



Fulfilling the Promise of Mobile Medicine

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By Joe Mullich



Providing efficient and effective healthcare hinges on having efficient and effective communication. Whether they are viewing lab results, checking new hospital policies or engaging in consultations with specialists, healthcare providers must constantly access and share pertinent information to provide patients the highest level of care.

The question hospitals face is how to allow a diverse range of doctors, nurses and other healthcare providers—each of whom has unique information needs—access to this plethora of information. Increasingly, the answer is a new generation of [wireless](#) communication and data solutions—a blend of phones, laptops, tablets and custom devices that, combined with infrastructure advances, are fulfilling the long-held promise of mobile medicine.

"Today, caregivers require many communication devices to get instant access to the people and information they require to care for their patients. We need to eliminate the resulting 'Batman belt' and consolidate the many devices into a single mobile communication and collaboration device," says Alan Cohen, Cisco's vice president of marketing. "And that device will be different for doctors, for nurses and for other healthcare providers."

The mantra for mobile medicine might be: "The right solution for the right purpose for the right person."

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— Bob Olwig, World Wide Technology

Moving to True Mobile Solutions

Doctors and nurses are a study in motion. Research indicates that physicians spend half of their time outside the hospital. Nurses are on the move 70 percent of the time. And currently, they log many miles returning to the nursing station to use a stationary computer or the phone, often resulting in frustrating rounds of phone tag.

Legacy wireless technologies could not deliver on the reliability, security and throughputs needed by healthcare organizations. The choice of devices was limited, because of their proprietary nature, and they tended to be too

bulky to be taken to patient's bedsides.

Now, hospitals have moved to the standards-based Wi-Fi technology, which offers a large choice of devices and supports high-bandwidth and delay-sensitive applications such as voice over IP (VoIP) and video transport. The combination of standards-based technology and high bandwidth allows a full range of mobile applications to be run into a single handheld device, such as mobile tablet PCs or Wi-Fi or dual-mode phones.

The combination also represents a profound shift from mere wireless connectivity to true mobile medical solutions. As a result, a physician at a patient's bedside can call up electronic medical records wirelessly using a mobile device designed for this purpose and decide on the optimal treatment more quickly as well as start the treatment in a click. A specialist who needs to consult with the primary physician can reach that doctor as he travels between hospital and private practice by calling a single number and reaching him on the same device.

Responding to Diverse Requirements

Many technology advances are coming forth to meet the diverse needs of healthcare providers. For example, World Wide Technology Inc. (WWT), a St. Louis-based value-added reseller and system integrator, has developed a solution integrating voice and data communications and RFID-based equipment tracking onto a mobile tablet PC for healthcare professionals. "Basically, this turns a notebook computer into a mobile phone, an asset tracking tool and more," says Bob Olwig, vice president of corporate business development at WWT.

The solution is designed for the special needs of a healthcare environment. Doctors can make and receive calls from nurses and patients using a Bluetooth headset that minimizes the chance of private conversations being overheard. If the medical staff needs to find a doctor so he or she can handle an emergency, they can use the RFID tracking to immediately locate the device within a busy medical center, all of this leveraging the same wireless LAN that is used for multiple purposes.

And thanks to the mobile table PC's size and design, doctors can access important medical applications while they maintain eye contact with patients. "People take simple things like that for granted," Olwig says. But that level of sensitivity is crucial to ensure that technology advances can improve the quality of collaboration, communication and care without being intrusive to either patients or healthcare professionals via a reliable and secure network.

Although this is only one example of the many solutions becoming available, Olwig says, "The key is to make sure each healthcare giver has the right device for the right purpose. A cardiologist or radiologist, for example, would need a device with a large form-factor to view medical images such as X-rays."

Marc Holland, an analyst with Health Industry Insights, the healthcare market research and consulting subsidiary of International Data Corp. (IDC) of Framingham, Mass., notes that the benefits of advanced information technology, such as the new generation of mobile point-of-care devices, are now clear to most healthcare practitioners. In fact, they are even becoming a key factor in the recruitment of younger doctors and nurses. The next steps are to build out the wireless LANs needed to support those devices and optimize process workflows to take full advantage of the new technology.

More Efficiency, Less Disruption

As hospitals look to move to the next stage of mobile medicine, addressing workflow in the hectic healthcare setting is a key task. Hospitals must address numerous questions when deciding how best to use mobile information, including:

- What communications devices "go to the waist" (i.e., are carried by the nurses and doctors)?
- What applications should be mobilized? Medication administration? Electronic patient records?
- How should information be routed between physicians, nurses, patients and other involved parties?
- How can the mobile assets in a hospital be found faster when they are needed?

"You can't assume everything is a nail and you need to hit every nail with a hammer," Cisco's Cohen says.

To take advantage of new applications, Clarian Health Partners-long regarded as one of the most technologically innovative healthcare organizations in the nation-is upgrading its proprietary wireless network to an open and standard Wi-Fi network. The overriding goal is to protect "the sacred nurse and patient interaction," says Cindy DeBord, a registered nurse and clinical resource manager for the Indianapolis-based chain of hospitals.

Surveys conducted by Clarian indicate that telephone calls to nurses interrupted patient care nearly twice as much as any other task. This contributed to on-the-job frustrations, because nurses felt their attention was constantly being diverted.

Rather than exacerbate the issue by having all phone calls go directly to the nurses' Wi-Fi phones over the WLAN, the nursing unit secretary evaluates incoming calls and prioritizes them. Fewer phone calls need to be handled instantly. More often, the secretary relays a text message to the nurse with two different tones, indicating whether the message is urgent and must be addressed within 10 minutes or is non-urgent and can wait up to 30 minutes.

The texting system provides more efficiency without disrupting patients. "We found if the nurses looked at a text for a few moments, the patients didn't mind and the nurses could return more quickly to the task they were working on," DeBord says. "If the nurses spoke on the phone instead, it would take them longer to refocus on the patient."

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