

Dale Seamans looks at mobile technology options—and lessons learned from one hospital's implementation.



Small Screen

When it comes to hand-held technology, the last five years have introduced a new era for healthcare CIOs. In 2000, mobile inpatient devices were barely on the radar screen; in 2005, these handy devices are at the top of many CIOs' priority lists.

But that top spot on the priority list comes with pitfalls. Implementation of inpatient mobile solutions—PDAs, tablet PCs, BlackBerries, and notebooks, to name a few—is not about being a savvy shopper who makes decisions on competitive prices and quality. Whatever the acronym, the purchase and deployment of these devices must be carefully coordinated with the organization's needs, users, and culture.

Strengths and weaknesses

According to David Brooks, principal of BCC Consulting in Durham, NC, each type of mobile solution comes with unique applications as well as strengths and weaknesses. Below is a brief roundup of the three major types of mobile inpatient solutions.

PDAs, often equated with Palm Pilots, are tiny computers with capabilities ranging from keeping appointments and addresses to storing important data. "PDAs are primarily for retrieving and displaying data," said Brooks. "Its weakness is documentation because they're not good with handwriting." PDAs are preferable for read-only information, such as inpatient results data, to be used at the point of care, he said.

Notebooks are similar to laptops but can weigh as little as three pounds and measure less than an inch thick. Like laptops, notebooks have keyboards, so they're preferable when the amount of non-structured documentation increases, said Brooks.

Tablet PCs are about the size of a laptop and have a touchscreen requiring a stylus. Unlike a notebook, it does not have a keyboard, but there are hybrid models with both a keyboard and a touchscreen. Because of the touchscreen, a tablet PC is easy to use and quicker because of the menu-driven applications with no need for typing, said Paul Moore, director of mobile product marketing at Fujitsu. The device can quickly display the patient's name, medications, care

protocol, location, etc. Physicians use tablet PCs to pull up medical records, write medication orders, and look at prescribing contraindications. Pharmacists and nurses often use tablet PCs to input and monitor information.

One important consideration for the device purchase is readability. Moore gave the example of an organization where older nurses using a touchscreen device complained they couldn't read the information because the screen was too small. The younger nurses didn't have that problem. Because the average age for a nurse is mid-40s, the organization switched to a device with a larger screen.

You get what you pay for

The number one mistake hospitals make when purchasing these devices is to incorporate devices already privately owned by physicians as a means to bypass the need for a hefty software investment, said Brooks. The cost-saving logic may sound good, but the result is not: an alphabet soup of non-integrated mobile devices that can't communicate with each other. "You get what you pay for," he said. "You get a lot of headaches and problems, and doctors won't use the system if their PDA doesn't work."

There are several routes hospitals can take when implementing a mobile solution, Brooks said. The first is a "home-grown" system the hospital's IT department builds internally. The second route is to have a single vendor provide an integrated system throughout the facility. The third route is a best-of-breed system, with the hospital buying according to the needs of each department. "The end result is the best of each system, but they're not well integrated," said Brooks.

Many integration problems can be solved with a rounding solution, an application that allows different systems to communicate with each other, said Brooks. Any time a user generates information in his or her device, it goes to a Health Level 7 application that communicates the data to the disparate systems.

Rounding solutions have become the basis for most hospitals' inpatient mobile solutions because they can synchronize all of a patient's data to a central database, eliminating the need

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to log onto five or six different systems to get information on a particular patient, said Brooks. Rounding solutions answer the three important questions of patient identification, patient location, and test results, which Brooks said saves physicians 30 to 90 minutes a day in time spent gathering patient information from disparate sources.

Lessons learned

Novi, Mich.-based Trinity Health System has launched a \$200-million initiative called Project Genesis. By 2008, the project will have created a common platform for clinical information systems and revenue-cycle and supply-chain management for its 17 member organizations. So far, the project has been implemented in three community hospital systems with a target of implementing four sites a year.

Mary Trimmer, senior vice president and Project Genesis leader, has learned some lessons along the way and said CIOs need to consider what it will take to get physicians to adopt these devices, what level of support will be necessary, how much training physicians and staff will require, and how the use of the technology will affect various specialties. Below are some specific points to consider.

1. Make sure your organization is exposed to the multiple devices being used in healthcare. “Encourage folks to visit multiple live sites,” she said.

2. Make sure your training is suitable. Trimmer learned that doctors greatly prefer individual, just-in-time training—they can’t be trained too far in advance. One-on-one training is labor intensive, so Trimmer’s group formed a relationship with a local college to enlist the help of technology-savvy students who received internship credits. They also developed a large group of

superusers (mostly nurses) who could train and support physicians. Finally, they hired physicians employed by the vendors to provide post-implementation support.

3. Keep in mind the medical specialty when choosing devices and planning training.

Surgeons adapt to many of these technologies more quickly than internists because surgeons work with more discreet order sets, Trimmer said. Internists spend more time diagnosing a problem that isn’t immediately clear.

4. Don’t underestimate the amount of time it will take to prepare for this type of project.

“You can’t start too soon for preparing an organization for this level of change,” said Trimmer.

Trimmer said thus far the return on investment is more anecdotal than calculable. “It’s been more difficult to understand the benefits of this technology than we would expect,” she said. Still, the anecdotal evidence is irrefutable. Productivity improved because nurses no longer have to look for patient charts. Physicians save time because they pick up a tablet from the medical records department, use it as they go from unit to unit seeing patients, and drop it at the medical records department when done.

Both Moore and Brooks believe this market will take off in the next year as vendors start to provide the next generation of solutions. For CIOs ready to purchase an inpatient mobile solution, Brooks had this advice: “Do not survey the doctors on this,” he said. “That’s simply opening a can of worms.”

Dale Seamans is a Mass.-based freelance writer specializing in healthcare regulatory issues. She can be reached at dseamans2@hotmail.com.

