Going mobile: How hospitals are using technology to drive clinical workflow efficiency

Enterprise-owned mobile devices have enormous potential to streamline and simplify clinical workflows. But many healthcare organizations are currently struggling to harness that potential due to operational, security and usability issues. These issues often lead to workflow disruptions, productivity loss, high costs and low acceptance by end users — ultimately putting patients' health at risk.

During a recent advisory call hosted by *Becker's Hospital Review*, Christine Yang, vice president and chief technology officer at Alameda Health System (Oakland, Calif.), and two Imprivata leaders — Sean Kelly, MD, chief medical officer and senior vice president of customer strategy, and Claire Reilly, vice president of clinical operations and chief nursing informatics officer — led a group of health system leaders in discussion about the challenges and opportunities associated with deploying mobile devices in healthcare.

Key takeaways from the discussion are summarized in this paper.

Health systems are leveraging mobile tools in similar ways

Most hospitals and health systems are leveraging mobile tools to support similar use cases: charting at the bedside, enabling fast and secure communication for clinical teams and scanning barcodes to streamline medication dispensing at pharmacies.

Executing those tasks is often done using organizations' EHR vendor stacks. "There was an era at [my organization] when there was a lot of third-party tooling within the mobile communication space," said the chief medical information officer of a large health system in the Northeast. "Now we've predominantly collapsed all that into whatever the vendor tool provides."

"Using barcode scanners through a mobile device has really improved patient safety through the pharmacy and all the way up to the bedside," said the chief medical officer of a multidisciplinary cancer center in the Northwest.

Provider organizations are also leveraging automation via mobile devices to send care gap and rescheduling reminders to patients, help physicians schedule referral appointments for their patients, perform ambient transcriptions of clinical encounters, and even reinforce workplace safety by adding a duress button with geolocation availability on the devices.

Mobile devices applied in clinical workflows have shown promising results

When health systems deploy mobile tools with careful planning, communication, intentionality and appropriate resources, they often see positive outcomes. These results have included improvements to signing verbal orders, enhanced quality metrics tied to documentation in real time and more efficient collaboration.

Several leaders emphasized that their institutions are still in the early phases of leveraging such tools, so there is still much to learn in terms of benefits and outcomes.

Ms. Yang recounted observing widespread relief among nurses when, a few months ago, the EHR system at several Alameda Health hospitals went down, but the system's mobile platform kept functioning. This enabled nurses to continue providing patient care. She said that, prior to that incident, there was resistance to adopting the mobile platform and other mobile technologies, but afterwards, that resistance dissipated.

Driving staff-wide adoption has proven challenging

Despite the potential of mobile technology to streamline healthcare processes and improve quality of care – and despite the early wins of introducing such tools into clinical workflows – deployment of this technology does present challenges.

The main challenges relate to *perception* (mobile tools are not yet perceived by staff as immediately timesaving, intuitive and user friendly) and *integration* (mobile tools often do not easily integrate into clinicians' workflows), both of which contribute to low adoption.

Ms. Reilly pointed out that leaders shouldn't assume that introducing a mobile device into a clinician's workflow will immediately spur widespread adoption.

"If a device doesn't work, a nurse might just put it down and move on to the next thing," Ms. Reilly said. "And if that happens, the nurse may never go back and pick that device up again."

The CMIO from the Northeast emphasized the importance of prioritizing convenience when introducing mobile devices to clinicians.

"If you're forcing a nurse to put a full password in every time they try to access their medical record system or unified communications tool, the technology becomes completely unusable," he said. "But if you have technology that has health battery life, allows nurses to get in quickly and securely and is trackable, then it becomes usable."

As a case in point, Alameda had to re-implement a mobile tool when it didn't fit nicely into clinicians' workflows post-deployment. The tool, which was nursing-specific, flopped because its initial implementation had not accounted for the fact that nurses often need to communicate with physicians outside their own department – for example, when they coordinate specialty referrals.

With support from Imprivata, Alameda fixed those gaps and correctly implemented the tool the second time, Ms. Yang said. "Imprivata stood up a clinic in clinical informatics to help us drive that conversation and to capture all the downstream workflows."

To avoid running into such obstacles, a best practice for organizations committed to leveraging mobile technology is to involve clinical teams early on when

developing mobile tools and processes. They should also modernize clinical applications so that they closely mirror consumer apps in terms of ease of operation, proactively identify opportunities to automate functions, eliminate guesswork and communicate value.

"For any solution to work, there needs to be a people, process and technology approach," Mr. Kelly said. "If you can't map out the solution on a whiteboard or paper, you probably shouldn't put the technology in until you can."

In healthcare settings, mobile technology solutions should also ideally enable staff to complete tasks in a consolidated manner, as opposed to having them start a task on one device but complete it on another.

It can be costly – both in financial and human resources – to implement and maintain mobile devices

In addition to the cultural and logistical challenges associated with adopting mobile technology, the costs of doing so underscore the need for an efficient implementation approach. This is because deploying and maintaining mobile tools requires not only large capital expenditures, but also significant efforts from already overstretched IT teams and clinical teams.

"From an IT perspective, the sheer work of provisioning those devices can really add up," Mr. Kelly said, noting that depending on their technology strategy, provider organizations may need to deploy tens of thousands of mobile devices. "And then the maintenance [repairing and upgrading] of these devices — if that process isn't somehow automated and able to do analytics remotely, and if you don't have dedicated full-time staff doing it, guess who you're asking to do it – your clinicians and unit coordinators."

The CMIO of a large nonprofit health system with care sites in more than 20 states said, "Everyone is already tasked to the top of their workloads today. And now we're thinking of another workforce to manage this. So how to do this on a slim budget is probably the hardest hurdle to get over."

These considerations are further complicated by the decision organizational leaders must make as to whether to assign mobile devices to individual clinicians or specific job categories. "We have a central pool of devices for our nurses that they choose from – they pick one up and if it breaks, they get a new one. It seems to work well enough," said the chief information officer of a large academic health system on the West Coast. The consensus among call participants was that assigning devices on an individual basis, while potentially more convenient for the end user, would yield exorbitant costs.

Notwithstanding these cost-related challenges, the upside to implementing enterprise-owned mobile devices is that if their selection, deployment and maintenance are robustly managed, they can more than make up for the initial investment in them.

"Enterprise-managed and maintained devices that have a consumer-grade feel to them and whose workflows are properly installed and maintained can lead to great cost savings, such that you don't have to buy a device for every single clinician," Mr. Kelly said. Sound and secure device management entails eliminating the need for users to log in and out every time they use mobile devices, including devices that are shared, which is fundamental from both a usability and a compliance perspective.

The governance of how mobile devices are handled and configured plays a key role in tying all these aspects together. "There are so many competing stakeholders that nothing is optimized for every use case," said the leader from the multidisciplinary cancer center. "Having a governance structure to manage everything from selection through troubleshooting problems through resources is a critical piece that we don't always put enough attention to."

The future of clinical workflow support is mobile

Despite the challenges noted throughout the discussion, the participants agreed that the future of meaningful clinical workflow support will involve increased use of mobile devices.

Participants see multiple opportunities for mobile support far beyond the clinical realm, including in supply chain, environmental services and workforce scheduling. Additionally, leaders held out hope to see greater accessibility considerations when selecting and implementing mobile technology strategies (for example, by leveraging tools that support staff or patients with language barriers or disabilities), as well as enhanced capabilities for real-time data insights.

Ending the discussion on an optimistic note, a nursing leader from a health system on the West Coast said: "As mobile devices get more features, like ambient listening or interoperability, the focus is going to shift from capturing data to consuming [and acting] on the data."