

Wireless paves the way for efficiency

Vassar Brothers Medical Center

By John DiConsiglio

Thursday

September 14, 2006

When Beth Kellogg, R.N., a clinical specialist for cardio-respiratory and neurodiagnostic services, Vassar Brothers Medical Center in Poughkeepsie, N.Y., needed to reach a doctor during an emergency, she relied on telephones, pagers and good luck. The communication chain was frustrating, if not downright infuriating. If a patient needed a particular physician's expertise, Kellogg was forced to leave the bedside, find a phone, dial an extension and hope it wasn't busy. Then she'd punch in the pager number, if she knew it.

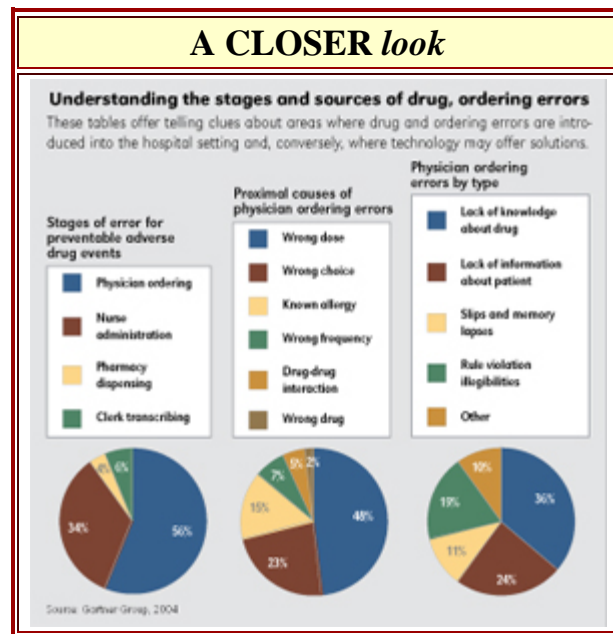
If not, more time was wasted looking it up. The physician may or may not have received the page. And, just as likely, might not be able to respond.

"That's a lot of time spent away from the patient," says Kellogg.

Vassar Brothers isn't the only hospital with communication issues. But with nurses like Kellogg racing from bed-sides to supply rooms to call stations and physicians running from ward to ward, officials at the 365-bed hospital recently made a crucial observation. One that seems deceptively obvious, but has helped revolutionize its infrastructure.

Vassar Brothers is a bustle of activity—the doctors and nurses rarely stand still. Like other hospitals, it is a mobile workplace. And if the people are in constant motion, staff members such as Kellogg knew that the devices and applications they rely upon have to be, too.

Why, Vassar Brothers officials asked themselves, should nurses leave a patient's room to page a doctor? Why should a physician search for a station to catch an important consulting call? And why should a patient's treatment be delayed by a clinician looking



for a phone to receive authorization. Or why should a nurse wait for a computer to provide medical records?

“To have employees constantly interacting with stationary devices just puts another work stop in their already hectic schedule,” says Nick Christiano, CIO of HealthQuest, Vassar Brothers’ parent company. “We had to rethink how we communicate and how we share data.”

For Vassar Brothers, the answer was to go wireless. And not just with cell phones and pagers.

The hospital invested in a massive—and expensive—new technological infrastructure that would affect virtually all of its departments.

Today, the staff is no longer tethered to a computer extension cord or a phone line. They move about freely with Palm Pilots, wireless voice communicators and portable bar-code medication scanners. They use wireless devices to provide point-of-care registration to emergency room admissions. And soon, Christiano says, will come wireless applications for electronic medical records and patient and physician tracking.

Vassar Brothers has jumped to the head of the hospital technology curve. The medical center has become an innovator in wireless communications, particularly in regard to handheld applications. “As far as the hospitals we see,” says Patrick Boyle, director of health care and life sciences for IBM, White Plains, N.Y. “Vassar Brothers is on the leading edge.”

But getting there was tricky. To be completely wireless, the hospital had to commit to a vast new infrastructure. And it wasn’t an easy sell. The system is complicated and expensive. It’s hard to explain and, in terms of dollar and cents benefits, it’s even harder to defend. But, for Christiano, the shift to wireless was an easy decision. “The bottom line is making conditions better for clinicians, which leads to the best patient outcome,” he says. “This was a direction we had to go in.”

Status quo

Virtually all hospitals use some form of wireless devices, from tech-savvy applications such as medication bar coding to simple pagers. And nearly all of them have come to learn that wireless is efficient—when it works.

Hospital communications can be stifled by technical and logistical challenges. Even the lead or brick walls that surround most buildings can weaken wireless signal strength.

“Most hospitals, are just getting by with their wireless services,” says Chris McCoy, senior vice president of corporate development at InnerWireless, the Richardson, Texas company that provided Vassar Brothers with its new infrastructure.

Clinicians learn to live with dead signal zones, McCoy says. “If you ask them how their wireless works, they’ll say something like, ‘It’s fine as long as I’m not in the east corner of the building.’”

That’s not the most efficient way to run a hospital. But McCoy estimates that fewer than 100—and maybe as few as 40— hospitals around the country have a comprehensive wireless system. Indeed, only about 15 percent of all hospitals have even gone so far as using electronic medical records, an IBM survey shows. “Some of the more enlightened hospitals have looked at IT as a way to fundamentally change their business,” IBM’s Boyle says. “But the majority still see IT as no more than a point solution.”

Vassar Brothers was already a tech-minded institution. The hospital, which employs 2,000 people and serves a local population of about 585,000, already took advantage of sophisticated diagnostic technology. They even built a remotely controlled surgical suite. The drive for a new wireless infrastructure began simply. The hospital wanted to use bar-coding technology. In a bar-code system, hospital employees scan ID badges with wireless computers to ensure the right patient receives the right medication at the right time.

But staff still experienced frustrations. If Kellogg needed an extra nurse in the neonatal intensive care unit or a life-support ventilator for a critical patient, she still relied on phones and pagers. In many cases, she was tied to a call station trying to reach a doctor or waiting for them to return her call.

“Phones ringing off the hook. People scurrying around to find nurses. Staff running down the hallway,” Kellogg recalls. “We just couldn’t keep operating like that.”

For an example of good communications, Vassar Brothers turned to an unusual role model—Home Depot. Christiano took hospital officials on a field trip to one of the retail giant’s stores.

“We saw people in the lumber department communicating with the register without running to a stationary desk,” he says. “We knew if it could work for nuts and bolts, it could work for doctors and nurses and meds.”

If the concept was simple, the project was far more complicated. The medical center is a 550,000-square-foot facility, not to mention its 130,000-square-foot ambulatory care center that sits 15 miles to the south.

Providing a wireless infrastructure would be a massive task. Only one vendor, IBM, responded to the call for an RFP. “They were the only ones who said, ‘We want this project,’” Christiano says.

IBM served as a facilitator and consultant, subcontracting to companies such as Vocera for the wireless communications devices.

The actual infrastructure utility consisted of a high-tech antenna that provides signal strength throughout the hospital. “You can’t have dead areas,” Kellogg says. “The consequences of a weak signal can be really serious in a health care facility.”

The installation took less than a year and came in under budget, Christiano says. Hospital installations are tricky, McCoy notes. They require an increased attention to infection control.

Vassar Brothers was particularly challenging because the hospital operated at 92 percent capacity. But, Christiano says, the installation went off without a hitch. “Aside from one small complaint about dust on a desk, I never heard any negative words” from staff, he says. “Most people didn’t even know they were there.”

Wired for the future

Vassar Brothers concedes that the new system includes more technology than necessary. But that was the point, Christiano maintains. By committing to a comprehensive infrastructure, the hospital avoids additional installations or stacking single service devices on top of one another. In effect, the wireless utility allows Vassar Brothers to plug in new applications on demand. But long-term planning can be expensive in the short-term. Vassar Brothers spent about \$1 million on the wireless infrastructure, Christiano estimates, not to mention an additional \$600,000 for the Vocera devices.

Christiano says he could have paid a third of that cost for a system that met the organization’s current needs.

“But we looked at our setup and thought, ‘Are we really committed to this idea or not?’” he says. “So we decided to make the investment up front so all frequencies—cell phones, pagers, bar coders, everything—will plug into this.”

To make the decision even more difficult, the wireless utility offers few direct financial benefits. The long-term pluses of wireless devices may be numerous. Employee productivity should increase by allowing physicians to bypass paging systems. Wireless medication bar coding can improve drug accuracy. Point-of-care registration should lead to higher patient satisfaction and comfort. And if the hospital continues on its high-tech path, it should see potential profits and improved cost savings by easily adding new wireless applications.

But the wireless infrastructure doesn’t provide any intrinsic business benefits, Boyle says. “Can you image going to your stockholders and asking for millions of dollars for an integrated IT system and, oh by the way, that system, is not a billable asset to the health care system?” he asks. “That is an expenditure that many hospitals, given their economic conditions, just have a hard time saying yes to.”

Indeed, the wireless utility isn't for everyone. At a cost of roughly \$2 per square foot—give or take a dollar on either side for installation—InnerWireless usually targets facilities that are greater than 250,000 square feet, McCoy says.

But Christiano says he had few problems selling the wireless plan to both clinicians and stockholders. They recognized, he says, that the utility was a natural extension of the way the hospital does business. And on the floor, clinician specialist Kellogg says the staff hasn't missed a beat. "We are still very much on the move," she says. "Now, every morning, our clinicians pick up their Palm Pilots for their bar coding. They get their Vocera communicator. And off they go for patient care. Nothing slows us down."

John Diconsiglio is a freelance writer based in Arlington, Va.