

## Beyond Phones

**With the proper infrastructure, smartphones can help improve clinician satisfaction and increase EMR use.**

by **Kate Huvane Gamble**

**H**ospital leaders are constantly inundated with requests for the latest technologies, and often forced to balance the wants of clinicians with the organization's financial strategy. One technology that is quickly gaining popularity among clinicians is the smartphone. According to data compiled by New York-based Manhattan Research, 64 percent of U.S. physicians use the devices, compared with just 30 percent in 2001. Diffusion Group, a research firm based in Rockville, Md., predicts that 70 percent of physicians will own a smartphone by 2011.

And while devices such as the iPhone, BlackBerry and Treo offer a convenient means of communication for mobile professionals, today's smartphones have evolved far beyond the phone component. Clinicians are using them to look up drug references or lab value charts, and access medical calculators, decision-support tools and electronic records. Some are even leveraging them for e-prescribing and charge capture.

"Smartphone use, in general among providers, is quite high for things like accessing medical information and prescribing databases," says Judy Hanover, research manager at Framingham, Mass.-based Health Industry Insights, an IDC Company. "Particularly on the ambulatory side, we're hearing a lot about accessing EHR data from the smartphone, whether it's through the browser on the smartphone or through a specific application."

The devices are gaining traction in the acute setting as well, a factor that Scott Levy, M.D.,

vice president and CMO at Doylestown Hospital (Pa.), attributes to ease of use. "Probably the greatest thing is the simplicity. You can literally pick it up without spending two weeks learning how to use it," he says. "There's a whole robust set of applications, so wherever the physician is, inside or outside of the hospital, they can download or read any dictated report, vital signs, mediations, labs — it's all available on the iPhone."

When it became known that a large percentage of Doylestown physicians were Apple iPhone 3G users — Levy estimates the number at 80 percent — executive leaders at the 207-bed community hospital decided to connect the iPhone to the hospital information system. Westwood, Mass.-based Meditech's Client Server 6.0 has an application that allows physicians to access the patient record from the device, according to Levy.

Physicians provide the phone, and Doylestown supplies the data plan and the wireless connectivity. According to Levy, the devices are WiFi-enabled, so as long as users can access a Safari browser on the iPhone, they can retrieve patient data from any location. When they are inside the walls of the hospital, "There's always a five-bar signal," Levy says. "The physicians are comfortable that wherever they are in the building, they have a signal to get communications. So that was a very important piece of it."

In fact, many consider the infrastructure piece to be the most critical component in rolling out mobile devices.



**Judy Hanover**



**Scott Levy, M.D.**



**Rich Pollack**

At Virginia Commonwealth University Health System (Richmond, Va.), the IT team embarked on a three-year project to provide 1 million square feet of wireless throughout the 779-bed organization, in order to support the various devices that would be used to access EMRs, including smartphones. The “aggressive deployment,” as Rich Pollack refers to it, started in 2006 when he stepped in as vice president and CIO. “It was pretty obvious that in order to effect completion of the EMR with capability and functionality in the patient space, we would need to provide at least the facility for wireless use. It went hand-in-hand,” says Pollack.

The roll-out included retrofitting wireless systems in its older facilities, as well as installing a distributed antenna system from Richardson, Texas-based InnerWireless in VCU’s new 250-bed, 15-story critical care tower. With the infrastructure in place, VCUHS selected a solution from PatientKeeper (Newton, Mass.) that provides both charge capture capability and clinical results review from the Kansas City, Mo.-based Cerner EMR. It is scheduled to go live later this month on the BlackBerry devices used by clinicians at VCU.

The PatientKeeper application, says Pollack, extracts data out of the Cerner system and presents it in a format suitable for the small screen of the BlackBerry. “It takes the labs and puts them in a fishbone diagram,” he says. “Clinicians will tell you, ‘I don’t need the whole interactive flow sheet, or pages and pages of narrative discharge summary. I just need a patient list and current lab results and summary results of the radiology report. They’re not expecting the full experience of Cerner Millennium that they would get on a 19-inch display.’”

What clinicians are looking for, he says, is a much smaller subset of critical data, which alerts them to take a separate action like making a phone call, entering an order, or performing a full inquiry at a terminal. “They don’t need a complete EMR in their hip pocket.”

But they do want the ability to access electronic records at any time, and by enabling this, VCU hopes to improve clinician workflow and maximize EMR use, says Pollack. “It keeps the physicians more plugged in and the momentum going,” he says. “There’s less of a break because they’re always connected to the EMR in one shape or another. The way life is these days, physicians are never signed off completely from their patients. This way, we just keep the stream of clinical information flowing nonstop.”

At Doylestown, Levy and his staff have already seen the benefits that come from providing continuous access to patient records through smartphones. One example occurred when the area was hit with a small outbreak of norovirus, an infection that causes gastrointestinal illness. Shortly after alerts were sent to all of Doyle-

stown’s physicians, a family practitioner who uses the iPhone picked up the message and was able to diagnose an eight-year-old patient with the norovirus. “He was able to get the information right away, as opposed to getting a piece of paper faxed to him that he might see later in the day, or a regular e-mail which he might see at night,” says Levy.

Another smartphone function with the potential for positive impact is charge capture. Using the application from PatientKeeper, physicians can access the information system and automate the billing process at the point of care. “This is huge,” says Joe Bormel, M.D., M.P.H., CMO and vice president of clinical product management at Reston, Va.-based QuadraMed and an HCI blogger ([www.healthcare-informatics.com/joe\\_bormel](http://www.healthcare-informatics.com/joe_bormel)). “If physicians don’t have these devices, they tend to print off pay sheets from the patient’s charts in the hospital, and give those pay sheets to the billing person in their office to bill to their hospital rounds. Or, they find other workarounds. There’s so much revenue that’s lost because of charge capture issues, and this is one way to claim those charges.”

#### No one-size-fits-all

However, no matter how many advantages a tool might offer, any clinician or hospital leader can attest that no solution is perfect for everyone. And Bormel says even if there were, it’d be important that clinicians not feel like a solution was being forced on them.

“By saying, you have to use a smartphone because we’ve determined that it’s a better, faster, cheaper way to solve the problem, there’s an assumption that there

#### Synched Up

One of the key selling points with smartphones is that users don’t have to synchronize the devices with a hospital server, for example, when they get back into the building. According to Scott Levy, M.D., vice president and CMO at Doylestown Hospital, the devices used several years ago at the facility never caught on because they were cumbersome and difficult to use.

“They needed to be synched and hard-wired. The complexity of using them was really an obstacle for physicians who wanted something they could just pick up and go with,” he says. With the Apple iPhone 3G that is widely used at Doylestown, synching is done wirelessly after the initial installation.

“When we used some of the other devices, every time you wanted to download information or get an update, you had to plug it into your computer,” he says. “Physicians would be on their way to work and they realized they haven’t synched up. With the smartphone, it’s not necessary, so there’s a great ease.” — K.G.

## EKGs Go Mobile



Gretchen Tegethoff

When it comes to cardiology-related emergencies, every second before treatment can be critical.

With this in mind, a tool was implemented at George Washington University Hospital (Washington) in 2008 to enable physicians to access EKG images from a smartphone. The 371-bed academic medical center rolled out the Medical Communication System from Cedar Brook, N.J.-based mVisum so clinicians could securely receive, review and respond to patient data. Using a smartphone — the iPhone and the BlackBerry are among the devices utilized at GWUH — physicians can see images as they come out of the actual EKG system, says CIO Gretchen Tegethoff.

“When they are the cardiologist on call, it’s a much easier process for them to simply pick up their phone to review

the EKG,” she says. “If they’re out, they would have to drive somewhere and access a fax machine or get on a computer to access these images, whereas right now they can stay where they are and look them up. So that’s been a real plus.” With the mVisum application, she says, “Physicians are a lot more mobile, but they still feel connected enough where they can take care of their patients.”

It also eased the burden for the emergency department staff, she says. Instead of having to track down a cardiologist and manually transmit the necessary data, they can send an image through a smartphone and it notifies them immediately. “It’s a much easier process for them as well,” she says.

GWUH has plans to leverage the technology by implementing a solution that allows clinicians to view images from the ambulance. This way, says Tegethoff, “By the time a patient reaches the emergency room, we know where we’re taking them.” — *K.G.*

will be some doctors who don’t want to use it,” adds Bormel, who is a board-certified internist. “Maybe they don’t want to carry it around, or their fingers are too large for the keys.” And regardless of the reason, he says, there will always be some objections. “You can anticipate that there will be issues.”

Clinicians’ rationale for resisting smartphones can vary, according to Hanover, who points out that the compact screens and small font sizes can be a deterrent for older doctors. But while she does see an age split in the data that Health Industry Insights has collected, it doesn’t seem to be a universal trend. “We see some older providers picking it up just fine, but then we see

younger providers that have trouble, so it isn’t necessary age-specific.”

So what’s a hospital leader to do? For Pollack, the solution is to offer a variety of devices, including COWs, tablets, laptops and smartphones, and let clinicians choose for themselves.

“We’ve never found a perfect mobile device that meets everybody’s needs, because everyone’s a little bit different,” he says. “Nurses generally prefer the COWs, but even that’s not necessarily true. It depends on their unit and how accommodating it is. Physicians are all over the place. There are some who really prefer a laptop or a tablet, and there are some that still want a wired PC. You really have to provide a smorgasbord of options, and work with the clinicians to see which ones work best for them.”

What’s most important, says Hanover, is that the devices make the clinician’s job easier and provide quick access to patient data. “Providers need to be able to access patient information, whether it’s from a smartphone, laptop or tablet,” she says. “It’s definitely something that saves time, makes them more efficient and allows them to provide better care.”

## Takeaways

- Smartphone use is gaining traction among clinicians, with products like the iPhone and the BlackBerry supporting the display of drug references, medical calculators, decision support and EMR access.
- It is critical that a sound wireless infrastructure is in place to support smartphones and ensure connectivity.
- By tying in smartphones to the electronic record, CIOs can help to improve clinician workflow and maximize EMR use.
- Some clinicians will resist smartphone use; therefore, CIOs should continue to offer a variety of devices including COWs, tablets, laptops and wired PCs.

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