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BETTER HEALTHCARE THROUGH CLINICAL COLLABORATION

Technologies that connect care providers and patients have the power to make organizations more efficient, increase patient satisfaction and improve health outcomes.

EXECUTIVE SUMMARY

Healthcare is an industry that depends on teams of people all working together to deliver the best possible outcome for patients. In recent years, technology advances have made it easier than ever before for these workers to communicate and collaborate.

Among the solutions that contribute to improved clinical collaboration are mobile devices and apps, video collaboration solutions, device management platforms, digital medical record systems, and Internet of Things sensors and applications. These tools are helping clinicians to instantly and securely share updates on patients and respond to requests, helping providers and patients to connect around care delivery and helping patients themselves to become more involved in their own treatment and health. All of these individual benefits, in turn, lead to the biggest healthcare benefit of all: improved outcomes for patients.

To optimize clinical collaboration, organizations must strategically invest in and deploy a mix of end-user tools and back-end infrastructure that will support desired use cases. They must also overcome a number of common obstacles, including end-user adoption of new solutions, security and compliance concerns, and challenges with device management.

The Evolution of Healthcare

For an industry that has a reputation as being slow to adopt new technologies, the healthcare sector today looks remarkably different — and remarkably more digital — than it did just a decade ago.

Look around. General practitioners are using voice-to-text software to log prescription information. Nurses are sharing patient updates via secure text messaging apps. Patients are ordering meals, watching videos and communicating with family members on bedside tablets. And patient data — which was once locked away in paper files that were difficult to share (and sometimes difficult to read) — has been largely digitized. In fact, according to the American Hospital Association and AVIA, 85 percent of healthcare leaders say that digital innovation is tied to their long-term strategies to improve care.

"There are no two ways about it: Technological developments in healthcare have saved countless patients and are continuously improving our quality of life," the American Institute of Medical Sciences & Education declared in 2019. "Not only that, but technology in the medical field has had a massive impact on nearly all processes and practices of healthcare professionals."

91%

The percentage of healthcare IT decision-makers who say clinical care teams would benefit from a mobile device initiative[1]

Among the ways technology is pushing healthcare forward:

Mobility: While the pagers and beepers that doctors and other medical professionals used decades ago have largely gone the way of the telegraph, mobility is more important than ever in clinical settings. Just as in other industries, workers in healthcare rely on smartphones and tablets to exchange information and complete work tasks on the go — an especially important consideration for a sector where many professionals conduct their critically important work not in a single office, but rather throughout an entire floor, building or even campus.

Mobility can also help to break down barriers between providers and patients. For instance, physicians can use tablets to show patients their scans and test results, improving communication and symbolically putting doctors and patients on the same "team" (as opposed to a scenario where a doctor sits behind a bulky laptop or peers down at scribbled notes that aren't accessible to the patient).

These benefits are driving widespread adoption of mobile solutions. According to Physicians Practice, 76 percent of physicians use mobile health technology in their practice on a weekly basis.

Telehealth: Telehealth solutions bring clinicians and patients together through video collaboration technology. This helps providers to treat patients from anywhere, helps patients to obtain care and treatment outside of normal business hours and helps hospitals to keep their emergency rooms clear for patients who truly need urgent care (as opposed to those who are visiting the ER because there's no other option for seeing a doctor on nights or weekends). Telehealth platforms are also important for supporting collaboration between providers, as they allow physicians and other clinicians to engage in consults, training and observation without requiring expensive and time-consuming travel.

The availability of telehealth has been shown to reduce hospital readmission rates, as well. For example, in a University of Mississippi Medical Center telehealth pilot program that tracked 100 diabetes patients over six months, none were hospitalized, and 96 percent took their medications as directed. Also, care providers detected nine cases of diabetic retinopathy that might otherwise have gone undiagnosed.

According to the American Hospital Association, 78 percent of U.S. hospitals are currently using or are in the process of implementing telehealth solutions.

Patient engagement: Many hospitals are using patient-centered mobility initiatives to improve the experience of hospital stays. This typically involves equipping patients with mobile devices and applications that allow them to order meals, call for assistance or simply pass the time by playing games or watching movies. By enabling better communication with their care team and giving patients access to educational information about upcoming procedures, patient-facing mobile devices and applications help to increase patients' involvement in their own care. Even

Source: [1]JAMF, 2018 Survey: The Impact of Mobile Devices on Hospital Patient Satisfaction, April 2018

Healthcare IT: By the Numbers

A quick glance at the data shows the impact that technology is having on clinical care — and how that impact is likely to become even more significant in the near future.

- **Nine out of 10** healthcare IT decision-makers say their organization has implemented, or is planning to implement, a mobile device initiative to improve patient care or to improve the efficiency of care teams.[1]
- **Fifty-nine percent** of clinical care teams plan to increase their usage of mobile devices over the next year.[1]
- Among IT decision-makers whose organizations have deployed mobile devices, **45 percent** say they improve communication between patients and staff.[1]
- **Seventy-three percent** of hospitals have developed or are developing mobile strategies to meet the communication, collaboration and computing needs of healthcare professionals and other mobile workers.[2]
- The vast majority of healthcare executives — **94 percent** — say that emerging technologies have sped up the pace of innovation at their organizations.[3]

Sources: [1]JAMF, 2018 Survey: The Impact of Mobile Devices on Hospital Patient Satisfaction, April 2018; [2]computerworld.com, "Smartphones Becoming Primary Device for Physician and Patient Communications," April 4, 2018; [3]Accenture, "Digital Health Tech Vision 2019," June 2019

clinicians' use of technology can improve patients' visibility into and confidence in their treatment plans. When nurses use mobile barcode scanning tools to match medication types and dosages with the identity printed on patients' wristbands, for instance, patients feel safer and more confident that they're getting the correct medication.

Digitization of healthcare: Removing paper from healthcare processes, such as admissions, makes them quicker, more efficient and less expensive. Digitization can also help to minimize miscommunication and reduce medical errors. According to The Joint Commission, which accredits more than 21,000 U.S. healthcare organizations and programs, 70 percent of medical errors are attributable to communication breakdowns.

Effective mobile communication is critical for healthcare, as 69 percent of healthcare professionals use mobile technology for staff communication, and 51 percent use it for communicating with patients, according to a February 2018 report from Physicians Practice.

Automation: Many healthcare organizations are looking to automation solutions to simplify IT processes and reduce the burden on IT staffs. While automation and artificial intelligence solutions are largely still emerging, use cases range from automating management tasks in the data center to streamlining billing and other administrative processes to simplifying workflows for clinicians. In radiology, for instance, picture archiving and communication systems are using AI to automate tasks such as worklist optimization and hanging protocols — critical applications that can improve workflow and productivity for radiologists and radiology administrators. This not only has a positive impact on patient care but can also enhance clinician and staff productivity, which improves profitability for the healthcare organization or radiology group. In another example of the benefits of automation, health systems are beginning to use machine learning algorithms to adjust their emergency room staffing levels in response to fluctuations in patient volume, with the aim of reducing wait times and optimizing staffing levels.

The percentage of physicians who cite HIPAA concerns as the main reason they don't use mobile health technology[2]

Solutions That Improve Clinical Collaboration

Improved clinical collaboration doesn't happen by magic. Healthcare organizations must identify, deploy and manage specific solutions that will help employees to work together more effectively and increase the quality of patient care. In particular, many healthcare organizations are finding success with the following types of tools and platforms:

Mobile devices: Solutions such as tablets, smartphones and other handheld devices are having an impact on healthcare in numerous ways. Clinicians mainly use smartphones and handheld devices designed specifically for healthcare environments. One important trend is that these mobile devices are consolidating the effect of device fragmentation seen in the past, when many clinicians had multiple devices (such as pagers and cellphones). On the patient side, tablets are popular for engaging patients and improving communication.

The consolidation of mobile devices makes doctors and nurses much more productive, and so it is important for hospitals and other healthcare organizations to make an effort to select tools that will allow clinicians to seamlessly move from task to task. Other factors that will likely play a role in selecting devices include battery life, integration with existing technologies and providers' current familiarity with different device types and operating systems.

Telehealth: The popularity of mobile solutions, such as Apple iPad devices, combined with the growth of collaboration solutions, such as Cisco Webex, has increased the practice of telehealth in the healthcare industry. While confusion about reimbursement rates (which vary from state to state) has been perhaps the dominant factor preventing telehealth from growing even faster than it already has, the model also presents challenges with

Source: [2]Physicians Practice, 2018 Mobile Health Survey Results, February 2018

How Mobile Devices Impact Healthcare

The variety of features and capabilities that mobile devices offer make them a good fit for many healthcare settings. In clinical settings, healthcare providers aim to deliver faster, more personalized care to patients. Care teams also benefit from these solutions, as they improve communication, access and accuracy.

A 2018 report from JAMF found that the ability to share resources quickly and to access and work with patient medical records while on the move were the two main drivers in healthcare organizations' decisions to implement mobile device initiatives. The report noted that 60 percent of healthcare IT decision-makers cited these reasons.

More than half of these decision-makers also cited the ability to manage alerts and alarms, as well as the ability to ensure secure staff communications among the reasons behind their mobile deployments.

Mobile devices also deliver powerful benefits for patients, including the ability to communicate more effectively with care teams, better access to medical records and the ability to complete administrative tasks such as registration and intake forms. The results are significant, as 96 percent of healthcare organizations report that they saw an increase in patient experience scores after implementing a mobile device initiative, with 32 percent of these saying that scores rose drastically.

technology integration and end-user adoption. However, these challenges are becoming less formidable as telehealth gains traction in the industry. In a 2019 survey, 69 percent of physicians said they would be willing to use telehealth solutions — a substantial increase from the 57 percent who said they would be willing to use the technology just four years earlier. And younger doctors are even more willing to engage with patients via video, with 74 percent of physicians between the ages of 25 and 34 saying they would use telehealth. Some hospitals design their own custom telehealth solutions by integrating disparate displays, processors, connected medical devices and videoconferencing software. But prebuilt carts from vendors such as American Well make it relatively simple to deploy telehealth as an "off-the-shelf" tool if internal staffers lack the time or expertise to build out custom solutions.

Mobile apps: While some large healthcare organizations continue to develop custom mobile apps for their idiosyncratic environments, standardized apps for uses such as EHRs, mobile communication and simple tasks like barcode scanning are far more popular due to considerations around cost and simplicity. Many physicians even rely on mobile apps to supplement their medical knowledge, using these tools to quickly look up drug information and interactions, calculate patient health metrics such as body mass index, find lists of possible conditions that match a patient's symptoms, or view reference videos for clinical procedures and physical examinations. Some physicians also use mobile apps to seek out other providers for consults and referrals, send HIPAA-compliant faxes through their phones, view and share medical images, or subscribe to medical journals.

The percentage of office-based physicians who use an electronic medical record or electronic health record system[3]

Device management: Especially in healthcare environments — with patient data a ripe target for cybercriminals, and with HIPAA regulations creating serious demands on IT teams — management of mobile devices is critical. According to a 2019 Verizon report, healthcare organizations are more likely to be affected by mobile security breaches than organizations in any other sector. Forty-two percent of healthcare organizations reported that they had experienced a data loss or system downtime as a result of a breach involving mobile devices in the previous 12 months. In recent years, the concept of mobile device management has evolved into enterprise mobility management, which also incorporates management of mobile content and applications. And many organizations now opt for a unified endpoint management approach, which allows them to also manage devices such as laptops, PCs, and even printers and wearables.

Clinical collaboration and communication solutions: For many healthcare providers, general applications don't meet all their needs, which can frustrate clinicians. For example, if physicians are expected to use a certain application for hospital business — but can't use the app to communicate about patient cases due to privacy or security concerns — they may turn to unauthorized "shadow IT" solutions to help them be more productive in delivering care. To prevent this scenario, healthcare organizations should seek out solutions developed specifically for clinical collaboration and communication. These may include apps designed to enable the following: EHR mobilization; messaging, voice and text integration; nurse-to-nurse, physician-to-physician and nurse-to-physician communication; and patient engagement.

Taken together, these technologies can help healthcare organizations achieve benefits for patients, providers and the organization as a whole. On the patient side of the equation, these solutions can improve both access to and the overall quality of care, while also reducing the length of hospital stays. For clinicians, they can improve morale, enhance communication and help providers to gain a greater understanding of their patients' overall health. And for healthcare systems, these technologies can reduce hospital readmissions and improve staff productivity — both of which have a tangible impact on an organization's bottom line.

IoT and Healthcare

The healthcare sector is starting to see industry-specific Internet of Things use cases that improve patient care and operational efficiency.

Wayfinding: Through mobile apps and Bluetooth beacons, hospitals are helping patients and visitors to navigate their way around large, complex facilities and campuses. A wayfinding app from Boston Children's Hospital, for example, provides turn-by-turn directions for its 12-building healthcare campus, and 65 percent of users say it has improved their experience.

AI digital assistants: Voice-enabled digital assistants are allowing doctors to dictate medical notes, which helps to alleviate the burnout that often accompanies heavy administrative workloads. A study of one such digital assistant showed that the technology reduced the amount of time physicians spend on medical notes by up to 70 percent.

Asset tracking: With radio frequency ID tagging, hospitals can track the location of medical equipment in real time, making it easy for staff to find the tools they need to do their jobs. Currently, more than one-third of nurses spend at least an hour each shift trying to locate equipment.

Remote health monitoring: Connected systems can send out automatic alerts if there are abrupt changes in a patient's heart rate, temperature or other vital data.

Source: [3]National Center for Health Statistics, National Electronic Health Records Survey, 2017

Overcoming the Challenges of Clinical Collaboration

Healthcare organizations face a number of issues as they seek to establish clinical collaboration solutions that will provide value to patients, providers and hospitals. Among the key challenges:

Compliance: If healthcare organizations deploy new technologies in ways that run afoul of regulations such as HIPAA, they risk fines, along with a potential hit to their reputation. To identify compliance gaps, some healthcare organizations use the HIPAA cybersecurity "crosswalk," which links various HIPAA rules with corresponding guidelines from the National Institute of Standards and Technology.

Security: Compliance isn't the same thing as security — an especially relevant notion in the healthcare space, where considerations such as HIPAA compliance can sometimes overshadow the threats posed by hackers. Becker's Health IT & CIO Report identifies several data security challenges that plague the healthcare industry: low cybersecurity awareness, outdated software systems, lax access controls and the proliferation of mobile devices. This last factor, of course, is key to clinical collaboration, and organizations must strive to find a balance between enabling clinician productivity and protecting their environments from attack.

Device management: To strike a balance between security and productivity, Becker's advises, organizations should do the following: require data encryption on all devices, adopt management solutions that allow data to be wiped from lost or stolen devices, restrict the use of personal mobile devices on facility networks and allow only certain information to be stored on approved devices. Devices shared by multiple users can present additional challenges, and healthcare organizations must adopt user-friendly identity and access management solutions to facilitate device hand-off.

78%

The percentage of healthcare organizations that have a mobile device management solution in place[4]

Ease of use: Devices and applications must be simple and intuitive, or employee adoption will be a struggle. In fact, a lack of clinician buy-in can lead to the complete failure of a new initiative. Ease of use is especially important for solutions such as telehealth systems, which may be unfamiliar to many users. "Challenges to the success of [health IT] are largely due to non-technical issues such as poor usability that impact communication and workflow," researchers wrote in the *International Journal of Medical Informatics* in 2018. "Therefore, HIT requires the design of user-friendly tools that are context appropriate. Implementation considerations including the impact on workflow must be addressed early in the initial planning and design stages if HIT applications are to be successful."

Adoption and culture change: A user-friendly interface alone isn't enough to drive IT adoption. Organizational inertia is a powerful force that must be overcome, and it will be challenging to change existing processes unless clinicians understand the value of a new IT solution for simplifying their work and improving patient care. *Harvard Business Review* advises healthcare organizations to involve clinicians in the early stages of solution design to ensure they buy into new initiatives and integrate them into daily practice. The publication gives examples of healthcare tech rollouts for which clinicians were consulted not only about solutions but also to identify problems that needed to be solved and to provide ongoing feedback during solution testing. "When the end user identifies the problem, participates in building in the solution and continues to engage during its refinement, adoption is inevitable," *Harvard Business Review* writes.

Infrastructure: Back-end networking, storage and computing infrastructure must be robust enough to support new IT initiatives. This can be especially challenging for healthcare organizations that have expanded in recent years, with IT staffers forced to support disparate systems at a number of different sites. Depending on a healthcare organization's existing environment, its geographic footprint and the new technology tools it plans to deploy, IT and business leaders may explore solutions such as hyperconverged infrastructure, software-defined networking or public cloud resources.

To overcome these challenges, healthcare organizations must develop an effective strategy to guide their clinical collaboration initiatives and surrounding support efforts. It's important to identify key performance indicators before a technology deployment. These KPIs may include metrics such as average

Source: [4]JAMF, 2018 Survey: The Impact of Mobile Devices on Hospital Patient Satisfaction, April 2018

The Cloud and Clinical Collaboration

At one time, regulations such as HIPAA — along with concern for patients' privacy — made most healthcare organizations reluctant to adopt cloud solutions. However, as large public cloud providers have established that their offerings are both secure and compliant, adoption has increased.

For example, St. Luke's University Health Network, with 10 hospitals and more than 300 clinics in Pennsylvania and New Jersey, has taken a cloud-first approach to clinical collaboration. The organization uses a cloud-based collaboration platform to drive speed and agility in clinical, administrative and back-end environments. The cloud-based collaboration solution even lets clinicians use mobile technology to engage in "digital huddles" that speed up treatment decisions and give providers more time to spend with their patients.

The move is also expected to make the business side of the hospital system more efficient, with officials anticipating a 20 to 30 percent productivity increase once all clinicians are using the same cloud-connected apps.

length of stay for patients, time savings for staff, reductions in the amount of time required for tasks such as lab processing and admissions, and a more efficient patient discharge process. For healthcare organizations developing a new clinical collaboration strategy, a trusted third-party partner is often a valuable resource for establishing these KPIs, as well as designing and implementing solutions and monitoring progress toward goals over time.

CDW·G: We Get Healthcare

CDW·G's solution architects bring deep and broad experience to IT service engagements with healthcare organizations, having spent decades helping hospitals and provider networks to deploy and implement end-user solutions, back-end infrastructure, and fast and secure networks.

In addition to providing security, cloud strategy and infrastructure assessments, CDW·G offers Clinical Mobility Workshops specifically designed to help healthcare organizations design and implement mobility initiatives that will enhance communication and collaboration for clinicians. These workshops help healthcare organizations to do the following:

- **Understand what users need:** Through interviews and surveys with hospital staff, CDW·G involves clinicians in identifying existing problems and potential technology solutions, which helps to ensure adoption.
- **Create a clinical collaboration roadmap:** By helping organizations to set both patient- and business-centered objectives, CDW·G's experts can keep IT initiatives on track.
- **Develop a strategy:** After assessing factors including a healthcare organization's existing environment, current challenges and clinician needs, solution architects from CDW·G help to build out an entire strategy to guide an extended clinical mobility initiative.
- **Deploy solutions:** After solution architects (in partnership with an organization's clinical, IT and business teams) have identified technologies that can enhance communication and collaboration, CDW·G can help put these solutions into practice.

The CDW Approach

ASSESS
Evaluate business objectives, technology environments and processes; identify opportunities for performance improvements and cost savings.

DESIGN
Recommend relevant technologies and services, document technical architecture, deployment plans, "measures of success," budgets and timelines.

DEPLOY
Assist with product fulfillment, configuration, broad-scale implementation, integration and training.

MANAGE
Proactively monitor systems to ensure technology is running as intended and provide support when and how you need it.

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