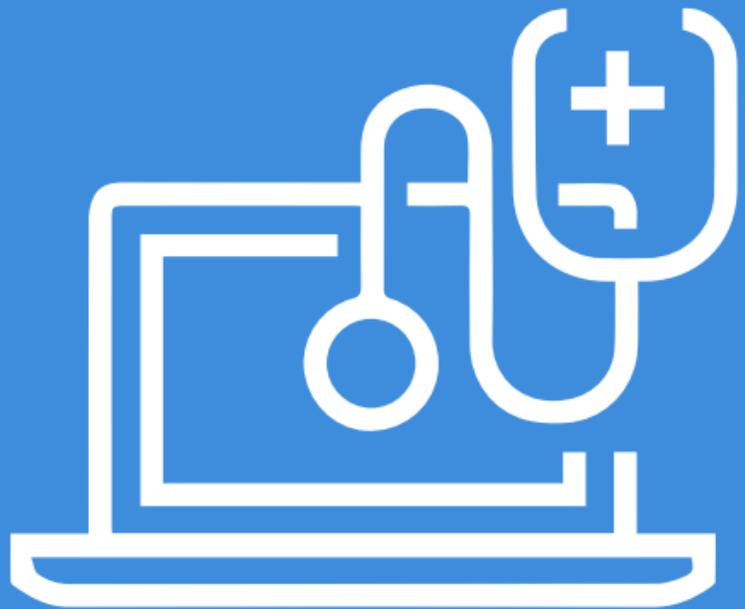


IT of the future: Considerations for improving care collaboration and the patient experience through innovation



Clinicians must be able to collaborate seamlessly to deliver high-quality patient care. Without effective collaboration, patient outcomes are compromised, and ultimately, so is patient satisfaction. This e-book explores ways hospitals leverage technology for care collaboration improving patient outcomes and clinical work environments. The paper also discusses next-generation health IT solutions. These solutions provide real-world examples from healthcare leaders outlining how their organizations leverage digital health tools to maintain their innovative edge. E-book content highlights interviews with Lenovo Health and Intel executives. A three-day Becker's Virtual Health IT Summit also provides valuable insights. The Summit, sponsored by Lenovo Health and Intel, was held November 6-8, 2018.

IT of the future: Considerations for improving care collaboration and the patient experience through innovation

Effective clinician collaboration yields positive care outcomes and improved patient experiences. Providers and patients benefit from technologies designed to support a team-oriented approach to care.

Advancements in health IT, such as secure messaging or virtual desktop infrastructure, allow care teams to communicate seamlessly and deliver more effective care. This alignment boosts outcomes and overall patient satisfaction. Additionally, patients now expect digital health tools – such as patient portals, wearables or telehealth – to be integrated with their care experience. In other words, patients want to use the same intuitive technologies in healthcare that they experience in retail, hospitality, banking and other industries.

In a Black Book Market Research survey of 650 healthcare consumers conducted in the first half of 2018, 92 percent of respondents [said](#) improving the customer experience should be a top priority for providers over the next 12 months.

“Consumerism is an important and growing trend,” [said](#) Andy Bartley, senior sales solution architect, health and life sciences, at Intel Corp., in an interview with Becker’s Hospital Review. “It comes up no matter what stakeholder you talk to in a healthcare ecosystem – whether it’s hospitals, pharma or life sciences. Health and life sciences organizations are recognizing the value of establishing deeper and more integrated relationships with patients or with customers.”

Respondents to the Black Book survey cited services such as online scheduling, online payment options and portals. Engagement capabilities – like mobile apps or text alerts – are among the most important tools providers can offer. This means one of healthcare’s biggest opportunities to cater to patients’ consumerist desires lies in engagement solutions.



“[Patients] are taking ownership of their care decisions, and [demanding] more transparency with regard to pricing and care,” said Dr. Bob Monteverdi, global healthcare solutions leader at Lenovo Health. “There is more information at their fingertips now than ever before to help them with this, so it is becoming a decision they have to make using their own dollars, all while they take on more of the financial burden with high deductible health plans and health savings accounts.”

Another motivator for hospitals to revamp their technology strategies: Clinicians want tools that are easy and enjoyable to use. A hospital’s technology offerings attract or repel workers. Clinicians want flexibility in their job. They want to choose a laptop over a desktop computer or the access the software applications from any device, anywhere.

This e-book will explore the ways hospitals leverage technology to improve outcomes, the patient experience and the clinician work environment. This e-book will also outline key considerations for the next generation of health IT solutions and provide real-world examples from hospital executives on steps organizations adopt to deploy new digital health tools. These leaders stay at the forefront of the industry. Content is based on interviews with Lenovo Health and Intel executives including a three-day Becker’s Virtual Health IT Summit sponsored by Lenovo Health and Intel held November 6-8, 2018.

Enhancing patient experience with IT

Hospitals transitioning toward value-based care models are increasingly [looking](#) for better ways to improve their patients' care experiences, which often include digitizing interaction with patients.

This is partially driven by the millennial generation. Millennials grew up in the information age and expect immediate answers. They expect transparency in treatment options and the cost of care.

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Millennials are among a growing group of American workers who are enrolled in health plans with a [deductible](#) of at least \$2,000. In 2018, 26 percent of insured workers had plans with an average deductible of at least \$2,000, up from 22 percent from the prior year.

As their stake in the cost of care grows, patients choose to put their money toward care that is efficient and convenient. Millennials expect greater access to care and hospitals are turning to technology to create more touchpoints for patient interaction. Patient portals, widely adopted by this demographic, are one example of hospitals using technology to interact with patients – inside and outside the hospital.

Another piece of technology changing patient interactions is the bedside tablet. According to Dr. Monteverdi, these tablets provide education and patient throughput solutions designed to keep families informed. Organizations use relatively simple technology solutions, such as wayfinding and digital signage, to help patients navigate larger facilities.

"If a patient walks in the front door and they don't know which way to go, something as simple as an interactive map helps their experience tremendously," Dr. Monteverdi added.

Outside the hospital, the use of virtual healthcare – or telehealth

– continues to grow. Dr. Monteverdi believes that telehealth increasingly becomes a necessity for hospitals, “given patients’ desire to seek care outside the walls of a hospital in a more virtual, remote environment.”



Here are five tips Dr. Monteverdi shared for hospitals considering deployment of digital health tools:

1. **Know what you are trying to accomplish first.** Define your organization’s goals before you start exploring uses of digital health.
2. **Align your objectives top-down and bottom-up.** It’s important to have all key decision makers – finance leaders, IT and end users – at the table from the get-go.
3. **Make data-driven decisions.** Don’t jump into a new tool opportunistically. Do your homework and know the ins and outs of every tool out there.
4. **Seek compatibility with existing systems.** It’s a bonus when digital health tools can interact smoothly with a hospital’s existing IT systems.
5. **Work as a team.** “If you’re not all in it together, the mission will probably fail,” Dr. Monteverdi said.

For the first time ever in healthcare, patients are more consciously spending their own money on care, according to Dr. Monteverdi. Solutions that offer convenience and ease of use – such as virtual healthcare and telehealth – are becoming a hospital’s default offering to cater to emerging patient demands.

Active and passive digital engagement

Healthcare organizations' approaches to using digital tools to engage patients fall into two buckets: active engagement and passive engagement. Active patient engagement tools require users to interact with them in some way, such as entering personal data or details. Passive patient engagement refers to digital health tools that don't require patients to take additional steps, such as implanted sensors that automatically record select data points.

Here, two healthcare leaders review successful patient engagement strategies:

1. [Stephen Agboola, MD, scientific director for research and analytics at Partners HealthCare in Boston](#): Dr. Agboola noted that he has seen success with an app he helped develop aimed at better managing cancer patients' pain. The app helps facilitate a survey that's distributed to the patient three times a week to proactively gauge and address their pain levels before they arrive at the clinic for routine appointments. In this way, patients are actively engaging with the digital health tool. Dr. Agboola noted that patients and clinicians report feeling more connected to one another while using the app.



"Connected health is critical for patients to be getting both convenient care but also better care, and that is what I am very excited about," said Larry Garber, MD, medical director for informatics and associate director of research at Reliant Medical Group in Worcester, Mass. "We are directly impacting [patients'] experience when we are connecting with them ... We try to give them a feeling of personalized experience."

"Digital health makes possible the delivery of real-time or just-in-time intervention," he said, adding that digital health gives clinicians access to more data to inform decision making. "This gives the patient a better experience overall."

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2. Larry Garber, MD, medical director for informatics and associate director of research at Reliant Medical Group in Worcester, Massachusetts: Dr. Garber noted there are ways of connecting with patients that don't require patients to do anything. He pointed to the example of patients who have an abdominal aortic



aneurysm repaired. A sensor is placed in their stomach to alert the cardiothoracic surgeon if the repair is starting to fail. Similarly, ambient activity monitors, such as sensors placed throughout the patient's house, can help identify patterns in patient's day-to-day activities that could signal a decline in their health.

"Connected health is critical for patients to be getting both convenient care but also better care, and that is what I am very excited about," Dr. Garber added.

Digital health tools give physicians a better understanding of patient health, which allows for more personalized care interactions. "We are directly impacting [patients'] experience when we are connecting with them," Dr. Garber said. "We try to give them a feeling of personalized experience."

Using tech to enhance care collaboration and streamline provider workflow

A core tenet of patient experience is care collaboration. If care teams cannot effectively and efficiently work together, patient outcomes suffer, and in turn, so does their satisfaction. However, technology may again hold the key.

According to a 2018 [white paper](#) from Spyglass Consulting Group based on more than 100 in-depth interviews with healthcare professionals, the top three communication challenges hospital workers face are: (1) communication overload, (2) lack of standardized processes and (3) dissatisfaction with existing communications tools.

These findings suggest organizations should not only consider the end users when selecting an IT vendor or product, but also give them flexibility to choose the right IT solutions for their individual workflows.

This is important because more than 80 percent of millennials – the next wave of employees entering the healthcare workforce – agree that workplace technology influences their decision to take a job, according to Microsoft's [office of the future study](#). To attract and retain top talent, healthcare organizations must reconsider their technology offerings and assess whether current tools positively affect employees' workflows by improving care collaboration and care delivery.

The next wave of technology will be driven by clinicians' expectations as workplace tech becomes a determining factor in the jobs millennials pursue, notes Andy Nieto, global solution manager at Lenovo Health.

"As this digital transformation has taken place, we see the opportunity of care coming back to the hands of physicians," Mr. Nieto said. "Whatever they are comfortable using becomes their [go-to] tool and frees them up to spend their time focusing on the patient."

Organizations must also work to optimize their providers' workflows to ensure success in a digital environment, according to Atlanta-based Resurgens Orthopaedics CIO Bradley Dick.

Mr. Dick said it's not feasible to try to "fuse the same workflows you've been using in your clinics for years with the paper system and then try to implement a digital system to work like the paper system." The digital transformation is forcing his organization to identify areas where it could be more efficient.

Resurgens Orthopaedics offers clinicians a portfolio of technologies based on what would be most effective for their workflow, Mr. Dick said. Clinicians may choose to use a tablet when seeing a patient



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for a follow-up visit, then later opt to use a wall-mounted, all-in-one computer device when discussing a complex treatment plan.

"By trying to pigeonhole every single provider into a small subset of specific ways to see the patient, it really hindered their performances," Mr. Dick explained. "So, we give them several different options [so they can choose] whatever works best for them ... It's [about] flexibility, and that's what technology enables us to do."

Wendy Bohner, a health and life sciences solution architect at Intel, echoed Mr. Dick's comments, and added that healthcare organizations are looking to other advanced technologies to improve the way care teams work together.

She said hospitals are beginning to use augmented reality and virtual reality for workflow collaboration. Care teams can use these solutions to plan complex surgeries and interact with a patient's anatomy to forecast a patient's outcomes.

“Even the patient can [use VR] to get a real sense of what is going to happen,” she said, adding that the approach helps boost caregivers’ confidence going in to procedures because it can help them brainstorm any solutions to potential problems.

For Mr. Nieto, one of the most promising care collaboration technologies is virtual desktop infrastructure, which provides a standardized interface to access the entire information ecosystem. In this way, individual users scattered throughout a single hospital or a care team comprised of individuals working across multiple health systems can interact with the same software, applications and patient data in the same format.

“Holistically, VDI is this concept of a virtualized infrastructure that shares information, provides consistent and concurrent access to the same information, and removes obstacles or barriers when care teams are operating on multiple, disparate EHR systems to create virtualized instances of a universally accepted solution,” Mr. Nieto explained.

Here are three key benefits to VDI:

1. Data security. “By not storing patient data externally, such as on a laptop, the data is stored internally to the managed system, so users can protect and control it,” Mr. Nieto said.

2. Consistent user interfaces. “One example I love to use is nurses in the nurse pool. If I am a nurse, maybe today I’m on floor three west in oncology. Tomorrow, I might be on four south in orthopedics. On Monday, I might end up on two east in the surgical wing,” he said. “Regardless, every time I log in to my hospital’s system – a VDI environment – I have a consistent interface. It doesn’t matter where I may be assigned, I’m familiar with the system, so there’s no need for additional staff training. Once I learn it, it’s the same no matter where I go in the hospital.”

3. Streamlined operations. Because VDI standardizes the enterprise environment, it is easier for IT teams to offer support or upgrades to products when they are needed or available.

Although hospitals are beginning to realize the advantages new and available technologies hold, it’s important they stay ahead of the curve and consider the next wave of health IT solutions on the horizon.

IT of the future: The 4 promises of a tech partner like Lenovo Health

The next generation of health IT should not only be designed with the end user in mind but should also reflect the environments in which they operate, said a Lenovo representative and specialist in emerging technologies and virtual care at Lenovo Health.

Lenovo understands technology is rapidly evolving, particularly from a mobility standpoint. Many of these changes in the tech landscape are driven by increasing and changing consumer demands, as patients begin to play a more active role in their care.

“Mobility is a huge point of focus, especially with respect to how we can embrace this concept of value delivery, how we are able to engage patients, how we are able to keep them and be able to simultaneously improve lines of business, revenue opportunities and the overall market opportunity,” a Lenovo representative said.

This means the next generation of technology must be flexible and applicable. Patients and clinicians alike want to be able to use the same technologies that they use in their daily lives.

“Historically, we have taken a technology or information system and thrown it into the hospital environment,” said the Lenovo representative “Then, we’d have to adjust workflows or even clinical practice to meet specific documentation or interface requirements. Now there is more diversity in the market – more advanced understanding of how capabilities influence utilization – and we are more easily able to change the technology to meet clinicians’ needs.”

Lenovo partners with hospitals to help design products tailored to the specific needs of an organization and its physicians. This individualization is made possible by open communication with hospitals. When Lenovo is in sync with providers, it can better anticipate their needs and avoid building products in a vacuum.

For one hospital – Memorial Health System in Marietta, Ohio – Lenovo helped roll out cutting-edge technology and diagnostic tools to help clinicians provide high-quality, patient-centered care more easily. Memorial Health System wanted to offer clinicians technologies that would mesh well with their workflows. That might translate to wall-mounted display screens in patient rooms for one physician and a variety of tablets and laptops for another physician.

In partnering with Lenovo Health, Memorial Health System embarked on an enterprise-wide upgrade. The hospital began offering its clinicians Lenovo Health devices, and nearly one year later, has seen overwhelming success. Memorial physicians like that the technology is lightweight yet durable, more reliable and state of the art, while the hospital's IT team says the quality of the products means operations are more efficient due to improved connectivity and software functionalities.

Here are four benefits the health system realized while working with



Lenovo:

1. **Expertise.** Lenovo Health designs its products from the ground up to meet the unique needs of healthcare professionals.
2. **Security.** Lenovo Health delivers the most up-to-date security protocols including built-in biometric authentication.
3. **Latest technology.** Lenovo Health ensures its customers have access to the newest generation of every product.
4. **Simplified management.** Lenovo Health's advanced software management tools help IT teams ensure the latest software upgrades are rapidly deployed to devices across the enterprise and that thousands of devices can be seamlessly managed.

There's no one-size-fits-all strategy for the successful adoption of digital health tools. What has become clear to health IT leaders is that when technology strategies are implemented collaboratively with clinicians, clinicians experience higher satisfaction that often translates into improved patient care.