos Health Group responsible for bringing best practices and standards developed on many federal government contracts to commercial health systems and vice versa. Mitchell leads a diverse team in multiple states, working mission delivery through software and hardware solutions. During her 20-plus-year career, she has worked across multiple defense and civilian agencies providing strategic IT sourcing and acquisitions support for both internal and external customers. Mitchell discusses how modernization is the key to improving care and cost.*

## What are some of the complex challenges facing healthcare today?

Healthcare organizations are at the apex of one of the most challenging times in history. The rising cost of providing care coupled with changes in payment structures are drastically impacting the bottom lines of health systems. Therefore, healthcare organizations are compelled to improve care delivery and lower cost wherever possible. And all the while, they must combat relentless cyber-attacks on the digitized environments they're erecting to improve patient care. With the importance and reliance on data to drive decisions and interoperability to obtain a complete dataset for a patient, organizations are required to expose the very systems and data they're striving to protect. At Leidos, this has necessitated that we derive some very innovative solutions to solve these problems.

## What's driving organizations to modernize their healthcare strategy and delivery?

Providers are turning to the volumes of data they've amassed over the years since EHR implementations to improve care delivery. This data-driven approach is serving to identify gaps or opportunities in care and service delivery across organizations. Remediation of these opportunities is driving organizations towards optimizations in technology and care delivery. Luckily, advances in technology and infrastructure are serving to make these optimization activities across the organization more fruitful, while simultaneously reducing operating costs. For example, Leidos has helped customers upgrade aging infrastructure and applications to the cloud. These customers have seen increased performance of their applications reduced annual operating costs, sometimes by more than 20 percent. And when we see numbers like that, we not only know that a) modernization works but that b) it is a critical tool in overcoming some of the complex challenges I've identified above.



**“Modernizing the environment should be a crucial part of any organization’s cybersecurity strategy.”**

**Melissa Mitchell** | Vice President, Managed IT Solutions | Leidos Health Group

## For the growing enterprise, does modernization come at the risk of security? What best practices would Leidos recommend to keep an organization’s healthcare applications secure and optimized?

Modernizing the environment should be a crucial part of any organization's cybersecurity strategy. To effectively defend against constantly evolving cybersecurity threats, an organization needs to evolve as well. But healthcare organizations remain slow to adopt technological advances which often serve to provide the most current cybersecurity protections. Some health systems continue to run older ancillary systems with aging infrastructure (such as Mainframe technology) that remains difficult or unable to be patched, leaving them exposed to threats. Upgrading infrastructure, networks and technology helps to mitigate those threats. It also enables organizations to take advantage of new cybersecurity technologies that track, manage and protect these assets and medical devices. Leidos has developed and adopted many of these to successfully help our healthcare customers track and secure their technology.

## Why should organizations consider a third-party service to relieve some of these challenges and improve their care delivery strategy?

Healthcare organizations should be enabled to focus on what they do best – which is caring for patients. Legislation has forced healthcare organizations to procure EHRs and amass technology staff to support

them. Consequently, some healthcare providers have begun to operate like technology companies. Third-party technology providers can be utilized to help return the organizations to their true aim: healthcare. These technology providers enable economies of scale, technology and expertise they've amassed serving a vast customer base to enable healthcare organizations to lower cost, improve their security posture and ultimately improve patient care.

## What qualities should healthcare organizations consider when evaluating a potential partner for IT services?

Diverse experience across a broad customer spectrum provides a partner with perspective, expertise and scale. Leidos' experience in government, defense and health has provided us with powerful technologies and experts across the spectrum of service delivery to secure organizations and drive out cost. It's these capabilities and experiences that organizations should seek when looking for potential partners. Additionally, a potential partner needs to align with your health systems' mission and vision. It's a vital connection to ensure that decisions throughout the tenure of the partnership are being made while looking through the same lens. At Leidos, we have managed some of the most complex IT organizations in the world. It's adherence to these principles that has allowed us to continue to serve more than 800 healthcare organizations and be the Number 1 provider of IT services to the United States government.



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# The state of the health IT industry

A look at the three major trends fueling HIT innovation today. By Blain Newton, Executive Vice President, HIMSS Analytics



Blain Newton

Technology has played a critical role in the healthcare industry for quite some time now, and it continues to have a major impact on the way we deliver care. Moving into 2019, three major trends driving innovation in HIT are as follows: reoptimization of core infrastructure, investments in clinically-integrated supply chain and a rise in digital health capabilities, such as telehealth and personalized medicine.

In the original push for digital healthcare technology, investments in infrastructure were instrumental. Primarily, infrastructure was built to support large standalone EMRs, which have become standard tools in hospitals across the U.S. However, as we move toward more specialized applications and experience massive changes in the way that we administer healthcare in general, we're now harkening back to that initial core infrastructure overhaul.

The provider space has seen significant merger and acquisition activity over the past few years, and now, the majority of hospitals in the U.S. are having to integrate with 10 or more outpatient EMR vendors. At the same time, the healthcare industry has seen a rise in security threats and data breaches. So the challenge for providers today is: How do I get my EMR to communicate seamlessly with 10-plus other

systems in a secure way, while also supporting the rise of consumer-generated data and consumer health?

To make it all fit, providers must go back and secure, retrofit and rebuild the infrastructure necessary for not only the world we're living in, but also the world we're moving toward. Vendors, in the meantime, are working toward innovation and partnership to provide more secure, fully interoperable solutions. Together, the HIT industry is increasingly enabling more standardized, cost-efficient care delivery with better patient outcomes overall.

One area of technology that's seen significant investment recently is the clinically-integrated supply chain. Currently, very few health systems have the ability to track which supplies are used in surgeries and which population of patients are using those supplies once the surgery is complete. If there's a recall on a knee replacement or pacemaker, how can you track down the patients with those parts before something goes wrong?

By linking existing materials management tools with existing clinical systems through a combination of workflow and technology innovation – usually, scanning at the point of use – clinicians can more effectively track the materials they use and trace them in the field, improving patient safety, clinical performance and consumption management at the same time.

Ultimately, recent investments in core hospital infrastructure to support secure, scalable and interoperable systems, paired with investments in tools and processes to leverage all of the resultant data in patient care, are paving the path for personalized medicine.

To support this shift toward personalized care, providers are increasingly investing in digital health capabilities, leveraging consumer-generated data and supporting virtual care through technology. Traditionally, adoption of virtual care technologies, such as telehealth, has been hindered by cost and reimbursement concerns, but as more and more of these concerns are addressed and eliminated, telehealth is going to take on a much more prominent role in healthcare. Just this past November, the Centers for Medicare and Medicaid Services expanded reimbursement for telehealth and virtual care services, so that will increase the rise as well.

As personal connected health capabilities become more popular, the increased collaboration, mobility and transparency between patients and providers will enhance the success of the clinically-integrated supply chain, because the feedback loop between patient, provider and supplier will occur more readily and regularly. And, of course, healthcare organizations will need to have the infrastructure in place to facilitate that.

These trends – the revamping of core infrastructure, the implementation of clinically-integrated supply chain processes and the recent investments in digital health technologies – are working in tandem toward more holistic, accessible and cost-effective treatment for patients. Clinicians want to be able to use all of the data available to them to improve population health as a whole, and not just within the walls of their organizations or for the duration of a patient's hospital stay.

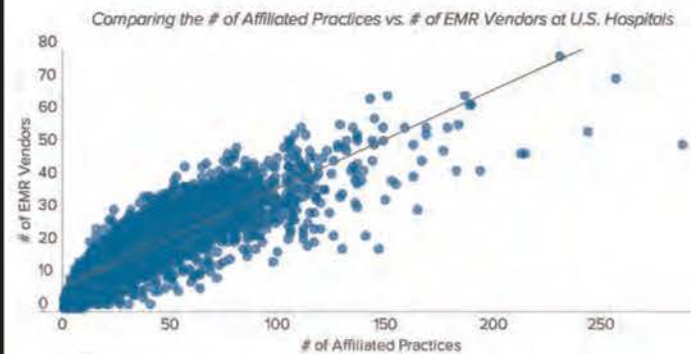
For the HIT industry, digital health transformation is the next big trend on the horizon. Technology has already and will continue to reshape the way we think about and deliver healthcare, impacting providers, vendors and patients alike.

This year, we'd expect to see the emerging digital health trend bend the healthcare cost curve a little bit further, alter the relationship between patients and providers and, ultimately, improve clinical outcomes everywhere. ●

## 2018 Year in Review

### BARRIER TO INTEROPERABILITY: DISPARATE EMR VENDORS

EMRs have reached near universal adoption thanks to MU incentives. However there have been some negative consequences associated with it: physician burnout, struggle to improve outcomes, inability to recognize significant cost savings, the shift from volume (fee for service) to value ... but most of all: **challenges around interoperability.**



A few barriers to interoperability:

- 74% of hospitals are dealing with 10+ disparate outpatient vendors
- Only 2% of hospitals have a single vendor in use at affiliated practices
- The average hospital has 15 vendors at affiliated practices

#### CMS Rolls Out New CMS Interoperability Initiatives

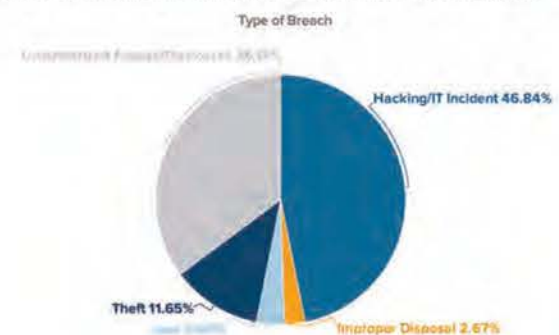
"We're changing to a new era of empowered consumers. We are about putting patients first and making sure patients have access to their healthcare data."  
Seema Verma, CMS Administrator, March 2018 (source)

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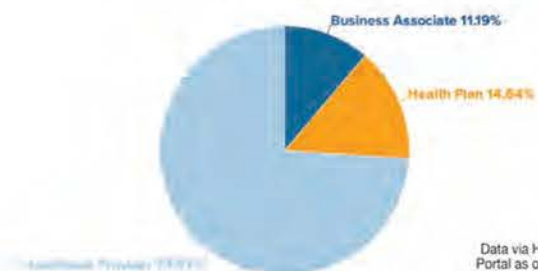
## 2018 Year in Review

### SECURITY AND DATA BREACHES

HHS's Breach Portal currently lists 412 breaches - each affecting 500 or more individuals and reported in the last 24 months - under investigation. As of 12/3/2018 breaches were reported in 49 states, with over 14 million records affected.



Breaches by Covered Entity Type



Data via HHS's Breach Portal as of 12/03/2018

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# FINANCIAL WELLNESS: RCM IN A CHANGING PAYMENTS LANDSCAPE

*Chris Morris has worked in the technology and financial services industries for his entire career. He has been with Synchrony for 14 years and spent the last 10 years as CareCredit's CFO. He works closely with CareCredit CEO Beto Casellas and sales and marketing leaders to advance the overall business. Morris weighs in on new RCM innovations in an evolving world.*

## What do you see as the most challenging aspect of the revenue cycle?

From our perspective, there are two challenges that apex at the revenue cycle: the transition of patient-as-payer and the rise of healthcare consumerism. The patient-as-payer is a relatively new concept for health systems. Organizations have historically focused on collecting from Medicare and private insurance companies but in a recent CareCredit survey, providers surveyed said 34% of practice revenue now comes from patient out-of-pocket payments vs. insurance reimbursement.\* This shift also means that out-of-pocket costs are rising for patients – a number they might not be prepared to pay.

This has led to the rise of healthcare consumerism. As out-of-pocket expectations grow, patients are doing more research about their healthcare options. They're expecting their healthcare service to equal that of their retail experiences – with transparency, on-demand access to details and flexibility with payment methods – which presents a new challenge for providers. So, in addition to ensuring that they will be paid by their patients, organizations are also pressed to attract and maintain patients at their facility. This cultural shift is setting a new bar for health systems, one that may not be easy to deliver.

## How does CareCredit play a role in this environment for patients and providers?

We've focused on offering patients a payment option for healthcare for more than 30 years. This was first for elective procedures that weren't covered by health insurance, but as the need for financing has spread, we now include many other healthcare specialties. We offer a dedicated way to pay for healthcare to help patients move forward with their treatment options without tying up other cards they may need or having to use cash on hand.

For providers, we seek to reduce patient leakage while fulfilling patient needs. We don't want patients to postpone procedures and we certainly don't want payment options to motivate patients to choose another provider. So, we handle the billing and collection associated with the financing for our providers. We are a non-recourse solution: if a patient



**“Cost-estimation tools are getting better through technology. The payment process is becoming more versatile and intuitive for patients and providers.”**

Chris Morris | CFO | CareCredit

fails to pay their CareCredit bill we absorb the loss rather than the hospital.\*\* This can be a huge savings for the organization in addition to the peace of mind for those providing care.

## How can providers improve patient collections while also maintaining a positive patient experience?

We've learned that providers have several opportunities during the patient journey to request payment.

1. During the pre-engagement or pre-appointment phase, which begins with the initial consultation.
2. At the time of service.
3. Post-procedure. This is the more traditional route after insurance has adjudicated the service and the patient percentage has been determined.

**Bottom line:** the earlier an organization can collect payment, the more successful they may be. During that pre-engagement stage, providers can address payment options with patients and explore the availability of financing. When patients have a way to pay, they can often move forward with the treatment plan.

But how does this maintain a positive patient experience? By discussing costs up front, organizations can empower consumer choices for the full-procedure while reinforcing trust with the provider. Healthcare, unlike many other consumer industries, can be frustrating because patients may not always know what their bill will look like on the other end. With cost transparency, patients can better understand their bills and feel more respected throughout the process.

## What does CareCredit see on the horizon in terms of new innovations in the RCM space?

Cost-estimation tools are getting better through technology. The payment process is becoming more versatile and intuitive for patients and providers. CareCredit has invested in several tools that we feel innovate the RCM space:

- **CareCredit Direct:** A self-service tool that can help patients apply for a CareCredit credit card at the provider's office without the provider involved. Here, patients can consider their options and submit an application.
- **Quick Screen:** A tool where providers can send us a list of their incoming patients and we can send a list back of patients who were pre-approved for a CareCredit credit card. This not only helps speed up the process but offers an easy entry point into a pre-engagement payment discussion.

We strive to provide flexibility to patients and reduce the billing and collection burden on providers through our deep expertise in finance and lending. We're proud that in our recent surveys, our cardholder satisfaction was at 94 percent and our NPS (net promoter score) was at 75 percent, higher than Amazon or Apple.

\*CareCredit Payment Benchmark Study with Enrolled Providers, December 2017

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# What's really fueling the blockchain craze? Dissatisfaction with the status quo

While interoperability and cybersecurity challenges persist and EHRs overwhelm, distributed ledger technology is so hyped because of the hope for what it might mean in the future. **By Tom Sullivan**



Mitch Parker

Blockchain's promise is so over the top that small tasks such as finally solving interoperability, securing all patient data, overhauling the supply chain, transforming electronic health records and generally saving the world are only scratching the surface of its myriad, much-hyped use cases.

Blockchain won't save the world, of course. It likely won't even deliver on many of its sky-high hopes – at least not soon. But before that realization settles in, the hype will continue even as a healthy degree of skepticism grows.

Gartner is advising hospitals to at least begin considering what can be done with blockchain – or risk being left behind by more tech aggressive competitors – and projected that companies in all vertical industries around the world will spend \$360 billion on blockchain projects by 2026, with the surge driving investments to nearly \$3 trillion by 2030.

Why is blockchain garnering so much buzz right now?

"There are many factors motivating the implementation of these

technologies," said Mitch Parker, executive director of information security and compliance at Indiana University Health. "The key ones that we have found are a dissatisfaction with the current IT landscape, and the desire for participation by all stakeholders in improving it to innovate the business."

Whether inspired by dissatisfaction or other reasons, hospitals and non-providers envision a fistful of initial use cases for distributed ledger technology, including health information interoperability, more efficient data transfer between health systems and insurance companies, securing medical records, giving patients more control over their own data, and improving claims adjudication, according to research from Healthcare IT News sister company HIMSS Analytics.

Amid all the hype, HIMSS Analytics also found some reasons to be encouraged: 72.2 percent of responding organizations said their technology infrastructure is either very well prepared (14.8 percent) or moderately prepared (58.4 percent) for blockchain. Yes, that 15 percent is smallish, but given how new DLT is to healthcare, the fact that almost 60 percent say they're even a little bit ready should be encouraging.

The infrastructure is evolving and use cases are crystalizing, but HIMSS Analytics also found that even among initial proofs-of-concept and pilot programs fewer than 10 percent are currently planning a more advanced testing phase in the next 24 months

That said, Indiana Health's Parker added that, as more blockchain and DLT implementations come to fruition and the vendors mature, the number of real-world implementations will follow accordingly.

"We've seen organizations move forward with their own development, such as Sentara, others leverage implementations from their business partners, and finally others that use products from the more mature players," Parker said. "While there is a lot of hype, there are businesses being driven by some very smart people that are building practical, real-world implementations that are already in use and proving themselves." ●

*Parker will discuss DLT in the HIMSS19 session "Blockchain Beyond the Hype: What is Really Motivating It?" which is scheduled for Thursday, February 14, from 11:30 a.m.-12:30 p.m. in room W320A.*



Mari Greenberger

## HIMSS DEBUTS BLOCKCHAIN IN HEALTHCARE LIBRARY

The primer will include "Blockchain 101," a use case discovery framework and a look at considerations for the digital distributed ledger technology **By Tom Sullivan**

HIMSS has compiled the Blockchain in Healthcare Library and brought it to the HIMSS19 Global Conference.

"This doesn't exist yet," said Mari Greenberger, director of informatics at HIMSS. "We're trying to leverage resources out there. In healthcare especially there really seems to be a gap."

Greenberger added that the blockchain resource kit includes a "Blockchain 101" section explaining what the distributed digital ledger technology is, key terminology and a look at strengths and vulnerabilities, a look at distributed storage, DLT vs. cryptocurrency and blockchain networks.

Another aspect of the kit focuses on adoption and implementation, with strategies for identifying use cases, a business roadmap as well as a use case discovery framework.

The resource kit also includes considerations for healthcare, notably privacy and security, regulatory and compliance, governance of ecosystems, health data storage, performance throughput-scalability, interoperability and deployment architecture.

Greenberger described the kit as a blueprint and initial primer.

"We want to make it dynamic," Greenberger said. "We're thinking through a roadmap with decision points and questions to ask yourself to decide if blockchain should be utilized for tech projects." ●

## UNIVERSITY ROW: LIFELONG LEARNING FOR HEALTH IT PROS

**By Bill Siwicki**

More than 30 U.S.-accredited colleges and universities with degree programs in fields related to health IT and health informatics will be on hand with booths at HIMSS19 in the University Row Pavilion.

"University Row provides many resources to help attendees engage in continuing professional development, regardless of their professional or personal needs," said JoAnn Klinedinst, vice president of professional development at HIMSS.

"Through a myriad of in-person and virtual resources that offer attendees new or additional undergraduate degrees, advanced degrees, certificate programs, executive education or non-degreed, continuing education programs, University Row has the resources to help busy

health information and technology professionals plan their approach to continuing professional development and lifelong learning," she added.

University Row offers a variety of programming for stakeholders from across the health IT and health informatics ecosystem. For example, one institution will offer the first program of its kind providing graduate education supported by evidence-based research, scholarship and publications: the Jefferson College of Population Health.

Established names such as Johns Hopkins University School of Medicine, University of Michigan and Weill Cornell Medicine of Cornell University will be at University Row. As will a newcomer to health IT academics, Harrisburg University of Science and Technology. And attendees can find certifi-

cate programs that supplement knowledge gaps through the University of Wisconsin Extension of Continuing Education.

"It is our hope that attendees will have a much richer perspective on advanced-level resources from nationally and internationally recognized colleges, universities and other organizations that will help them achieve their professional and personal goals and objectives, or perhaps identify resources for colleagues, too," said Klinedinst.

"Because of the fast-paced culture of health IT and health informatics," she added, "lifelong learning is a strategic imperative, an absolute necessity for professionals." ●

*Those organizations and others will be available to speak with attendees at kiosks located in Lobby B on Level 2.*



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# READY FOR THE UNEXPECTED: SAFEGUARDING THE HEALTHCARE ENTERPRISE

Alex Schlager, Executive Director for Product Marketing at Verizon Security Services, discusses how intelligent risk insights and continuity solutions can protect healthcare data from threat, loss and downtime. He highlights a comprehensive approach to risk mitigation for the healthcare enterprise, including intelligent risk insights, business continuity backup, and the establishment of a perimeter network and sustained connectivity in the event of a disaster or potential outage.

## Why is it so hard to detect, identify and prevent cyberattacks?

Threat intelligence is a challenge for many enterprises. Even if an organization can get its arms around all the necessary data, few have time to assess it daily. It's also difficult to know which risk indicators are the most relevant to their business. Maintaining a healthy security posture is really about knowing which threats to prioritize and when. A small retailer might need to focus on preventing malware and ransomware attacks compromising its customer payment data; meanwhile, a hospital or integrated healthcare network is going to prioritize the security of its protected health information and regulatory compliance requirements.

The challenge with most threat "intelligence" is that it's too general. It doesn't identify risks that are unique to the operation of a specific business. The greatest potential for risk mitigation comes from more actionable threat intelligence that's tailored to a specific industry, business and IT environment. With the situational awareness of a business-specific profile, an enterprise is better able to assess vulnerabilities and gaps and to prioritize their security spend. Ultimately, the goal is to lessen the impact of cyberattacks by reducing the time it takes to discover and contain them, and the more granular the threat intelligence, the easier it is to realize that goal.

## What does enterprise-specific threat intelligence look like? How is that data sourced?

This kind of granular risk profiling involves building an enhanced intelligence feed that analyzes data from a wide range of sources – monitoring of the surface, deep and dark webs and analysis of intelligence from a wide range of reliable sources, including open-source threat feeds, commercial threat intelligence, STIX/TAX I feeds and unstructured intelligence. But accessing and collecting those streams of data is just the first step. Sifting through that data to identify risks that are relevant to the organization and the industry it operates in, then correlating indicators of compromise and threat activity within the landscape of an organization's operations are critical next steps.

Armed with this kind of advanced-level foresight, an enterprise can deploy its security resources more effectively, make more strategic decisions about their defenses, and thwart the efforts of cybercriminals, be they state-affiliated actors, organized or another form of cyber adversary. Quickly identifying threat actors



*"Knowing the things that matter most to a patient can shape the right roadmap for meeting those expectations."*

ALEX SCHLAGER | Executive Director, Product Marketing | Verizon Security Services

and patterns can enable advanced threat forecasting to help prevent future attacks.

## What else should healthcare organizations be doing to secure their data?

There are a few things all enterprises should be doing, but healthcare has some unique challenges to address. Recognizing that strict restrictions to patient information can affect the ability to make timely and proper point-of-care decisions, there are improvements that can be made in the area of logical access controls to PHI. A comprehensive review and ongoing audits of access rights to sensitive data enables ease of access to frontline medical providers, yet reducing authorization creep within organizations is essential. There will always be a balancing act that healthcare security officers must face, but there's room for reduction of attack surface and internal threat.

An overall incident response (IR) plan should be in place and include both internal stakeholders as well as external partners in areas of legal guidance and forensic investigative assistance. The ability to react quickly and efficiently can often make a difference in the level of impact an incident has on an organization.

Secondly, as all industries move towards utilization of the Internet of Things (IoT), establishing a proactive policy of building security into any and all implementations is vital to getting ahead of what could be an increasing threat in the future. A formalized policy specific to testing and vetting of connected medical devices, as well as third-party legal reviews of contracts, should be developed. Focusing on resiliency and availability in regards to IoT implementations, as well as integrity or confidentiality, is important.

## Why is having a business continuity plan important for a healthcare provider or organization?

Business continuity is critical to every business regardless of industry. Having a plan for environmental threats (severe power outages, natural disasters) or device malfunctions to ensure that backup plans exist is critical to every business, but there are fewer industries where a loss of connectivity, communication and information flow would be more disruptive than in healthcare. Our nation has seen its fair share of natural disasters in the last few years – hurricanes alone have brought devastating loss and interruption to communities who need reliable and sustained avenues of communication.

Healthcare organizations whose critical patient-care operations are dependent on that kind of sustained connectivity need to be thinking about backup solutions that keep information flowing even when a disaster or unexpected event occurs. In hurricane-hit communities, power and connectivity outages can truly hinder disaster recovery efforts. We work closely with agencies and organizations in those areas to deploy perimeter network solutions that can rapidly restore communication, but hospitals and clinics need backup options when primary communications go down.

When we talk to our customers about being "ready for the unexpected," we don't just talk to them about securing their data. We talk to them about safeguarding the ecosystem that data lives and moves within – securing their network, making good use of risk intelligence to put the right protocols in place, making sure there are backup options and continuity plans on board, and securing all access points, from their IoT connections to the application edge.



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# Kaiser Permanente chief medical officer talk implementing virtual care in its unique payvider model

Dr. Patrick Courneya said KP found a way to connect directly to the longitudinal record to make care programs more flexible. **By Laura Lovett**



Patrick Courneya

Kaiser Permanente has a history of integrating virtual care programs. The organization's provider and payer model has allowed it to explore digital health early on.

"We have some unique opportunities because we are an integrated organization," said Dr. Patrick Courneya, chief medical officer at Kaiser Permanente. "We have healthcare delivery on the clinical side and hospital side ... so we have greater flexibility for new types of care and new ways of delivering care that are not as constrained by the payment model."

On Wednesday at HIMSS19, Courneya will discuss his experiences implementing virtual care at Kaiser Permanente in his presentation "Teaming up for change: Virtual care lessons."

The organization started investing in automated medical records and working with different technologies early on. This gave the system an opportunity to start creating a "whole ecosystem with venues of care," according to Courneya.

"Obviously Kaiser Permanente and the rest of the industry have been using the telephone as a way of delivering care, advising and prescribing medications for certain straightforward things for a long time. We aren't different from anyone else in that way. But we also had the opportunity to incorporate texting, secure messaging, chat capabilities, video, etc., into that ecosystem," he said. "We found a way that can directly connect to the longitudinal record so we have a clear idea of which of those technologies are being used and

how they are being used. We also have the opportunity to use those tools to facilitate clinician-to-clinician interactions as well."

Courneya noted that while Kaiser Permanente's integrated model allowed it to get a jump start on implementing some of these technologies, changing industry attitudes and reimbursement criteria could give other health systems an opportunity to innovate.

"It does make it easier for us now, but we recognize that the advantage will evaporate over time. In fact, I think that is one of the big trends that we are seeing as payers, including traditional health plans, becoming more comfortable opening up reimbursement. We see that difference evaporating fairly rapidly, and I think that is going to be an important enabler of more use of telehealth services," Courneya said. "One place that is happening perhaps more rapidly is in the conversations people are having about how do we meet the needs of people in rural communities who have unique challenges of access of getting medical expertise."

Looking to the future, Courneya isn't pinning his hopes on one technology. Instead, he said it's important the organization implement the technology effectively so that it is addressing a problem.

"I think the greatest promise isn't a specific tool but how organizations, like ours, use those tools to solve problems we have identified. So the questions would be what are the best, highest quality, safest ways to use a chat function or text function and secure messaging, and how do we know the care we are delivering in those different types of technologies is safe and high quality and creating the outcomes you want?" he said. "I would argue it is not so much what those technologies are as to how effectively and creatively and wisely they are being used."

So what is Courneya's advice for providers looking to use more virtual care tools in the future?

"Meticulous attention to the design and attention to both sides of the interaction and using the technology – whether that is the experience that the patient is having in using the technology or a clinician is having using the technology," he said. "And doing it in a way so that both sides of that interaction feel a sense of confidence and trust in a tool that is well suited to the problem they are trying to address."

The second piece of advice, he said, is to recognize that "these are new venues of care, and they need to have a framework for understanding what delivering high-quality safe care means. And the third is being intentional about it and measuring it so you aren't putting anyone at risk." ●

*Courneya will share more insights at a HIMSS19 session titled "Teaming Up for Change: Virtual Care Lessons." It's scheduled for Wednesday, February 13, from 11:30 a.m. to 12:30 p.m. in room W207C.*



## ORACLE DEBUTS REMOTE PATIENT MONITORING SYSTEM

Connected Care initially will be aimed at improving stroke outcomes by connecting patients in ambulances or ERs to neurologists. **By Bill Siwicki**

Oracle introduced Connected Care, a telehealth and remote patient monitoring tool initially aimed at improving stroke outcomes, here at HIMSS19.

"It has a lot of applicability in various use cases," said Michael Walker, global lead for healthcare and life sciences at Oracle. "We are using strokes as the example as it is a leading cause of death, and bad things happen when patients do not get the treatments they need within a given time window."

Connected Care's remote patient monitoring leverages the internet of things, machine learning and the Oracle Autonomous Data Warehouse – a product debuted in October 2018 that makes it easier to deploy apps like Connected Care. Also under the hood of the data warehouse is Oracle Analytics.

"A scenario in a patient journey would be when they have a stroke in their home and then are being transported to a hospital," said Walker. "We connect them to a device and start streaming their data to the hospital, where they may or may not have a neurologist on staff."

Rural area healthcare providers often do not have a range of specialists on staff, for instance.

"So then it takes longer to get a patient to a hospital that has a neurologist on staff and you burn precious time a patient needs to get treatment faster," he said. "And the local hospital loses that patient to another hospital."

With Connected Care, the ambulance can stream the vital signs so that the provider at the local hospital can review them, and further, the technology can link to a remote neurologist. There might be a relationship between the local hospital and an academic medical center some distance away, and the neurologist is on standby and can make the diagnosis so that the local physician at the community hospital can perform the correct treatment.

"We also apply machine learning to the data to identify patterns," Walker added. "Machine learning is looking at the data over time and if a pattern emerges, let's say irregular heartbeat, then the physician is notified to take a closer look at the heart rhythm or an EKG within a specific period of time."

The problem with any of these snapshots of data is they are very limited. Physicians are busy and cannot sit in front of a terminal and view data, so that is what machine learning is doing for the physician.

"We are working closely with the industry; we have physicians advising and people in the field running pilots and providing care," Walker said. "There are a number of use cases. Stroke outcomes is one, pediatric cardiology is another example. Getting kids with heart defects home faster. Clinical trials is another example. We can reduce the drop-out rate of people in trials. The list goes on."

The big change has been the shift by the Centers for Medicare and Medicaid Services to reimburse for remote patient monitoring, he added.

"With telehealth, you really need that video feed," Walker said. "CMS unbundled some CPT codes in 2018, and there will be more CPT codes in 2019 that will drive significant growth and opportunity in this space." ●

Oracle is in Hall B, Booth 2305.



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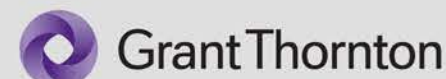
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Shawn Valenta

## HOW MEDICAL UNIVERSITY OF SOUTH CAROLINA TAPPED ITIL FOR TELEHEALTH

The health system saw an opportunity to leverage Information Technology Infrastructure Library best practices and key concepts to improve its remote care. **By Bill Siwicki**

The Medical University of South Carolina was charged recently by its leadership and state leaders to expand its telehealth portfolio and rapidly develop new services. That goal was helped along by some strategies gleaned from ITIL, a library of best practices to help organizations optimize their infrastructure projects.

Over time, the health system had created many checklists and processes for telehealth service development, but it started to experience growing pains during this accelerated growth phase.

For example, key stakeholders were not being engaged at the appropriate steps, which resulted in provider dissatisfaction and implementation delays. The organization needed a better structure that incorporated the whole telehealth service lifecycle and accounted for all of the complex factors that could impact the design of a new service.

To solve the problem, the Medical University of South Carolina decided to use ITIL – the Information Technology Infrastructure Library.

“Our use of ITIL is different than the traditional use, but since telehealth is really a clinical service applied over an IT service, we saw an opportunity to leverage ITIL best practices and key concepts,” said Shawn Valenta, administrator of telehealth at the Medical University of South Carolina. “We adopted the framework of ITIL and adapted it to fit our own needs.”

Staff created a telehealth service management framework that factored in all of the complexities of telehealth service development. It has allowed them to create a common architecture to creating and successfully maintaining telehealth services, and it’s helped them better understand their strengths and weaknesses and where they had gaps that needed to be addressed, Valenta explained.

There are many vendors on the market today that offer telemedicine technology, including American Well, Avizia, GlobalMed, MDLive, Novotalk, SnapMD, Teladoc, TeleHealth Services, Tellus and Tyto Care.

Valenta had his Center for Telehealth staff go through a three-day ITIL course, and most of the team received the ITIL Foundation certification. Before the course, he prepped the team on what they would be learning and instructed them to rethink the concepts as if they were applying them to the organization’s telehealth service development process.

“I told them some of the things that they will learn will not apply and that we would also have to add new telehealth processes that are not included within ITIL,” he added. “I also had to explain to the ITIL instructor what I was trying to accomplish as it was a different audience and a different use case than he was used to.”

After the course, Valenta assigned the team to specific phases and continued to challenge them to improve the telehealth framework with what they had learned, using ITIL as a reference tool for new ideas. Over the last year, the team has built out processes within each phase of the framework.

“We view the continual improvement of our telehealth service management framework as a journey that we are on as we continue to mature it to better serve both our internal and external customers,” he said.

Since the Medical University of South Carolina didn’t apply ITIL in the traditional sense of managing an IT service, its metrics have focused on improving the development and management of telehealth services.

“We have experienced a significant increase in new telehealth services and telehealth utilization,” Valenta said. “In addition, within the operations phase, we have prioritized our response to ‘incidents,’ which we define as any unplanned interruption of a telehealth service. These incidents can be caused by technical, personnel or operational issues, and the team continues to mature processes to minimize and mitigate these incidents.

“Whether you are in a larger health system looking to integrate enterprise-wide telehealth adoption or just a small community hospital wanting to pilot your first telehealth service, I strongly believe that the telehealth service management framework we developed from adapting ITIL’s best practices could serve as a clear guide to navigating the many complexities that affect telehealth service development,” Valenta said. ●

*Valenta will share more insights at HIMSS19 in a session titled “Adapting ITIL for Effective Telehealth Service Management,” scheduled for Wednesday, February 13, from 1-2 p.m. in room W207C.*

## Build vs. buy? Two clinicians share the pros and cons of each approach to innovation

Dr. Subha Airan-Javia and Dr. Neha Patel weigh in on one of tech’s oldest debates. **By Laura Lovett**



Subha Airan-Javia

Organization and efficiency have always been Associate Professor of Clinical Medicine at University of Pennsylvania Health System Dr. Subha Airan-Javia’s strong suit. So when she started her medical residency it was easy for her to spot where different systems just weren’t working – or where bureaucracy was taking up too much time. These gaps were the impetus for her to innovate.

“I started at Penn in 2004, and early on in my experience as a resident I realized there were a lot of inefficiencies,” she said. “Workflow is something I’ve always been interested in,

and ways to be more efficient – specifically, integrating technologies.”

Airan-Javia and her colleague Dr. Neha Patel took different routes: Patel worked with a vendor and Airan-Javia built the technology in-house.

For Airan-Javia, the decision to do that came down to what was on the market at the time – or in her case, wasn’t.

When she first started working in the system as an intern she remembered using Word documents to manage the list of patients. The docs were also used for notes and patient handovers.

That was when she decided to start working on a tool of her own that could meet the needs of clinicians.

“We wanted to build a tool that was fully electronic, fully mobile and really enhanced our workflow. And I did an evaluation at the time to what was available, what functionalities did our vendors have and what vendors were we getting, and none of them had this robust functionality,” Airan-Javia said.

So she started a collaboration with the IT department and clinical information officers. She said they approached the development of the product through a user-centered and problem-based design.

Once the first rendition of the tool was up and running, for the most part clinicians were able to onboard quite easily, she said.

“About a year in I had 700 users and the vast majority said in three days they were comfortable using it, and most people were within a day of using it,” Airan-Javia said.

The tool has gone through three iterations and won multi-

ple awards. The final version is called the CareIgn.

“We created a tool that really met the need of the clinician. Then they are kind of free from the burden of what a lot of these other companies do – billing and coding and regulatory stuff,” she said. “I am a hospitalist and obviously I’ve been able to work with the other clinicians and look at what do we need from the design and the data and functionality aspect. ... Probably in any industry where you have highly stressed individuals, there were some people who adopted it immediately and said, ‘This is amazing and really changing my life.’ And there were some people, a small minority, who were resistant, but then within a week were emailing and texting, ‘This has completely changed my life,’ or ‘I’ve gone paperless.’”

While the tool may have changed the workflow for doctors and practitioners at the University of Pennsylvania Medical, it is sometimes hard for professionals to know exactly where to turn for these tools.

“People often compare health technology to the development of horse to cars,” she said. “Before cars, if you asked people what they wanted they would have said faster horses — because it is hard to know what is even possible if that isn’t your area.” ●

*Airan-Javia and Patel will be presenting their experiences at HIMSS19 in a session called “To Buy or to Build: How to Get Your Project Off the Ground.” It’s scheduled for Thursday, February 14, from 8:30-9:30 a.m. in room W315A.*





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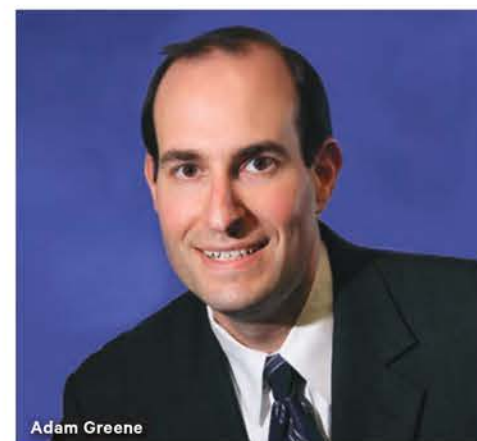
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# European perspective: How hospitals should be approaching GDPR

Two healthcare leaders from Germany offer best practices for assessing privacy and security posture – not just for EU legal requirements, but because it’s the right thing to do. **By Mike Miliard**



Adam Greene

## THINK A STRONG INFORMATION SECURITY POSTURE MEANS YOU’RE COMPLYING WITH HIPAA?

Without proper documentation for government regulators, infosec protocols might safeguard data without meeting federal compliance criteria.

**By Tom Sullivan**

By now it’s a well-trodden cliché to say that even the most stringent compliance with HIPAA does not mean sensitive health data is actually secure – but what about an inverse of sorts?

Many might assume a strong security infrastructure necessarily leads to regulatory compliance, in other words – but “good security is not enough to demonstrate HIPAA compliance,” said Adam Greene, partner at the law firm Davis Wright Tremaine.

“Even very mature information security programs are often lacking documentation that the primary regulator is expecting,” he explained.

It’s not an entirely uncommon situation for hospitals to be in, either. Greene said that’s because information security shops and compliance teams often are not aligned closely enough to make it happen.

“The challenge I often see is that compliance and information security are in separate silos. Information security professionals are really good at information security, but have not received education on what regulators are seeking to demonstrate compliance,” he said.

“Compliance staff may be better at understanding how to demonstrate compliance, but may not feel like they have the competence or authority to bring their compliance skills to the information security side of the house.”

Given that scenario, how can hospital and healthcare executives bridge that chasm to ensure that information security teams and compliance efforts operate in lockstep to serve both purposes?

“It is a combination of documenting your security efforts in a way that will enable you to get credit for everything positive that you have done, ensuring that your risk assessment is consistent with the regulator’s ideas – which may differ significantly from many information security professionals preferred approach – and understanding the level of detail that the regulator expects to see in policies and procedures,” Greene said. ●

Greene is scheduled to speak at HIMSS19 during a session titled “Turning Good Information Security Into Good HIPAA Compliance,” on Wednesday, February 13, from 11:30 a.m.-12:30 p.m. in room W320.



Since the European Union enacted its General Data Protection Regulation law this past May, it’s probable that many healthcare organizations in the U.S. have been trying hard not to think much about it.

But most should be paying a lot more attention to the rules since, even if the exact mechanisms of U.S. enforcement are still somewhat unclear, it’s likely they’re expected to follow the law if they handle any data of EU residents.

GDPR has a higher compliance threshold than HIPAA, since it defines personal data as anything connected to an “identified or identifiable natural person” – and that could be a photograph or an IP address, not just protected health information as most U.S. hospitals think of it.

Stateside health systems are on the hook for GDPR if they have European patients, and could face fines exceeding €20 million.

At HIMSS19, two experts from Germany will explain how one EU health system prepared for the new privacy law.

Florian Benthin, senior manager at Deloitte, and Peter Gocke, chief digital officer at Charité Berlin, the largest university clinic in Europe, will first show how Charité developed an implementation plan.

Figuring out which elements of compliance are already in place and which aren’t should be the first step in GDPR readiness for every healthcare organization, they said, regardless of which side of the Atlantic it’s on.

They’ll also spotlight common gaps in hospital preparedness and explain how Charité rolled out its own privacy transformation program – ensuring its employee culture, data governance policies, IT infrastructure and more were ready for GDPR.

As for American hospitals, when asked what steps U.S. providers should be taking to ensure GDPR readiness, Benthin emphasized first that it’s a legal text that must be closely analyzed in order to learn of industry-specific requirements.

GDPR “demands on the one hand that companies know their processes and responsibilities,” he said. “On the other hand structures are needed to work on a common process landscape.” Templates are available for process documentation, he noted, suggesting that hospitals take advantage of them to help with basic documentation.

“Many large healthcare providers lack an exact overview of their processes and the software systems used for them,” Benthin explained. “In addition, structures – and often also technical options – for correcting, locking and/or deleting data in IT systems are missing.”

All of those are required by the law. So he suggested healthcare organizations “set up a process and data map and establish a data management team” to help manage some of those demands.

“For GDPR readiness, it is quite essential to work on a common process landscape,” Gocke explained. “Templates should be developed in order to achieve a consistent process documentation, and a good life cycle management should be established to keep the documentation and the technical measures derived from it up to date at all times.”

At Charité Berlin, “we have established our own data protection management team which reports directly to the CEO and coordinates closely with the staff unit for information security,” Gocke added.

For providers on the U.S. side, are there lessons to be drawn from their own past preparedness efforts for laws such as HIPAA?

While GDPR’s requirements are “significantly broader than the data and entities covered by HIPAA,” said Benthin, “HIPAA is a good starting point and some elements are needed in both worlds.” ●

Benthin and Gocke’s session, “Healthcare Information and Technology in the Age of GDPR,” is scheduled for Wednesday, February 13, from 2:30-3:30 p.m. in room W320.



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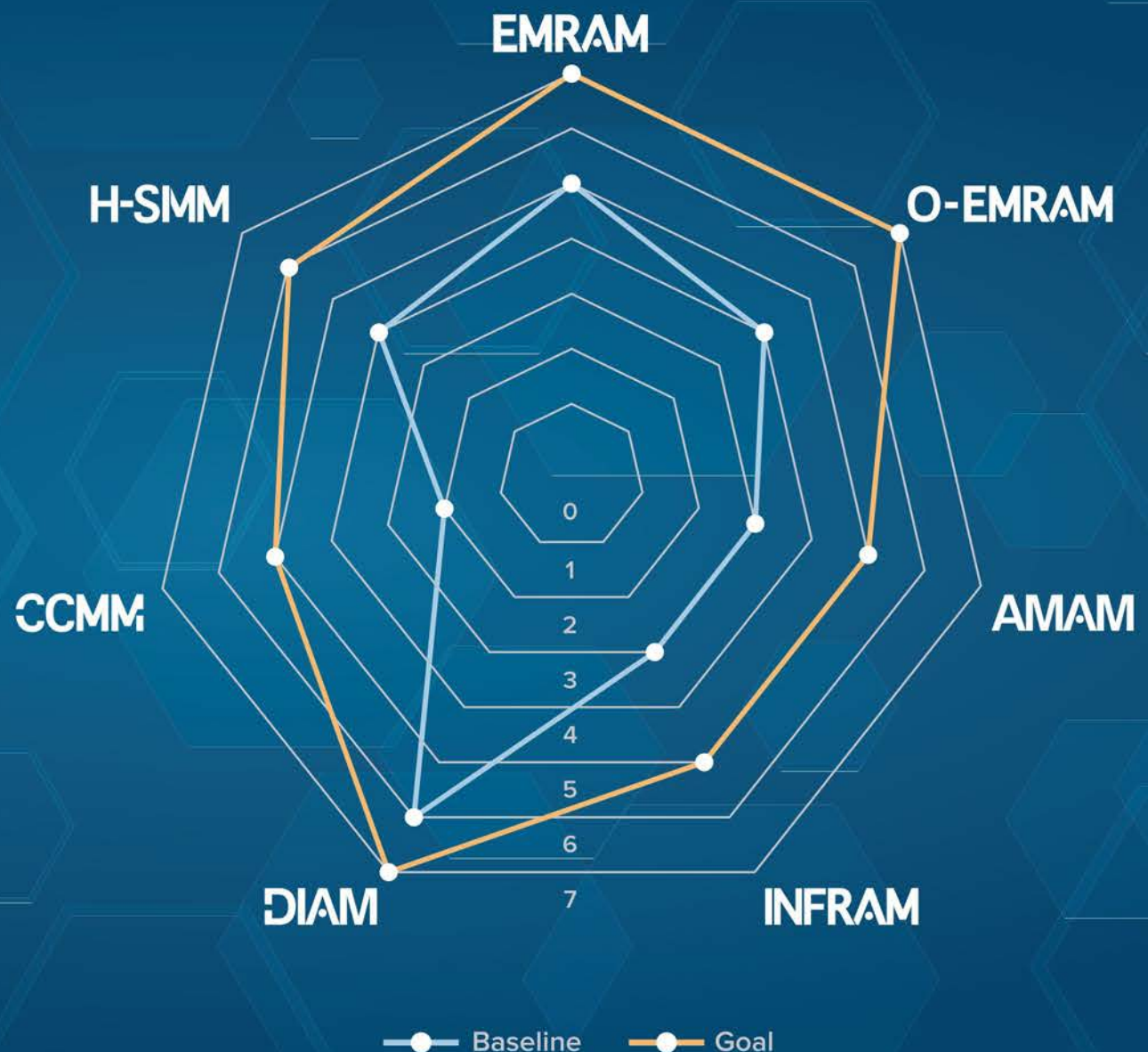
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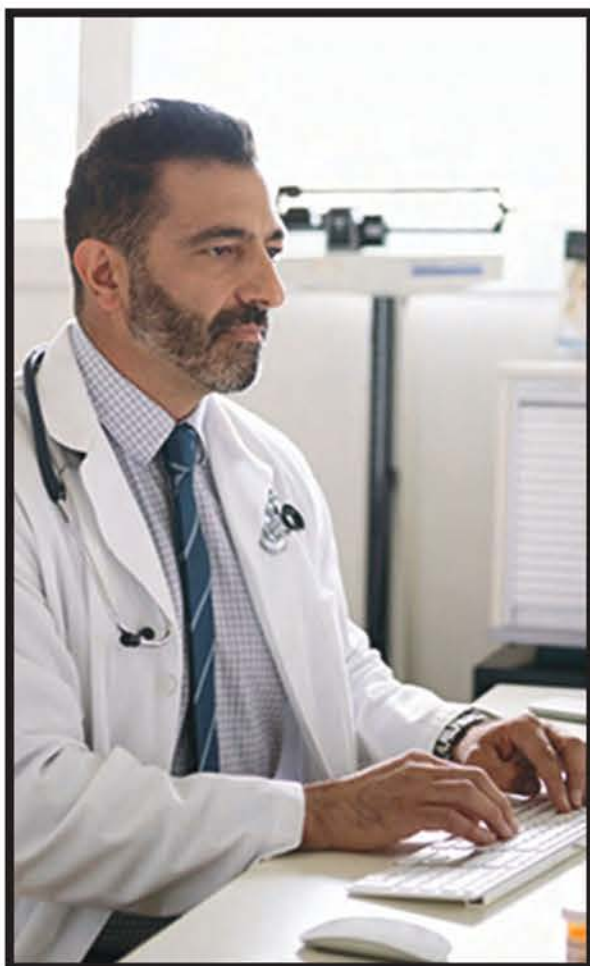
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# Hennepin Healthcare uses EHR data to identify patients at risk of homelessness

Hennepin's Alex Knutson-Smisek says using electronic health records to pinpoint social determinants was a hard sell – but the work that followed was much easier. **By Beth Sanborn**

More and more over the last year or two, identifying and addressing social determinants of health is emerging as a new priority for providers as they seek ways to improve the health of the populations they serve, improve outcomes, and reduce readmissions and avoidable admissions.

Despite the growing collective realization that social determinants must be part of a system's overarching strategy for care delivery, identifying them remains a challenge on both a patient and population level.

Homelessness is by its very nature a critical social determinant of health. And the number of homeless people being hospitalized is on the rise, and in many cases they are showing up at the emergency department for non-emergent situations, according to research in the journal *Medical Care*.

To prevent such admissions, better control unnecessary spending and generally strive to make that population healthier, hospitals such as Hennepin Healthcare are undertaking initiatives to address social determinants.

Hennepin is not alone of course. Kaiser Permanente committed \$200 million to decrease homelessness because having housing is crucial to an individual's health.

Hennepin, for its part, has already successfully identified patients at risk of homelessness using its EHR, according to Alexander Knutson-Smisek, a clinical informaticist at Hennepin.

Whereas using an EHR to identify social determinants made sense to Knutson-Smisek, the concept was not an easy sell.

On the clinical side, he said Hennepin has been working to address social determinants for a long time, but everyone has their own biases and areas of focus.

The main barrier for someone in informatics is the division that we've put around EHRs being focused on medical information in the past, Knutson-Smisek said. Getting over that took some coaching of IT staff and clinicians on the fact that it

really is intended as a comprehensive health record and that social determinants are huge portions of a patient's overall health.

"That's usually where the conversation has to start. Clinicians should be looking at the whole patient perspective as much as possible and really marrying the social side of things along with the medical side of things into a single view as the best way to inform people about that whole patient," he said.

In the past, clinicians have taken the initial patient interview and assessment as the main way of identifying these people, but over the last few years they have started to look at what data is available across the whole patient population to identify at-risk patients, using the regular address that is collected by the front desk of a clinic, hospital or emergency department and matching the address with locations that would indicate the patient is at risk of homelessness — such as a person listing a shelter address as home.

"Patients will use those addresses as their own because they don't actually have one," he said.

Hennepin's approach builds such information into risk scores that already existed for patients based on medically-focused factors, and incorporates the social complexity to inform that risk and deliver a better understanding of it to clinicians.

Knutson-Smisek said this should be a standard approach across all healthcare systems for starting to pinpoint these risk factors.

"The actual work itself is not that complicated once you get all the right stakeholders to the table — and it adds a whole new lens on the patient and what is affecting them," he said. ●

*Knutson-Smisek will offer more insights at HIMSS19 in a session titled "Identifying Homelessness Through Data." It's scheduled for Wednesday, February 13, from 1:30-2 p.m. in room W300.*



Brian Dixon

## 3 WAYS HIES CAN ENABLE PUBLIC HEALTH REPORTING WHEN EHRs FALL SHORT

And five obstacles health information exchanges can help providers and public health departments overcome. **By Tom Sullivan**

Healthcare's Holy Grail of widespread information sharing holds considerable promise as well as daunting challenges, and public health reporting is among the places it is playing out.

"Interoperability can automate routine reporting processes that can alleviate burden on providers while improving data gathering processes for public health organizations," said Brian Dixon, a research scientist at Regenstrief Institute.

That said, Dixon explained that hospitals and public health face these obstacles today:

1. Local health departments have yet to implement the infrastructure to receive digital reports. "They rely on paper and require help from a larger health system or health information exchange network," Dixon said.
2. Providers at times do not completely understand all of the diseases they should be reporting to public health departments.
3. Providers assume that someone else is responsible for reporting them, yet Dixon said the people and resources to complete that do not always exist.
4. State laws about reporting conditions and criteria vary, which Dixon added make harmonization a necessity.
5. Few EHR platforms are currently capable of facilitating data transfer to public health departments.

That is where health information exchanges can come in. Dixon pointed to three key ways HIEs can facilitate information sharing to overcome the obstacles outlined above.

1. HIE networks can harmonize reporting requirements to help providers better understand what they should alert health departments about and what they do not need to. "Regional HIE networks are well positioned to harmonize regional laws that might vary," Dixon said.
2. HIE networks can harmonize messages and data. This includes health information residing in otherwise disparate EHR systems as well as standards for submitting information to public health authorities. Dixon pointed for example to the ability to translate certain lab test names to LOINC codes to enable reporting into the Centers for Disease Control and Prevention.
3. HIE networks can help with interfaces for connecting various EHR systems to public health infrastructure. "The regional HIE entities know their health system landscape and can navigate the key players, engage public health organizations in dialogue with health system leadership, and can develop interfaces that connect the health system players together," Dixon added. ●

Dixon will address these obstacles and opportunities during a HIMSS19 session, "Enhanced Public Health Reporting Using an HIE Network," scheduled for Wednesday, February 13, from 1-2 p.m. in room W230A.



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# Google exec says health organizations should key in on data management and advanced insights

Google Cloud identifies these as two important healthcare trends going into HIMSS19. By Bill Siwicki



Gregory Moore

Google Cloud will be focusing on, among other things, data management and advanced data insights at HIMSS19 – two areas it sees as important trends for CIOs and other IT executives to stay focused on in the year ahead.

As the amount and types of healthcare data grow, it is becoming increasingly complex to manage, and ironically more complex to use for insight generation, said Dr. Gregory Moore, vice president of healthcare at Google Cloud.

“Unlocking the value of complex, disparate healthcare data sources is a significant challenge for many organizations,” he said. “We believe that cloud-based technologies offer a significant advancement for the management and understanding of data.”

First, cloud-based technologies enable the storage and management of multiple healthcare data types – imaging, clinical, genomics – securely and at scale, said Moore.

In addition, healthcare organizations are increasingly using advanced analytics tools such as machine learning and artificial intelligence to extract insights from data that drive differentiation, cost reduction and improved user experience, he added.

“These capabilities are key tools in the transition to value-based care,” said Moore. “As healthcare organizations move from activity to outcome-focused they are increasingly relying on new data sources and analytics technologies to enhance patient care and guide administrative decision-making.”

Open standards are critical to enable the application of advanced data analytics techniques to healthcare, he said. The creation of large, diverse data sets, sourced from multiple organizations, can reveal patterns or associations not easily discovered in smaller samples, he added.

“These data sets help enable a holistic understanding of the entire patient context – daily routine, genetic makeup, population-level trends in the ethnic group or region – that can help increase the accuracy of diagnoses and treatment plans compared to any one of these data points in isolation,” he explained.

Beyond clinical care, advanced healthcare analytics can facilitate efforts to promote operational efficiency, resulting in improved patient experience and reduced cost, he added. For example, analyzing patient visit data sets across health systems, and combining them with information on local health trends, can lead to optimization of processes such as ER triage, patient registration or even staffing prediction models.

The amount of electronically stored healthcare data is growing exponentially. The transition to electronic health record systems, innovations in genomics and medical imaging, and the overall explosion of Internet-connected devices and applications are key drivers of new data generation.

“In addition, more and more, cloud providers have become an integral part of the healthcare ecosystem,” said Moore. “Cloud-based services provide an ideal ecosystem to manage large amounts of data and to jumpstart advanced analytics initiatives by making it easy and cost-effective to host and share data online.”

In addition, cloud service vendors can serve as a catalyst for turning data into insights because their core competencies – complex data management, analytics at scale, machine learning – are complementary to the clinically focused expertise of healthcare provider organizations, he added.

“Cloud providers also help by providing a robust IT platform with native security and privacy features, high availability, low operational overhead and global connectivity,” he stated. “They also operate at economies that create an optimal price-to-value equation.”

Further, healthcare organizations using cloud services can take advantage of the latest technologies, such as integrated analytics and machine learning tools, that reduce the need for individual researchers and clinicians to become experts in data science, he said.

“Cloud-based platforms are also an ideal solution for organizing and processing data from the millions of Internet of Things devices because they provide practically limitless storage, scale and computing resources,” he said.

“Run, do not walk to the cloud,” said Moore. “We believe that many of the challenges of healthcare can be informed by unlocking the power of data. The aggregation and analysis of multiple data types via advanced analytical tools such as machine learning will allow healthcare organizations to make improvements to care delivery today, while simultaneously preparing for the outcomes-based world of the future.”

In order to do this, healthcare executives must first identify where data is captured and prioritize what to move to the cloud, he added. Second, he said, they must migrate the data into the cloud and organize it so it can be useful.

“Third, derive insights from the data in order to reduce operational overhead,” he advised. “The adoption of cloud-based technology by providers will help to revolutionize our understanding of care and care delivery.”

Many health IT professionals worry these efforts will take considerable effort to implement and the payoff may not be realized immediately, Moore added.

“However, there can be both immediate and long-term benefits,” he explained. “For example, to move to the cloud, organizations often go through a technological modernization that can almost immediately result in reduced operational overhead or lower total cost of system ownership. In the long term, cloud technologies are the critical starting point for providing physicians and health systems the tools to improve quality of care and enable population health.” ●

Google will be in Hall B, Booth 2221.

## HOW ANALYTICS CAN BOOST THE SUCCESS OF EHR GO-LIVES

The California Department of Corrections and Rehabilitation’s use of homegrown analytics enabled a 25 percent post-implementation reduction in sentinel events.

By Mike Miliard

John Rekart, chief of quality management and informatics in the mental health division of the California Department of Corrections and Rehabilitation, points out that “anywhere from 30 to 80 percent of EHR implementations over the past two decades failed and went back to paper.”

Health systems have gotten much better at it in recent years, but challenges related to new workflows, spotty training and poor preparation continue to put go-lives at risk.

Analytics can help. Rekart’s experience – he was configuration architect for the mental health system at CDCR, and oversaw testing and implementation of systems at 35 institutions across California, including design and rollout of the EHR at a 1,700-bed correctional hospital – shows how smart use of data can target help toward those who might be struggling with the new systems.

In his role at CDCR Mental Health, Rekart leveraged data and analytics to boost the chances for a successful rollout. The insights derived from how clinical end-users were interacting with the new Cerner EHR led to successful implementations at all 35 locations, he said.

On Thursday, he’ll share insights into the value of such data for improving go-live success rates and how quality management tools can boost training results for EHR rollouts, as well as show some of the metrics and KPIs used by CDCR to build a data-driven implementation customized for its own particular needs.

“Our users go through 40 hours of training,” he said. “Our trainers go through 80. And they have to pass a knowledge check to be certified.”

That test is administered via the CDCR’s intranet, enabling easy access to the test data. “That was one of the ways we monitored. We used that data, and if they failed, we required people to retrain.”

But a more granular approach to the test score data enabled staff to make use of one its best assets – those “super users” who truly get the new EHR system and can help their peers and colleagues do the same.

“We wanted this test to divide people into three piles,” Rekart explained. “We wanted to use floor questions that almost everyone should get. And ceiling questions that almost nobody can get.”

“If you can’t answer the floor questions, you’ve identified people who need retraining. Then the people in the middle are competent users. And the people who answer the really hard questions are probably going to be your super users.”

Using that analytics-based approach to implementation has “worked out really well,” he said. It’s enabled CDCR staff, with help from those superusers, to home in on the people who might need the most help and optimally allocate assistance where needed.

“We used data to look at where people were in the process, then used focused and targeted interventions to get them going in the right direction: ‘Looks like you’re struggling with this, you need to focus on this,’” said Rekart. “After go-live we had a bunch of data flags that look at certain workflow variants, and we could see patterns and notice people who were veering from the workflow.”

The numbers speak for themselves. “We had a 25 percent reduction in sentinel events, post implementation,” he said. “Usually there’s an increase.”

While CDCR had “spent a lot of money on this,” that money wasn’t spent on extra staff, he added. “I didn’t have 30 people for this, I had three. You’re basically testing people from a distance. We’re government, we needed to bootstrap. But use of the data helped us be very successful in that regard.” ●

John Rekart’s session, “Analytics-Based EHRs Implementation: Improved Outcomes,” is scheduled for Thursday, February 14, from 11:30 a.m. to 12:30 p.m. in room W308A.





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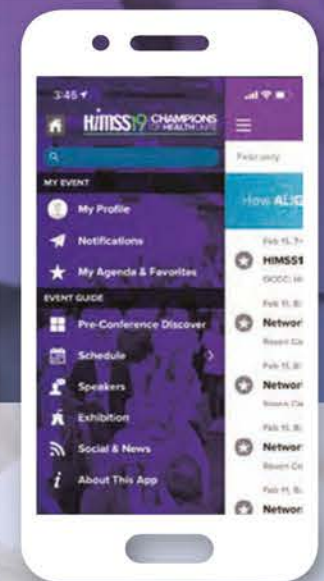


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# The biggest challenge recruiting IT talent? Convincing them tech work in healthcare can be meaningful

Jefferson Health's Robert Neff said that after breaking through that barrier, hiring executives should focus on training and building a team with appropriate experience. **By Jeff Lagasse**



Having the right IT staff in place is essential. It's especially important in a healthcare industry that increasingly relies on technology to drive efficiency, improve care and achieve the best possible financial outcomes for a given hospital or health system.

But finding the right IT staff, and training them properly, can be a challenge.

Robert Neff, vice president of digital solutions development at Thomas Jefferson University and Jefferson Health, is part of Jefferson's Digital Innovation and Consumer Experience Group — the DICE Group — which builds new technology for Jefferson, and also creates and manages the operational aspects of the digital experience.

Neff said hospital leaders should consider a number of things when identifying the right IT staff.

## Challenges in hiring the right team

"The first challenge is to determine the type of staff you are looking for," said Neff.

One effective approach is to segment the staff — those who are involved or focused on operations and operational initiatives, versus those who are involved with projects that might include implementations, development, configuration and strategic work.

IT departments include all of those roles, said Neff, and there are also technology roles that exist outside of IT departments. It can be a challenge recruiting for those roles as well.

"The biggest challenge is that many qualified and skilled technology professionals do not expect or consider that they can have a meaningful career working for a health system," said Neff.

Recruiting, or breaking through that barrier, is one of the biggest challenges, he said. So is training, a critical component whose value can't be underestimated.

"Providing training is easy, but finding people who want to be trained and want to learn is much harder," said Neff. "If a staff member is not interested in training related to their role, then they are likely in the wrong role. If a team member is the right fit for a role, not only are they open to training, they are likely seeking it out and requesting more of it."

## What the right team members bring

The right team members bring a lot of things to the table: technical and interpersonal skills, critical problem solving, you name it. But of prime importance is experience.

That doesn't necessarily have to mean prior work history, said Neff. Some of the best team members have the requisite technical know-how, but bring experience from other companies or industries.

"This experience is critical to ensuring that employees think about problems from new perspectives and leverage solutions that worked well in other industries, but have not yet been applied to healthcare," he said. "So, in short, a new and different perspective that employees bring is very valuable." ●

*Neff will share more insights at HIMSS19 in a session titled "Hiring and Retaining the Right Healthcare Technology Staff." It's scheduled for Wednesday, February 13, from 2:30-3:30 p.m. in room W315B.*

## WHAT A 'SEA CHANGE' TO MEDICARE PAYMENTS MEANS FOR CONNECTED HEALTH

ACT The App Association's Brian Scarpelli will outline the details of recently changed remote patient monitoring policy. **By Jonah Comstock**

For Brian Scarpelli, senior policy counsel at ACT The App Association, it's hard to overstate the changes coming to Medicare's approach to telehealth and remote patient monitoring.

"Finally, after all these years, the Medicare system as of January 2019 is actually providing reasonable payment to physicians and other caregivers who are delivering care to Medicare beneficiaries for taking that patient-generated health data and using it in care plans and for interventions," Scarpelli said. "You find yourself wanting to use biblical adjectives, but it really is that big of a shift. It's monumental. It's a sea change."

What he's describing might seem, on paper, like incremental change: three new codes in the physician fee schedule, some new incentives in the Quality Payment Program and some additional coverage for remote monitoring for home health agencies.

But what makes it so dramatic is just how long even small changes have been to arrive.

"The sad truth of the matter is that up until about two or three years ago, the Medicare system only paid for live voice or video calls and even then there were severe restrictions on when it would give payments to Medicare docs to deliver care via a telehealth consult," he said, adding that the Social Security Act essentially excluded telemedicine coverage outside of rural areas and disallowed patients' homes as an originating site. "Back in 1994 I'm sure it made a lot of sense when they defined telehealth in such a restrictive manner, but the law has not changed even one comma since then."

The amount of money Medicare is spending on telehealth isn't much more than a rounding error, he added.

"As recently as 2015, the Medicare system was paying under \$30 million across the entire United States for an entire calendar year in terms of reimbursement for physicians. It's a trillion dollar program."

And these changes could be very far-reaching, as Scarpelli says Medicare tends to serve as a bellwether for private payers as well.

"I run into a number of organizations big and small who have business models that hinge on Medicare payments who are not spun up on this change," he said. "They're not fully aware of these changes to the rule and what it means to them. It's not too late by any means, but the time really is now to go and to really seriously think about how these changes to the rules will open up new doors for companies that are in the health tech space." ●

*Scarpelli will share more insights in a session titled "Medicare Reimbursement and Connected Health: Where are We?" It's scheduled for Wednesday, February 13, from 2:30-3:30 p.m. in room W315A.*



Brian Scarpelli

## UTAH HIE INCREASES ENGAGEMENT, BENEFITS PAYERS AND PROVIDERS

By Susan Morse

Sometimes, consumers are the one group ignored in the exchange of health information.

"What we're working toward is making sure that data is made available to the patient," said Teresa Rivera, president and CEO, Utah Health Information Network.

The network includes data from 95 percent of hospitals and 90 percent of large clinics in Utah, and is working on including therapy providers. That data comes in as a consolidated CCD and is presented in a user-friendly format through a patient portal. The information can be added to the EHR or as an external tab.

UHIN also added a secure messaging component for patients to send information to their providers. Connections between patients and providers are becoming an increasingly critical component of reimbursement within federal care quality programs. The patient-directed exchange has been proven to increase engagement and improve care management. Getting there requires allowing patients to retrieve their data through a single access point.

Utah HIN built a patient app for all of an individual's health information to be accessible from one access point. This empowers patients to not only get their health information, but to

actively communicate with their current providers and to share records with new providers as they choose.

Payers benefit from having their membership get engaged with both financial and clinical data. For patients, Rivera said, "Part of the healing begins once those claims are taken care of and everything works smoothly on the financial end."

*Rivera will address "New Horizons in Patient-Directed Exchange," from 4-5 p.m., Wednesday, Feb. 13 in Room W304E, at HIMSS19 in Orlando.*



# Through many small bets, Geisinger aims to radically redesign care

Geisinger CIO Karen Murphy says complexity in healthcare can hide providers' underlying empathy. **By Jonah Comstock**



Before we can solve the problems of patient engagement, we have to make sure we're not the ones creating them. That was one takeaway from Geisinger CIO Karen Murphy's remarks at the HIMSS Patient Engagement and Experience Summit Monday morning.

"We're trying to innovate because [...] patient engagement and patient experience is truly not ideal," she said. "We have the system arranged so that a good experience is a rarity because you have to make it through the gauntlet that we have put up."

Murphy said that in some ways the patient experience at a hospital is actually worse than it was 30 years ago, because the system has added so much complexity.

"You really shouldn't need an interpreter to figure out how to navigate the healthcare system," she said. "It's one thing to need a navigator for a language barrier, but for

a barrier that we have set up due to the complexity of the system? The idea shouldn't be 'let's add advocates.' The idea should be 'let's fix the system so that patients can really feel the empathy and the caring that the team really has.'"

Murphy believes that to create patient engagement, health systems have to be willing to make big fundamental changes. She defines innovation as "a fundamentally different approach to solving a problem that has quantifiable outcomes." Part of that is taking bets on different kinds of innovative solutions to individual problems.

For instance, the health system recently launched a virtual reality pilot to reduce the need for opioids in post-operative knee surgery patients.

Another bet, and one that has already paid off in the pilot stage, is setting up "fresh food pharmacies," which are grocery-store-like experiences set up by the hospital for patients with diabetes to help them build good eating habits. After a successful pilot of around 200 food-insecure patients, the hospital is adding two additional locations to serve 1,000 patients.

And the hospital is launching multiple marketing campaigns to de-stigmatize opioid abuse in an effort to get more patients to seek treatment and recovery.

But to target the patient experience in a radical way, Murphy believes AI and machine learning will be essential tools – not to replace human interaction, but to make room for it.

"We have to leverage technology to where we can so we have the human interaction where we most need it," she said. "When you're telling someone that they have a cancer diagnosis, you want someone there. But we are going to have to leverage the technological resources, so when we don't require human intervention that we leverage [artificial intelligence and machine learning] technology."

Geisinger has established a "true north" vision of what it wants its care experience to be. But, Murphy said, the health system still has a long way to go to get there. ●

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# Precision medicine: Huge promise, high hurdles

At the HIMSS19 Precision Medicine Summit, John Halamka and other healthcare leaders described how policy, technology, clinical processes and patient engagement need to evolve to make it a reality for primary care. **By Mike Miliard**



Dr. John Halamka

Dr. John Halamka, CIO of Beth Israel Deaconess Medical Center, traveled 400,000 miles in 2018 – jetting all over the world, from China to India to Scotland to Scandinavia.

On those journeys, he's seen how care is delivered in very different ways. In China, for instance (he's been there 35 times), there is no primary care. As a result, patients can self-select any provider, leading to a scattered lifetime record across diverse provider sites.

In India, where active tuberculosis is widespread, access to care is much more difficult, and treatments are often mismatched to illness.

"This is not precision medicine," said Halamka, speaking Monday at the HIMSS19 Precision Medicine Summit.

What is precision medicine? It's not just genomics. It's more than just social determinants of health (although those do play a much bigger role than many realize). At its core, he said, precision med is "the right care in the right setting from the right provider at the right time."

That's easier said than done, of course. There are big differences between diagnosis and treatment, and so much depends on demographics, genetics and other biomarkers, geography, climate and more.

Data – structured, complete, well-governed and easy to see – will be key to precision medicine becoming more widespread, Halamka said: "On the precision medicine journey, having the data accessible is going to be hugely important."

That's why Scotland, for instance, which has set up a single database for most of its 5 million-plus people, may be in a better position than, say, Australia, whose health record modernization was at first planned to be centered around PDFs and fax machines, said Halamka – until he raised the alarm about the need for discrete and well-groomed data that can be mined by AI-powered analytics.

The good news? "In 2019 tools are finally good enough to help us realize the promise of precision medicine," Halamka said. The challenge? There's also a lot of "interesting politics and policy issues that are part of our precision medicine journey. It's not just technology."

But there are some urgent imperatives that will force those issues to sort themselves out soon, such as aging societies all over the world, falling birth rates, clinician shortages and, of course, wildly unsustainable healthcare costs, he said. In the U.S., we spend more than 18 percent of our GDP on "very imprecise care," Halamka added.

That's got to change, of course, and has been slowly. The pace will quicken in the years ahead, with a profusion of emerging tech, he said. The internet of things and connected health devices are exploding; AI and machine learning are going mainstream apps and cloud hosted services are ubiquitous, and application programming interfaces are "increasing in number and sophistication," he explained.

But more needs to happen to help harness those new technologies for this larger purpose on a wider scale: "Precision medicine means that we need to deliver in the context of workflow decision support to the clinician to do the right thing at the right time," said Halamka. "None of this happens without a policy driver."

He listed some of the policy changes that could help achieve that – notably, ONC's long-awaited information blocking rule, which was being released at HIMSS19 as he spoke. Other policies, such as CMS' rules meant to reduce clinician burden and various other governmental nudges to encourage third-party innovation, will only help move the needle.

But in the meantime, the challenges persist, said Halamka, whether related to data provenance and quality or security and privacy concerns.

A subsequent panel discussion at the Precision Medicine Summit drove that point home.

The promise and potential are all there, but "it's still in this very squishy phase right now," said Dr. Adam Dickler, professor and chair of radiation oncology at Jefferson Institute of Digital Health.

"We're not ready for prime time," agreed Jean Wright, chief innovation officer at Atrium Health.

Part of that has a lot to do with technology – at least as the infrastructure exists today.

"Epic and Cerner are not at the leading edge of this," said Wright. There's plenty of valuable, envelope-pushing tools developed by some very creative smaller vendors, but "much of the technology is out there, but not in a plug-and-play format."

That too is fast-evolving, however, as APIs proliferate – many of them mandated by ONC – and patients get more comfortable using apps and devices that can then easily integrate with electronic health records.

That's creating a wellspring of genomic and social determinant information. And while interoperability and decision support still need to catch up, the data is there, more every day, and ready to be integrated into clinical workflows for personalized care. ●

## HOW TO GAUGE THE VALUE OF PRECISION MEDICINE PROGRAM

They're big and expensive projects to get off the ground, and their ROI can't just be measured in dollars and cents, said an expert at HIMSS19: Value depends on the perspective of patients and physicians too. **By Mike Miliard**

Every health system understands the potential of precision medicine, but not all of them are quite ready to take the plunge into the complex and expensive project of actually starting a precision medicine initiative.

At HIMSS19 on Monday, Dr. James Weese, vice president of Aurora Cancer Care at Milwaukee-based Advocate Aurora Health, offered some up-close perspective on how to assess the success of a precision medicine program and molecular tumor board.

Aurora Cancer Care, which treats some 8,000 new cancer patients each year, launched its own precision medicine initiative two years ago, after extensive planning, preparation and goals assessment. What was immediately apparent, Weese said, is that its impact on the bottom line is not the only metric by which a program's worth should be judged.

It's key to demonstrate value, he said, and that shows itself in three interlinked but distinct groups.

"Value depends on different perspectives," Weese said. "The perspective of the institution, the perspective of the patient and the perspective of the provider."

It's critical for any precision medicine program to pay dividends for each of those audiences, he said. Otherwise, any such initiative will just be another overly expensive boondoggle with little to show for it except for frustrated staff.

Precision medicine has huge promise, of course, but presents a host of new challenges for even the most advanced health systems. Molecular testing, for instance, represents a sizable burden for already "click-crazy" clinicians, Weese said. Results can take weeks, reports can exceed more than 30 pages, and discussions with patients can take hours. So it's important to make all that extra work show value.

Weese offered some advice for ensuring precision medicine programs are worthwhile for those three groups:

- Healthcare institutions need to ensure molecular medicine represents legitimate treatment for patients who might have limited options, he said. They should weigh the cost of therapy, the expense of the program at large and the reimbursement rates for very expensive drugs – no small task in itself.
- Patients, meanwhile, should gain new and valuable treatment options. They should be able to understand how targeted therapies will work for them – something that more and more savvy patients are very capable of, Weese said. And they'll want to be sure that toxicity and side-effects for novel treatments are manageable – and that experimental therapies won't require great expense for something that doesn't work.
- From the provider perspective, health systems should ensure their programs are properly calibrated toward optimal results. Molecular therapy is "currently most effective in advanced disease," he said. The value of a molecular tumor board is that it "provides interpretation, advice and saves time." It helps steer treatment toward drugs that work and avoidance of drugs that don't.

At Aurora Cancer Care, the organization has determined that "there is value in our precision medicine program," Weese said.

But that might not be the case for everyone. An audience member asked him how to raise awareness among the healthcare C-suite and other decision makers that precision medicine is a worthwhile investment.

At Aurora, he said, there's an employed medical staff that specializes in getting precision medicine and MT data back out to the primary care physician, who can then interpret it for their patients. Having a "large group who can spread it out to a larger clientele" may be key to building grassroots support by showing value on a wide scale, he said.

And much of the impetus for launching many precision medicine programs may eventually come from a groundswell of popular opinion, said Weese: "Patients are becoming much smarter. Many are coming in seeking the opportunity to ask questions about molecular therapy." ●



# Intermountain CISO West: Cybersecurity for revenue cycle should be a KPI

Revenue Cycle Solutions Summit keynote speaker Karl West warned that revenue cycle is an important target for cybercriminals because of the information that flows through it. **By Beth Sanborn**



Intermountain Healthcare's chief information security officer Karl West kicked off the HIMSS19 Revenue Cycle Solutions Summit with a strong message for his captive audience. If you're a revenue cycle leader, you need to understand a fundamental reality: There's a whole host of data available for hackers in your rev cycle. Not only is there payment information, there is also member information and all of your PHI. All of those are sources of cyber risk.

For example, patient portal credentials are highly valuable for hackers at around \$1,500 or more according to one study, West said.

As such, there needs to be a strong partnership between your cyber organization/operation and your revenue cycle. You also need to

understand what are the threats and sources of loss. First, there's phishing. It's common and proven to be effective. At Intermountain, they phish their employees four times a year to test their proclivity to fall victim. Even though some find the measure frustrating, it's essential to flushing out vulnerability.

Malware is also a significant security threat. To thwart such threats, it's important to keep your

systems patched. In your system, you need to have someone watching for vulnerability and patching.

"That's the basic blocking and tackling," West said.

Another source of loss is the misconfiguration of public-facing systems, which occurs when at build time, the proper protections are not built in.

And then there are nation-state actors, which are harder to protect against because smaller organizations do not have the resources to spend a lot on cybersecurity. Intermountain has a 24/7 security station/operation with eyes on such threats.

Finally, there are theft or loss/inadvertent accidents that involve employee errors or bad actions. "If you aren't, those are things you should be considering," West said.

As consumerism continues to drive healthcare, the revenue cycle must move with that trend, and in a consumer-driven revenue cycle organization, fraud, breach, patient card information, PHI, personally identifiable information and the cloud are both assets and areas of risk.

As such, vulnerability management in the revenue cycle should be a big part of your operation and claims processing.

"When a caregiver gives care, they must be current on flu shots and vaccines," West said. "It's not an option. It's a condition of employment. It means that the caregiver is protected to the best ability that we can. In the cyber world, it's the same. Your networks, laptops and servers, how are you protecting them?"

While updates are annoying, vulnerabilities do need to be patched. Most healthcare organizations patch on an annual basis. At Intermountain, however, it is on a weekly or monthly basis. It's a different mindset, West said. That is because not only did healthcare cyber attacks increase 320 percent between 2015 and 2016, but the attacks are also growing in sophistication. They don't just slow systems down – they can cripple them for days, weeks or even months.

So, it is important to know that your patches are in place and your action plans are in place, he said. Have arrangements with vendors and partners. And for the many who have migrated to the cloud to streamline and cut costs, develop a strategy that isn't just focused on one cloud but the whole cloud and know the controls required to protect you. West asked, does your cloud partner have a vulnerability and what are their safety practices?

"Have an inventory of your partnerships and manage them. Establish governance. As the primary organization, you are the one accountable to your patients," he said.

Have an inventory of your data – where it is stored, where will it move to, and how it will move safely and securely. This should be a key performance indicator (KPI). Classify your data as public, restricted, private, classified or confidential, such that it is properly protected, and have data loss protection tools.

"When you wonder how did one system get taken down and not another, it's your patching and practices," West said. ●

## DISRUPT OR BE DISRUPTED

Healthbox President Neil Patel breaks down how incumbents in the healthcare space can also be part of the innovation. **By Laura Lovett**

When it comes to innovation, healthcare players can't wait around to see how it is going to play out.

"You are either being disrupted or a disruptor — sometimes you are both," Neil Patel, president of Healthbox and executive vice president at HIMSS, said Monday at the Innovation Symposium.

That's why it's important to always be looking ahead and thinking about trends, he said. Giving Blockbuster as the example of a service that missed out on innovation to competitors like Netflix and Redbox, Patel stressed that it's important for the established systems to look ahead.

"You don't need to respond to every single threat that comes your way. But you need to start looking at trends," Patel said. "What kinds of opportunities are these startups or new entrances seeking within your current system? And then think about that on a macro level — what can you do about the change?"

Healthcare is seeing a lack of consumer choice, high systemic waste, poor outcomes and a high cost of care, he said. That, coupled with the fact that healthcare is becoming "cool again" and the general trend toward infrastructure digitization, means that this is a ripe time to innovate.

Right now there are the two camps in this disruption space: new entrants to the health arena like Amazon and Facebook and the incumbents in the industry such as large health systems. Each is making moves in different ways. While there is still a lot of speculation around what these new players will do in the space, the last year has given some hints. Amazon, for example, made headlines with its acquisition of PillPack and its deal with JPMorgan and Berkshire Hathaway. But that doesn't mean all is lost for the incumbents. Health systems and payers have an opportunity to disrupt the system as well.

"Disruption seems like a really good thing. If you are the consumer of an industry that is being disrupted, it is generally a really good thing for you in the long run because all the parties that are getting paid to supply a service will have to be better," Patel said. "But the problem is when markets are well-established or there are a lot of margin companies, it takes a long time for these things to take hold. That is a good thing and a bad thing. That's a bad thing for patients who are looking for change immediately, but it's a good thing for the incumbents because if they choose to, they have time to change and get out ahead of this."

In fact, many health systems are looking at the emerging technologies as an opportunity. For example, the Mayo Clinic has employed social media to engage its patients.

"If the care is perfectly good, then it's not memorable, but if it's bad it's memorable. Then you have a bias. But social media is starting to change that. When I say social media, I use that broadly. I'm talking about Yelp reviews and all sorts of places that patients leave feedback about their hospitals," he said. "Mayo Clinic was one of the health systems that was one of the leaders in this area, that embraced those media and outlets to control the narrative and engage with their patients. ... [It] developed a center for social media where they teach these skills to other health systems that are willing to learn and to teach."

Patel stressed that it is always important for systems to start with a problem instead of running after "cool" technology. This will also help get buy-in from staff and help change the culture of innovation at incumbents.

"The key here is to embrace change, cultivate innovation and think about what problems you want to solve, and then build what you want to solve," he said. ●

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Pat Flanders

# Defense Health Agency CIO: Grappling with similar challenges, but added complexity

The agency is dealing with interoperability and cybersecurity, just like everyone – but add to those hurdles a vast and work-intensive EHR overhaul, stringent budgetary requirements and challenges with workforce visibility, and the DHA has a tall order. **By Mike Miliard**

At HIMSS19 on Tuesday, Pat Flanders, chief information officer of the Defense Health Agency, described the unique challenges of standardizing, modernizing and securing the sprawling and dizzyingly complex DHA.

It's not just the size, scope and critical mission of the DHA – which supports the Military Health System in information and technology integration to deliver its own unique Quadruple Aim: increased readiness, better health, better care and lower cost – that make his job so important. It's the huge number of patients in the system: 19,721 inpatient admissions per week, Flanders said.

As the DHA works to ensure the "right information is accessible to the right customers at the right time and in the right way," it faces many of the same challenges of private-sector providers. But also many that are specific to its unique situation.

Flanders is working to drive standardization across the enterprise, helping boost performance and enable more centralized management. He's doing this through ambitious projects such as the Desktop to Datacenter, or D2D, program that is meant to streamline infrastructure service lines across the MHS.

As he does, he also has a keen focus on interoperability, as the landmark MHS-Genesis project continues apace – proceeding in parallel with the Department of Veterans Affairs' own Cerner EHR modernization. MHS doesn't just need to be interoperable with the VA, of course; it needs to connect to the wider world.

"We're a microcosm," Flanders said. "Sixty percent of the treatment that's provided is provided out in the commercial system. We have to connect the networks to do that. That's what we're in the process of doing right now."

Cybersecurity is another acute concern for the DHA, for obvious reasons of national security. One benefit, perhaps, of that situation, however, is that the agency is able to devote strategy and resources to the challenge that many health systems can barely consider – essentially approaching its security posture like another area of combat operations, he said.

Those are far from the only ways the DHA is unique, of course. The way it has evolved over the years has made for an intricate and complicated overlay of multiple systems, tools and technologies.

"I own basically one of everything you can buy," Flanders said. And as he works to modernize, standardize and streamline the DHA's IT infrastructure, he has "one foot in the new world, one foot in the old world," he said. "I need more feet."

Add to this some of the special characteristics of military culture, workforce and budgets.

"Knowing ourselves" is key to success in this endeavor, said Flanders. "It's the soft stuff that's often the hard stuff."

Those challenges include gaining better "visibility of everyone in the workforce," he said. "That may sound simple to the commercial sector," but given the sheer scope and complexity of the MHS, the problem is real.

Budgets can be hard to get a handle on too: "Our money has strings – different appropriations for different things, what you're allowed to spend it on," said Flanders.

The MHS is developing its own army of "cost warriors," he said, with personal and financial accountability, adherence to schedule, a customer focus, engineering competency and more – all toward the larger goal of serving its patients with safe, secure, effective and efficient IT infrastructure. ●

## HIMSS19 SHOW DAILY

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# How a voice assistant can be a constant companion for hospital-bound patients

Thomas Jefferson University Hospital will soon pilot a purpose-built smart speaker. **By Jonah Comstock**



The top two questions nurses at Thomas Jefferson University Hospital field from bedridden patients are “When is my lunch coming?” and “When are visiting hours?” according to Viraj Patwardhan, the hospital’s VP of digital design and consumer experience. “When you don’t have anything to do, you either think of food or you think of your loved ones,” he said.

At the Patient Engagement and Experience Summit on Monday, Patwardhan and Chief Digital Officer Neil Gomes presented their hospital’s attempt to help take questions like this off of nurses’ plates with the introduction of a smart speaker at the bedside that will act like a bespoke healthcare version of Apple’s Siri or Amazon’s Alexa.

“The goal of the smart speaker is that I have a companion in my room which will help me when I’m in the hospital,” Patwardhan said. “So I’m not always pushing the nurse call button, but I can ask basic questions to the speaker and it will start giving me information.”

In the program, which goes live in about a month in 20 rooms, patients can ask the aforementioned questions about lunch and visiting hours and get an answer from the smart assistant. They can also ask it to change the channel on their TV; alter the temperature of their room; tell them the time, date and weather; and even Google random questions and read answers aloud.

The team originally looked into simply implementing existing voice assistants, but found that restrictions related to HIPAA made building their own a safer plan.

The intervention is aimed at patients with a three-or-more-day stay, and the goal is twofold: to improve patient experience and to free up doctors and nurses for more meaningful conversations with patients about their care or simply about human connection.

“Any innovation you create, it has to be focused on the patient and the consumer, but it also has to make sense for the organization. There has to be a business model,” Gomes said. “Time saved by clinicians, good will generated — you have to look to see that those benefits are being generated.”

The simple questions the app can answer now are just the beginning. In the future, Gomes and Patwardhan hope that the speaker will be able proactively remind patients about therapy or medications, and even deliver surveys about the patient experience.

“Voice is one of the smallest learning curves for an OS,” Gomes said. “We’ve known that since the 1960s on Star Trek. That you could just speak and no one would have to learn anything.”

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## Keynoters challenge private sector to keep pace with FHIR, open APIs

Former US CTO Aneesh Chopra said that CMS embracing FHIR means an end to any fight over data standards. **By Tom Sullivan**

HIMSS CEO Hal Wolf of Tuesday outlined the most pressing challenges healthcare in America and other countries face today.

Those are an aging population, the chronic disease burden, geographic displacement, a lack of actionable information, challenged funding systems, increasingly demanding consumers and growing staff shortages.

“That demands we use digital health as a great equalizer that allows each person to have access to the best care they can,” Wolf said during the opening keynote and panel discussion. “The vision is to fill the health potential of every human everywhere. Simple, important and difficult.”

Wolf cut to the chase asking CMS Administrator Seema Verma about the HHS information-blocking proposed rule that arrived Monday.

“Another day at CMS is another day of disruption because we’re not trying to maintain the status quo,” Verma said. “The rule is about insurance companies. They have reams of claims data.”

Michael Leavitt, who served as both secretary of Health and Human Services and Utah governor, said the CMS proposed rule is a moment for healthcare to collectively move forward with a leap that is more than incremental.

“We need to see this rule as a call to action for the private

sector,” Leavitt said. “For a long time the government has been behind the private sector; now the private sector is behind the government. We need to take this opportunity to adapt, to improve and refine.”

Former national coordinator Dr. Karen DeSalvo said this is an exciting time because the industry is not just talking about getting data in and out of EHRs anymore but, instead, looking at how consumers are going to drive this shift to new models of care.

“The shift in the way we’re thinking about data in this country is exciting, not just its availability but also what public health has known for a long time, that health is more than healthcare,” DeSalvo said. “We have to have more sources of data than just the EHR as a system of record.”

Toward data interoperability, Verma added that CMS also gave a nod to FHIR in its proposed rule because agreeing on one standard can lower costs and give patients more access to their health information.

“The embrace of FHIR APIs means that we’re not going to have a Betamax-VHS fight in healthcare,” said Aneesh Chopra, president of CareJourney and the first CTO of the United States. “We now have an approach to adding more content on the data model. We’re done with the fight.” ●

## MICROSOFT LAUNCHES AZURE API FOR FHIR TO PROMOTE CLOUD, INTEROPERABILITY

The release builds on an open-source version originally announced in November. **By Jonah Comstock**

Last week in advance of HIMSS19, Microsoft announced the launch of Azure API for FHIR, the first in a series of APIs to help customers work with machine learning on protected health information in the cloud.

The launch follows up on Microsoft’s open-source release on GitHub last November.

“We saw tremendous response to that,” Heather Cartwright, general manager for Healthcare NEXt at Microsoft, told MobiHealthNews. “Great feedback, great use of the open-source technology, and what we hear from our partners is they love the convenience and they want us to continue making it easier, which is why we’re building on that and we are now releasing the Azure API for FHIR.”

With the new API, Microsoft manages a lot more of the back-end data operations and compliance requirements than it did with the open-source API.

The API is driven by a desire to help health systems and connected medical device startups implement a move to the cloud that most have already determined to make.

“As we see the ever-emerging power of artificial intelligence and machine learning in healthcare, some of the research that’s starting to utilize the data in different ways and the insights we’re gaining from the healthcare data as it moves into more consistent formats, the reality of what the cloud can do ... is becoming very apparent,” Cartwright said.

“And we’ve seen the question shift from our healthcare partners and customers to say not ‘Why do we have to move to the cloud, we already have things on premises, we can do it here’ to ‘How do we move to the cloud?’ Because they see the potential at scale for building some of these new tools, the ever-growing data sets they have which become challenging to manage on premises, and then the increasing bar for security of managing health data. The cloud provides really powerful tools and technology to manage all those things for them.”

And because the API is built on FHIR, it allows different EHRs as well as third-party vendors to share and combine data more easily.

“There’s no single solution to solving all interoperability woes,” Cartwright said. “... We’re investing in FHIR because we think an open-source standard that’s founded on the clinical data of HL7 is the right place to start. But there are several other data standards that we’re talking about internally, DICOM, HL7, genomics, that we’re going to be looking to build APIs for. These are the APIs our customers are asking for, and our goal is to make it easier for customers to manage their health data in the cloud, so we need to be thinking about any and all ways that they’re managing data today.”

Microsoft is demoing the Azure for FHIR API at Booth #2500. The company is also seeking recruits for its early access program. ●



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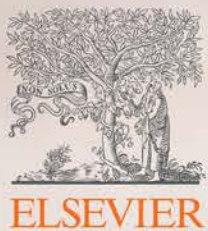
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