C-Suite Innovators
Leveraging technology to improve operations

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The cloud: More affordable than you think
Making analytics actionable – and meaningful
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The evolution of cybercrime

Why aren’t we evolving with it?

BY CHAD MICHAEL VAN ALSTIN, Features Editor

My family didn’t get its first computer until I was well into middle school, and until that point the concept of a computer virus was something alien to me. I actually remember teachers talking about computer viruses, but I never knew what the heck they were referencing. A software program that would move from computer to computer and cause damage? Why would someone waste resources to develop such a thing? Did these computer viruses spontaneously develop on their own, like a secret living-machine out of Terminator? Could it infect the floppy disks I keep near my computer? Could it infect me?

It was a scary, unknown concept to my younger self. Back then I didn’t know the difference between malicious programs or understand how they worked, but they fascinated me. It wasn’t long before I was changing family and friends to “vaccinate” their computers against viral infections and remove any offending worms they picked up while exploring the Wild West that was the internet of the early 2000s.

Needless to say, it is with a certain level of deep-rooted fascination that I watch the evolution of cybercrime. Like many of you, I have taken an interest in the ransomware stories that have been in the headlines – hospitals and health systems held hostage by computer programs launched by elite cybercriminals. The landscape has certainly changed since I was a kid, removing Klez from my mom’s computer, unable to answer the question, “What does the person who created the worm gain from doing this?”

Things are different now. Evildoers do have something substantial to gain from their efforts. Malware is engineered by people with creativity and skill, and the programs they make know exactly what to target – your identity, passwords, credit card numbers, encryption keys, and more. The war has changed because the enemy has changed; cybercrime has been given a true financial incentive. As our defenses against malware and viruses strengthened, the software became more effective.

It wasn’t until reading the recent Symantec 2016 Internet Security Threat Report1 that I realized how much the landscape of cybercrime had changed. The report paints a picture of organizations that have made cybercrime their business, intelligently designing software to more effectively cripple their targets and undermine defenses. You can read more about them in HMT’s feature on ransomware on page 26. I think some of the details will surprise you – I know they did me.

It’s clear that cybersecurity is becoming an increasingly difficult challenge, as the invasive enemies on both the state and black market side – and even in the legitimate private sector, which seems determined to weaken defenses in order to make data mining simple – seem to be one step ahead at all times.

I often wonder what the solution is to keep our privacy and data secure. After years of contemplation, I can only conclude it will take a full paradigm shift – one where the market demands security from products and, in turn, the corporate sector conforms to demand by creating truly secure products, with features that include simple strong-encryption solutions that every consumer can use.

As long as consumers are satisfied with trusting vendors and manufacturers with their privacy, I’m not sure any amount of security software and firewalls will keep us safe. Whether you’re a large hospital system or an individual with a smartphone, the fact is you’re probably using software right now that undermines your privacy and data security by design.

What you do is profitable, but what you keep private is hard to monetize. This notion that we can have both software with built-in vulnerabilities to exploit user habits and robust security is a myth the bad guys hope tech giants worldwide continue to perpetuate. If you’re wondering why a simple software program is able to hold huge organizations hostage, you can start by looking at the action’s of the legitimate business first. Until true security is their priority, your personal privacy and computer networks are always in jeopardy.


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**INDUSTRY WATCH**

**Doctor/Patient Communications**

**Can email improve patient outcomes?**

Can email communications with healthcare providers improve overall health? Results from a new Kaiser Permanente study say so (at least for some patients). And using email can improve efficiency and reduce phone and in-person contacts too.

The study is among the first to examine how the ability to send secure emails to doctors affects patient behavior, preferences, and perceptions about their own healthcare.

According to the survey, which was published in The American Journal of Managed Care at the end of 2015, a third of patients with chronic conditions who exchanged secure emails with their doctors said these communications improved their overall health.

“As more patients gain access to online portal tools associated with electronic health records, emails between patients and providers may shift the way that healthcare is delivered and also impact efficiency, quality, and health outcomes,” says Mary E. Reed, DrPH, Staff Scientist with the Kaiser Permanente Division of Research in Oakland, CA, and the study’s lead author.

The researchers surveyed 1,041 Kaiser Permanente patients in Northern California who had chronic conditions. Survey participants included patients who had used Kaiser Permanente’s online patient portal, called My Health Manager, to send secure email messages, as well as patients who had not sent any messages. Surveys were completed in 2011 by mail, online, or by phone.

Kaiser Permanente members can use the portal to schedule appointments, refill prescriptions, and send secure email messages to their healthcare providers. Patient-initiated emails are usually answered within 24 hours. In 2014, members sent more than 20 million secure emails to providers through the portal.

Highlights of the survey findings include:

- Virtually all patients with chronic conditions said that exchanging email with their healthcare provider either improved (32 percent) or did not change their overall health (67 percent); less than 1 percent said emailing made their health worse.
- More than half of respondents (56 percent) had sent their provider an email within the previous year, and 46 percent used email as the first method of contact for one or more medical concerns.
- Among patients who had emailed their healthcare provider, 42 percent reported it reduced phone contacts, and 36 percent said it reduced in-person visits.

More information on this survey and its results can be found at www.dor.kaiser.org.

Source: Kaiser Permanente

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**Mobile Computing**

**World’s thinnest laptop is a luxe affair**

If your style is limited edition and fully loaded, and you see technology as art, HP’s got your number when it comes to premium notebook PC design.

The HP Spectre features a full HD 13.3-inch diagonal edge-to-edge display with Bang & Olufsen sound, Intel Core i processors, and a CNC-machined aluminum chassis as thin as a AAA battery – just 0.4 inches. Weighing in at just under 2.5 pounds, it sports a carbon-fiber bottom and a hidden piston hinge, and it wears high-gloss copper accents. Inside you’ll find a lightning-fast PCIe solid-state drive with storage up to 512 GB and up to 8 GB of RAM. An innovative split-battery design houses the power plant into two thinner pieces that deliver the same wattage as a single battery for up to 9.5 hours of run time.

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**Value-Based Care**

**CMS launches five-year primary care initiative**

On April 11, the Centers for Medicare & Medicaid Services (CMS) announced its largest-ever initiative aimed at helping practices move away from one-size-fits-all, fee-for-service healthcare.

The Comprehensive Primary Care Plus (CPC+) model will be implemented in up to 20 regions and can accommodate up to 5,000 practices, which would encompass more than 20,000 doctors and clinicians and the 25 million people they serve. Under the CPC+ model, Medicare will partner with commercial and state health insurance plans to support primary care practices in delivering advanced primary care with the following five key components:

1. Access and continuity;
2. Care management;
3. Comprehensiveness and coordination;
4. Patient and caregiver engagement; and
5. Planned care and population health.

Primary care practices will participate in one of two tracks. Both tracks will require practices to perform the functions and meet the criteria listed above, but practices in Track 2 will also provide more comprehensive services for patients with complex medical and behavioral health needs.

In Track 1, CMS will pay practices a monthly care management fee in addition to the fee-for-service payments under the Medicare Physician Fee Schedule for activities. In Track 2, practices will also receive a monthly care management fee and, instead of full Medicare fee-for-service payments for evaluation and management services, they will receive a hybrid of reduced Medicare fee-for-service payments and up-front comprehensive primary care payments for those services. This hybrid payment design should allow greater flexibility in how practices deliver care outside traditional face-to-face encounters.

Both tracks will receive up-front incentive payments that they will either keep or repay based on their performance on quality and utilization metrics. The payments under this model are meant to encourage doctors to focus on health outcomes rather than the volume of visits or tests.

For more information about the CPC+ model, including a fact sheet, go to http://innovation.cms.gov/initiatives/Comprehensive-Primary-Care-Plus.
Payment Models
AMGA responds to proposed MACRA rule

The American Medical Group Association (AMGA) was quick to respond to the Department of Health and Human Services’ April 27, 2016, announcement about implementing legislation that modernizes how Medicare pays physicians for quality. The Notice of Proposed Rulemaking is a first step in implementing certain provisions of the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA).

Congress has streamlined various programs into a single framework to help clinicians transition from payments based on volume to payments based on value. The proposed rule would implement these changes through the unified framework called the Quality Payment Program, which includes two paths: the Merit-based Incentive Payment System (MIPS) and the Advanced Alternative Payment Models (APMs).

“We understand the rulemaking process is part of an ongoing conversation with CMS,” said Donald W. Fisher, Ph.D., CAE, President and Chief Executive Officer, AMGA. “Based on a very preliminary look, CMS appears to have recognized the need for flexibility as providers move toward a risk-based payment system. However, we remain concerned that qualifying as an APM remains challenging at best, even for AMGA members, many of whom are very experienced with risk-based payment models.”

Besides the MIPS and Advanced APM models, the proposed rule also allows clinicians to switch between MIPS and the Advanced APM track. MIPS applies to Medicare Part B clinicians, including physicians, physician assistants, nurse practitioners, clinical nurse specialists, and certified registered nurse anesthetists. All Medicare Part B clinicians will report through MIPS beginning January 2017.

AMGA expressed concern about the quick timeline, given that CMS would begin measuring performance for doctors and other clinicians through MIPS in 2017.

AMGA provided the following additional comments:

- Provider performance will be assessed at the group level, which recognizes the type of integrated care that AMGA members provide.
- The rule proposes a MIPS performance category called “Advancing Care Information” that would replace the Meaningful Use program. This appears to be customizable and acknowledges the flaws with the current “one-size-fits-all” EHR measurement and reporting program.
- The rule also details the criteria for Advanced APM participation. AMGA expressed it is disappointed, however, that Track 1 accountable care organizations (ACOs) are excluded from Advanced APMs, given that AMGA member medical groups have invested significant financial, clinical, operational, and leadership resources to support the goals of the Medicare Shared Savings Program, including Track 1 ACOs.
- AMGA has launched a MACRA and Risk Initiative to help members better understand the program and better prepare themselves for risk-based payment models. Offerings include educational materials and webinars.

Monitoring Tech
System based on Microsoft Xbox Kinect eliminates falls

Mission Health, North Carolina’s sixth-largest health system and the only not-for-profit, independent community hospital system in the western part of the state, eliminated falls in its neurosciences unit in Asheville and avoided more than $100,000 in one-to-one sitter costs during a three-month pilot program of the Cerner Patient Observer. This EHR-agnostic “smart room” tool features instant visual and audio alert monitoring for multiple patient rooms simultaneously.

The new technology uses Microsoft’s Xbox Kinect camera and 3D sensors to create “motion zones” around the patient’s bed or chair. It provides two-way communication between the patient and caregiver, and enhanced monitoring and alert screens for nurses to have instant notification of a potential risk – all from a central monitoring station.

With six cameras and a 94-day pilot, Mission Health was able to monitor 8,615 patient hours. This is equivalent to $103,380 in one-to-one sitter costs that were avoided by successful use of the patient observation solution. With plans to expand to 72 cameras across the enterprise, this would equate to 401,189 patient monitoring hours per year, equivalent to $4.8 million in avoided sitter costs.
Welcome to the Innovation Suite

These healthcare execs are creatively leveraging technology to improve their operations and better the lives of their customers.

By Chad Michael Van Alstin, Features Editor

Pixar Animation Studios Director and Executive Producer John Lasseter once said, “The art challenges the technology, and the technology inspires the art.” He’s right. The animators at Pixar may use tech to craft their vision, but without their creativity and imagination, the tool is merely an untapped resource. But as the technology advances, the limits of imagination expand with it.

This logic can be applied to those who work in hospitals and clinics – overlooked places where creative individuals are working to solve pressing issues and improve upon outdated systems. With that in mind, HMT profiles C-Suite Innovators who are leveraging HIT to turn inspiration into reality, and consequently expand upon the limitations outlined in the instruction manuals of the tools they wield.

Editors Note: The following has been edited for clarity and concision.

Making smart use of big data

SHAUN GINTER, MBA, CEO, CareWell Urgent Care

Shaun Ginter is President and CEO of the New England-based CareWell Urgent Care system. He holds a Bachelor of Science in Business Administration and a Masters of Business Administration from the University of Phoenix. He is also a member of the Board of Directors for the Urgent Care Association of America.

In an effort to make better use of the data being gathered by their athenahealth EHR, CareWell has adopted technology that enables raw data to be analyzed for the purpose of spurring real-world operational changes.

Nearly a year after implementing the athenaONE suite of products, Ginter spoke at HIMSS16 about how the partnership has changed CareWell’s business and improved the lives of its patients. Speaking with HMT, Ginter says it’s the analytics inside of athenaNet that gave his clinics the power to leverage patient data more effectively.

Where did the idea to start using the analytics platform inside athenaNet stem from?

For us, the adoption of athenaNet analytics was built out of the fact that a sophisticated electronic health record platform, like the athenahealth one CareWell uses, collects thousands of data points on a patient. Just the simple use of an electronic health record system allows us to time-stamp every activity – everything we do for the business. We decided there was a lot of data here that could really help us improve the patient experience, and we could use it in an operation way to design a workflow using data.

Big concerns for us in the urgent care space are throughput time – that is, how well we get a patient into the building and out of the building, and on their way to feeling better. Managing the expectations of patients when it comes to registering and going through a paperwork process, or measuring how long they are actually in the lobby.

Also really important for us is how the end of that encounter goes and how the discharge process runs – so, how efficiently we are able to get people out the door, e-prescribe their prescriptions, get them their discharge notes, finalize their paperwork, and get them back on the street.

How do you aggregate and make sense of the data after you gather it from the EHR?

I’d like to tell you we hire super brilliant people, but it’s not that simple. After we collect the data, athenaNet gives us the ability to run the reports and filter or pivot them in any way we want. I can literally go into athenaNet, I can tell it the parameters that I want to look at, and it’ll run the reports, pull out the data; it’ll export it into Excel files for us, or it’ll make sophisticated graphs for reporting. And then we’re able to take that data and use it internally.

For example, this morning I was looking at a throughput report and there are about 20 timestamps, following the patient through every step of every encounter in that building. I’m able to take that report, benchmark that, and I can then average it for the organization and prepare my stats with multiple sites. With 15 urgent care locations, it’s really important for us to identify what’s best-in-class from a performance perspective, and really do some comparisons.

What measurable improvements have you seen?

We’ve improved our door-to-door time by over 25 percent since we went live. We have seen dramatic improvement in our staffing and keeping appropriate staff levels, and a lot of that is due to the fact we can now see a history of when patients come in on a trend, and we’re able to appropriately staff our centers accordingly. We got those benefits right off the bat.
Being an urgent care facility, I imagine you share a lot of information. How do you overcome those challenges?

One of the biggest driving factors for CareWell selecting athena was we have hospital affiliation relationships, and it’s very important for us to be able to share the medical record and medical data with hospitals. Quite often, we’re seeing a patient that wasn’t able to get in to see their primary care physician – we see that patient and we do our best to send their medical record right back to their primary care doctor, so that they know one of their patients was seen after hours at an urgent care facility.

We’re also able to do that with the hospital systems. If for any reason we see a patient and we believe they need to have follow-up care with a specialist or need to be forwarded to the emergency room, we’re able to export all of the patient data right out of athena directly into our physician partner systems through interfaces athena has built.

Even if the hospital system uses a different vendor?

Yes, so for example, we regularly interface from athena into Allscripts – one of our hospital partners uses Allscripts – and we’re able to send everything right into the Allscripts system.

We’re also able to communicate through the Mass HIway, which is our local health exchange in the state of Massachusetts. We can transfer our data through the health exchange to any physician that is on that health exchange, regardless of platform. We can also send data to our Epic partners through the Epic interfaces.

Has this analytics technology ever been used in a way that has saved a person’s life?

We have not had that yet. One of the things we’re working with one of our hospital partners to do is to be able to see the patient record from the hospital side at the initial point of treatment. What we’re hoping for is that, if someone presents at urgent care, and we know what hospital system they’re with, we can actually view that patient record and potentially catch any issues on our side – like if we see a trend in their medical history.

And if their medical record doesn’t show us anything, when we’re done charting, we send our medical record back to them and the primary care physician or the hospital can watch for patterns and look for life-threatening issues – and hopefully catch something. The continuity of care is very, very important.

For those out there who struggle to make big data useful, what advice can you give them?

It takes a purposeful intent to be able to take the data out of the EHR and turn it into good, useful information to run your business. You have to be disciplined. The data is there, but with some work and very purposeful intent, you can make some real changes happen.

Catherine Keck is the Vice President and CFO of the Quorum-managed Daviess Community Hospital in Washington, IN.

Catherine Keck, CFO, Daviess Community Hospital

Catherine Keck

Outsourcing as an IT strategy

Catherine Keck was the Vice President and CFO of the Quorum-managed Daviess Community Hospital in Washington, IN. With over 30 years in healthcare, Keck arrived at the small 74-bed county hospital in 2012, after spending much of her career in larger health systems. It was immediately clear that IT at Daviess was not up to par. After exploring their options, Keck and the leadership at Daviess opted to do something a little unusual: outsource their IT department to a third party.

Where did the plan to outsource the Daviess IT department stem from?

In 2010, Daviess moved their electronic medical record from MEDITECH to Paragon, which is a McKesson product. When I got here to the hospital in 2012, there were problems – you know, in small little towns, when people leave they take the knowledge with them. When I arrived at our hospital, I really did see a problem with our IT system.

It was down more than I had seen at any other hospital I’ve worked at; we would be down three days at a time, and we’d be working on downtime procedures – paper procedures – and then we’d catch up electronically later when the system was back up. It was very problematic.

So, I sat down with our McKesson account representative, and we decided we had to have something different in place. She brought to me the idea of IT outsourcing, where McKesson brings in professional leadership, they take over the leadership of our IT department, and they run our IT department as if it’s their own internal department.

We started that in June 2013, and it really made the difference here. We have less downtime, and we’ve been able to attract good people from McKesson for our IT management. The folks that are here, they work for a Fortune 500 company but they live in our rural town. Things just flow quite nicely.

Was it a big change for you to come to a small hospital, given your background in larger health systems?

Things that were common in a large system were just missing here. Healthcare is ever-changing, and we need documentation on so many levels – regulatory issues, accounting issues, patient security, patient satisfaction – we have to have data in all those areas, and I had to rely on information that wasn’t accurate. Admittedly, I wasn’t feeling warm and fuzzy about a lot of things when I got here.

This hospital is 100 years old. We had a server room – and I’m just going to be truthful with you – we had a server room with a Wal-Mart shower curtain over the top of it, because we had to keep the server room cold. Now we utilize McKesson remote hosting, where our data is stored elsewhere in a secure environment, and that’s certainly been a big help for us.

How have things improved?

Has Daviess now made the switch from paper to electronic records?

I won’t say we’re 100 percent off paper, but we’re certainly further down the road to change than we were. We’re trying to meet Meaningful Use standards to help bring this hospital back to an electronic environment.
In your opinion, is this a viable strategy for any rural hospital?

We should all want healthcare to be available, even if you’re in a rural area. But the truth is, county hospitals are closing in large numbers. When I go to Quorum meetings, I hear about what’s happening in other rural towns, and I hear stories about two or three hospitals collaborating to try and maintain a shared IT system, allocating each other a certain amount of server time – stuff like that. But I don’t see that as an advantage, and I reported to Quorum and said, “I think we have a better answer here.”

This strategy of outsourcing IT works for us. I’ve had some other Quorum hospitals call me and ask how it works, and I’ve attended insight meetings, and I share that this is an answer for rural areas – I’m sure it could be an answer for larger hospitals, too, but it works very well for a small one like Daviess.

Leveraging RTLS to improve patient care

Craig A. Bunnell, M.D., M.P.H., M.B.A., Chief Medical Officer, Dana-Farber Cancer Institute

Craig A. Bunnell, M.D., is the Chief Medical Officer of the Dana-Farber Cancer Institute – an NCI-designated Comprehensive Cancer Center located in Boston, MA. Dr. Bunnell is an oncologist specializing in the treatment of breast cancer at Dana-Farber and an Associate Physician at the Brigham and Women’s Hospital. He was trained in medicine at the Harvard Medical School, where he still serves as an Associate Professor. He also holds a Masters in Public Health from Harvard School for Public Health and a Masters in Business Administration from the Massachusetts Institute of Technology.

Dr. Bunnell took on the role of CMO at Dana-Farber in 2012, and was part of the leadership team responsible for implementing RTLS technology as a means to improve physician workflow and decrease wait time for patients.

Where did the need to adopt an RTLS system come from?

This all really began because we realized the layout of the new building would be an issue in terms of managing resources. In cancer treatment, the two most prominent rooms where patients are seen are the exam room and the infusion room, where they get their treatment. And you have to be able to manage those resources for business reasons but also to manage wait time for patients. We began to look into what the options were, and chose an RTLS system from Versus.

We were actively constructing the building, so we were able to put thousands of sensors into the ceiling of clinical floors that use radio frequency and infrared technology with ID badges. The ID badges are worn by providers, administrative people – anyone who is coming into contact with a patient, as well as the patient themselves.

And this system helps you monitor workflow?

It does. What it does is it basically shows us where everybody is – we know where staff is on the floor, we know where patients are throughout their journey at the institute, and we know where all the different providers are. If I’m looking for a patient, I know where the patient is, I know who is with and around that patient, I know what that patient has already done and what they have yet to do.

Our plan is to implement this into our EMR; we just implemented Epic. The goal is to have those systems work in sync together, so we can connect the dots on what’s happening to what’s supposed to be happening, and have the system alert us to any issues accordingly.

In terms of timestamps, where are you seeing the biggest improvements?

We first piloted this on certain floors. We didn’t even turn the system on, but we began having people wear the badges. We did this to gather data to get a foundation for where we were.

The next step we took is we turned the screens on, so people could actually see what was happening on their floor, but we didn’t do anything else at that point. We didn’t create workflows for people, or set rules on how the system would be used. And it turns out that, just by turning the screens on, we saw a significant difference in wait time for patients at every step of the process.

How did the staff react to the change?

There was some reluctance with providers – particularly physicians. On some people’s part, there was a little bit of concern about “Big Brother” watching. What we tried to do is convince people this tracking wasn’t going to be used in a punitive way. I don’t need a system like this in order to know if somebody is working hard. I know if a person is working hard. The question is, how can we help them to work better and make their work easier for them? And so, we used the data from the RTLS to be able to do that. In the end, we saw a 10 percent increase in capacity without changing the number of rooms we had. Because of the workflow changes we made, we were essentially able to add two rooms to each floor, just by using that real estate more efficiently.

Throughout the process, we had to be very transparent about the implementation – we promised to show them the data and the improvements. And it turns out, because things were operating more smoothly, staff loved it. Doctors became the biggest advocates for it, because it made their life and their patient’s life better.

What’s the next step for this tech? What else are you hoping to improve?

When it comes to cancer care, we’re going to treat your particular tumor based on the genes of your specific tumor. So the question is, can we do that level of personalization on a different scale? Can we actually personalize your entire experience by looking at your plan for the day at the institute, and then make predictions to find the most efficient path for a specific patient? Who knows. That may
be more than what’s even possible, but I think we need to not be confined by what we think is impossible. I’d like to have a scenario where a patient is walking toward an infusion room and that triggers a pharmacist to mix their chemotherapy, so patient isn’t waiting.

Greater integration of all of our IT systems will help create a predictable and transparent experience for patients, really transform their experience. That’s where I see system implementation going. There are possibilities within this technology that we don’t think about right now, but the more we use it, the more we’re going to discover those uses. The potential to do everything from ironing out workflow clogs to lowering costs by improving efficiency and capacity is tremendous.

Crafting an IT strategy for a brand new hospital

Matthew Kull is the Senior Vice President and CIO of Parkland Health & Hospital System in Dallas, TX. A 20-year IT veteran with a background on the software vendor and consulting side, he began working in healthcare 14 years ago, with a resume that includes some of the largest hospitals, pharmacies, and utility systems in the United States.

Kull is a CHCIO – Certified Healthcare Chief Information Officer – and maintains professional affiliations with both the College of Healthcare Information Management Executives (CHIME) and the Healthcare Information and Management Systems Society (HIMSS).

He joined Parkland in 2014, just in time to see the new facility open its doors in the summer of 2015, replacing the 70-year-old building across the street.

Can you tell me a little bit about the new Parkland facility?

In 2015, we opened our brand new 2.5-million-square-foot single facility. We are the Dallas County safety net for much of the uninsured and underserved populations.

The usable life on a hospital is hopefully about 60 years, and that’s about the cycle we’ve been working on. We just not only outgrew the old building, but we had any number of facility operation and technical restraints inside of a building that was built in 1954. We ran out of the ability to retrofit modern medicine-tech capabilities and infrastructure.

What specifically was the issue with the old hospital’s technology?

We had a number of disparate infrastructure systems, different facility systems; our entire computer fleet was a multitude of different technologies—it all lacked consistency. We also were largely—I don’t want to say an analog hospital—but our ability to have large broadband interconnective devices was somewhat constrained by the physical design of the building and an inability to retrofit the concrete structure that had been in place for the last 60 years.

Did the physical plan for the new building take into account the tech you may utilize?

Yeah, it did. The new Parkland hospital is one of the first truly digital hospitals in the United States. With exceptions, like our back-up emergency analog phones, the whole hospital is 100 percent digital.

The new campus is filled with technology today that didn’t exist when we began planning. When planning, we looked not only at what the then-current technology was, but we looked at the future. What did we need to have in place from an infrastructure perspective to ensure that as we grew over the next 60 years in this facility, we’d be able to keep up with the pace? And you know, the future was pretty uncertain. It was hard to predict, but we looked at a lot of things—like, we knew we were going to need dense and reliable wireless interconnectivity throughout the hospital. So, we have hospital-grade Wi-Fi capabilities throughout the entire facility’s 2.5 million square feet, as well as some of the exterior areas.

What were some of the other modern technical advancements you adopted?

When we realized we were close to doubling the size of our hospital, we didn’t want to have to double the size of IT infrastructure support. Where we really got the big gains there was through our virtual desktop solution. By using the VDI platform, we were able to do a few things to affect how we deploy technology. All the point-of-care areas in our hospital are zero clients; so they all run an inexpensive, zero-footprint “dumb terminal,” if you will. That essentially repeats the VMWare Virtual Desktop that’s running in our data center.

What this enables—and this we found to be one of our largest physician engagement, technically speaking—is the tap-and-go solution. A provider walks in, they tap, and they turn and immediately interact with the patient. The virtual desktop is taking care of the rest.

Did you end up seeing a financial benefit?

It’s interesting you ask that, because one of the things we budgeted initially was we were required to salvage 40 percent of the best-performing equipment from our old hospital and move it to the new hospital, at the same approximate time we moved 700 patients from our old building to our new building.

What we found was, when we started evaluating the virtual desktop solution, our total cost allowed us to replace 100 percent of the point-of-care computers for the same budget that initially called for us to move 40 percent of our older equipment from across the street. We came in to our brand new hospital with an entire array of brand new equipment, and we reduced our patient risk by not having to move computers along with patients.

Did the new hospital take over the old’s operations immediately?

We had a day-one turn on. There were no phases or staged events—we moved all of the patients from our old hospital to our new hospital over two days. We brought all systems up day one, and we were working out of the gate. It was about the biggest bang we could possibly do, and we did it quite smoothly.

How confident were you things would go smoothly? Did you visit other facilities as part of your strategy?

We visited a number of other facilities as part of that decision process, but in a number of cases, we were kind of in some uncharted territories. We were the first people, or some of the largest people, to do some of these things, and in that vein, we partnered with a variety of vendors in development agreements to make sure we were helping to shape the product as we were implementing it.

In many areas, the technology we were moving forward with simply didn’t exist. This really allowed us to secure vendor engagement, because we were starting to shape products on their behalf or in partnerships with them—they’re going to want that product to work beyond us. I don’t want to call Parkland a test facility, but I will say we were a development partner for a lot of this technology.

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Taking aim at Parkinson’s
How the Internet of Things could revolutionize patient care.

Growing up, I was surrounded by musicians, artists, and writers. I have always been intensely interested in people and the human creative expression in art. It fascinated me to learn how people think, to view what they create, and hear about how they created it. From teachers to preachers to artists, the people in my life have cultivated a deep appreciation for the creative process. But I wasn’t interested in creating art in the traditional sense – instead, I’ve applied that thirst for creativity to science and mathematics.

I entered medical school because I wanted to contribute to new discoveries that could help people. This passion for innovation and discovery is very personal because my family has a history of neurological disease. My father died of Parkinson’s disease, and Alzheimer’s disease affected members of my family. My career has been defined around ways to create new solutions that could improve the lives of people who suffer from these devastating diseases.

Every day, doctors review complex sets of information, analyze them, and develop an appropriate course of action in caring for patients. But when patients are suffering from degenerative neurological disorders such as Parkinson’s – a disease that more than 60,000 Americans are diagnosed with each year – clinical care requires extremely close monitoring and continual analysis. This level of care is necessary to ensure that a course of treatment is still optimal at any given time.

Parkinson’s disease in particular requires ongoing assessment and adjustment of a patient’s medication regimen, which is dependent on both the progression of the disease and response of the patient. Additionally, these types of neurological disorders can cause uncontrolled movements and impaired cognitive abilities, among a myriad of other debilitating symptoms. Monitoring these symptoms tends to be limited to direct observation by a clinician in a clinic, or the information a patient or their caregiver records in a diary.

Herein lies the tremendous potential for technology and connectivity to change how we care for these patients and improve neurological disease treatment – and do so in a way that does not disrupt patient lifestyles or confine them to a hospital.

Pfizer and IBM are working on ground-breaking research to change the way neurological diseases are treated with connected health technology, real-time data capture, and advanced data analysis. The Internet of Things (IoT) has opened up a world of new possibilities for clinical research and disease treatment through remote monitoring. Using sensors, mobile devices, and advanced machine learning capabilities, researchers are looking for new ways to track and measure a host of valuable patient data – measuring everything from mobility to sleep patterns – all in real time.

For example, what if motion sensors placed in the home could monitor changes in how a patient moves or the time it takes to tie a shoe? What if common wearables could track fine motor signals and spot tremors or changes in speech? What data from these technologies could enable clinicians and researchers to track the progression of a disease and the magnitude of symptoms, all without changing a patient’s daily lifestyle or routine? That’s what we are trying to find out through an important research project between Pfizer and IBM.

Armed with this level of real-time data, researchers and clinicians may finally be able to do more to improve patient care. New Parkinson’s discoveries may finally move beyond symptom improvement to potentially changing the course of the disease altogether. Doctors might get the insights they need to tailor treatment to each individual patient. And researchers would have the information they need to study a disease’s progression more closely and potentially speed the development of better, more targeted therapies.

To me, this is the ultimate creative process. Together, Pfizer and IBM are experimenting with new ways to tap the power of data and connected devices to create something entirely new, something that could ultimately lead to novel and better therapies, and something that could fundamentally change the way doctors approach patient care. The potential for technology and connectivity to redefine medicine has never been greater, and I believe the sky is the limit on what could come of the collaboration.
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Cloud-based BCDR in healthcare: Why now?

IT professionals as a group tend to be risk averse – and IT professionals in healthcare organizations doubly so, given the life-and-death nature of their world. But, amid rising demand for improved patient outcomes and lower costs, the pressure is growing on healthcare IT to be more agile and innovative. As in most industries today, “agile” plus “innovative” plus “IT” usually adds up to one thing: the cloud.

While healthcare has been slower to accept cloud services – due to worries over reliability, patient privacy, and compliance with HIPAA/HITECH regulations – the winds are shifting. Cloud services are poised to dramatically increase as the underpinning for more personalized, data-driven, patient-centered models of care. As a result, demand for cloud services in healthcare is projected to triple within five years to nearly $9.5 billion.

None of this means that the concerns that have slowed cloud adoption in healthcare have dissipated – reliability and security issues are still top considerations. Healthcare IT decision makers are adopting a more granular approach, weighing risks and benefits on a case-by-case basis. According to a report from Accenture, “Healthcare is learning from other industries, such as financial services, about unlocking the benefits of cloud without compromising data security.”

And one of the first areas where healthcare IT can unlock significant benefits from the cloud is in BCDR: business continuity and disaster recovery.

The cost/complexity equation

The primary issue with traditional BCDR solutions has always been cost; building and maintaining redundant capabilities that may never be used is a significant drain on resources, particularly when cost cutting has left many IT organizations understaffed. At the same time, IT infrastructures have grown in size, range, and complexity. That makes the challenge of choosing the right back-up and recovery options even greater.

Cloud-based services tackle IT cost and complexity issues head on, providing access to a predictable, managed, outsourced set of IT capabilities. They convert upfront capital expenses to a pay-as-you-go operational expense. Enterprise customers are able to offload costs, complexity, and risk to focus on services essential to their mission.

• Configuration: Cloud-based BCDR strategies give healthcare organizations multiple options, such as a traditional “hot” (or online) site coupled with a “cold” (or offline) site. Other configurations include hot/warm or hot/hot (i.e., completely parallel sites). Application failover scenarios to other locations are also included.

• Employee/operational performance: Cloud-based BCDR strategies also sup-
A smarter approach to compliance
HIPAA and HITECH regulations are adding pressure to keep pace with escalating security and reliability requirements. Many healthcare organizations resort to blanket protection strategies such as encrypting everything—not just electronic protected health information (PHI) but also back-office systems. The result is millions of wasted dollars each year.³

At the same time, many healthcare organizations remain vulnerable to HIPAA audits because they lack the in-house expertise to properly deploy their enterprise applications. Most hospitals and other providers cannot produce an inventory of their information assets, determine vulnerability to security failures, or appraise the potential costs of a security breach. Nor have they assessed the impact of service disruption from a business-continuity standpoint. Besides stiff financial repercussions, these failures can seriously damage reputations and undermine the confidence of patients and partners.

Relying on the right cloud provider may produce better application performance, higher security levels, and lower costs. Distinguishing critically sensitive EPHI from back-office business data has the potential to deliver extensive financial and operational benefits.

Continuity and recovery
Cloud-based BCDR supports a shift from narrowly focused back-up and disaster recovery efforts to a more comprehensive business continuity strategy.

Disaster recovery (DR) typically includes the restoration of critical IT elements: systems, applications, network, and telecommunications. The emphasis is less on resiliency—keeping the hospital operating—and more on minimizing data loss. Complex and expensive to implement, seldom tested, and hopelessly unused, these options are more akin to catastrophic insurance policies than to practical solutions for ensuring ongoing operations.

At the other end of the spectrum, the goal of business continuity (BC) is to maintain and/or recover essential services in the event of a disruption. BC is more comprehensive, focusing on all aspects of the hospital. When an unplanned downtime event occurs, the facility can continue to operate with minimal interruption, as close to normal as possible. More granular than DR, BC goes beyond blanket, system-wide solutions. BC can mean anything from zero downtime for critical systems to carefully defined downtime/outage windows for the less critical. It addresses a wide range of eventualities from a short outage all the way through to total recovery. With BC, the organization remains operational during the period between disruption and recovery. A BC plan addresses continuity of patient care, the mechanics of moving back to paper-based systems, custody and privacy of data, and much more. And from a strictly IT perspective, BC planning is often in alignment with current virtualization strategies, wherein workloads are almost continuously in transit.

The cloud and BCDR: Keys to success
There are several key elements to a successful BCDR strategy:

• Dig into your applications. As a healthcare organization, you undoubtedly have a lot of them, all with different requirements. A BCDR plan requires a full understanding of the unique needs of each one.
• Get as close to the application as possible. The higher up in the stack you go, the less data there is that changes on a regular basis. This simplifies replication by shortening the timeliness of the data recovered.
• Get close to your recovery site—but not too close. A second site should be close enough to minimize latency, but not so close that it is vulnerable to the natural disaster or power failure that affected the main site.
• Don’t change form factors. Stick with what you know. You don’t want to be in the middle of a disaster and discover that your database server doesn’t scale as well as you thought.
• Know your compliance requirements. Know where the data lives and apply controls only where they are necessary. Use workflow diagrams to map and apply the right controls. For instance, personal health information (PHI) often requires greater controls than other stored data. Applying the PHI controls to every data collection is both expensive and obtuse.
• Embrace continuous improvement. BCDR isn’t a one-time event. It requires regular reviews and updates. Each time you make a meaningful change to your IT infrastructure—adding a new application or bringing a new server online—you should update your BCDR plan. Someone organizations routinely conduct BCDR tests, deliberately performing a failover from one data center to another every Monday morning. If a change has affected the BCDR process, they know it almost immediately.

Evaluating service providers
It’s critical to make sure cloud providers can protect your data from the network level down to physical security. Don’t just take their word for it, and don’t hesitate to suggest improvements that can, in turn, shore up your own BCDR posture. Ultimately, it all falls to you; any unmanaged disruption by your vendor becomes your problem.

When relying on any provider, get a solid grasp of that provider’s commitment to BCDR for its own facilities. After all, if the provider experiences a catastrophic disruption, your organization could experience the same disruption by proxy. And remember that while service level agreements (SLAs) are important, an availability SLA or a repair/restore SLA is not the same as a true BCDR plan.

Don’t be afraid to thoroughly investigate your vendors and partners and perform detailed audits of their disaster preparedness:

• What happens to the provider’s BCDR plan when it changes environments?
• Ask to speak to existing customers. What was the outcome of any service disruption, and how did the vendor perform?
• What are the failover options to other data centers or even competing providers?
• When and how often will the vendor/partner test the BCDR plan? Does the plan include failover from one data center to another at least twice a year?

Opportunity knocks
Any serious disruption of your operation—with the potential to ripple through admitting, clinical applications, billing, and more—is costly. But with the right BCDR plan in place, you can minimize the impact. As cloud services gain traction in healthcare, BCDR will be the application that many turn to first. Cloud-based solutions are rewriting the rules for BCDR, enabling greater levels of cost-effective protection, security, and flexibility. The opportunity is there. Are you ready to take advantage of it?

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Article provided by Time Warner.
The cloud: More affordable than you think

Shifting to the cloud makes life easier for independent physicians.

By TOM GIANNULLI, M.D., MS
Chief Medical Officer, Kareo

A new study says that less than 60 percent of physicians are using EHRs, and the smaller the practice the less likely they are to use an EHR. Smaller, independent practices have always been slower to adopt EHRs. And it’s no wonder when you consider what a client-server EHR can cost. But today, there are cloud-based EHRs that are so much more affordable. Cost shouldn’t be a factor in EHR selection anymore.

In fact, there are a lot of benefits that cloud-based EHRs offer that should be removing barriers for EHR adoption. And with the Merit-based Incentive Program (MIPS) coming in 2017, now is the time to consider an EHR to avoid potential penalties and position your practice for incentives, which could be as much as a 27 percent increase in Medicare reimbursement.

Here are some key advantages to cloud-based solutions:

• Cloud-based EHRs are much more affordable. This is worth mentioning again in some detail: Data suggests that for a five-doctor practice, a server-based EHR would cost $233,000 for the first year. Based on the average cost of cloud-based EHRs and the standard hardware needed, the same practice would spend around $5,000 to $10,000 in upfront costs for the first year. And if you include soft costs like reduced productivity, it is about $30,000 for the first year.

• There are often no contracts. Many cloud-based solutions are sold through a subscription with little or no upfront costs.

• You can stay up to date more easily with cloud-based software. Whether it is an EHR, billing system, or practice marketing solution, cloud-based software can be updated regularly at no cost. Companies can even push out live updates in real time during business hours with no interruption in service.

• There is no need to have an IT person on staff. Once you buy your hardware and set up your internet, you are good to go. There are no servers to maintain or updates to install. You don’t even have to do manual backups.

• Sign up and start training right away. You don’t need to wait for a complex installation and onsite training. Additionally, many vendors include free implementation and training as part of the package. Subscription-based services want to keep your business, and this is one way they can do that.

• Easier integration and interoperability. Many cloud-based solutions have open APIs that allow other companies to easily integrate with the software. This positions these companies to be better prepared for any interoperability mandates that may come in the future. Because of this and the ease of upgrades, these systems can also offer a broader depth of integrated options for your practice.

• Work from anywhere at any time. There is a unique flexibility that comes with a cloud-based solution, allowing you to complete tasks or reply to messages outside of the office, via mobile solutions, or while in between patient appointments.

• Secure cloud access. Some people still express concerns about security and reliability when software is in the cloud, but cloud-based EHRs have an excellent track record of protecting your patient data. Your patient data is just as secure on cloud-based software as it would be in your practice on a server, and in many cases it is more secure.

Others are worried about potential downtime, asking: “What happens if the internet goes out?” or “Where does my data go if I close my practice?” A reputable healthcare IT company will have good answers to those questions, and you should ask. Other things you should ask include:

• Pricing, extra fees, and contracts. On top of asking technical questions related to the software, you should also consider the training, implementation, ongoing support, and upgrades. Then, ask what hardware is needed and any other possible costs. You should be able to get a pretty good breakdown. It should be more affordable, but don’t assume. Do your homework.

• Who owns the data? Your data should be yours, and you should be able to get it out of the system when you want it or transfer your business to another vendor. Ask about this and what is involved. EHRs that are 2014 Edition Certified for Meaningful Use are required to be able to provide a CCDa file to transfer patient data from one EHR to another more easily.

• How is data protected? Ask about security and what happens in the event of data loss or corruption.

• What is the system downtime? You want a system that has very little downtime so you and your patients are not negatively impacted.

• How do you manage staffing changes? What do you do if someone leaves the company? How do you prevent unlawful access to the system and protect your data?

• Are there native apps for small-format devices like the iPad? If you plan to access your system remotely, ask about how you access the software on different devices. Native apps are often more user friendly than logging into the system via the internet on a smaller device. Generally speaking, most EHR vendors are updating their software to run in the cloud; so don’t get stuck with last year’s system. If cost and complexity have been the primary issues keeping you from moving ahead with an EHR or have prevented you from upgrading an old billing system, look at the cloud as a viable solution. It can help move your practice into the modern age without breaking the bank.

Once you move forward, you can open the door to new programs designed to increase revenue and improve patient care, including new payment models like Chronic Care Management, MIPS, and CPC+. HMT

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POPULATION HEALTH

Transforming care delivery in a value-based environment

Physician-led ACO leverages population health to improve quality and reduce costs.

By Faron Thompson and David Bennett

Scottsdale Health Partners (SHP), a physician-led clinical integration network (CIN), was founded with a mission of transforming healthcare delivery in the greater Scottsdale, AZ, community.

SHP is a joint venture between the HonorHealth health system and the Scottsdale Physician Organization, representing a broad spectrum of medical specialties with a pluralistic model, allowing providers to remain independent and entrepreneurial. Its focus is on achieving the Triple Aim of healthcare: improving the health of the patient population, improving the patient experience, and reducing costs.

Today SHP has contracts with seven major insurance companies and covers more than 40,000 patients. In January 2014, SHP was awarded accountable care organization (ACO) status in the Medicare Shared Savings Program. During that first year, SHP successfully achieved cost savings of nearly $3.7 million by engaging physicians, evolving and integrating care delivery, and launching an open, flexible, clinician-friendly technology solution to manage the health of its population groups.

Challenge

Moving closer to the goal of achieving the Triple Aim hinged on the following:

• Building a system of engagement to support the physicians that joined and bought into the SHP model. SHP needed to identify the most effective way to share a maximum of actionable information with providers and bring transparency to its CIN participants. Achieving SHP’s goals meant partnering closely with both primary care and specialty practices. SHP needed to facilitate data sharing, identify patients most at risk, help clinicians close gaps in care, and simplify reporting on quality measures.
• Identifying an open, easy-to-use IT platform with flexibility to run multiple contracts and adapt to emerging models of care. During the two-year planning that preceded SHP’s 2012 launch, the executive team determined that it needed an open health information exchange (HIE) platform that would make complete, accurate patient data from 40+ different EMR systems available to all 700+ participating physicians. This meant the IT infrastructure would need to integrate with various health information systems with a robust underlying HIE technology. The IT platform also would need to be flexible enough to meet evolving regulatory requirements.

Finally, preparing for the future was a paramount concern. SHP was seeking a standards-based platform with an open application programming interface (API) to support a wide range of population health management applications, with a very modern, scalable database and analytics at the heart of the system.

Solution

SHP knew that solving this challenge would require:
• A strong physician engagement strategy;
• A care management program with two distinct yet highly integrated services: transitional care management and comprehensive care coordination programs; and
• An innovative technology platform to support the engagement and collaboration among 700+ physicians at more than 230 practices with more than 40 EMRs.

SHP required an open-standard, open-access approach to its technology architecture. The platform needed to be clinician friendly and easy to use, to encourage adoption, and improve communication and coordination. The CIN/ACO also needed to ensure that its physicians, who are spread out in disparate practices, would be able to
use the EMRs they were already comfortable with – while also having the ability to share health information and coordinate care. Achieving this goal would be no easy feat.

After a thorough review of available options, SHP partnered with Orion Health, a precision medicine-focused company with advanced population health technologies and deep knowledge of what it takes to make HIEs work. Orion Health’s flexible open platform technology provides a common interface to facilitate the seamless exchange of crucial health information for SHP’s clinicians.

Within the platform provided by Orion Health, there are multiple ways to view a patient record, including a timeline view. A notification hub feeds SHP’s secure messaging solution, TigerText.

Traditional hospital-based technologies fail to support the critical needs of ambulatory care management. They are focused on inpatient processes, not ambulatory processes. SHP found innovative ways to leverage the power of an open-architecture platform to build applications that effectively support care management in the community.

**Connected care results in better outcomes, improved ACO performance**

This transition has resulted in significant improvements in care quality and cost savings. More than anything else, the resulting improvements in transition of care and care coordination have correlated to positive outcomes for patients and efficient operations for the ACO.

SHP custom built census reporting and real-time alerting for care transitions and care coordinators into its technology offering, demonstrating the flexibility of development with Orion Health’s open platform. SHP is now working with its partner on designing and testing an expanded care management solution. SHP care coordinators are able to build custom assessments, communicate with the patient’s care team, record and track patient goals, create care team tasks, and document efficiently, all within a single platform that integrates all the patient data.

SHP’s challenge – to find a robust population health management platform that allows clinicians using dozens of different EMR systems to exchange health information in real time – was a lofty one. Partnering with Orion Health to leverage its open-platform technology was the ideal solution, as evidenced by the dramatic improvements in SHP’s metrics that matter in today’s value-based care environment.

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5 pillars of data analytics
Extend physician reach through risk identification and stratification.

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orviders are experts at creating relationships in an individual patient setting, but how can those powerful relationships be extended across thousands of patients in a population? Value-based care requires providers to be responsible for the quality of care they deliver, as well as the overall health and cost of their entire patient population. Balancing the demands of value-based care with an understanding of unique patient needs is best accomplished through data analytics.

The following five pillars explore critical aspects of data analytics, including risk identification and stratification. These pillars extend the reach of physicians, and drive through targeted relationships and measureable outcomes for providers developing population health management strategies in value-based arrangements.

1. Build a data architecture and aggregate claims data
Just as physicians need to know the patients visiting their office, provider organizations need to have a deep understanding of their entire patient population. Creating relationships with your population starts with data architecture. Build a patient index with all individuals attributed to the practice, and verify that all patients have been assigned to a primary care provider.

Once the necessary architecture has been established, aggregate a comprehensive claims data set for the patient index that includes all healthcare utilization across the care continuum (including care outside your organization). Physicians using claims data have a 360-degree view of patient care, including in- and out-of-network utilization.

2. Understand patient and population risk
Now that you know who your patients are, you need to diagnose their risks. Predictive modeling and risk analytics are powerful tools that can help manage existing patients or identify new patients at risk of adverse health outcomes. Provider organizations have numerous risk model options from expert vendors as well as the public domain.

Consider the characteristics of your attributed patients when selecting risk models. Commercially insured patients have a different profile from a Medicare population, just as the drivers of cost and utilization are different for employed versus retired patients. The best predictive models are tuned to the profiles of commercial, Medicare, and Medicaid patients, and also include risk adjustment and benchmarking. With the right models, you can compare the burden of disease within your patients to regional and national standards. You can answer such questions as, “How do hospitalization rates compare for different medical practices within my population?” or “How costly are my diabetic patients compared with the regional benchmark?”

3. Stratify the population
You’ve identified your patients and their risk levels, but how do you organize care based on this data? Stratification ensures that providers effectively align patients for ongoing care. While prospective risk models help identify patients most likely to require hospitalization and utilize services in the coming year, patient stratification provides more granular segmentation of the population according to risk, disease, quality metrics, and other factors.

A strong combination of risk modeling, condition diagnoses, and utilization patterns helps create actionable patient panels and subgroups that can be managed through targeted knowledge as you define management or home care interventions. Stratification allows providers to easily monitor risk trends, optimizations, quality metrics, and outcomes specific to each cohort. By breaking high-risk patients into smaller groups that share characteristics, the creation of management programs will flow naturally.

4. Evaluate and use additional sources of data
In-office care planning is based on patient data as well as personal dialog with the patient. Similarly, provider organizations managing large populations will have a more complete understanding of each patient by integrating claims data with additional sources such as lab results or health risk assessment (HRA) surveys. The inclusion of additional data sources helps capture information unique to each patient, such as motivation to improve health or willingness to engage with a physician.

Additional data sources can also flag significant risks that may slip past claims data. For example, obesity is highly predictive of poor health outcomes, yet numerous studies have shown that, in many populations, fewer than half of obese patients are coded by physicians. HRA, patient activation scores, lab, and biometric data sources can help identify patients with significant risks or care gaps.

5. Monitor the impact of your initiatives
Once data aggregation, risk assessment, and stratification are implemented, the analytic process has just begun. It is crucial to rigorously track cost, quality, and utilization across all interventions and readjust programs based on outcomes. Evaluate the impact of care management programs and other population health management efforts through ongoing analytics. Constantly build on your knowledge as you determine which interventions lead to improvements in both process measures and patient outcomes. Use what you have learned to modify your interventions so patient outcomes continue to improve.

Effective provider-patient relationships start with an understanding of each patient’s needs. Risk identification and stratification enable providers to continuously and effectively uncover these needs across large populations where face-to-face care is not always possible.
Improving population health management with payer data analytics

As the healthcare industry continues to move into the realm of value-based models, both healthcare providers and payers are adopting consumer marketing tactics to improve prevention, health, and clinical outcomes. Just as a retail company might focus on how to motivate its targeted customer base to acquire more of its products and services, healthcare organizations must figure out the best approaches for engaging patients and motivating them to become more involved in their own care. More healthcare organizations are augmenting their traditional case management programs with focused population health management programs designed to proactively engage patients to improve quality and loyalty – in essence, to treat patients more like customers, with a focus on keeping them healthy. For example, these programs are asking things like, “How can I motivate a diabetic patient to take control of their blood sugar?” and “How can I convince a healthy patient to get their preventive screenings?”

Retail companies have all sorts of indirect methods to gather customer data: loyalty cards, surveys with rewards. It’s time for healthcare organizations to look beyond traditional claims and EMR data, and leverage non-traditional data sources to better understand how and when to engage their patients. There are a number of excellent ways to get more information about patients. The easiest is to leverage data that is already available or can be acquired from a third party. For example, data on patients’ consumer buying patterns can be acquired at a relatively low cost from consumer data aggregators. This type of data can provide information on a patient’s interests, household, and other consumer behaviors, which in turn can be used to better understand, predict, and motivate a patient. Other data sources can also provide interesting insights:

- Call center data provides information on how often a patient calls into the call center and for what purpose, which in turn provides insights into a patient’s overall engagement.
- Data from patient surveys (such as satisfaction surveys, health risk assessments, etc.) can be aggregated and analyzed to better understand certain drivers of satisfaction and risk.
- Data from website usage provides information on whether the member is signed up for the patient portal and whether they actually log onto the patient portal, providing additional clues as to that patient’s engagement.

To truly use the outside data, it is important to have existing staff or a vendor analyze the data and determine actionable findings – something that quickly becomes cost prohibitive for some organizations.

Analyzing patient data for better outcomes

From a health plan perspective, once a member joins the plan, it is imperative to know what will keep the member loyal, how to control avoidable costs, and how to engage the member so they are confident, healthy consumers. From a healthcare organization perspective, it is also important to know that most health plans’ networks are vast, and patients always have a choice. Analyzing and acting on patient data leads to smarter decisions, and more loyal and engaged patients.

Healthcare marketers segment patient data in order to identify trends in populations; determining how to segment populations is part science and part art. The science part has to do with ensuring that there are enough patients in the segment for the segment to be meaningful, and to segment patients based on logical categories, such as age or type of insurance. The more nuanced segmentation is in trying to group members based on their “barriers to engagement.” For example, segmenting by health literacy enables the healthcare organization to divert education resources to the patients who need them most.

Effective data analytics includes identification and understanding of group trends, understanding performance across key segments, and identifying individuals or groups of individuals with special circumstances. The question then is, “What can the healthcare organization do about it?”

Making the data actionable

Effective data analytics is a continuous learning experience, enabling healthcare organizations to get smarter and more targeted over time. At a micro level, it is important to understand whether the organization was effective in achieving its clinical and business goals, and in what areas and across which populations it was most effective. This type of understanding is a key part of any analytics platform. This way the organization can continue to deploy the most effective strategies, while modifying the less effective strategies in order to promote continuous improvement. At a macro level, it is also important to understand the relative changes in the population in order to ensure that the services offered are in line with the population’s needs.

Doing the analytics in-house or outsourcing is both a cost/benefit and core competency analysis. The question is, “What are the types of expertise, solutions, and costs associated with bringing the analytics in-house versus acquiring the solution from a vendor?” Also, “Is this the type of core competency that the organization would like to acquire?”

Often, deploying these capabilities successfully hinges not on conducting the analytics, but rather the organization’s ability to act upon the analytics. Analytics can uncover a multitude of actionable issues, but does the organization have the staff and the resources to act upon these issues? Prior to embarking on any analytic project, it is important to understand the budget and resources available, and which issues will potentially yield the highest returns. HMT
Making analytics actionable – and meaningful

When you hear the word “analytics,” what’s the first thing that comes to mind?
A dashboard?
If not, you’re actually in the minority. Despite the prevalence of analytics in nearly every field and industry today, the term itself continues to be commonly (and incorrectly) defined as “pre-packaged software that provides a nice display of information you already have.” You know – a dashboard.
Of course, that’s a tremendous underselling of what analytics actually is. But it also goes a long way toward explaining why the buying process for analytics software can be challenging, especially if the purchasing decision requires consensus. Does everyone in the group agree on what you’re actually buying? More importantly, what are you actually buying?
A good place to start is to get everyone on the same page. Analytics is the systematic computational analysis of data or statistics (if you Google it). It’s both the action and the outcome of applying computer science, mathematics, and artificial intelligence to understand and extract actionable information from data.
Analytics is a powerful form of technology that can truly drive your business forward. If you help others better understand what it is and what it can do, they’ll see the value too – and you’ll be positioned to prove the ongoing value of your investment successfully.

Leveraging the right type of analytics at the right time – and demonstrating ROI
Let’s say you’re considering an incremental investment in analytics capabilities. How do you decide whether or not it’s worth it? How do you demonstrate ongoing value and build a compelling ROI narrative?
First, distinguish between the type of analytics you’re employing for different purposes. Analytics can be:
- **Descriptive** – uncovering what happened and helping you understand why.
- **Predictive** – leveraging the understanding of what happened to forecast what’s most likely (or unlikely) to occur in similar instances in the future.
- **Prescriptive** – defining actionable paths that, if followed, create the greatest likelihood of a desired outcome (or the smallest likelihood of an undesired outcome), and making recommendations based on those insights.

Realistically, you’ll need to employ some combination of all three – so part of the value of your investment lies in developing the foundation of these capabilities.
The bulk of your ROI, however, will come from making analytics actionable in a meaningful way.

Making analytics actionable
Let’s start with an example based on core KPIs. For instance, let’s use HFMA’s MAP Keys – things you should absolutely be measuring and monitoring, like aged AR as a percentage of billed AR.
A dashboard might be able to display this metric and even tell you your fastest and slowest payers. While this is great information, it’s something you could likely get by asking the right person within your organization. And it’s not inherently actionable.
What makes analytics actionable is when it accomplishes something beyond, in effect, asking that right person for the basic information you need. This is achieved through automated analysis traveling upstream and downstream in the data to pinpoint what drove those days in AR and what the full, long-term impact was (descriptive analytics).
Analytics also identifies the right points of intervention, so you can target where you expend resources to address the underlying causes. The truth is, there are often lots of ways to solve a problem, and some are better than others. It all depends on the combination of the relevant elements at any given time.
Think of it like a Rubik’s Cube. The steps to solve the cube most efficiently will depend on how the individual tiles are arranged at the time you begin attempting to solve it. You might need to start from the beginning, and follow the rudimentary rotations that lay the foundation for solving subsequent layers of the cube. Or those layers might already be solved, in which case starting over would actually be counterproductive (and would lead to unnecessary rework).
Knowing the steps you could potentially take to solve the puzzle is actionable information, but it doesn’t become meaningful until you add the insight of which steps are most likely necessary or of greatest value in that instance (predictive analytics) as well as a more granular recommendation on which of those specific steps to follow (prescriptive analytics).
Hey, that’s a great segue to the next section.

By Ric Sinclair, Vice President, Product, ZirMed
Making analytics actionable and meaningful

So let’s say you pinpoint every single thing that could possibly be improved in your organization – down to the cent and down to the minute.

Then what? Hire more people? Ask everyone to work more hours? Lock yourself in the boardroom and refuse to come out until things are better?

Not very realistic or productive options – and unlikely to have any positive, meaningful impact on your operations.

The right analytics software, however, can turn this potentially overwhelming wealth of opportunities for improvement into a triaged, continually self-refining system. Software automation can accomplish the legwork of understanding which of all these dozens or hundreds (or thousands) of things actually deserve your attention. An analytics engine can identify ways to not have to bring as many of these things to your attention – figuring out single fixes that have significant aggregate benefit because they address and prevent similar instances of a common problem.

At the day-to-day level, analytics shows you where to focus your training and can help you prioritize staff time and other resources. It enables you to understand the details of your revenue cycle and AR days, and see the historical and near real-time differences between individual actors: which payers have the longest turnaround times for claims, for example, and which coders have the highest denial or rejection rate. Analytics empowers you to catch and address problems in your reimbursements before they become entrenched and erode a significant slice of your revenue.

Returning to the example of MAP Keys (or KPIs like them), let’s distinguish between actionable and actionable and meaningful:

- **Understanding the makeup of your denial volume is important** – by payer, plan, procedure, and so forth.
  - This insight is inherently actionable, as you can see which teams or which types of claims or which payers need special attention.
  - But it only becomes meaningful when it is further analyzed to understand long-term financial impact, impact on patient care/patient satisfaction, and overall value of reworking/resubmitting.
  - And the most meaningful outcome would be to pinpoint the causes of the denials and implement the most efficient upstream change to documentation, coding, eligibility verification, etc.

- **Days in AR, a very important metric, but also one that can be tough to parse.**
  - Let’s say, for a given payer, you typically get paid within 35 days. Is that 30 days with 5 days to get it reconciled in the system? Or is it 20 days plus 15 days to get it into the system?
  - Once you have this information and other similar insights into AR performance, how evident are the right solutions? What are the real sources of the delay(s), and how can they be mitigated?

- **Write-offs, bad debt, and unrealized revenue.**
  - Those all sound fun.
  - Not really, but how do you go about managing them down when you’ve already been trying to address them for years (in some cases, decades)?
  - You find new solutions. “Meaningful” in this case means the identification of novel approaches or previously unknown pockets of opportunity. Analytics becomes meaningful when it identifies previously hidden or unknown correlations and connections across your data. Finding these patterns enables you to target your effort. As a real-world example, it’s the difference between rewarding collection activity based on simplistic metrics (number of touches, dollar amount owed) – and targeting it based on true probability of collection and total overall cost to collect.

Laying the groundwork for meaningful, actionable analytics

The capabilities you need to support and maximize the value of these forms of analytics include:

- **Data aggregation and normalization** – the cleaner and more comprehensive your data is, the more meaningful and accurate the insight that can be gleaned from it;

- **Interoperability and direct tie-in with workflow software** – the more seamless the integration with your other systems, the more efficiently actionable the insights become; and

- **Access to relevant third-party data for model validation** – this is particularly important for predictive and prescriptive analytics, because the models used in these forms of analytics may need to look to de-identified third-party data to understand rare instances (or to get a head start on understanding new types of instances when you add new service lines, begin to serve different patient populations, or operate under new reimbursement models).

Keep all of this in the mind the next time you’re discussing analytics, especially if the colleagues you’re discussing it with are a little fuzzy on what analytics actually means. Helping them better understand will help your entire organization, because you’ll make the right investment and reap all of the benefits that come with it.

You’ll be able to spotlight what happened, why it happened, and ways to prevent (or recreate) it in the future. The proof of your success will become evident as that future becomes the present, and then the past. Descriptive analytics will enable you to demonstrate the impact of changes you implement. Predictive analytics can be leveraged to show the granular or aggregate likelihood of undesirable outcomes decreasing over time (and what the associated long-term impact is likely to be). And prescriptive analytics will enable an ongoing, continuously self-refining roadmap of how you can further improve processes, even as you continue to make progress toward your goals.

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Many factors are driving the growth of healthcare spending. The number of insured individuals has grown – in large part due to the Affordable Care Act – with an additional 16 million Americans having access to compensated care since passage of the law.

In addition, baby boomers reaching retirement age are pushing the number of Americans age 65 or older to an all-time high. As utilization of health services increases dramatically after age 65, the result of an aging population on top of already increased numbers of insured has projections of healthcare spending reaching close to 20 percent of our gross domestic product.

Who’s spending this money? Increasingly, it’s the healthcare consumer. Out-of-pocket costs for premiums and deductibles doubled to nearly 9.6 percent of household income between 2003 and 2013, according to data from the Commonwealth Fund. Despite the rise of consumers’ out-of-pocket costs, hospital leadership still want and need to control costs. Hospital operating margins are slim – according to a 2014 article the average is 3.1 percent – so eliminating waste and inefficiency is vital.

Clearly, the way we provide and pay for healthcare must evolve. Historically, a fee-for-service system has meant that hospitals perform the procedures considered necessary to ensure best outcomes. Hospitals must charge more for more procedures, striving to at once realize best outcomes and greatest reimbursement from this volume-based approach.

But this fee-for-service model doesn’t always work. It doesn’t necessarily follow that providing more and more scans, tests, and treatments results in better outcomes. Hospitals must charge more for more procedures, striving to at once realize best outcomes and greatest reimbursement from this volume-based approach.

The response to spending growth
In an industry that has seen decades of continual change – not all of it orderly or predictable – it’s hard to build a long-term strategy for success under these circumstances. In recent years, driven by the factors previously listed, some major trends are shaping the industry enough to look at a new strategic approach to success.

Both CMS and private payors realize that costs can’t rise forever. Thus the rise of new reimbursement models rewarding value over volume. In these models, providers failing to meet quality and cost outcomes will be penalized, while those delivering to defined measurements of value will be rewarded.

This movement from fee-for-service to pay-for-performance will require meeting the challenges of population health, consumer-directed healthcare purchasing, and new reimbursement models. Addressing any one of these three is daunting, but together they present not only enormous risk, but also enormous reward for systems that can build a strategy to evolve and succeed in this new world.

Managing population health means committing to gathering huge amounts of demographic, clinical, and financial data. Beyond this, providers will need to build processes and systems to analyze and then act on these data sets in a way that supports strategic success.

Even as this challenge is addressed, employers have in the last several years responded to their rising burden of insurance costs by moving more responsibility to employees. High-deductible health plans have taken on a significant role in driving consumers to do more self-directed research on their health and more comparison shopping. With patient financial responsibility a vital revenue source, and consumer choice critical to success, providers will continue to look at innovative ways to provide healthcare that’s at once efficient and affordable, making medical malls, aligning clinics with retail pharmacies, and using telemedicine and mobile technologies.

Finally, there is the shift to new reimbursement models, spurred in large part by the U.S. Department of Health & Human Service’s January 2015 announcement that Medicare would be “tying 50 percent of payments to these [value-based] models by the end of 2018.” Suddenly, delivering value took on a new level of importance.

A closer look at the revenue cycle
In this new value-based world, revenue is still vital to success, and a well-managed revenue cycle will always be a critical part of a provider’s ability to provide care to its community. Every provider wants to provide this care at the best possible cost, but quality and cost – the components of value – are the result of count-
less complex interactions across every department in a provider system. Especially when reimbursement is added to the mix, these interactions must be coordinated closely. From patient engagement to materials management, pharmacy to staffing, discharge to billing and beyond, every part of an episode of care is affected by – and affects – quality, cost, and revenue.

Successfully managing care will require financial, operational, and clinical data to be collected and analyzed to understand how quality care is delivered, as well as whether the cost of delivering that care exceeds reimbursement. These data sets cannot be addressed as separate concerns. Instead, they must be managed as components of a single larger process.

Building a solid foundation for this new process will be vital to sustained success. But where does a provider start? The revenue cycle is a smart place to begin, by analyzing the information contained in the chargemaster, where every charge associated with every outpatient procedure is stored.

With its wealth of relevant data, the chargemaster is the linchpin of not only the revenue cycle but also a provider system’s value cycle. Key data sets that will help build understanding of the value cycle include:

- **Service codes**: The unique numbers created by a facility;
- **Charge descriptions**: The unique descriptions of a procedure, drug, or supply created by a facility;
- **Revenue codes**: National Uniform Billing Committee (NUBC) – representing the type of bill you are submitting on the claim;
- **CPT or HCPCS codes**: Standardized coding systems used primarily to identify products, supplies, and services not included in the CPT procedural codes. A CPT code is a five-digit numeric code used to describe medical, surgical, radiology, laboratory, anesthesiology, and evaluation/management services of physicians, hospitals, and other healthcare providers; and
- **Prices**: The charge a patient is billed for a service, drug, or device.

From here, the revenue cycle can be used to start optimizing every opportunity to achieve best outcomes for the best cost.

### The value cycle

Value cycle describes the full life cycle of optimizing every opportunity to achieve the best outcome for the best cost. It includes traditional revenue cycle components, such as pricing, charge capture, claims performance, and compliance, but also addresses additional dimensions, such as:

- Quality of care;
- Patient satisfaction and engagement;
- Clinical outcomes;
- Operational efficiency; and
- Risk management.

Managing this process will require visibility into and understanding of cost, revenue, and quality data across the value cycle. Without this, a provider system will risk its patients’ satisfaction, its own profitability, and its regulatory compliance. Once risks are discovered, a value cycle approach will mean converting those risks into opportunities for improvement in cost, revenue, and quality. Finally, the value cycle will require optimizing these improvements, turning them into sustainable processes.

### Five financial keys to a value cycle approach

It’s easy to understand that providers must make margin in order to fulfill mission, but starting a value cycle approach requires equal measures of planning and passion across an organization. While every provider is different, there are some common factors that can help a value cycle approach succeed. Obviously, delivering quality care is critical to success, as is managing the cost of facilities, personnel, and supplies. But there are five steps you can take, largely within your revenue cycle or revenue integrity department, that can positively impact your value cycle.

1. **Get leadership on board.** Without clinical, financial, and operational leaders in agreement on the need for a coordinated strategy to deliver value through clear goals and processes, an organization risks continuing to be siloed, with different and sometimes competing demands for resources.

2. **Perform a comprehensive audit of the chargemaster**

   To give a baseline of what your services encompass and where reimbursement problems and opportunities lie. When a charge doesn’t exist in the chargemaster, there is ultimately no reimbursement – and chargemaster and charge capture errors lead to significant lost revenue and compliance risk. Making sure your charge capture processes are optimized will help minimize financial uncertainty as you optimize the rest of your processes.

3. **Look at your supplies and pharmacy charge capture.**

   Are there gaps in pharmacy data between your purchase history, formulary, and chargemaster? By syncing drug purchase history, formulary, chargemaster, and up-to-date regulatory reference, providers can address the revenue gaps that sabotage efforts at cost reduction and delivering quality care.

4. **Review your pricing, from both a margin and a competitive perspective.**

   This is a critical part of building a value cycle approach. With consumers looking for value, are your prices where they should be?

5. **Look at your admission processes.**

   From eligibility to medical necessity to billing, for quality of the experience and quality of data. Patient engagement is a key part of the value cycle. For example, patients’ experiences in the billing process are critical to their overall satisfaction, and simple medical necessity errors can lead to costly denials. When a patient’s bill gets wrapped up in a hospital’s internal issues with medical necessity and denials, patient satisfaction is risked even if they have received excellent care otherwise.

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Ransomware: It’s as scary as it sounds

But with security best practices, you can fight back.

By Chad Michael Van Alstin, Features Editor

For those in the healthcare technology space, ransomware is the biggest horror story of 2016, conjuring chilling headlines about hospitals shut down by an invisible enemy. It’s the story of technology being used against us, with the very computer systems we rely on transformed into prisons for our most precious data. The villains in this story are clever, leveraging fear tactics and trickery to rob their victims blind. It’s the perfect story for a media narrative, one that has captured the attention of major news services across the globe.

With health systems such as MedStar, Prime Healthcare, Hollywood Presbyterian Medical Center, Methodist Hospital, Desert Valley Hospital, and Chino Valley Medical Center caught in the web of ransomware this year alone, there’s no question that others will follow before 2016 comes to a close – and as a result, the sensational news coverage won’t just go away. And if the attackers are really as organized and powerful as it appears, maybe the scary headlines are justified.

Cybercrime evolved

Looking at the 2016 Internet Security Threat Report put out by Symantec, evidence seems to suggest that these cybercriminals are becoming far more legitimate and organized than you may think. The cyberspace villain, once imagined as an overseas scammer who casts out huge phishing nets in hopes of catching one fish – has become a team of cyber badguys who have set up companies modeled after legitimate businesses. In some cases, it appears they may enjoy set days off and other benefits similar to those of the American corporate sector.

“We started noticing dips and slow periods [in activity from cybercrime], and when mapped back to the calendar, it revealed that the bad guys seemed to be taking weekends off and regular holidays. You actually get a slow period over the Christmas holiday,” says David Finn, Health IT Officer, Symantec. “To me, that was actually one of the amusing parts of the study, except that it’s not amusing. They have really started to turn it into a profession. We talk about cybersecurity professionals – well this is kind of the dark side of cybersecurity professionals.”

Finn went on to add that, much like the lower-your-interest-rate phone scams that plagued past generations, cybercrime has become so ubiquitous that call centers are being set up to make the scam seem like a legitimate transaction. In some cases, these call centers may act as “customer service” departments for the less-organized bad guys who purchase the ransomware and hacking products from these “vendors” – whose products are readily available on the dark web through a Tor browser.

“When you look at the fact they’re running call centers, their document-ing code [to continuously improve their products], and they’re taking weekends off – it really looks like there is a trade association out there for the bad guys,” Finn notes. “I think the scams are getting better, and it’s going to be harder for us to catch up – the bad guys don’t work under the same constraints as legitimate businesses.”

Their sophistication shows in the effectiveness of recent attacks. Early ransomware largely affected consumer PCs. A pop-up from what appeared to be the FBI would threaten the user over their “illegal activity,” demanding restitution for pirated movies or questionable browsing habits. To increase the effectiveness of the scare, some of these programs would activate the user’s webcam to make it seem as if Big Brother really was watching.

With FBI officers surely on the way to their door, users would pay their “fine” via some legitimate-looking PayPal rip-off and be on their way to freedom. More sophisticated users could probably reclaim their PCs with a little bit of work, as previous iterations of ransomware merely locked down computers and hid files. Today, those who fall victim to ransomware may not be so lucky.

Modern attacks, like the one that hit Methodist Hospital, lock down computer systems on the network, encrypting files and holding them hostage. It’s the story of technology being used against us, with the very computer systems we rely on transformed into prisons for our most precious data. The villains in this story are clever, leveraging fear tactics and trickery to rob their victims blind. It’s the perfect story for a media narrative, one that has captured the attention of major news services across the globe.

All trickery and deceit is gone. With these enterprise attacks, there’s no pretense of being the FBI coming for torrent-ed Jay-Z albums, nor a “representative of Microsoft” requesting payment for services rendered. This is an organized criminal enterprise paralyzing a health system and demanding money for the trouble of keeping computer files nice and safe during this whole invasion.

A terrifying HIPAA fine?

Interestingly, unlike other security breaches, ransomware attacks are not nearly as invasive. While the jury is still out on whether falling victim to these crimes counts as a reportable HIPAA violation, it’s important to note that ransomware software does not actually steal files. In some cases, these programs would activate the user’s webcam to make it seem as if Big Brother really was watching.

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information actually was viewed), covered entities (and their business associates) need to do the required analysis in each instance of whether a ‘low probability of compromise’ has been demonstrated, and ‘whether the [PHI] was actually acquired or viewed’ is only one of the factors.”

In other words – maybe? Presumably, lawyers and regulators will eventually hammer out an official position once all the evidence is in. But on that note, does ransomware actually allow prying eyes to view sensitive patient data?

“I am not aware of any ransomware that would allow anyone else to access that data,” Finn says. “Yeah, they’ve encrypted it … but I think there’s a lot that needs to be determined before we can say it’s an actual data breach.”

Face your fears and fight back

While certain forms of ransomware have seen their encryption broken, that defense is unlikely to be successful in most cases. Finn says most ransomware on the market today utilizes strong encryption that’s unlikely to be broken. As a result, defense must come in the form of a robust security strategy, complete with regular backups of all systems and vigilantly updating operating systems, software, and hardware.

“For a big organization like a hospital, that can be a huge task,” Finn says. “But every time you miss one of these key gaps, the opportunity for an attack just gets bigger. It really comes down to best practices and doing the basic blocking and tackling. And this is really where healthcare struggles – there’s so much to do … they’re so highly regulated, they can’t do everything all at once.”

For health systems that are overwhelmed by security challenges, the place to start is by adhering to basic computer hygiene: Don’t open files or click links you don’t recognize, and never allow unauthorized devices to gain access to the hospital network. It may be wise to teach any and all users how to utilize “sandbox” software, which allows unknown links to be opened in a secure environment.

“I think the biggest bang for your buck in fighting ransomware today is going to be training your people. Your computer doesn’t open mail for you; tablets don’t click links that come into them through an email – they don’t open files,” Finn says. “It’s not a malicious intent on the part of users, but I think it is a lack of awareness and a lack of training people on what they could be doing unintentionally [to trigger a cyberattack] when they get an unrecognized email with a file they don’t recognize, or they click a link that they don’t know what it is. You have to train your staff to know how to spot potential concerns.”

Part of that training includes making sure people don’t panic and become susceptible to the fear tactics used by ransomware attackers. For the criminals, turning on a device’s camera and pretending they’re a spy from the FBI is only the beginning. Some use horror movie images to taunt their victims, and other more annoying variations utilize loud noises and sound effects to create a sense of chaos.

For an organization that is trying to do business, undoubtedly such a disturbance can be overwhelming. Sometimes paying the ransom may seem like the best option, but there is an inherent risk associated with dealing with criminals – especially those who have already shown they aren’t afraid to be deceptive. Paying that ransom may not result in files being unencrypted, and it may just make you a target for future lockdowns.

For individual users and businesses alike, the first step is to take a deep breath and really examine the problem. Some of these ransomware programs are all bark and no bite.

“The user is seeing [stories of] hospitals shut down, police departments paying ransomware – and now they see it on their own computer. They figure if the big guys can’t fight it, I have no chance, so I’m just going to pay for it. But that isn’t always the best option,” Finn says. “We’ve got this new model we’re calling ‘Bluff Ware,’ where there’s really no code underneath it. They just lock your screen and say, ‘Pay the ransom.’ And people pay the ransom, but if they had just rebooted their machine, they’d be fine. But the panic level is so high in society that there are guys out there levering that.”

And why shouldn’t they? If it wasn’t working, these cybercriminals wouldn’t be acting like organized, professional businesses. Much like their legal counterparts, the laws of capitalism apply to the black market – paying the ransom only increases the frequency and effectiveness of attacks, as it gives the criminals more money by which to improve their tactics. The only defense is fighting back via preventative measures, such as system backups, firewalls, secure endpoint access to all hospital systems, and well-trained users.

With every day that passes, the bad guys are getting stronger – especially if their profit margins continue to rise due to an increase in ransom payments. There is no blanket, one-size-fits-all solution to battling ransomware, but with education and by being vigilant about security best practices, hospitals can significantly reduce their risk of falling victim. There are health systems and individuals who repel attacks every day – but those stories don’t make for bone-chilling news. HMT

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Turn to the cloud for accountability

Healthcare’s shift to quality outcomes depends on robust connectivity.

The healthcare industry is in the midst of a profound transformation as it shifts to quality-based outcomes from the traditional fee-for-service model. But the success of this transformation hinges on the implementation of robust technology systems and processes, standard practices, and efficient sharing of information between healthcare providers, labs, pharmacies, and patients.

Technology is the primary enabler of this shift, the engine for change. We aren’t just talking about filling out a few forms online. What’s happening is the implementation of an intricate array of technologies that includes video diagnostics, operating rooms with robotics and closed-circuit video connections, patient portals with access to medical records, health-monitoring wearables connected to the web, and massive information-sharing and electronic record-storage software systems. That’s just to name a few.

In many cases, these systems have to talk to each other. Getting them to do that is no easy task. It creates an enormous demand for robust, reliable data networks, bandwidth, and connectivity to link together hospitals, clinics, labs, pharmacies, doctors’ offices, and patients. For many healthcare providers, a cloud infrastructure is the obvious solution to implement and connect all of this technology cost effectively and efficiently.

But these clouds have to be robust and secure in order to handle the massive volumes of data that flow in and out of networks safely. Increasingly, healthcare providers are looking to private Ethernet to securely and reliably deliver the vast multipoint, location-to-location connectivity they require.

Reform incentives

As healthcare costs continue to increase, the industry is turning to technology to control the costs of delivering care. The goal is to improve the speed, quality, and safety of care without further accelerating cost increases. The need to reform is understood, and incentives have been put in place to improve the quality and value of care, as well as the overall health of the population.

It used to be a patient would seek treatment, and no one gave much thought to how many times that person returned to a doctor or clinic for the same ailment. Now there is a push to reduce return visits with efforts to minimize misdiagnoses and zero in on the right treatment as early in the process as possible. Prevention now is a bigger focus. Patients are encouraged not to skip their regular checkups, and electronic monitors are being issued that allow for prompt, decisive action by healthcare providers at early signs of trouble.

Data and metrics can play a role here, and going forward providers will put more and more emphasis on data collection, analysis, and sharing to achieve those quality-based outcomes the industry so badly needs.

To prod the industry in its reform efforts, the 2009 Health Information Technology for Economic and Clinical Health Act, or HITECH Act, included measures and incentives for hospitals and doctors to invest in new technologies to drive efficiencies and improve data sharing and collaboration.

For instance, Medicare and Medicaid reimbursements were tied to Meaningful Use of electronic health record systems, which replace paper patient records and charts with digital documents accessible securely in real time by authorized users. EHRs deliver multiple benefits, including ready access and easy navigation of complete patient medical histories, allowing physicians and specialists to analyze patient data simultaneously.

As part of the EHR effort, hospitals, clinics, and physicians are being required to allow patients to go online to view, download, and transmit their health information within four business days of when the information is available. To make that happen, providers are integrating EHR systems with other technology solutions. Those solutions include picture archiving and communication systems (PACS), which store images such as MRI, X-ray, and CT scans and give patients access to them through web portals.

Another type of solution, health information exchanges (HIEs), allows doctors, nurses, pharmacists, and other healthcare providers and patients to access medical records electronically. When appropriate, that information can be shared quickly and efficiently to produce better patient outcomes. There is even a movement to make it easier to share medical data with researchers as they work to find cures for various diseases and illnesses.

Strain on infrastructure

The systems healthcare providers have been implementing, which in some cases combine video with voice and data networks, can seriously strain existing infrastructure. Providers, therefore, have no choice but to invest in updating their infrastructure and boosting connectivity and bandwidth.

For many, one of the fastest, affordable routes is to leverage a cloud infrastructure, but moving mission-critical healthcare applications to the cloud isn’t something any provider will do lightly. Providers may opt for private or hybrid clouds and require a robust network with built-in redundancy and direct connectivity, bypassing the internet in an effort to address security concerns and avoid latency issues.
Healthcare networks and applications must be reliable and highly available; in some cases the transmission of information could literally be a life-and-death situation.

In addition, these systems and connections must be highly secure because medical records are among the most sensitive types of data that flow in and out of networks. The transmission and storage of these records are subject to stringent privacy regulations, chief among them the 1996 Health Information Portability and Accountability Act. Adding pressure to the need for security is the hacker issue; healthcare records have become a common target of cybercriminals in recent years.

**Multipoint connectivity requirements**

Delivering a high level of reliability and security can mean robust, fat Carrier Ethernet pipes with built-in redundancy to handle the ever-increasing volumes of data flowing back and forth between care providers and patients. Picture a scenario where the hospital is the nerve center of a vast, intricate network feeding and receiving data to and from doctors’ offices, patient homes, clinics, pharmacies, labs, data centers – and the mobile devices of doctors, nurses, and patients.

The hospital needs a high-performance, highly available and scalable network to handle critical systems such as EHR, PACS, video, and voice connections for telemedicine, Wi-Fi links for mobile devices and wristband scanners, and a host of other data-intensive applications. The network must connect securely with patient homes and devices for health monitoring purposes, access to medical records, and so forth.

Secure, reliable links must be in place to give doctors access to patient files through their computers and mobile devices whenever needed, wherever they are. This requires a high-capacity wide-area network (WAN) with multipoint, broad-range connections in a geographically distributed area, and must deliver the performance and availability you would expect if all parties were operating in the same building. Even if the various parties are operating dozens or hundreds of miles apart, communication must be seamless and efficient.

In this scenario, a data center or two is operating somewhere. In a cloud-based environment, a trusted third party runs the data center where the servers, storage, and networking equipment are managed. These facilities, too, require secure, reliable, high-bandwidth connectivity to process and deliver the data being used across the entire landscape.

**Scalability needs**

The demands placed on healthcare systems and networks are immense. These systems have to handle not only current volumes and connectivity requirements but also have the capacity to scale as new applications come online and data volumes increase. Legacy infrastructures may not be able to handle these new demands, which means healthcare organizations need to find solutions for their growing requirements.

That’s why many healthcare providers are turning to the cloud for capacity and scalability. But to properly leverage cloud infrastructures, the increasingly intricate, interconnected networks of healthcare providers require secure, reliable direct links that bypass the internet. Healthcare’s transformation toward quality-based outcomes has the potential to revolutionize the delivery of patient care. To live up to that potential, serious investment may be needed in cloud technology, connectivity, and bandwidth.

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Price transparency at the patient portal

By Jay Deady, Chief Executive Officer, Recondo

Can your organization survive and thrive in the era of high-deductible health plans? It’s a scary proposition when high-deductible plans account for nearly a quarter of commercial policies, yet the majority of American households lack the resources to pay out-of-pocket expenses of $3,000 or more.¹ These two conflicting realities portend serious problems ahead unless healthcare leaders take decisive action.

How price transparency boosts patients’ confidence in ability to pay

Numerous studies show that patients who know what they will owe for medical services are more likely to schedule them,² while hospitals regularly report that accurate price estimates substantially improve upfront collections. Mercy Health, for example, saw a 12 percent uptick in point-of-service collections after boosting price-estimate features in its registration system.³ Carolinas HealthCare increased pre-service collections by almost 30 percent after adopting automated price estimates.⁴

While these price transparency tools were integrated with HIS systems like Epic for use by hospital staff, who quoted prices to patients over the phones, new advances make price transparency calculators easily accessible to healthcare consumers – and assure that more of them will schedule and receive care they can afford.

Self-service price calculators: a patient portal-facing solution

Price transparency technology has finally caught up with today’s information-driven consumers who want information fast – preferably online. In response, providers can embed a “self-service” calculator on their general website or a patient portal that enables consumers to generate their own estimates. The process is simple: Consumers input their name, insurance plan number, and a few other demographics. Within 10 to 45 seconds, a complete and accurate estimate appears based on the consumer’s current level of coverage.

How is such highly personalized data acquired? As it happens, through a blend of familiar and newer technology.

First, Recondo drives automated queries of payer websites to gather benefit-level information. The answers are merged with the provider organization’s chargemaster list and contracted rates with payers (both of which are periodically extracted from different back-end information systems and loaded into the standalone calculator). The merged info is then presented into an accurate estimate of services.

What’s newer is the application of analytics that regularly compares these estimates with previously settled claims to spot reimbursement quirks among different payers, such as one payer’s propensity to use a different code than other payers use for the same procedure. Over time, these findings are incorporated into the calculator for ever-more-accurate estimates.

It’s a solution that comes just in time. Healthcare consumers are paying more for less coverage, and understandably aren’t happy about it. This is all the more reason for providers to connect with these consumers early on. With self-service calculators they can – right from the patient portal.

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PORTALS

Revenue Cycle Management

Catholic Health Initiatives implementing single-portal solution

In a bid to provide patients with an easy way to interact with their healthcare providers and personal health information, Catholic Health Initiatives (CHI), one of the nation’s largest nonprofit health systems, has expanded its relationship with Allscripts to enhance patient engagement and enable clinicians to monitor care-plan compliance remotely.

The plan includes an expansion of CHI’s use of the FollowMyHealth patient engagement platform from the ambulatory to acute care settings, replacing one of its legacy acute patient portals to provide patients a single-portal experience. The platform provides patients with the ability to message physicians securely with questions regarding their health, view upcoming appointments, access test and lab results, and renew medications.

CHI will also implement FollowMyHealth Achieve, which enables providers to involve patients directly in the ongoing management of their care. Clinicians use the Allscripts Touchworks EHR to enter orders. The orders are then available to patients at home or on their mobile devices through the portal. Home-based wireless technologies capture readings and results, and push the information to the EHR. The care team is automatically notified if the patient is noncompliant or if individual results exceed clinician-established parameters.

Dignity health goes the unified patient-record route

Patients and providers alike aim to benefit from the one-record experience being created at Dignity Health, one of the nation’s largest healthcare systems and the largest hospital provider in California.

In order to create an integrated, clinically driven network across all its acute and ambulatory care settings, Dignity Health is expanding its use of Cerner’s PowerChart Ambulatory EHR across all Dignity Health ambulatory care clinics.

PowerChart Ambulatory will integrate with Dignity Health’s 39 acute care facilities, which are supported by the Cerner Millennium EHR. As a result, patients and providers will benefit from a single-record experience. Patients will have access to a unified patient portal and will no longer have to recall medical history during appointments. Physicians will benefit from strengthened data integrity and a holistic view of a patient’s record.

In total, Dignity Health encompasses a 21-state network of nearly 9,000 physicians, 59,000 employees, and more than 400 care centers, including hospitals, urgent and occupational care, imaging centers, home health, and primary care clinics.
Connected ecosystem for med review/authorization

InterQual Connect takes advantage of cloud connectivity to offer payers and providers an efficient workflow to automate medical review and authorization. It works with the same care management systems and InterQual Criteria that payers and providers already use, making it fast, easy, and cost effective to implement and deploy. It doesn’t require new hardware or more IT staff, because it uses a payer’s current IT infrastructure to speed deployment and minimize IT costs. Providers gain visibility into the health plan’s medical criteria, can digitally submit authorization requests, and receive fast auto authorization from within their existing workflow, using either the payer’s provider portal or their own InterQual workflow solution.

Image-enable your patient portal

DICOM Grid, named the 2015/2016 KLAS Category Leader for Image Exchange, provides a powerful, cloud-based suite that streamlines the medical image exchange process and connects patients, care providers, and facilities worldwide. CareWell Urgent Care, a leading provider of episodic healthcare in New England with over 15 locations, recently deployed DICOM Grid as a Cloud PACS, image transfer mechanism, and online portal for sharing studies with patients. In addition, studies are often shared with UMass Memorial Healthcare for analysis where a report is created, automatically attached, and shared back. At the core of the cloud PACS initiative at CareWell is the simple goal of providing patients with better access to imaging.

EHR app gets MU cert

Available in the Apple App Store and Google Play, YourCareEverywhere is one of the first mobile apps to achieve Meaningful Use certification under CMS’ EHR incentive program. The app, which is co-branded with participating hospitals, allows consumers to link to their patient portal, communicate with providers, and access personalized health and wellness content. Consumers can also upload their own data from consumer health devices like Garmin, Fitbit, and Jawbone. The YourCareUniverse patient portal, designed for both the inpatient and ambulatory settings, has already been adopted by more than 340 facilities and is compatible with any EHR system. For a complete review of the EHR certification and accompanying price transparency, visit www.medhost.com/about-us/meaningful-use-certification. YourCareUniverse, a MEDHOST company

Medical records in the palm of your hand

Using Medfusion Plus, consumers can aggregate and access their healthcare records on their mobile devices. The information is pulled via Continuity of Care (CCD) Documents from patient portals and includes laboratory results, immunizations, medication lists, allergies, and appointments. This solution, which aims to be a one-stop destination for all of a user’s medical records, is available on the App Store and Google Play. While the mobile app was designed for caregivers (a busy mom or adult involved in the care of his or her older relative), the app’s developers think it’s also beneficial to physicians, because patients can share information with them from other healthcare providers.

Inbound faxes get EHR incorporation

Updox, which has been the exclusive provider of Direct secure messaging for Practice Fusion since February 2014, is now adding integrated electronic faxing and document management services for users of the Practice Fusion cloud-based EHR platform. Now all incoming fax documents can be managed electronically and viewed, annotated, routed, signed, faxed outside the practice, and filed in the patient chart—all at the same time. As a paperless process, practices can eliminate their costs for fax machines, scanners, phone lines, paper, and toner, as well as staff hours by automating those processes. In total, Updox is integrated with more than 50 EHR vendors.

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Toppling the Tower of Babel

Isn’t it about time we achieved true interoperability?

INTEROPERABILITY IS A GREAT CONCEPT. Unfortunately, when EHRs were first introduced, and stimulus dollars provided for their adoption, the healthcare industry and government failed to recognize the importance of interoperability! So today we have all these systems that can’t talk to one another. Essentially, we’ve created the healthcare IT version of the Tower of Babel.

The story of the Tower of Babel offers an explanation for how the world moved from one common language to a multiplicity of languages. Just like in ancient biblical days, the existence of multiple languages creates communication challenges. In the EHR world, interoperability tools are meant to facilitate communication. Ideally, regardless of the EHR system in place, patient records can be easily shared — which in turn minimizes expensive duplicate testing, enhances patient safety, improves care coordination, and ensures more efficient and effective care. What a novel concept!

The government is now aware of the benefits of EHR interoperability and has stepped in to try to fix the problem that they helped create. As the nation’s largest payer, the U.S. government should be greatly concerned about eliminating waste and improving patient outcomes. That’s why Congress is attempting to mandate changes and why the Office of the National Coordinator (ONC) created a roadmap for achieving nationwide interoperability over the next few years.¹

Despite everyone’s best intentions, achieving nationwide interoperability won’t be an easy task. Here are a few reasons why:

Too much variation — Because we failed to establish interoperability standards a few decades ago, data is currently collected, stored, and shared in a wide variety of ways. Take, for example, state and community immunization registries that collect and store inoculation data. While you might think that standards for inoculation information would be fairly rigid, in reality most registries have their own format and criteria — making record sharing a difficult task.

Self-interest — Most EHR vendors will assure users that their platforms are interoperable with other systems. But in reality, how many EHRs really speak to one another? One popular theory is that vendors resist interoperability because they fear the loss of market share to competing products. Another reality is that while interoperability benefits the healthcare ecosystem as a whole, it also creates a direct expense with no direct compensation for providers and vendors. Similarly, in order to preserve revenues, a health system may dissociate the referral of patients to outside lab and testing facilities, and only offer its providers electronic record-sharing capabilities within the organization’s own facilities.

Too much flexibility in standards — So far the government interoperability “standards” have been pretty flexible. Too flexible, in fact. The requirements are so variable that vendors have plenty of wiggle room in their interpretation. Interoperability suffers when standards are too loosely defined.

CommonWell Health Alliance, of which my company is a member, has approached interoperability a bit differently than the government and so far has set the table very nicely for achieving its goals. Unlike the government’s flexible standards, CommonWell vendors adhere to very, very detailed specifications when sharing data with other members. There is no room for flexibility, nor for protecting the vendor’s proprietary data structure.

Compare that to the government’s approach, which has been to create pages and pages of requirements to achieve interoperability with the entire universe. The regulations themselves are long and verbose — and slow to be approved. Sometimes means that by the time they are released, they are outdated and miss the mark in terms of advancing interoperability. The ONC announced it is looking for public input on how to measure the country’s progress toward achieving interoperability, so that we’ll be able to recognize when health information exchange goals have been achieved.² In other words, the government is still trying to figure out how best to define, measure, and achieve interoperability.

Meanwhile, healthcare vendors and providers are stuck in turf wars. Unfortunately, the turf wars aren’t the Betamax vs. VHS kind, but involve the life and death of patients.

As an industry, we have to get past making decisions based on the profitability of a particular line item and on protecting our pieces of real estate. Instead, we must adopt ways that create a better universe for delivering healthcare, for avoiding unnecessary procedures that waste billions of dollars, and for producing better patient outcomes.

If the government really wants to reduce healthcare costs, it needs to start at the ground floor; define its expected outcomes, simplify and rigidize the details of its regulations to achieve those outcomes, and focus on setting the stage for how everyone speaks to one another. Perhaps, rather than attempting to hit a lead-off home run, we should start with smaller wins and establish a subset of requirements and build on those each subsequent year.

After all, isn’t it about time we toppled healthcare’s Tower of Babel and achieved true EHR interoperability? HMT

REFERENCES:

BY MICHAEL NISSENBAUM, President and CEO, Aprima Medical Software
TO BE CONTINUED ...

JULY-AUGUST ISSUE

► The Executive M.D.
HMT sits down with doctors in executive leadership roles who are utilizing tech to improve the health of patients. This feature will include a photo, biography, and a brief Q&A. Providers/Suppliers: If you would like to nominate a noteworthy executive M.D., email HMT editor Chad Van Alstin by June 15 at: cvanalstin@npcomm.com.

► Analytics
Are you leveraging data effectively? Experts talk strategies for turning raw data into actionable improvements, including what products to use and how to effectively train staff. Turning big data into smart data is as simple as having the right plan in place.

► HIPAA Liabilities
Are there HIPAA liabilities that your health system is overlooking? Security and privacy experts weigh-in on how providers can tighten up HIPAA compliance and fill any gaps that could lead to unexpected fines.

► Accountable Care
The future of reimbursement is value-based care. How will providers change their business models to accommodate the new face of healthcare? Will accountable care models really increase revenue and improve health across the board? Experts in the accountable care space offer their perspective.

► Revenue Cycle
Clean up the revenue cycle by reducing billing errors and enhancing revenue. Spotting problem areas is crucial to maximize profits and cut out redundant, unnecessary expenses. With software solutions and the right staff in place, the experts here can show you how to improve cashflow.

► Solutions Guide: BYOD Management
The latest trends and offerings in the healthcare mobile communications space, centered around bring-your-own-device (BYOD) issues. Topics covered include: device provisioning, security, datajacking and malware, wireless networking capacity, HIPAA considerations, new device options/features, and solutions for secure messaging.
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