CDW® PEOPLE WHO GET IT®

HEALTHCARE

MOBILE TECHNOLOGY ENHANCES NEXT–GENERATION CARE DELIVERY

Healthcare organizations deploy mobile tools and infrastructure to support anytime, anywhere patient care.

EXECUTIVE SUMMARY

Walk the halls of any hospital, and one thing is clear: Healthcare is and always has been built on mobility. Doctors and nurses spend their days meeting with patients, families and fellow clinicians.

Hospitals, clinics and physicians' offices now more than ever deploy mobile technology to enable precise and timely care, improve workflow and collaboration, and better engage and satisfy patients.

For instance, providers increasingly are using mobile devices such as preconfigured tablets to register patients and streamline onboarding processes. Such tools help to improve the accuracy of patient data, allowing individuals to input their information digitally as opposed to using pen and paper, then having staff transcribe those forms. The tools also save time for both staff and patients.

Realizing these benefits requires both a strategic plan and a robust infrastructure to roll out and manage devices and programs. Third–party vendors can help organizations start down this path by conducting wireless assessments to determine the steps necessary to support and launch scalable initiatives.

With the right foundation in place, mobility technology and initiatives can help healthcare organizations deliver measurable results, including improved outcomes and more engaged and satisfied patients. They also can produce a return on investment by enabling more efficient care delivery and faster patient discharge while lowering hospital readmissions.

Optimize Care, Improve Workflow and Collaboration

A majority of healthcare leaders — 85 percent — say that digital innovation is tied to their long–term strategies to improve care, according to the American Hospital Association and AVIA.

It makes sense, then, to provide them with devices they can use easily, anytime and anywhere. To that end, organizations today deploy a variety of solutions to help clinicians deliver more timely, precise care and improve communications and collaboration between colleagues.

For instance, some facilities provide tablets, smartphones or specially designed mobile computers to doctors, nurses, physician assistants, technicians and other clinicians, enabling them to retrieve and record information more efficiently. Others have launched BYOD programs so staff can use their personal devices for work. Armed with such tools, a clinician can access a patient's electronic health record (EHR) during an exam, submit a discharge order or call in a prescription on demand.

A Focus on Timeliness

An emphasis on mobile tools and initiatives has transformed healthcare processes. Previously, technicians would fax lab information to a centralized location on a hospital floor, where it would sit until a nurse or administrator received it. Now, nurses equipped with smartphones that feature secure messaging can receive lab information as soon as it's available. If urgent action is required, a sender can even set priorities for delivery, as well as an escalation path in the event the nurse does not respond within a set period of time.

Mobile devices also make it easier to share timely data across multiple groups. Referring again to lab reports as an example:

Upon receiving a report via fax, a nurse would need to notify the on–call doctor; if the doctor is unavailable, a voicemail would be left. Hours might pass before the doctor receives the voicemail and ultimately authorizes a reduction or increase in medication based on the lab results. Such a delay could put patients at risk.

With a collaboration solution in place, all involved parties can be informed simultaneously, reducing the overall time to care.

That timeliness of data is essential to healthcare professionals. Instead of phone calls and voicemail, clinicians can use secure messaging and other real–time technologies to streamline communications between necessary parties involved in patient care. Hospitals could also implement a Voice over IP (VoIP) solution for clinical communication.

These technologies all translate into better care outcomes and a subsequent return on investment for the hospital as clinicians can process patient discharge orders more efficiently and turn around rooms more quickly, reducing the average length of stay.

All–in–One Solutions

Device consolidation represents another benefit of healthcare mobility. Because clinicians spend so much time on their feet, enabling them to do their jobs with fewer devices simplifies their workload and improves efficiency.

In addition to secure messaging, doctors, nurses, technicians and staff can use smartphones, tablets and other similar tools for a variety of purposes. When a patient hits the nurse call button, for instance, instead of an alert going to a fixed nursing station, it can go directly to the on–call nurse's smartphone or mobile computer, allowing for a timelier response. Hospitals can also integrate alerts and alarms into smartphones that tie back to patient monitoring systems.

Emergency Care Evolves with Mobile Tools

Armed with tablets, routers and telemedicine software, emergency clinicians around the nation are delivering more timely, efficient care to patients.

At Atlantic Health System's Overlook Medical Center in Summit, N.J., for instance, paramedics use tablets to triage potential stroke victims during the drive to the emergency room. They conduct clinical exams and connect with neurologists via telemedicine so that by the time they arrive at the hospital, a patient can be admitted directly for a computerized tomography scan, allowing doctors to quickly identify both the type of stroke and the best course of action.

The model has shaved an average of 14 minutes from the time a patient arrives at the hospital to the time treatment is received.

Meanwhile, the Houston Fire Department uses mobile technology to more efficiently manage a growing number of 911 calls. Because only a fraction of daily calls to the center are true emergencies, paramedics first determine if a patient is experiencing a serious issue. If so, they take the patient to the emergency room. If not, a physician can examine the patient via telemedicine or help emergency medical technicians determine the best course of action, which could include calling the patient a cab to a clinic. That helps to free ambulances so they're not tied up transporting nonemergency cases to hospitals.

The U.S. military has also had success deploying mobile technologies for emergency care. Medics in the field can use devices to triage and treat patients, access their health information and communicate with clinicians at primary care hospitals.

What's more, many hospitals use such devices for barcode medication administration. Instead of deploying workstations-on-wheels equipped with several separate scanners, each with a specific purpose, clinicians can use smartphones or mobile computers to scan barcodes for various use cases. For instance, nurses can scan both patient and medication barcodes to ensure the right drug and dosage are being administered. That frees up time and reduces potential errors.

Mobility is also proving valuable outside the walls of the hospital. A home health nurse with a smartphone, for instance, can communicate with colleagues and access information more effectively and efficiently while in the field. Additionally, specialists can examine patients remotely using mobile tools and telemedicine software, which expands their reach. In fact, three-fourths of senior healthcare executive respondents to a survey conducted by Foley & Lardner say they either offer or plan to offer telemedicine services to patients. More than 80 percent say telemedicine is also spurring expansion of overall digital health services.

The Growth of IoT

Additionally, wearable devices are helping provider organizations streamline and improve clinical care. Tools such as smartwatches allow physicians to track their patients' blood pressure, heart rate, sleep patterns and other vital measurements between visits, providing them with a more complete picture of their health. Insights gleaned from wearables can also be valuable in preventing recently released hospital patients from being readmitted.

With the growth of the Internet of Things in healthcare, data gathered from patients is poised to explode in the near future. Analysts estimate that one-quarter of all clinical data is already being provided directly by patients.

There are a variety of use cases for mobile devices in healthcare, and many organizations begin with a tiered rollout. Providers, for instance, may start with secure messaging on smartphones, and then add other use cases, devices and back-end infrastructure in stages. That provides IT staff and administration time to customize solutions to their needs, while also giving clinical staff an opportunity to learn how to use new tools and implement them into their workflow.

Build Up Infrastructure to Manage Tools and Programs

One of the primary benefits of healthcare mobility is simplicity. Clinicians can use a single device for a variety of tasks. But before deploying such tools or instituting a BYOD policy enabling personal device use, an organization first must ensure it has the infrastructure in place to support its planned mobility initiatives.

Equally critical is that healthcare mobility programs must include a strong management plan. HIPAA requires organizations to ensure the privacy and protection of their data. Guaranteeing network performance and continuity is essential in healthcare, as a lost connection could mean the difference between life and death.

Establishing a solid infrastructure can be challenging for healthcare organizations because wireless networks in hospitals, clinics and physicians' offices often must provide support for more than just smartphones and tablets. Such setups might

Emerging Security Threats to Mobile Environments

While mobile initiatives can transform healthcare organizations for the better, they also introduce risks posed by cyberthreats. Providers planning to evolve their mobile strategies must prioritize security to ensure patient safety and overall privacy.

Part of a strong security plan is understanding the risks facing healthcare organizations.

Malware poses a particular challenge for providers due to the sensitivity of clinical data. Ransomware, which holds files hostage unless victims pay a fee, is a growing threat that requires a multipronged defense strategy, including a strong backup and recovery process and user education.

Threats don't always come from malicious external sources, though. Employees can fall for phishing scams or introduce risks by using unauthorized devices

or processes. Three-quarters of respondents to the 2017 HIMSS Cybersecurity Survey say they have some type of insider threat management program in place at their organization.

What's more, improperly configured networks and applications that aren't maintained leave organizations vulnerable to attack. That's why organizations must remain on alert. According to HIMSS, 85 percent of healthcare leaders say they conduct risk assessments at least annually, and 75 percent conduct regular penetration testing.

Other security strategies healthcare organizations should consider include data encryption, access control, device authentication, network segmentation, patch management, malware detection and remote device management.

need to be robust enough to incorporate building automation functionality, including lighting, thermostat and access control systems, and medical equipment, such as telemedicine and patient monitoring systems.

The list of uses for wireless networks continues to grow, as provider organizations begin to delve into innovative tools such as augmented and virtual reality for patient care. To that end, organizations must consider scalability when planning their wireless infrastructure.

Facility Assessment

Prior to considering network equipment, an organization must assess its physical infrastructure. Older buildings, especially hospitals, pose greater challenges when it comes to supporting a wireless network because of dense construction materials, such as brick and concrete, that block signals.

When organizations build new facilities, they should plan for long-term network initiatives during the construction phase by considering the materials used and the placement of elevators and bathrooms that are more conducive to wireless networks.

That is often easier said than done. Even putting a wireless access point in every room would meet today's needs only marginally — it would not be sufficient, for instance, for a hospital considering the use of virtual reality headsets for pain control.

Organizations also must thoroughly examine the number of channels available and ensure that they don't interfere with one another. IT staff must also make sure to locate APs and user

devices away from medical devices that may emit potentially strong interference or be impaired by wireless traffic.

The best way to ensure a robust infrastructure for an older building or new construction is to conduct a wireless network assessment. Third parties regularly work with clients to evaluate their legacy infrastructure and determine what they need to reach their current and future network goals.

Each wireless deployment is different, but solution architects and engineers can engage clients in discussions about their needs and network best practices to help lay the groundwork for any wireless plans. They can walk an organization through by asking these questions:

- Is the network optimized for voice?
- Is the facility VoIP-ready? For instance, does it have a digital private branch exchange that supports Session Initiation Protocol trunking or Primary Rate Interface?
- What type of devices will access the network? Are they compatible? What types of accessories will they need?
- What will the device lifecycle look like?
- Will the organization need a 24/7 help desk?
- Which systems, such as admissions, discharges and transfers, will be integrated with wireless devices?

This is just a small sample of the issues to consider during a wireless network assessment. Third-party solution architects and engineers can also help organizations determine key performance indicators so they can measure the success of their initiatives and help to plan out pilot projects, as well as the overall rollout.

Focus on Patient and Family Education

Opportunities abound to use mobile technology to engage patients and help them to improve their health. The challenge for organizations is to get patients to take advantage of those resources.

Here are some steps organizations can take to educate patients and their families about the mobile tools available to them:

- **Create a welcome video that's shown to all new hospital patients upon admission.** It can orient patients and their families to the hospital and demonstrate the mobile patient engagement tools available.

- **Customize patient engagement platforms to different demographics.** For instance, GetWellNetwork's GetWell Inpatient platform uses emoticons for its teen interface, while its GetWell Town interface for younger patients is a cartoon environment using pictures instead of text.

- **Start small, then add on.** For instance, Carilion Clinic created videos to educate new mothers on safe sleep

practices for newborns. They're only three minutes long, so it's not hard to keep new parents' attention for the most critical information. Carilion also offers extended videos that give parents additional information on topics such as breastfeeding and newborn care.

- **Provide opportunities for follow-up.** Carilion Clinic's new-parent educational videos are available to patients through their Epic MyChart patient portals, so they can review them at home as issues arise.

- **Use pop-up boxes to remind patients about educational videos available to them** or to survey them about their experiences. They can choose to engage right then, or opt to be reminded at a later time.

- **Deploy user-friendly tools such as iPad devices**, with which many patients already are familiar.

The Importance of EMM

Once the infrastructure is in place for a mobile rollout, an enterprise mobility management solution can help organizations keep data secure, monitor performance and responsiveness, and ensure network continuity.

Through EMM, IT staff can manage both corporate-owned and personal devices that connect to the network. But EMM doesn't focus on the devices alone; it combines mobile device, application and content management all in one.

With an EMM console, administrators can monitor and secure devices, encrypt them and lock or wipe them remotely in the event of loss or theft. Healthcare organizations with BYOD policies can also use EMM to manage the applications and content on individual devices. They can also manage the licensing, delivery and preconfiguration of applications, and set access control and data-sharing policies to protect sensitive content.

That's critical due to the regulatory requirements of healthcare and the ever-growing presence of cyberthreats. Healthcare security professionals surveyed by the Healthcare Information and Management Systems Society (HIMSS) cite medical device security as a major focus and say patient safety, data breaches and malware are their top concerns. Administrators can set up alerts and real-time updates of network and device activity to help them manage performance and connectivity. An EMM solution can also run analytics for reporting and auditing.

With help from third-party solution architects and engineers, healthcare organizations can conduct wireless assessments, craft mobile strategies based on the results, and select and implement EMM solutions that will help them manage mobility today and into the future.

Increase Patient Engagement and Satisfaction

As the healthcare industry has shifted to a value-based care model, many organizations have begun to operate like a retail operation. One of the most effective ways for healthcare organizations to improve their brand is through the use of mobile tools and strategies to keep patients engaged in and satisfied with their care.

Such a strategy can pay big dividends. Research has shown that, in addition to improving care, hospitals with better experience levels earn "disproportionally more than they spend" compared with organizations that have lower ratings.

Some hospitals provide inpatients with iPad devices so they can view their EHRs, watch Netflix or surf the web during their stay. Such tools can also be integrated with hospital systems to

80%
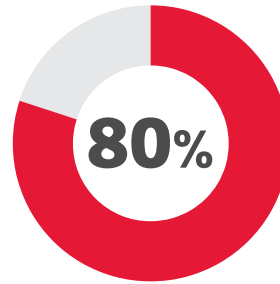
Percentage of healthcare professionals who say their organizations use tablets in patient care[1]

70%
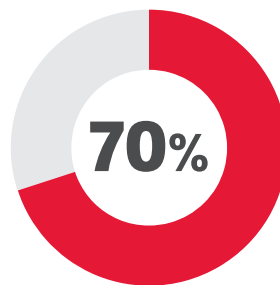
Percentage of patients surveyed who say technology has helped them become more engaged with their healthcare[2]

allow patients to use the nurse call button, order meals or complete pain-management surveys, all from a single device.

Carilion Clinic in Roanoke, Va., has had success using engagement solutions to educate patients about the medications they're prescribed. Nurses order medication education videos, which are delivered through the patient-engagement solution; once the patient completes a video, it's noted in the EHR.

A patient engagement solution can also communicate issues to staff. If a room is too noisy, for instance, or if a patient is experiencing pain, nurses can be notified and respond to such issues immediately.

Getting Interactive

Geisinger Health System in Danville, Pa., offers apps that patients can use to refill prescriptions or prep for surgery, as well as interactive e-books to learn about their conditions. Patients can opt to receive text messages for appointment reminders or periodic tips, and for encouragement to help them manage their weight.

Patients at Inspira Health Network in Woodbury, N.J., can use mobile apps to check wait times at emergency rooms or urgent care centers.

New Orleans-based Ochsner Health System has had success with its digital medicine program, which lets patients upload their blood pressure readings to apps connected to their EHR so that pharmacists and health coaches can monitor them. The system prioritizes patients based on their readings so that clinicians can contact those with higher readings first to adjust their prescriptions or offer timely medical advice.

At the University of California, San Diego's Jacobs Medical Center, every patient room is equipped with an iPad and an Apple TV that patients can use to access their EHR, allowing them to review lab results, prescriptions and other health information. They can also use those same devices for other tasks, such as controlling the blinds, lights and thermostat in their rooms, checking their schedules for the day, streaming movies or logging into social media accounts.

Engagement tools can also help when young children visit hospital patients. Jacobs Medical Center has child-friendly apps available on patient iPads, enabling families to keep kids entertained during visits. Patient data is protected with a PIN to ensure that children or other visitors don't access private information.

While such systems offer great promise, they also require strong management to comply with healthcare data protection requirements. At Jacobs Medical Center, as soon as a discharge request is entered into the EHR, a Jamf mobile device

management platform automatically wipes the iPad to prepare it for the next patient. In addition to ensuring patient privacy, that automated process enables the hospital to keep pace as patients are admitted and discharged.

Equipment sterilization is also necessary, particularly in situations where multiple individuals use a single device. There are times when a provider may have only 15 minutes to both electronically wipe and physically clean a tablet, for instance, and

tools like those developed by ReadyDock allow organizations to simultaneously charge mobile devices and disinfect them without the use of chemicals.

Such patient engagement strategies are becoming more common in hospitals today, and they carry a long list of success stories. With many more organizations budgeting for such tools in 2018, it's not unreasonable to expect them to be standard offerings in hospitals in the not-too-distant future.

CDW: A Security Partner That Gets IT

For more than 35 years, CDW has served as a trusted IT adviser for businesses of all shapes and sizes, including 15,000 healthcare organizations. Its healthcare technology specialists understand the unique needs and goals of the industry, and they partner with organizations to design solutions to meet those goals.

CDW can conduct wireless network assessments to help organizations prepare for a mobile rollout and explain the nuances of the different EMM solutions, allowing organizations to determine an approach that best fits their needs. It also can help plan mobile strategies; select, configure and deploy devices and management tools; and architect security solutions.

Because CDW partners with the leading IT vendors in the healthcare industry, it's able to offer clients a broad view of options and insights to build scalable solutions that can deliver value to the organization and its patients. Its solution architects and engineers draw from their vast experience to share best practices and proven strategies.

CDW offers its clients knowledgeable, unbiased advice to help them plan, deploy and manage a successful healthcare mobility strategy.

Visit CDWG.com/Healthcare or call your account manager to learn more.

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