

C-SUITE PERSPECTIVES: BUILDING THE HEALTH ECOSYSTEM OF THE FUTURE

Using digital transformation to develop consumer-focused models of care





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With the shift to digital transformation, hospitals and health systems have an opportunity to accelerate and enable a range of use cases in the digital consumer ecosystem for care coordination and consumer engagement. Patients not only have changing needs, but also expect frictionless digital consumer-like experiences in accessing health care. The digital health ecosystem supports consumer-centered models of care, access to new services, on-demand interactions with caregivers and personalized treatment paths. Rapid technological developments allow multidisciplinary and collaborative health services to work together to provide patient care. At the same time, hospitals also are dealing with the effects of staff burnout, exacerbated by the pandemic; increased administrative loads; and high costs to engage contract clinical staff. Advances in artificial intelligence, data analytics and cybersecurity are providing better digital tools for both providers and patients to reduce the cost of providing health care, while improving the patient and provider experience. This executive dialogue examines strategic initiatives health care executives are undertaking to transform how they are using technology and where they are seeing their biggest barriers and successes.

8 strategies health leaders are using in their digital transformation to become consumer-focused



Reduce the security and operational risk in your digital ecosystem with standardization across the enterprise and streamline the number of applications used to deliver patient care.



Leverage a global operating model for agility and scale to deliver services and 24/7 coverage while reducing employee burnout and improving retention.



Accelerate innovation by empowering clinicians with data and predictive analytics to provide higher-quality care and better patient outcomes.



Build consumer-

focused models of care
— better access, a more
personalized journey and
less friction throughout the
patient journey. Prioritize
end-to-end journeys that

deliver the most value.



Focus on convenience for patients and employees by replacing complex, people-intensive processes with self-service systems that patients can use, and provide at-the-elbow training on tools that simplify workflows and offload tasks from hospital staff and clinicians.



Develop capital requirements for a technology-enabled health care system and information technology life-cycle management to provide exceptional care without exception to every patient every time.



Use technology to empower the community
to improve health equity
and access to care.



Partner with other health systems, community and statewide organizations, universities, public-private collaboratives, Medicare, Medicaid and the AHA on technologies developed to drive clinical outcomes — access to care, wearable technology, care management of patients with obesity and other chronic conditions, and behavioral health services.



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MODERATOR (Suzanna Hoppszallern, American Hospital Association): What are the strategic initiatives that your digital transformation journey supports and how is that changing your health care business model and your relationship with consumers?

ADAM ZOLLER (Providence): Initiative-wise, we've chosen three strategic pillars that align to the Providence mission of Destination Health 2025. Those three pillars for digital transformation are simplification, modernization and innovation. What do we mean by simplify and modernize? It's reducing the number of applications that we rely on to deliver care to people who walk through our doors. It's reducing the technology debt that we've acquired over years of mergers and acquisitions. We have 3,000 to 4,000 applications that we maintain in our information technology (IT) ecosystem to provide care. When you have limited staffing to keep those apps up and running, it becomes difficult to keep them current from a security and operations perspective. It's both a security risk and an operational risk.

Modernization means adopting tools like Office 365 that allow our caregivers to collaborate in real time. We were on the Office 365 journey about a year and a half before the pandemic hit. It's consolidating our remote-access methodologies and our VPN solutions, so that our caregivers can connect securely to our IT ecosystem to access the applications and the assets they need if they work remotely.

It's architecting a global operating model, leveraging an offshore service center with full-time Providence employees in Hyderabad, India, to deliver services. While we're sleeping on the West Coast in the United States, they're conducting activities like cybersecurity and system maintenance. They're provisioning in the middle of the night for access to systems. If caregivers call the help desk for access to an application, the team in India is doing the same provisioning as the U.S. team and the handoff in the morning is seamless.

Innovation focuses on leveraging our data to provide higher-quality care and better patient outcomes. Partnerships with those like Truveta, lean on expertise from the private and technology sector, and use our data to drive use cases for outreach to patients.

RUSS GRONEWOLD (Bryan Health): Our digital strategy was embedded as a tactic under some other strategies until recently. At our last board retreat, it became clear that it wasn't getting the emphasis it was going to need going forward, so we pulled it out into its own strategy that simply says, 'We're going to develop consumer-focused models of care. Parking lots and voicemail trees are not consumer-focused models of care. That means we're going to look at better access, a more personalized journey, and then reduce friction throughout the patient journey from scheduling through bill pay.

We've been in the telehealth space for a long time, and we're successful at it. We're in eight states with primarily a B2B approach. We support many hospitals. We're the tertiary care center and provide care for about two-thirds of Nebraska. We white label the product for some providers. Telehealth is about a fourth direct-to-consumer, and that continues to go well. But telehealth is the mainstay of our digital strategy.

Our electronic health record (EHR) is our other pillar. We were following the direction of the EHR development road map, and we turned everything on. In fact, we just received a 10-star rating in Epic for patient experience, which measures how many things you've turned on, but our adoption was not good.

Now we're moving in a different direction and trying to focus operationally on a handful of things in the EHR that we have through Epic. What do people need? What are they using? What will be the most helpful?

What we're trying to figure out is an app to rule all

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- Adam Zoller -

Providence

other apps — a consolidator of apps. That's the next step on our way to a digital platform.

BRENT BURKEY (Fisher-Titus Health): We're a 100-bed hospital and integrated small health system serving about 70,000 people in north central Ohio. Before the pandemic hit, we had set off on a planned

journey in 2020 to roll out our digital strategy focusing on three things: our people, our patients and our community. We intentionally kept it simple and focused on patient and employee convenience with self-service systems. Being a smaller system with limited resources, we were still processing many transactions via paper without much automation.

Many of our providers desire a hightouch clinical practice with their patients. Sometimes there is difficulty discerning between high touch, personalized care versus convenient care. Consumers adjusted rapidly to technology during the pandemic. We're now going back and optimizing the basic digital platforms that were rolled out then - self scheduling and the patient portal. We want this to be as few steps and as easy as possible for patients, such as: 'Do you request an appointment, yes or no? And display what is available.' As physicians, we often get into the weeds, and if you build too big of a mousetrap, it doesn't

work. This is just one example of the optimizations occurring across many areas in our system.

We are also working on optimizing care delivery via a Centers for Medicare & Medicaid Services (CMS) innovation award for emergency triage, treatment, and transport (ET3) as part of our EMS transportation division. This is in conjunction with our implementation of community paramedicine, which puts

telehealth capabilities in the EMS trucks to address health disparities in our community as transportation is a major barrier to care for many in our rural service area.

CMS's initial outlook on the ET3 program was that it's going to reduce emergency department (ED)

> visits and reduce the cost of care. As it turns out, it's saving money by driving more ED visits — the exact opposite of what folks thought. We're catching patients who would have been in a much worse state of health had they not been able to bring up a telehealth visit with an ED doc who says, 'You know what, Sir/Ma'am? You need to go in now.' Even though it's driving ED utilization up a bit, the total cost of care is being decreased because we're helping folks 10 days or two weeks before they have significant deterioration in their acute condition that drives an even higher total cost of care.

ALEXA KIMBALL (Harvard Medical Faculty Physicians): I'm CEO of a 2,000member provider organization affiliated with Beth Israel Deaconess Medical Center and Beth Israel Lahey Health about two-thirds of our providers are Harvard faculty. As an academic group, we're fairly mature. We were one of the first places to develop an EHR. We're experienced with home monitoring and have rolled out Office

365. We did all those things well, but we still have a homegrown EHR. We're about to make the leap, which will be transformational.

My experience in doing this work over the past 10 years is that it's rare to find software or an app that is such a killer app that it just goes viral, but it is great when it does. For example, we have a photo consult app that people love. It is easy to underes-

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timate how much of a good IT implementation is policies, workflow and procedures, rather than software. If you don't get it right, your digital transformation won't be successful.

When we have apps or software that are too complicated, we've used additional staff to deal with the complexity, and now we no longer have those resources. What we must do is invert this approach and focus on areas where we can replace complexity and people with IT systems that patients can use easily, and reduce some of the work by hospitals and physicians.

steve purves (Valleywise Health): As the safety net health care system for Maricopa County, we have a robust teaching program and a large behavioral health care and ambulatory care footprint. We found that we were innovators in terms of bringing technology to the table. Years ago, we made this leap to replace our clinical information system with Epic, but what we weren't great at was bringing innovation and strategy to the boardroom. About six years ago, we took an honest look at the capital requirements to becoming a technology enabled health care system to fulfill our mission, which is to provide exceptional care without exception to every patient every time. That means we needed consistency and standardization across our enterprise.

When we put Epic in, we had something like 800 workarounds. We were automating practices and procedures that should have been revamped. All we did was automate bad processes. When we took a hard look, we discovered that none of this makes a difference if we don't have a secure system. Cybersecurity became an important focus. We had to bite the bullet in terms of our IT architecture, which required millions of dollars. Then we were able to start working on things that really touched the patient.

We had several different goals. The pandemic accelerated some of them — for instance, virtual health care. We're still conducting 20% of our ambulatory

care visits virtually, about half video and half audio. It's been accepted extraordinarily well by consumers, our patients and the physicians.

More than 50% of our patients are on Medicaid and 15% are uninsured. Our priorities were to make sure that we used technology that provided for access to health care.

Another is behavioral health. Behavioral health is underprovided in our community. We are the largest inpatient provider and we have robust, integrated behavioral health programs in our clinics. These programs are designed to reach families and young adults before their first psychotic episode. We've been looking at how we connect young adults to their providers through some innovative apps.

In redesigning our teaching program, we wanted to make sure that whatever we did furthered the joy of practice for our providers, especially our faculty, measuring the pajama time in terms of charting at night.

Regarding technology and innovation, we don't have a lot of capital to invest. However, we've plugged into statewide organizations that focus on a variety of things developed to drive positive clinical outcomes — wearable technology, obesity care management and behavioral health care management.

NGOZI EZIKE (Sinai Chicago): We are currently launching our conversion to Epic. We are also trying to make sure that our physicians are engaged so that we can have an EHR that works well for everyone, and we want to simplify the ability of people to call in for appointments and information.

We're in an urban community with a lot of needs, and we're trying to address the social factors affecting health. In trying to empower the community, we are partnering with the Chicago Lighthouse, serving the blind and visually impaired, so that they

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manage our call center. This partnership will give them job opportunities and support our community by making it easier for people to get those important appointments. That's an exciting and innovative collaboration.

NICO GOMEZ (Bethany Children's Health Center): Bethany is a pediatric rehab hospital in Oklahoma City. We want the nice, shiny thing, but we don't want to be a subsidiary of another organization. We're not

affiliated with any system. We have a homegrown EHR. We would find a problem and buy a solution, then buy another solution and continue in that manner. We had many different solutions that didn't talk to each other. We're unpacking that and developing a thoughtful IT strategic plan. We now use Office 365 and we operate on the Teams platform.

A subset of the children we serve may be with us for a couple of years, but I also have a subset that's with us for 8 to 12 weeks. We've adapted one of our provider communication applications into a parent communication application that was modeled after a daycare app. We can communicate with parents in real time about their child, so they always feel engaged. Even though they may be at work, they always know what's happening during the day, in-

cluding the activities and therapies their child is doing. It really improved our parent-patient satisfaction.

While we're still at an early stage of rebuilding our infrastructure, we continue to find ways to improve the customer experience and patient experience.

GRONEWOLD: A couple of folks had mentioned their telehealth visits in video and audio. Is anybody using asynchronous, online only? We've not found a way to get enough traction.

KIMBALL: I'm a dermatologist and we have had the technology for telehealth since 2000. For me, the three core lessons of telehealth were reimbursement, the regulatory environment and appropriate use cases. In the past, no one covered telehealth, so no one adopted it. Impediments in the regulatory environment made it hard to do. And the use case that people thought was appropriate was not the right one. Dermatology is a great example of that. Everyone wants to send us a picture of a mole,

> but that is one of the most challenging applications of telehealth. When a dermatologist is looking at a mole, we're looking at all 150 moles. We need the context of how that mole appears to understand whether one particular mole is OK or not, and we can't get that context from a photo. Also, lighting matters when you're evaluating a mole. If you miss a melanoma, there's malpractice risk. Other uses, such as managing chronic conditions work much better remotely for us.

> MICHELLE HOOD (American Hospital Association): We've heard a lot today and the AHA is working in many of the spaces that have been mentioned. Steve [Purves] and I had the pleasure of working on cybersecurity together. The AHA has a great relationship with the FBI. We meet with them regularly

sure that information, to the extent and detail that it can, gets out to the field.

for classified briefings trying to make

In our workforce task force, one of the tactics is on reducing the administrative burden of the EHR. We plan to work with Epic and Oracle Cerner on this. Last week, Rick [Pollack] and I met with Google Health's chief health officer about how Google Health might work with AHA member hospitals and health systems to build national databases and directories for the public and other consumer ap-

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plications. These directories could detail provider information such as whether the practice is accepting new patients, languages spoken, subspecialties and so on.

One of our five strategic pillars is improving the consumer experience — a lot of what I'm hearing. Let me know if you have any ideas for the AHA to help bring together those who are interested in innovating in this space.

Finally, the bread and butter of the AHA is advocacy and all the issues around regulatory barriers, payment and patient access challenges, and working with CMS on any number of innovations.

MODERATOR: Thank you, Michelle. We shared many of the strategic big bets that you've been taking. Does anyone want to share anything that turned into a disaster?

GRONEWOLD: We talk about being digital versus doing digital. We always think it starts with access. That's what people want more than anything else. We promoted a service that enabled patients to schedule with just a click. We targeted a couple of service lines in the bariatric and diagnostics areas. It was so successful that we had to shut it down because we could not handle it. Suddenly, it went viral, but we didn't have enough people or appointment slots. For the right use case, you need to think through the operational redesign.

What were the shortcomings? We were short in physician time and we were short in equipment. We're not talking about something I can retool in a day or two. If I only have three docs who can take additional appointments, it's hard to have open scheduling. Those are the things we need to rethink.

When I talked about consumer-focused models of care, we didn't have the model in place. We only had the idea.

PURVES: Several years ago, the disaster in our health system was not developing an integrated, strategic plan for the use of technology and making sure that existing patient flow and workflows functioned well before they were automated. We wasted a lot of time, many people were upset, particularly our medical staff, and then we had to do it all over again.

You need a strategic financial capital plan for your IT. You spend a lot of money, but you have to understand what's next. For us, hardening our IT infrastructure was next. Once we figured out how to integrate the IT strategic plan and the overall strategic plan, everything flowed. You want to avoid those disasters on the front end rather than having to fix something on the back end.

ZOLLER: That's what we're slogging through right now. We're having to do a complete rebuild and create a strategic plan around fixing what we have so that the platform is strong enough to work well into the future.

BURKEY: Many small and rural hospitals built out IT infrastructure and implemented EHRs as required by the Health Information Technology for Economic and Clinical Health Act (HITECH), but did not have the organizational planning in place to ensure life-cycling of the infrastructure and equipment, and appropriate clinical application maintenance, upgrades and new implementations. For example, we spent the last two years allocating significant capital funding to shoring up foundational infrastructure so that our clinical apps would run efficiently.

GRONEWOLD: I'm interested in the apps, security and hardening systems, all coming together. We've struggled with companies with whom we want to integrate but they are not developing their applications to the same level of security. Is that coming around?

ZOLLER: We're facing the same challenges. The biggest breaches and issues that we've experienced over the last two years have been with third par-

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ties. There's more regulatory strength in the banking and finance industry regarding protecting your credit card information, than there is in protecting your personal health information.

Looking at the HIPAA IT controls, what we've found is that our vendors want to connect directly into our ecosystem with basically unfettered access. They don't want any oversight or controls placed in that connection because they say any latency we introduce will impact their ability to service their application on our site.

We started saying, 'We're inheriting your IT risk

posture when you connect directly into our ecosystem. It is no longer acceptable for you to just log in directly to your application with single-factor authentication, when you're not patching your systems, and you're not running modern, defensive solutions on your side.' We started closing those connections into a hardened termination zone in our IT ecosystem. We scrutinized those connections and made sure that we had contractual language in place in Business Associate Agreements around security; that it was tight enough to hold them accountable. If they do have a breach, they're going to pay hefty penalties, and they'll be the ones on the hook for the risk they intro-

duced to their customers and having to explain why they didn't harden their systems.

We've taken a multipronged approach legally and contractually, and we're trying to influence lawmakers to add stronger 'you shall' verbiage in the regulations. Then, from a technical controls perspective, we're requiring vendors to adhere to our IT standards.

There's an opportunity for health care delivery organizations to band together and say, 'We're not going to buy a system from you if you don't adhere

to these basic three standards. You must be running Endpoint Detection and Response technology that enables them to see and respond to attacks in real time. You must be encrypting our data and inspecting what your people are doing with our data.' I started a consortium of security officers from different hospital systems to come up with common contractual agreements and language that we can apply across the vendor space.

PURVES: Our third-party relationships in medical devices are the greatest threat in terms of cybersecurity, and it's where we have a lot of work to do.

ZOLLER: If we have a breach, we're going to be paying penalties to both the state and federal governments. So, why is it acceptable for a clinical device vendor to sell me a CT scanner that's running on an operating system designed to life-cycle in five to seven years when that device is going to be in my ecosystem for 10-plus years? Then, they're going to charge us tens of thousands of dollars for an upgrade.

To get our clinical or biomedical devices up to date as a system, we did some basic calculations. It would be tens of millions of dollars. The vendors are happy to sell you a security service where they will life-cycle the device for

you, but it's tens of thousands of dollars per device per year. It's just not manageable.

MODERATOR: Many of you have a big vision around digital transformation. What are some of the challenges, and how are you budgeting and planning to scale that vision?

PURVES: One of the big bets for us is value-based care (VBC). There are great tools that can help organizations manage VBC. But in terms of the life cycle and the return on investment on those tools, it's

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not as simple as 'here's our investment and here's what you're getting paid' We have to partner with the state Medicaid agency and with CMS as to what will drive the needle in terms of VBC. Another big bet is predictive analytics for our clinical processes, teaching and simulation. I think there are ways to be more effective and efficient, but that will require innovative thinking in the deployment of technology.

We're taking baby steps along this path because we want to make sure there's a funding source, especially as a safety net system that brings this technology to vulnerable populations where there is not normally a revenue stream.

BURKEY: I'm just going to add the importance of looking at margins, especially for a small community or rural hospital. We have a large Medicare population and there's not much leeway to internally fund special projects. We could handle one or two a year, but that's probably our limit. When we look at funding, we hope that things will become available through a developer or incubator. As a smaller player, it's tough for us to become involved with some of those things.

GOMEZ: Being Medicaid-dependent on the pediatric side, we must work closely with our state Medicaid agency. There are some funds and opportunities, but we're trying to be creative by working with our university research partners and academic centers. With our ability to be more flexible and innovative, we're exploring being an incubator for them.

GRONEWOLD: With the pace of development in IT, people can always find something that looks shinier than the last thing they purchased. The challenge for us is to say, 'What are we trying to accomplish and can I do 80% of that with something I already have?' If I can, stop, but so often we are looking for that last 20%. We're just trying to tell people, 'Stop, and let's see if we can work with the app owner or the EHR to perfect it first.' That's been the most helpful for us.

ZOLLER: We've centralized and aggregated those

inputs in one central location. IT had gathered requirements to say, 'Yes, this new thing is shiny, but what are the basic core requirements and use cases we're trying to satisfy?' We found that the basic requirements and use cases were similar across our regions and throughout our hospital system, but one individual may prefer one user interface better than another. They would then choose the new, shiny object and, suddenly, we would have 3,001 apps to maintain.

Aggregating the use cases and the capabilities, doing central testing and vetting, and then choosing one solution has been helpful.

KIMBALL: We tend not to optimally use any of our software. There are bells and whistles, but 98% of the time you use the core functionality.

MODERATOR: Is educating people on the apps that you have one of the roadblocks?

ZOLLER: There is a need for at-the-elbow training and educational video series to support how an individual caregiver will be using the technology.

KIMBALL: Having implemented Epic at a prior organization, you can brute-force your way through the EHR. An informatics person can figure out how to do it, but the average user needs two to four hours of at-the-elbow work and customization to become expert enough to be efficient. I think that is why some of these implementations fail. To make a workflow successful, you have to provide people with not only training but the tools to customize.

GRONEWOLD: One of our big challenges is that there are folks who want to learn the technology, whether they are patients or employees, and people who don't. Earlier this week, someone said, 'One of our clinics is 100% online check-in.' How did we do that? Either the patients did it themselves, or we did it with them. Let's make it simple enough that we can get mass adoption by almost everybody, but it's still a challenge.

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MODERATOR: Are you engaged in other partnerships that help you scale and fund some of these digital transformation initiatives?

ZOLLER: Adopting a global operating model has been helpful. In standing up the Providence Global Center in India, we found that they have highly technical talent. They're able to keep our systems maintained, patched and updated. We do some of the upgrades and updates to applications and decommissioning of applications. For cybersecurity efforts, a 120-person team in Hyderabad monitors the IT enterprise when my folks are sleeping in the U.S. This is tactical, but it helps us with retention. In Hyderabad, we're able to train and retain skilled employees who work day shifts in their time zone and keep us safe from attacks nights and on weekends.

PURVES: One collaborative in Arizona, a public-private organization called WearTech Ventures, is moving wearable technology that is being developed forward. This past year, they're being granted about \$3 million in state matching funds and they've identified 12 projects, each supported by funds from the

state. They've engaged all the major health systems in Phoenix — Banner, Dignity Health, Honor Health, Mayo Clinic, Phoenix Children's Hospital and Valleywise Health.

They are concentrating on four or five different areas: smart prosthetics, connected implanted medical devices, smart systems for reminding patients of health actions they should take in the home, and mental health and wellness devices. They use this state money, along with their own private money, to engage the health systems to start working with these companies and the research partners. Both the University of Arizona and Arizona State University are involved.

They're trying to drive what is going to work and how it will be funded. The hospital systems that are engaged on the front end will be able to be supported in their roll-outs. That's the only way we can have enough resources to be able to take advantage of that kind of technology, rather than just everybody doing their own thing.

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Life lives in all of us—inspiring, motivating, driving us to be better versions of ourselves.

At **Providence** we see more than patients, we see the life that pulses through us all. That is why we are dedicated to a holistic approach to medicine that employs not only the most advanced treatments to improve outcomes, but also puts compassion and humanity at the heart of every interaction.

We are hard at work digitally transforming clinical expertise to keep people healthy, make our service more convenient, accessible, and affordable for all.

Our digital journey is backed by a specialized engineering, operations, and innovation center. Our Information Services group plays a key role in modernizing IT infrastructure by building and delivering healthcare technology and innovation for improved patient experience and outcomes, caregiver experience and efficiency, and enabling the digital transformation and vision of Providence at scale. True to Providence's purpose, we are Engineering Health for a Better World.

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