Gadget Gurus

By Cathryn Domrose
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When Galina Aksanov, RN, BSN, a senior staff nurse in labor and delivery at Maimonides Medical Center in Brooklyn, N.Y., heard she would have to do all her charting on a computer, she decided her 18-year nursing career had come to an abrupt and unhappy end.

“I thought, I have to quit,” she says. “I’m 45 years old. I can’t even type.”

But the new electronic charting system was designed by Maimonides nurses, with lots of say from the labor and delivery staff. So before giving notice, Aksanov decided to give the program a chance. It took her one day to learn the point-and-click system. The on-screen pages resembled the paper documents Aksanov was used to, but took a fraction of the time to fill out. “Within a week, I was comfortable with it,” she says. Now, she wonders how she ever did without it.

“It helps us cut the time we spend doing paperwork and spend more time on patient care,” she says. “The computer has changed my whole life.”

Bucking a longtime trend of choosing and implementing health care technology based mainly on the input of administrators and physicians, a small but growing number of hospitals are turning to nurses to help test, purchase, implement, and even design equipment and information systems to assist in patient care, patient safety, and data collection.

More vendors and hospital information departments are hiring nurses who can explain to them what nurses actually do and how technology can help them do it. As a result, nurses who feel frustrated or frightened by new systems they don’t like or understand are finding more and more devices that help them care for patients at the bedside.

Wonder widgets

In a handful of hospitals across the country, nurses communicate through Vocera, a voice-activated device not much larger than a cigarette lighter that can dial a physician on command or ask if the wearer wants to take a call. Interactive patient stations allow patients and families to check e-mail, do online research, or watch movies at the bedside. Bar coding systems ensure nurses are giving correct medication to patients. Electronic ICUs, called eICUs, give nurses 24-hour support with a team of physicians and nurses who use software, cameras, and microphones to monitor critical patients from a separate building.

Other new devices include “smart pumps” that track and store infusion information, lifting devices that operate from the ceiling of a patient’s room, monitors that enter approved
information into a central computer, digital pictures or X-rays that can be called up on a computer at the bedside, documentation systems that prompt responses, and beds that weigh patients and signal the nurse if the patient leaves the bed.

“There’s so much now at the bedside that makes delivering care easier or safer,” says Pat Ahearn, RN, BS, vice president of nursing at Hackensack (N.J.) University Medical Center.

Even bedside technologies that nurses don’t use directly, such as the electronic patient station, help them by keeping their patients happy and feeling less stressed, says Fran Davis, RN, director of the postop surgical unit at Memorial Hermann Memorial City Hospital in Houston. The hospital plans to have stations in every patient room, and eventually nurses could use it to dispense medications and pull up X-rays and lab results, Davis says.

Now, patients use the 15-inch screen to watch television and keep in touch with the outside world.

“I love it,” says Tara Verm, a Dickinson, Texas, resident who has been in the hospital three times in the last 1½ years for unexpected surgeries.

Verm says she used the station to stay in touch with work and pay bills. During her most recent stay, she used it to cancel a family party and saved herself many phone calls, she says. “It has eased a lot of stress.”

Perhaps the best thing about the new nursing technology, say many nurses who work with it, is that much of it is designed and tested with nurses in mind. When vendors bring their products to some hospitals, staff nurses are paid to test products, fill out surveys, and make recommendations. New technology often is rolled out unit by unit so nurses can work with technicians to redesign systems that don’t work.

“Nursing is key because nurses are doing the crux of all the work,” says Nancy Daurio, RN, MSN, associate vice president of management information systems for Maimonides Medical Center. She works constantly with nursing staffs in various parts of the hospital to find out what they don’t like about an information system, then tinkers with it until it meets their standards. Nurses need technology that can be constantly customized and updated, she says.

Some hospitals have nursing technology committees who evaluate and make recommendations on products nurses will use. At Hackensack University Medical Center, 10 nurse informaticists are in charge of evaluating information technology for all clinical staff, says Terry Moore, RN, BSN, nurse manager of clinical informatics. “We use the nursing process (assess, plan, evaluate) and we apply it to technology,” she says.

Nursing input into all technology decisions at Hackensack “has changed dramatically” in recent years, Ahearn says. As in most hospitals, she says, physicians once drove most technology purchasing decisions. “Now, I think it’s equally driven, if not a little more on the side of the nursing staff.”

**Hit and miss**

Nurses played a large part in selecting technology at Parker (Colo.) Adventist Hospital near
Denver, says Terry Ritchey, RN, MBA, BSN, chief nursing officer of the facility. Some successes have included the Vocera communication device, the interactive patient stations and the smart pumps. Less popular were tablet PCs — which physicians loved, but nurses found awkward to carry — and a bar coding system that requires nurses to scan patient bracelets and medications to ensure they have the right match.

“The bar coding was probably the most difficult one to implement,” Ritchey says. Nurses had difficulty getting the devices to scan and became frustrated. A combination of intense education and improvements to the system has helped win its acceptance, she says.

“Now nurses are telling us they don’t feel safe without their bar code device,” she says.

Cheryl Reinking, RN, MS, director of critical care and med/surg at El Camino Hospital in Mountain View, Calif., plans to introduce bar coding to nurses at her hospital soon, along with a host of other new nursing technologies. “There’s a lot of work behind the scenes that has to happen first,” she says.

To persuade nurses to accept the bar code system, she says she is emphasizing its importance in preventing medication errors and asking nurses to see it as a device that creates an extra step for them, but in the long run will protect both the patient and the nurse.

Such education is crucial to implementing any new way of doing things, say nurses who work with new nursing technologies. “If you don’t spend enough time on education, nothing will succeed,” Reinking says.

Pamela Parker, RN, MBA, BSN, director of nursing informatics at Harrison Hospital in Bremerton, Wash., outside of Seattle, says her hospital learned the hard way what happens when clinicians don’t like a new system. A few years back, the hospital tried out a documentation system with limited text that was difficult for both physicians and nurses to read and use.

Many meetings later, she says, the informatics team decided that neither the technology nor the staff were ready for electronic charting. “So we turned it off and said we’ll wait a few years and then go back,” she says.

**Growing gearheads**

Perhaps the most important aspect in persuading nurses to use new equipment or systems involves winning their trust, say those who work with nurses and technology.

Nurses at Memorial Hermann Healthcare System’s eICU Advantage Program spend a lot of time visiting nurses in the ICUs they monitor, assuring them that they are not going to replace the bedside nurse. The team of nurses and a physician watch patients from a remote location and alert bedside clinicians if anything seems amiss.

“People get defensive at first because they think, ‘They’re going to be watching me,’” says Janine Mazabob, RN, BSN, CCRN, clinical director of Memorial Hermann Healthcare System’s eICU Advantage program. “But once people see how we blend in with their daily work, they are quick to embrace it.” Workflow support, management support, response time, integration of the system, and ease of use all play an important part in whether nurses
will welcome and use new technology, says Ann Farrell, RN, BSN, principal and senior consultant of Farrell Associates, a strategic health care consulting firm based in San Francisco that works with vendors and health care organizations.

Some of the problems nurses have in using new devices or systems “have nothing to do with technology,” she says. “There is often a culture issue with nurses, who are not willing to change their practices without demonstrable benefits to patient care.”

Despite numerous attempts to get nurses to document at the bedside using tablet PCs or other devices, many nurses say they prefer to sit at the nurses station or lounge to document at the end of the day, Ritchey says.

To get nurses to change their habits, nurse leaders and educators must show them some benefit and reassure them of their value, say those who work with nurses and technology. Parker recalls that when hospitals brought in Dynamaps to automatically take blood pressures and pulses, many nurses were skeptical. They thought they could take vital signs better than a machine could, she says, and feared losing human contact.

“There was a sense of loss of their autonomy, of their assessment skills,” she says. Nurses need to understand, she says, that if they delegate certain tasks to technology, they will increase their time to do the assessment, critical thinking, and patient education that no machine can replace.

Despite the obvious benefits of involving nurses in developing and choosing technology, many hospitals still lag, says Gregg Malkary, managing director of Spyglass Consulting Group, a Silicon Valley market intelligence firm and consultancy that is researching the potential for mobile computing and wireless technology in health care. Those that do involve nurses are often hospitals on the cutting edge of technological innovation throughout their systems, he says.

But in many hospitals around the country, nurses do not feel part of the process, he says. “Technology is being forced upon them without taking into consideration what their needs and requirements are.”

Getting nurses involved in choosing and buying technology requires as much of an investment as the technology itself, says Carol Bickford, RN, PhD, senior policy fellow in the department of nursing practice and policy at the American Nurses Association. It requires preparation time, education time, evaluation time, as well as strength in nursing leadership to say, “It’s important to have our people involved,” she says.

“If the system is supportive of nursing rather than being counterproductive,” she says, “that may be a draw.”

Nursing informaticists believe young nurses, raised on cell phones, the Internet, and digital everything may provide the greatest impetus for hospitals to upgrade nursing technology once and for all.

Nurses come to El Camino Hospital from other parts of the country, attracted by its reputation as an early adopter of technology, Reinking says. A couple years ago, she realized how important that reputation was after moving to a job at a hospital in another

“Everything was still manual,” she says. “It was old-fashioned.”

Within a short time, she returned to El Camino with a new appreciation for the hospital’s cutting-edge culture.

“If technology can make it easier for our staff and safer for our patients,” she says, “we want to look at those things.”

Hot stuff
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Communications

What's here: Vocera, a voice-activated communicator worn around the neck. Nurses tell the device to dial a physician or the nurses station or an outside line, and can communicate directly with the person they want to talk to.

The pluses: Nursing informaticists report nurses love Vocera. It's easy to use, easy to carry and doesn't need to be connected with anything else. The direct communication eliminates having to play complex games of phone tag through the nurses station.

The bugs: Because the system is essentially a speaker phone, some nurses say they had to adjust their ways of taking a call to protect patient privacy, such as stepping into another room.

What's coming: Eventually, Vocera could be hooked up to nurse call buttons so nurses could have direct communication with their patients.

Lifting

What's here: Lifts stored in the ceilings of hospital rooms that allow nurses to lift and transfer patients.

The pluses: Nurses don't have to get bulky equipment out of storage to help lift patients and are more apt to use the in-room lifts. The lifts can help prevent patient falls and back injuries to caregivers.

The bugs: It is still often awkward to get patients into the lift slings.

What's coming: Researchers at the Veterans Health Administration Patient Safety Center of Inquiry in Florida are working to develop a slingless lift that disabled patients can operate without help.

Medication dispensing
**What's here:** Bar coded patient wristbands and medications. Nurses swipe the medication label across the patient's band to make sure they match.

**The pluses:** Nurses can be sure they are giving the right medication to the right patient. The documentation for the medication is automatically entered into the system so they don't have to do it manually.

**The bugs:** Bar codes can be difficult to scan and sometimes require four or five tries. It's an extra step the nurses didn't have to do before. If the patient is asleep or out of the room, the nurses need to explain why they didn't give the medication.

**What's coming:** Bar coding for screening devices such as blood tests (already being used in some hospitals) and glucose screening. Bar coding that allows patient information to be entered into a computer so it doesn't have to be manually entered each time.

**Monitoring systems**

**What's here:** Wireless devices that collect vital signs data allow the nurse to verify it and enter it into a computer system where nurses and physicians can access it as they need it.

**The pluses:** Nurses save time and risk fewer errors because they don't have to transcribe vital signs information to charts. They have patient information at their fingertips.

**What's coming:** Nurse leaders would eventually like to use electronically collected data in research projects to determine best-practices for their staffs.

**Documentation systems**

**What's here:** Documentation systems that allow nurses to do their charting, care plans and data collection by computer, as well as pull up lab results, procedures, and insurance information.

**The pluses:** Nurses who have computerized systems that they like say the process saves them hours of documenting per week. They can retrieve information easily. They say they spend more time with their patients.

**The bugs:** Not all electronic documentation systems are nurse-friendly. Many must be redesigned and customized for different departments. Also, no one has come up with a perfect method for transporting the computers. Handhelds are too small for documenting. Many nurses consider tablet PCs difficult to carry and easy to break. Some hospitals use laptops on mobile carts, but nurses have to push these in addition to any other equipment they have to carry.

**What's coming:** As researchers understand more of what nurses do, nursing documentation programs should improve. Nurse informaticists are waiting for a device somewhere between a handheld and a tablet PC that nurses can easily carry with them to document at the bedside. Some nurses think documentation will be done on computers in patient rooms, much the way charts were once kept at the foot of patients' beds. Patient entertainment and education stations.
**What's here:** Bedside computer screens that allow patients to watch television and movies, check and send e-mail, play computer games, and do Internet research.

**The pluses:** Patients can stay in touch with work and family. They can use the system to order meals or make requests, such as a room change. They can watch in-house videos about procedures they are going to have or health issues such as smoking cessation.

**The bugs:** There is usually a charge for movies and Internet access. Some visitors may become more focused on the computer than on the patient.

**What's coming:** Nurses see a huge potential in using patient stations as teaching tools, selecting information to show to patients and families on their condition and what they can do to improve their health after discharge. The stations also could be used to help dispense bar coded medications, register vital signs, or show visual information such as X-ray and wound pictures.

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