

White Paper:

# From the Hospital to the Home: How Mobile Solutions Improve Patient Experience and Quality of Care



# Introduction

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Hospitals have always worked to provide a good patient experience while delivering the best possible health outcomes, but the stakes have gotten higher. Now that Medicare reimbursements are tied to both patient satisfaction and readmission rates, the quality of care, and its perception, has become an even more critical concern for hospitals and physicians.

The fate of the ACA is still uncertain, but it's not the only concern pushing healthcare organizations towards more patient-centered care. The industry is preparing to manage a rapidly aging population, during a serious talent shortage, while trying to satisfy patients who want more connected, more convenient and less expensive healthcare.

To keep patients happy and healthy, forward-thinking healthcare leaders are using mobile technology to improve the patient experience every step of the way — from the hospital, to the clinic, to the home. This whitepaper will discuss how and why they're doing it.

## Evaluating Hospital Care

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The Affordable Care Act (ACA) has changed much about how hospitals operate and how they get paid. The Centers for Medicare & Medicaid Services (CMS) base hospital reimbursements for Medicare patients on two key performance metrics:

### Readmission rates:

Under the Hospital Readmissions Reduction Program, CMS evaluates how many patients are readmitted within 30 days after being treated for one of six conditions: heart attack, heart failure, pneumonia, chronic lung disease, hip or knee replacements and coronary artery bypass graft surgery.

Hospitals where readmissions are deemed excessive can be fined up to three percent the following year. This means the hospital receives less reimbursement for all Medicare patients, even those who are not readmitted. Based on 2017 assessments, CMS is currently penalizing 2,573 hospitals, which will lose a combined \$564 million.<sup>1</sup>

### HCAHPS scores:

The Hospital Consumer Assessment of Healthcare Providers and Systems survey (pronounced "H-caps") is administered to a random sample of adult patients after discharge, asking 27 questions about their recent hospital experience.

Under this program, CMS withholds 2 percent of total Medicare reimbursements — approximately \$14 billion — from hospitals.<sup>2,3</sup> Each year, only hospitals with high patient satisfaction scores and certain basic care standards earn their 2 percent back, while top performers receive bonus funds.

With so much at stake, hospital leaders are looking for new ways to improve patient satisfaction and better involve individuals in their own healthcare.

### How Healthcare Leaders View IT

**68%** believe it's improving the patient experience

**53%** think it's reducing the cost of healthcare

**51%** feel it's improving population health

**72%** say patient considerations will have a major impact on their organizations in the coming years<sup>4</sup>

# The New Hospital Patient Experience

Hospitals can be overwhelming places. Patients are asked an endless stream of questions and inundated with information when they're already feeling unwell and anxious. Much of that information is confusing, which increases their anxiety. With many hospitals understaffed, communication breakdowns become common.

That's why leading hospitals are deploying fleets of mobile devices to make the hospital experience less burdensome and more engaging, all the way from registration to the patient bedside.

## Streamlining Patient Check-In

Patient registration can be a laborious and frustrating task. After providing identification and insurance cards, they're handed stacks of forms that require the same information again and again. Especially for returning patients, who've completed these forms during previous visits, the process seems unnecessarily complicated.

Patients give completed forms back to registrars, who manually enter the data into the computer. This creates opportunities for human error and delays the information from reaching care providers.

With digital patient check-in, everything changes. Patients receive tablets loaded with only the necessary forms. Known information — such as the patient's name, date of birth and medical history — is already logged. Check-in takes less time, and patients don't repeatedly answer the same questions. Information goes immediately into the hospital's secure electronic health records system (EHR), reducing opportunities for human error and providing care teams with instant access to vital patient data.

Patients at NYU Langone Medical Center no longer have to worry about paper-based registration. Using mobile tablets and software from OnBase by Hyland, patients now fill out only necessary, pre-populated forms. As a result, NYU has reduced patient wait time from 11 to four minutes. Because data immediately goes into the EHR, NYU has also reduced the workload for staff, and patients get medical attention more quickly.

## Delivering High-Touch Bedside Care

Continuous and transparent communication is a crucial part of the inpatient experience, but it's also tricky. The more information patients have, the more engaged and empowered they feel. But the sheer volume can make it challenging to understand and retain information that's vital to healing. One solution for information overload is to provide patients with

bedside tablets and EHR access. This way, patients and family members can view medical records and test results, see daily treatment schedules and send messages to care providers. They can also receive disease management education in whatever format best fits their learning style. For example, younger patients might prefer educational videos, while vision-impaired patients can listen to content via MP3 files.

Patients still receive the necessary face-to-face interaction with doctors and nurses, and the tablet-based EHR solution supplements these conversations with rich information and education, all of which patients can review at their own pace for optimal understanding and retention.

For example, leading EHR provider Epic created the MyChart Bedside application. The solution has led to higher HCAHPS scores, increased patient engagement and better patient care. During the 2014 pilot at one teaching hospital in the Midwest, the organization compared HCAHPS scores from MyChart Bedside test users to scores from other patients in the same unit. Hospital leaders expected communication-related measures — such as doctor/patient interactions — to be higher among tablet users, but every measure improved, including room cleanliness and unit quietness.

The organization attributed this "halo effect" to the fact that patients appreciate the hospital's efforts to meet their needs and deliver, which makes everything about the inpatient experience seem better.

As more hospitals began to integrate smart room technology, patients can also use bedside tablets to manage the television, lighting, blinds and temperature controls, all without getting out of bed.

## Securing Bedside Tablets

UCHealth wanted to supply hospital patients with tablets, but deleting personal data between patients took at least 45 minutes per device. So UCHealth purchased Samsung Tab A devices with Knox Custom Configurator (KCC) licenses and worked with Samsung to create the new Data Eraser app.

Integrated with KCC, Data Eraser enables UCHealth to wipe all personal data from the device and apps while maintaining a customized whitelist of preferred apps — including MyChart Bedside, disease-specific educational content and entertainment apps. Data Eraser has reduced data wiping from 71 steps to one step, and the process time from 45 minutes to 90 seconds.

# Powerful Communication Devices Improve Treatment

Patient satisfaction might be top of mind for hospitals, but employee satisfaction is also mission critical. The Association of American Medical Colleges predicts that by 2030, the U.S. will face a shortage of 40,800 to 104,900 doctors.<sup>5</sup> Meanwhile, more than half of registered nurses will reach retirement age by 2020, according to the Bureau of Labor Statistics, even as healthcare providers will need to add 438,100 more registered nurses by 2026 to meet patient demands.<sup>6</sup>

That's a big problem, considering nurses are typically responsible for patient education and engagement. Understaffed, overworked nurses don't always have time to go the extra mile for patients. According to PwC, 73 percent of provider executives think balancing patient satisfaction and employee job satisfaction is a barrier to improving the patient experience.<sup>7</sup>

To attract and retain staff during a talent shortage, hospitals are looking for ways to boost productivity without overwhelming workers. That means seamlessly integrating technology into workflows so that it helps rather than hinders. In fact, 61 percent of healthcare workers say that having state-of-the-art digital tools is important to their success.<sup>8</sup>

## Mobile Solutions for Healthcare Professionals

Tablets have been making the rounds in hospitals for years. In 2017, 79.8 percent of hospitals used tablets to coordinate and provide patient care, according to HIMSS Analytics.<sup>9</sup> However, mobile devices are more than just small computers. With the right mobile management strategy in place, care teams can use tablets, smartphones and smartwatches in the following ways.

- **Collaborate in real time.** Collaboration can be challenging in hospitals, where physicians come and go, and nurses are always on the move. By providing clinicians with a secure communication system that includes voice, text messaging, email and videoconferencing, mobile devices enable them to communicate with other team members in real time, regardless of location.
- **Securely access EHR.** Because computers are often shared by multiple team members, clinicians might not have EHR access when they need it. This can lead to clerical errors and communication breakdowns. With tablet-based EHR

access, clinicians can generate progress notes, document vital signs, review lab results and update treatment records on the spot.

- **Receive urgent notifications.** Frequent false and nuisance alarms sometimes cause nurses to ignore alarms or lower their volume, which can negatively affect patient care and safety. Nurses can use a mobile device such as a wrist-worn smartwatch to reliably receive silent, text-based notifications if a patient's condition requires immediate action.
- **Prevent medical errors.** Medical errors are the third leading cause of death in the U.S., causing 250,000 fatalities each year, according to Johns Hopkins researchers.<sup>10</sup> Mobile devices with integrated bar code scanners can support positive ID applications such as bar coding for medication administration. These solutions alert clinicians when they're about to give the wrong medications or medications that aren't yet due.
- **Respond to patient requests.** Mobile devices can be integrated into the hospital's nurse call system, allowing nurses to receive text-based alerts on their device when a patient hits the call bell. The message notifies them of the patient's name, room number and alert type. Nurses can then use their mobile device to call and find out what the patient needs.

As more clinicians participate in caring for each patient, mobile devices provide the convenient, capable communications platform they need to get desirable health outcomes and provide an engaging inpatient experience.

## The Status of Mobile Technology in Hospitals

**90%** are making significant investments in smartphones and secure mobile communications platforms

**73%** are developing mobile strategies to address staff IT needs across departments and health systems

**68%** are using middleware to manage data and alerts from other hospital systems (such as nurse call, EHR and pharmacy)<sup>11</sup>

# No Place Like Home

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For chronically ill patients or those recovering from major surgery, hospitalization is only one stop on the road to healing. To keep patients healthy at home, modern hospitals and home health agencies are using mobile technology to continue engaging and monitoring them after discharge.

Fifty-three percent of hospitals were using some sort of remote patient monitoring solution in 2017, and 11.1 percent planned to begin implementing one within a year, according to the American Hospital Association.<sup>12</sup>

Healthcare providers are also leaning more heavily on home health agencies to deliver post-acute care and long-term

support for seniors. Valued at \$228.90 billion in 2015, the home health industry is expected to reach \$391.41 billion by 2021, growing at a CAGR of 9.40 percent between 2016 and 2021, according to Zion Market Research.<sup>13</sup>

At the same time, home health agencies are suffering from growing pains and talent gaps. The Bureau of Labor Statistics predicts 47 percent employment growth for home health aides by 2026, but based on current job market data, each state could be short 2,000 workers by 2025.<sup>14</sup>

To serve more patients with fewer care providers, forward-thinking home health organizations are turning to mobile technology.

## Home Health

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Home health aides provide the vital link between physicians and homebound patients, and their essential work keeps patients out of hospitals and care facilities. Like their healthcare colleagues, home health aides have adapted to electronic documentation requirements. Long ago, many traded in their clipboards for laptops, and now they're upgrading to tablets.

Given the nature of their work, home health aides need more than just a tablet. They need secure devices they can trust in the field, with innovative software and applications that enable them to share patient data in real time.

Without such robust solutions, many companies are still struggling with burdensome paper-based processes, inefficient scheduling and an inability to provide real-time information to geographically dispersed workforces — all of which affect patient care and experience.

### Better Data, Better Care

Like most home health agencies, BAYADA has grown in recent years. The New Jersey-based home healthcare agency serves clients in 21 states, with a team of more than 25,000 roving workers.

Clinicians in BAYADA Home Health Care's Medicare-Certified division — which accounts for a quarter of the agency's business — deliver short-term care for medically complex clients. In the past, they were required to complete lengthy paperwork that determined how much care the client received. This paper-based process delayed

billing, created inefficient workflows and caused inaccurate assessment of the client's medical status.

"The assessment might ask if the person can walk greater than 20 feet and the clinician says no, and then it asks if the person can do things independently, and the clinician says yes. Those two answers don't make sense, but there's no built-in logic on paper that helps you progress based on previous answers," explained Andrew Gentile, division director at BAYADA.

Several years ago, BAYADA invested in EHR software from Homecare Homebase (HCHB). Clinicians now use tablets to complete the Medicare assessment and other important documentation in the HCHB platform, all while in the client's home. They also use the devices to access company-approved medical resources, GPS for driving and other apps.

This saves clinicians time and has cut the Medicaid billing cycle by 30 days. It also enables clinicians to utilize advanced question-and-answer logic and to complete documentation while the information is still fresh in their minds. This way, they can paint a more accurate clinical picture of patients, which helps determine the amount of care a patient can receive.

BAYADA has also gained tremendous insights into their business. As Gentile put it, "The business intelligence capabilities went from practically nothing to being perhaps the largest benefit driver of the whole project. We are now able to create visual insights into our business to help us deliver better care and align our resources in smarter ways. I can't imagine trying to make decisions without this powerful data."

# Remote Patient Monitoring

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Many of today's most advanced remote patient monitoring solutions are tablet-based, enabling patients to report how they're feeling and to use wearables or Bluetooth-enabled biometric devices to capture important data and transmit it to care providers.

These solutions help keep patients healthy at home, which improves patient satisfaction and decreases readmissions. It also removes some of the burden for primary care providers, many of whom can't see chronically ill patients as frequently as they need to be seen. These individuals are often redirected to urgent care or emergency rooms, even for minor problems.

"Within the Medicare population, 20 percent of patients are considered 'chronically frail,' and they account for 80 percent of dollars spent," explained Dr. Arta Bakshandeh, senior medical director for Alignment Healthcare (AHC), a population health management company serving high-risk Medicare patients. "We take on the management of these patients, ensuring they get the extra attention they need."

To do so, AHC uses tablets loaded with Vivify Health's remote care platform.

## Benefits of Remote Patient Monitoring

More than 120 patients at AHC use the Vivify solution, with an 86 percent compliance rate. These patients receive ongoing disease management education, take more responsibility for their health and are less likely to be admitted to the hospital. The remote care solution also offers them the following benefits.

- **Continuity of care.**

When chronically ill patients are bounced around from doctor to doctor, important information can get lost in the shuffle, leading to costly oversights and mishaps. With the Vivify platform, patient data remains in one place and can easily be communicated to physicians.

- **Continuous data.**

Each day, remote care patients use Bluetooth-enabled medical devices — weight scales, blood pressure cuffs and oximeters — to capture biometric data on the tablet and transmit it to AHC's Command Center. Patients also answer a series of daily questions based on their medical conditions and care plans.

- **Proactive intervention.**

AHC's team continuously monitors data and immediately follows up with patients when they spot troubling trends. For example, when Dr. Bakshandeh noticed a diabetic patient reporting low blood sugar, he called to find out why. The patient explained that he was afraid to eat, because he didn't know which foods were safe. Dr. Bakshandeh talked him through the basics and contacted a social worker, who arranged for the patient to receive diabetic meals on wheels.

- **Virtual patient visits.**

Biometric data reveals a lot about patients' conditions, but so does actually seeing those patients. For example, a video call with one patient helped a nurse practitioner diagnose a gastrointestinal bleed. She transferred the patient to a local hospital, where she bypassed the ER and saw a gastroenterologist immediately. "She had two units of blood transfused within the hour and was able to stay on a telemetry unit, rather than ICU," said Dr. Bakshandeh. "This woman was on her way to stroke, heart attack and potentially death within 24 to 48 hours. But because we had a simple face-to-face with her via video, we were able to diagnose her, address the issue and get her back home with no deficits in less than two days."

More than 500 hospitals nationwide now use the Vivify remote monitoring platform. On average, those hospitals report a 65 percent readmission reduction and 98 percent patient satisfaction.

After all, there's no place like home.

# Aging With Independence

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With baby boomers now reaching senior citizen status en masse, the "silver tsunami" that experts have been predicting is upon us. The number of Americans age 65 or older grew from 35 million in 2000 to 49.2 million in 2016, according to the U.S. Census Bureau.<sup>15</sup> By 2030, seniors will comprise more than 20 percent of the population.<sup>16</sup>

Most of those seniors would prefer to live as independently as possible for as long as possible, but they will need help. By 2020, as many as 117 million Americans will need

assistance of some kind, according to the AARP.<sup>17</sup> However, the overall number of unpaid/family caregivers is only expected to reach 45 million. That makes one caregiver for every 2.6 people who need assistance.

To better meet the needs of this key demographic, technology companies, senior care experts and even governments are putting their minds and money together to create innovative solutions.

## How Mobile Technology Improves the Lives of Seniors

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With the rising number of seniors, together with the recent cuts in Medicare and Medicaid, keeping seniors connected, engaged and cared for requires deft resource management and innovative mobile technology.

Many of the latest advancements in senior technology are on display at the new Thrive Innovation Center. Built in Louisville, Kentucky, a major hub for the senior care industry, the Thrive Center received substantial grants and assistance from the state of Kentucky, the city of Louisville and a host of major technology companies. Now it provides a space for entrepreneurs and device manufacturers to collaborate and showcase their latest and greatest solutions.

Because the best technology for seniors is both cost-effective and easy to use, many of these solutions are built for or on consumer-grade smartphones, tablets and wearables.

### Vision Enhancements

Serious vision problems make it difficult for otherwise-healthy seniors to live independently, but new virtual reality (VR) technology could provide many visually impaired seniors a clearer view of the world. For example, IrisVision and Relumino integrate vision-enhancement software into Samsung Gear VR headsets with smartphones. The software can be customized for specific low-vision conditions, such as macular degeneration, cataracts and severe myopia. Then, images from the smartphone camera are recreated to be viewed more easily based on the user's unique vision problems.

### Hearing Enhancements

It's hard to connect with other people when you can't hear them, so seniors often get left out of the conversation. Thankfully, hearing aids have become more discreet and can better filter out background noise. New Phonak hearing aids are even Bluetooth-enabled and sync up with smart devices such as internet-connected TVs and smartphones. With the Phonak mobile app, users can turn their hearing aids into wireless speakers. So, whether they're talking to their grandchildren or their doctors, they'll never miss an important word.

### Infotainment and Communication

Mobile devices offer seniors opportunities to learn, connect with family members and engage with care providers, but the technology learning curve can be intimidating. Breezie has helped to solve that problem. Using Samsung Knox customization tools, Breezie automates 43 reconfigurations on Samsung Galaxy tablets that makes the devices more senior-friendly — for example, enlarging icons, locking down certain features and apps, and enabling single sign-on. Breezie technicians and approved family members can access the device remotely to provide training and tech support.

## Caregiver Support

Everyone slows down with age, mentally and physically. So how do adult children know when Mom isn't getting around so well on her own? How can senior care facilities determine which residents are a greater fall risk or need closer observation? Those patterns are easier to spot with hard data, and digital sensors are key to gathering that data.

For example, Reemo Health has turned smartwatches into remote monitoring devices. Using the watch's sensors, Reemo tracks the wearer's quality of movement, heart rate, sleep patterns and other relevant health data. Caregivers see daily data, a 30-day baseline for the individual and a three-day trend from that baseline. This way, they can spot negative trends and intervene quickly.

While Reemo tracks signs of physical decline, IoT-based Connected Home solutions — such as sensors installed on doors and kitchen cabinets — can provide insights into cognitive decline. For instance, if a senior was opening her

cabinets five times a day and now opens them 50 times a day, she might be experiencing memory loss.

These solutions represent the tip of the innovation iceberg. As innovative thinkers put their heads together to solve age-related challenges, more great solutions are still to come.

### How Caregivers View Technology

**71%** interested in technology to support caregiving tasks

**59%** likely to use a currently available technology

**7%** already using or have used available technology<sup>17</sup>

## The Rise of Telehealth

Not long ago, telehealth simply meant healthcare delivered over the phone. Today it means much more: from virtual visits, to file sharing, to remote patient monitoring and mobile health apps. Together, telehealth solutions comprise a global market worth \$18.2 billion in 2016, according to Zion Market Research, which predicts that number will reach \$38 billion by 2022.<sup>18</sup>

Many healthcare systems are already well on their way. In 2017, 88 percent of hospital leaders planned to invest in telehealth technology, according to the American Telemedicine Association.<sup>19</sup> Why? A whopping 98 percent said telehealth services create a competitive advantage, and 84 percent said they expand an organization's reach.

# Powering Telehealth Solutions

What is telehealth technology? That depends on who you ask. States are beginning to adopt their own formal definitions and policies. California-based Center for Connected Health Policy (CCHP) puts it most simply: "Telehealth encompasses a broad variety of technologies and tactics to deliver virtual medical, health and education services."<sup>20</sup>

According to CCHP and other members of the National Consortium of Telehealth Resource Centers, telehealth includes:

- **Live video:**  
Real-time, two-way interaction between a person (patient, caregiver or provider) and a provider using video conferencing technology.
- **Store-and-forward:**  
Transmission of recorded health history (including prerecorded videos, X-rays and photos) via a secure electronic communications system to a practitioner.
- **Remote patient monitoring:**  
Medical data collection from an individual in one location via electronic communication technologies, which is transmitted to a care provider in a different location.
- **Mobile health (mHealth):**  
Healthcare data collection, communication and patient education supported by mobile devices such as smartphones, tablets and consumer-grade wearables.

Together, these technologies help organizations provide the personalized, connected experience that patients want, while also empowering physicians with data they need to deliver the best possible care.

## Live Video

For millions of Americans, gaining access to quality healthcare is inconvenient. It can be especially difficult for seniors, people with disabilities that make travel difficult and families in rural areas. By enabling physicians to conduct at least some appointments via live video, health systems better cater to these patients.

Even if distance isn't an issue, time often is, especially for parents. Seventy-four percent of parents with children under age 18 want to see their primary physician over video, and 34 percent would switch providers to make that happen, according to an American Well survey.<sup>21</sup>

Chronically ill patients would also appreciate the ability to "phone in" some of their regular checkups. Sixty percent of patients are open to using telehealth to address even chronic conditions like heart disease and diabetes.

## Store-and-Forward

Store-and-forward technology is used behind the scenes, so patients don't know that it affects their care and experience. However, it can greatly speed the time to diagnosis and treatment.

It enables providers to securely share large files, such as medical records and images, in real time (no fax or courier required). This way, clinicians can quickly consult with specialists and other members of the patient's care team, regardless of location or device.

## mHealth

Mobile apps are useful for fitness tracking and mobile patient portals, but they can do far more than increase patient engagement. They can also deliver personalized disease management insights and virtual care models.

For instance, BlueStar is an FDA-certified diabetes application from WellDoc that has been shown in randomized controlled trials to reduce HbA1c by 1.9 percent — nearly twice as effective in controlling blood sugar as diabetes medications.

Working in collaboration with a leading healthcare provider, Samsung developed and validated a coaching and wellness application for cardiac patients. This application virtualizes the cardiac rehabilitation program on a Samsung Gear smartwatch. In a clinical evaluation, the standard patient completion rate for a six-to-eight week cardiac rehabilitation program after a heart attack was 48 percent. However, 83 percent of patients completed the virtual cardiac rehabilitation program. That's a significant gain, considering that for every 37 patients who complete a cardiac rehabilitation program, one life is saved, and for every 15 patients who complete the program, one hospitalization is avoided.<sup>22,23</sup>

By saving patients time, virtual care models can also save lives. The more connected patients are, the greater value care providers can achieve by improving healthcare quality and reducing costs across all types of populations.

# Streamlining Medicine Delivery and Device Management

Half of all adults in the U.S. have a chronic disease, and one in four has two or more chronic diseases.<sup>24</sup> These individuals drive 86 percent of the nation's \$2.7 trillion annual healthcare expenditures, much of which could be avoided with better disease and medication management.

Medication adherence is a critical component of chronic disease management, but half of adults in the U.S. fail to fill and take prescription medications as directed.<sup>25</sup> New mobile pharmacy apps, smart pill dispensers and other digital technology remove two of the main barriers to medication adherence: the inconvenience of filling prescriptions and remembering to take the right medications at the right time.

For example, DayaMed's medPOD® dispenses small pouches with all the medications a patient needs to take at a certain time. Built on top of a smartphone, the medPOD also reminds patients when it's time to take their medicine, tracks when and where drugs are taken, automatically triggers prescription refills and communicates with the patient, physician and caregivers about the individual's adherence.

Mobile apps can also help patients manage tricky medication regimens. For example, Medisafe for Android lets users plan their daily medication schedules and notes any possible drug interactions. Then it sends alerts when medications are due, syncs with family members' devices and medication lists, and sends refill reminders.

For people with diabetes, part of the pharmaceutical challenge is knowing how much insulin to take, since dosage is often based on blood glucose levels. The FDA-approved Dexcom G5 CGM mobile app for Android devices gives diabetics real-time insights into their blood glucose levels. A small sensor implanted just under the skin checks the user's glucose levels every five minutes and sends this data to a smartphone, enabling users to make informed decisions about their food intake and insulin dosage.

Mobile technology still won't solve medication adherence problems for people who can't afford their medication, but it will ensure that inconvenience and forgetfulness aren't to blame.

# Securing Critical Patient Data

Every company is under some kind of mobile attack, according to a 2017 study by Check Point, and McAfee reports that cyberthieves are even using the leading app stores to load malware onto user phones.<sup>26,27</sup> However, the stakes are particularly high for healthcare providers, whose data management practices must meet Health Insurance Portability and Accountability Act (HIPAA) requirements.

In 2017, 47 percent of healthcare organizations had instances of security-related HIPAA violations or cyberattacks that compromised data, according to KPMG.<sup>28</sup> Healthcare data breaches cost more, too — \$380 per record, on average, states the Ponemon Institute, more than 2.5 times the global average across industries.<sup>29</sup>

That's why leading hospitals and medical practices are empowering their teams with secure devices and networks that deliver the benefits of mobile, without the additional risks.

## Mobile Threats on the Rise

**77** healthcare data breaches reported during Q1 2018

**15** breaches involved the loss or theft of electronic devices

**1,073,766** individuals had their personal health information exposed, viewed, or stolen (versus 520,141 in Q4 2017)<sup>30</sup>

# Device Security

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To maximize productivity and efficiency of deployment, the ideal device for medical professionals is powerful, easy to use, and protected against a wide range of security risks. To this end, Samsung devices are secured from the chip up with Samsung Knox, including hardware-based security protocols to ensure data security. Knox Configure can be used to implement IT policies on devices. Knox Platform for Enterprise also allows partitioning corporate and organization-level data from personal usage through Secure Folder.

Healthcare organizations require solutions to handle the management of their device fleet with the capability to scale quickly and efficiently with deployments.

Clinicians often use their corporate devices for some personal matters, or in BYOD organizations, combine both functions into a single phone. As such, it's critical to be able to implement handle these functions:

- Consistent simultaneous software updates
- Whitelisting and blocklisting functionality
- Remote device-wiping
- Biometric and unlock authentication management
- App store management

Hands-free biometric authentication, such as iris scanners, are particularly useful for healthcare workers, because gloves make fingerprint authentication impractical. Standards like FIDO, which extend biometrics from the device to applications, also make clinicians' lives simpler while maintaining security.

# Network and Application Security

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Healthcare professionals operating their mobile devices within the confines of a controlled environment such as a hospital or rehabilitation center feel the effects of secured Wi-Fi and minimize the loss of the device.

When those same clinicians leave the secured areas with their devices, however, how are data and the applications carrying that critical information being secured? IT administrators would be best suited to employ a multi-pronged strategy in protecting the network carrying those devices, including:

- **Encryption, encryption, encryption:**  
Application traffic should always use TLS/SSL pathways
- **Make a Virtual Private Network (VPN) a must:**  
All corporate data and applications should be tunneled through this security layer

- **VPN expansion:**  
Don't limit this network's capabilities; incorporate all Internet usage through this secured tunnel as well

Encrypted data at rest and in transit, coupled with a VPN brings a locked-down security container that can protect healthcare information and its various levels of sensitivity.

The VPN acts as a roadblock for malicious content or viruses. The network method means any data on that device will run through a VPN tunnel and subsequent gateway, where it's ultimately filtered and scanned prior to touching any corporate applications or information. The biggest benefit for this method in a healthcare setting is the elimination of man-in-the-middle attacks or third-party infiltration.

# Conclusion

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Keeping patients satisfied and out of the hospital requires better communication, better disease management education and a better overall experience for patients. Healthcare organizations are looking to ensure patients get the right information, at the right time, in the right format. And that increasingly means via the interactive, digital devices they already love and use every day.

After all, patients are accustomed to personalized content, insights and services on demand. Why wouldn't they want the

same technology that enhances their work and personal lives to also make their healthcare more convenient, more personalized and more connected — in other words, more mobile?

To keep patients happy and healthy, forward-thinking healthcare leaders are using mobile technology to improve the patient experience at every step of the way — from the hospital, to the clinic, to the home.

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Learn more: [www.samsung.com/healthcare](http://www.samsung.com/healthcare)

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# Footnotes

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