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Physicians go mobile

PDAs have led the way, but smart phones and tablets are gaining ground

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On the spectrum of computer adoption, most physicians fall somewhere between neo-Luddite and technophile.

They don't hate technology — it's integral to the delivery of modern health care. But they don't crave the latest in electronic gadgetry. A technology tool must pass the practicality test before time-sensitive physicians will use it in inpatient or outpatient settings.

It's a rare doctor who will wait in line to use a workstation, said Ken Kleinberg, senior director of global health care at Symbol Technologies, which markets handheld computing products. For technology to catch on, "it's got to be convenient, it's got to be fast, and it's got to work," he said. "That is the challenge for the vendors."

In the field of mobile computing, vendors already claim some progress. For example, the use of personal digital assistants (PDAs) among physicians has become commonplace.

A 2005 American Medical Association/Forrester Research report found that more than half of U. S. physicians regularly use a PDA or handheld computer on the job. Some surveys put PDA use at more than 60 percent.

The PDA may be the most familiar handheld device to physicians, but now smart phones and tablet PCs also vie for mindshare. Factors such as screen size and durability dictate where and how the devices are used.

As for software, the most widely used applications are in the clinical reference category. But devices linked wirelessly to hospital systems and other resources can avail themselves of a wider range of applications. Emerging areas include e-prescribing and physician order entry.

PDAs seed market

As the first handhelds to acquire a following among doctors, PDAs have left their mark as portable reference guides.

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“The opportunities with PDAs have been for electronic reference manuals, drug databases and medical calculators,” said Gregg Malkary, founder and managing director of Spyglass Consulting Group, which studies the role of mobile technologies in the health care arena.

Palm, a company that helped launch the PDA market, has a long-running relationship with physicians. The history dates back eight to 10 years when drug reference companies began partnering with the company, according to Gale Moody, director of business marketing at Palm.

The company continues to work with drug database vendors such as Epocrates and Skyscape.

“The number using [PDAs] as a reference tool is pretty high,” Kleinberg said. But PDA’s equipped with wireless local-area networking, cellular connectivity and larger amounts of memory can take physicians beyond reference applications.

“Because the capabilities of these products continue to go up, the potential for what you can do on them keeps going up,” Kleinberg said.

For example, applications such as e-prescribing are now available for PDAs. The applications let physicians create and transmit drug prescriptions.

Kleinberg called e-prescribing one of the more interesting handheld applications, but one for which adoption is still very low.

Military PDA pioneering

The military, meanwhile, uses PDAs to assess the health of service members in the field. The Medical Communications for Combat Casualty Care (MC4) program uses Hewlett-Packard’s iPaq 4700, a PDA running Microsoft Windows Mobile. MC4, which operates under the Army Program Executive Office for Enterprise Information Systems, aims to set up electronic health records (EHRs) for all service members and improve medical situational awareness for operational commanders.

The iPaqs run an application called the Battlefield Medical Information System Tactical-Joint. BMIST-J allows medics to capture the details of service members’ injuries, a task that traditionally involved handwritten notations on a field medical card.

Data recorded via BMIST-J can be transmitted to a treatment facility before the patient’s arrival.

The system is deployed today in Afghanistan, Iraq and elsewhere in southwest Asia.

The iPaqs have wireless capabilities, but for security reasons the handhelds synchronize with a laptop computer to move data from location to location, said Lt. Col. Edward Clayson, the MC4 program’s product manager.

The program’s laptop PCs are Panasonic’s Toughbook CF 48 and CF 51 ruggedized models. MC4 operates on its own, self-contained network, according to a spokesman for MC4.

The iPaqs will take on another role starting this month, when the devices will be used to conduct post-deployment health assessments, Clayson said. Those assessments occur as units complete tours and prepare to return to the United States.

Cultivating a niche

The applications making the rounds on PDAs are also showing up on smart phones, which combine cellular voice communication with a PDA’s data-handling abilities.

Many smart phones run Microsoft’s Windows Mobile operating system, which also powers a number of PDAs.

Malkary said point-of-care charge capture and e-prescribing applications are well-suited for smart phones and PDAs. Smart phones include Palm’s Treo line, which spans Microsoft’s Windows Mobile operating systems and the Palm OS.

Physicians’ use of e-prescribing is limited. Seven percent of physicians equipped with handheld devices — a category that includes PDAs and smart phones — use them for e-prescribing, Moody said, citing the 2005 American Medical Association/Forrester Research study. By contrast, about two-thirds of handheld users employ the devices for drug reference.

But Moody said she believes e-prescribing will take off amid the health care industry's pay-for-performance push.

Under pay-for-performance arrangements, health plans provide financial incentives to physician groups that achieve certain quality targets.

Adherents also contend that e-prescribing reduces prescription errors stemming from difficult-to-read handwriting.

"I think the adoption of [e-prescribing] is going to accelerate," Moody said.

Tara Griffin, vice president of enterprise markets at Palm, said companies such as DrFirst and iScribe are among the software vendors providing e-prescribing applications.

She said Blue Cross and Blue Shield of North Carolina has launched a program that promotes the use of DrFirst's ePrescribing product.

Tablets arrive

Wireless tablet PCs, which offer a form similar to a physician's or nurse's trusty clipboard, are also a promising mobile device in the medical community. Users can take notes on a tablet using a stylus or digital pen.

Some hospitals have adopted tablets for bedside use. Hackensack University Medical Center has deployed more than 300 tablet PCs from Motion Computing. The hospital is affiliated with the University of Medicine and Dentistry of New Jersey-New Jersey Medical School.

"We wanted to give doctors, nurses and nurse assistants the ability to use a point-of-care device," said Dr. Gerard Burns, chief medical information officer at Hackensack University Medical Center.

The hospital typically assigns five tablets to a unit. The tablets can be deployed as a cart-borne solution that includes a full-size keyboard.

This mode is used when caregivers need to enter large volumes of data, as would be the case with an admission assessment. But the tablet can be detached from the mobile station for use at a patient's bedside. This clipboard-like use allows nurses or nurse assistants to record vital signs.

In addition, doctors use the tablets to share results with patients, Burns said. They can display X-rays and cardiac catheter images, for example. The imagery helps doctors when they discuss the course of treatment with patients.

"It's just one more way of bringing the patient into the team," Burns said.

He said tablets offer a screen size that better supports applications such as a computerized physician order entry (CPOE), which physicians use to order medication and laboratory tests. PDAs' smaller screen size makes it harder to decipher the data displayed in a CPOE application, he said.

Overall, buyers must balance such factors as display, weight, ruggedness, battery life and price when acquiring mobile technology, Malkary said. An increase in battery life adds weight to a device, while ruggedization increased the price, he added.

"Everything comes as a trade-off," Malkary said.