



# Clinical Mobility:

Driving the  
Next Wave of  
Innovation for  
Care Anywhere



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The adoption of mobile technology by clinicians and patients continues to rise, driven by the ubiquity of mobile technology in people's personal lives blending into their professional lives. For healthcare providers, approximately 90 percent of respondents from the 2nd Annual HIMSS Mobile Technology Survey noted that mobile devices were used to help individuals access information that they need to perform their daily activities. Physicians were cited as a group of individuals most frequently identified as using mobile devices to access information. For consumers, of the 3,014 respondents surveyed for the January 2013 Tracking for Health report conducted by the Pew Research Center's Pew Internet & American Life Project, 70 percent of U.S. adults noted that they track at least one health indicator such as symptoms or weight and diet. Within that group, 21 percent use technology to track their health data.

Mobile device usage in the industry is also evolving. Whereas clinicians predominantly use their devices to look up relevant healthcare information to make better informed decisions, they are now demanding more functionality and integration in order to deliver high-quality care and enable better clinical outcomes. As an Associate Professor at the University of Michigan's School of Nursing, Patricia Abbott, sees incoming students who are already equipped with and adept at using mobile technology in all facets of their lives. The Cleveland Clinic, a nonprofit multispecialty academic medical center, provides smartphones to their physicians as one of their work tools to enable them to get their work done.

To anticipate what the next wave of clinical mobility innovation will look like in this ever-changing healthcare environment, Intel tapped four industry leaders across diverse healthcare provider settings to discuss clinical mobility challenges and possibilities. At the Intel Innovation Summit's Care Anywhere: The Next Wave of Innovation in Clinical Mobility, Mark Blatt, MD, Worldwide Medical Director for Intel and moderator, led the discussion on how clinical mobility is helping to establish a true "care anywhere" healthcare system.

### **Clinical mobility: driving collaboration**

Blatt envisions clinical mobility enabling collaboration in the form of virtual clinics or virtual care teams. These virtual visits still bring patient and clinician face to face but in a format that saves time and is more convenient and thus provides a more satisfying experience for patients. Patient discharge from a hospital, during which time nurses are imparting instructions directly to the patient, is an ideal activity for mobility-driven collaboration. Virtual hand-offs can allow the patient's next care team to safely, proac-

tively and efficiently manage the patient's post-acute care in real time. As a result, they help eliminate gaps and the burden of follow-ups on the patient. Virtual hand-offs and other forms of collaboration, Blatt contends, have a huge potential for preventing or reducing readmissions. Such scalable and cost-effective applications can help hospitals and health systems comply with the Hospital Readmission Reduction Program under the Affordable Care Act and avoid penalty payments for excessive readmissions.

Patients going from the inpatient setting to the home, skilled nursing facility or rehabilitation center would benefit greatly from such applications. However, the interface or interoperability needed to exchange information with a separate healthcare organization's information system often does not exist, according to Joanne Handy, Chief Executive Officer for LeadingAge California. Until this situation is remedied, Handy, whose not-for-profit public-interest association represents more than 400 nonprofit aging service providers, advocates for the use of ubiquitous apps such as Skype and Facetime to facilitate communication across care teams and patients. "It has great possibilities, but I don't think that's being tapped, perhaps for HIPPA reasons," she said. "It's one thing to get the data, but to have a doctor or care provider visually communicating with you is so much more powerful."

The Cleveland Clinic is conducting a pilot in one of its Florida facilities that provides discharged patients with a pharmacist consultation about their medications. Whereas physically providing a pharmacist for every discharged patient at a site is unscalable, the Clinic is leveraging a video-conference-type application that connects patients with a pharmacist at a remote location. Thus far, patient and nurse experiences have been positive. The consultations have also fostered better communication at discharge, a process that traditionally has suffered gaps in care, which contribute to readmissions, according to Will Morris, MD, Associate Chief Medical Information Officer. Indeed, a February 2013 Robert Wood Johnson Foundation report, *The Revolving Door: A Report on U.S. Hospital Readmissions*, noted that readmissions occur because of differences in discharge planning and care coordination, among other factors.

Clinical mobility also has the power to deliver the right information at the right time. In his years of experience in patient consultations, C. Martin Harris, MD, Chief Information Officer at the Cleveland Clinic, has observed a lack of information retention by patients, which results in patients calling the physician after they return home. To supplement care instructions dispensed at discharge, clinicians could refer





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Associate Chief  
Medical Information  
Officer

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LeadingAge  
California

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patients to a mobile application that provides the information when the patient is ready to consume it. If patients have questions, a secure mobile application could connect them to the clinicians, providing a higher-quality experience than a telephone call. “Facetime – which we have not leveraged appropriately – is a very powerful tool for this simple, direct, time-faced communication,” Harris said.

### **Integrating mobility into workflow**

Workflow, therefore, is an important consideration when deploying clinical mobility. “You really need to look at the people and processes and complement them; it’s got to be a cohesive effort,” Morris said. The Cleveland Clinic has been working for more than a decade on shaping its culture to embrace technology and make it integrated into an efficient workflow. “If you want to change the culture, you have to engage the clinicians who are doing the work in this process,” Harris explained. Clinicians have to envision clinical mobility as a tool that will enable them to get their work done. Healthcare providers also need to “match value to the work” – deliver benefits from technology use.

The clinical mobility adoption is ripe for providers whose mission for the aging is to keep people in their homes and communities. In early-stage telemonitoring, for example, alerts regarding patients’ vital signs triggered home visits by care nurses. Today, nurses first respond by calling the patient. “It’s much less person interchange and much more virtual interchange,” Handy explained. Leveraging this technology, therefore creates greater efficiency, allowing nurses and clinicians to focus on patients who require higher levels of care. Clinical mobility can provide the same scale of care for assisted living communities by tracking residents’ movements via remote motion monitors, enabling early-detection gait disturbances that may lead to elevated fall risks. Eskaton Village, a LeadingAge member based in Roseville, CA, fitted its apartments with motion sensors that detected changes in residents’ routines to help on-site staff efficiently manage their community. “Those are fundamental changes in ambulatory home and senior living communities,” Handy said.

### **Right tool for the right problem**

In addition to workflow considerations, healthcare providers must determine the most appropriate mobile technology solution for a particular area or problem. “You’re not going to find the ubiquitous device for all clinical situations,” Morris said. “You need to be flexible and nimble. Workforce trumps technology.” On the other hand, Abbott, who is a researcher and educator specializing in informatics, prefers the concept of device consolidation. As a frequent traveler

in her recently appointed role as part of the World Health Organization’s eHealth Technical Advisory Group, Abbott imagines having one device with the ability to capture data and find the tools that patients and clinicians need to address a health issue. It would be “like an assembly of apps,” in the cloud, so that geography is irrelevant.

Appropriately designed mobile technology will greatly impact adoption on the consumer side, especially for the aging population. While some clinicians may prefer multiple devices for different tasks, Handy advocates for one visual display and platform in the home. The television can serve as a delivery mechanism that can consolidate all mobile health apps that monitor activities and symptoms for older patients with multiple chronic diseases. “For the next 10 years, there needs to be a trend toward simplifying, consolidating and putting it into a form that people are already using in their daily lives,” she said. “A TV – at least for now – can serve that purpose.”

The concept of platform as a service is also consumer friendly and therefore highly adoptable, according to Harris. For example, cable TV can serve as a platform upon which other services can be added. Different specialty chronic care apps can appear on a TV channel. “Now it becomes very functional [to patients at home],” he said. Devices can be plugged into the platform, which provides the integration and consolidated experience for patients. The smartphone can also be transformed into a universal tool, which can become, for example, a remote control for a patient’s television.

Continua Health Alliance, an international nonprofit, open industry, multi-stakeholder group, is establishing industry standards for end-to-end, plug-and-play connectivity of devices and services for personal health management and healthcare delivery. The industry, however, has a long way to go to reach that vision. Harris is optimistic. “I think you will see that challenge met over the next couple of years,” he predicted. “We haven’t seen the tip of the iceberg yet in terms of what the real transformational opportunities are for this kind of technology.”

Those transformational opportunities are being bred in medical and nursing schools. “Part of my job in academia is to encourage creativity,” Abbott said. Thus, some nursing students are building projects around mobile devices. They are applying the appropriate tool for particular situations by first determining what the problems and the questions are. For example, while students expect mobile technology to already be a part of the healthcare ecosystem, they are often surprised by the reality. This is why Abbott strongly



advocates that graduates in any health science field must complete their programs with high levels of informatics literacy and competency under their belts. “Failure to educate today’s health professional students to operate in today’s digitally transforming healthcare industry is unacceptable” she said.

### Patient-centric data-access policies

Transformational opportunities aside, healthcare providers must address privacy and security concerns surrounding mobile technology early on by developing patient-centric clinical mobility policies, according to Harris. In discussions with his patients, he noted that security and confidentiality were foremost in their minds. Patients expect their healthcare providers’ IT systems to protect their information; however, patients want tools and web-enabled apps to manage who accesses their information. The industry is working toward establishing encryption standards that ensure that data accessed via the cloud on a mobile device is visible only to the right person, according to Harris.

In the meantime, healthcare providers are looking to build trust with their patients with regard to owning and accessing their health information. The Cleveland Clinic began giving its patients secure access to their health information from its electronic health record system. For that initiative to be successful, however, the culture must change, according to Morris. “Providers need a seat at the table and we need to work through those things slowly,” he said. Allowing patients to own their record is a process, an education and a journey. “Once you have cultural acceptance, if the patient grants you access to the data, it’s pretty profound,” he said.

Abbott believes consumers, including herself, would appreciate a patient-controlled, cloud-based health record bank brokered by a trusted third party. This model would allow consumers to manage who sees what information from their record and to securely access their information using various mobile devices. According to Harris, it also

eliminates having to address each state’s privacy rules, which is one of the greatest challenges to interoperability. “It virtually all goes away if the patient is in charge,” Harris pointed out. “It’s a very powerful concept.” This new model will evolve with patients beginning to trust and share information with their providers, he said.

### Untethering patients and providers

Building trust is key to clinical mobility’s adoption and is one of its value propositions. Before any of this can happen, however, reimbursement reform must take place. As the payment model evolves from pay-for-volume to pay-for-performance, healthcare providers will finally have the incentive to adopt clinical mobility and further leverage this cost-efficient, user-friendly technology to enable quality care. “If we change incentives to a bundled payment, it’s really going to be about how the system manages these patients,” Morris said. “Mobility and this idea of pervasive health is a way to do this.”

When adoption takes hold, clinical mobility will create three pervasive effects, according to Harris. Mobile technology frees clinicians and patients. “Untethered” from the hospital, clinicians can access patient information outside of the four walls and provide care anywhere and at any time. Patients can access information via mobile devices when and where they need it. This freedom will create an environment where provider and patient, as well as provider and provider, can communicate more easily and thus build stronger, more engaged relationships. Greater ability and access to communicate will enhance decision-making. “We can actually do real healthcare decision-making that is shared by both the patients and providers in real time,” Harris said. Mobile devices will finally become the tools to get healthcare work done and make the healthcare system more efficient by fundamentally changing the way care is delivered.



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Associate Professor  
at the University of  
Michigan’s School  
of Nursing

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