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## Dream Machines

Properly implemented and supported, technological devices offer a smoother ride to critical care nurses—and patients

By Wendy J. Meyeroff  
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**Kelvin Matute, RN, director of critical care at Good Samaritan Hospital in Los Angeles, says top-notch devices are great, but says sometimes it's simple solutions that nurses need — easier-to-read fonts and screens, for example. Here, he discusses a device with Edna Trajano, RN, of the cardiothoracic surgical unit.**

Ask nurses working with critical care patients about using the numerous advances in medical equipment and technology and there's almost all good news: They're extremely enthusiastic. Not only do they list specific types of equipment that are making their lives easier, they also mention hospital policies making it easier to get both the right equipment and the ancillary support needed for that equipment's functioning.

One thing every nurse interviewed agreed on is that it's crucial to have an established policy for bringing new devices into the hospital. It cannot be just that physicians or execs say, "I found this great device. I ordered it.

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Use it.”

Mary Kay Bader, RN, MSN, CCRN, a neuroscience/critical care CNS at the SICU of Mission Hospital in Mission Viejo, Calif., calls this process a “culture of collaboration.” She’s worked in critical care for 22 years, eight at Mission. She says when they set up her unit, which handles critical brain injuries, the decision-making involved “the director of trauma, neurosurgeons and other doctors, the nurse manager,” and others to evaluate the guidelines and see which equipment would be necessary.

Along those lines, Kelvin Matute, RN, director of critical care services at Good Samaritan Hospital in Los Angeles, says, “We have a value analysis team that analyzes proposed purchases of new equipment.” That team is a cross-section from throughout the hospital: “nursing education and team nursing leaders, business/financial officers, pharmacists, doctors,” and others.

### All POVs welcome

Brad Prior, RN, BSN, CCRN, has spent five years at Kadlec Medical Center in Richland, Wash. Monitors deliver every number in a patient’s care throughout the CCU, both at the bedside and from the nurses station. How do you take all that vital information with you when transporting the patient?

“Normally, you’d have to unplug all the wires and plug them into a portable monitor,” Prior says. The hospital was getting ready to order new ones when Prior came back from a conference that discussed a newer device he believed offered a significant improvement.

“The entire monitor comes out of a sort of docking port, so you have the original monitor,” he explains. “The patient’s entire history — BP, heart rate, etc. — stays with you.” Not only that, but it costs \$4,000 less than what the staff had been considering. Nobody quibbled with Prior when he brought this suggestion to Kadlec.

One advantage of bringing new devices and equipment into critical care is that “CC nurses tend to like technology, so that if you can prove the technology works, they’re willing to use it,” said Nancy Dahlberg, RN, MSN, unit manager of the CCU at Kadlec and Prior’s supervisor.

Eunice Carlson, RN, BSN, is nurse manager of the cardiothoracic step-down unit and interventional cardiology at the University of California, Davis Medical Center in Sacramento, Calif.

Being one step down from critical care, she still has patients highly dependent on technology. That’s why Carlson says it’s essential that new equipment “isn’t just dumped” on her nurses, and adds, “a lot of that depends on the nurse manager’s philosophy.”

Dahlberg is just one nurse who expressed sympathy for the newer nurses “keeping all that information in their heads” on how to use all that equipment. That’s why every expert interviewed noted that training upgrades are constantly being made. Prior says, “The training period’s been increased here because there’s so much to absorb.”

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### Beyond the device

Advances in CCU equipment provide great benefits, everyone agreed, but they also emphasized that nurses can't get too comfortable in relying on it.

Matute says that it's not good if "nurses walk up to the bedside and look at the monitors first, the patient second. At Good Samaritan, we've trained them to look at the patient first." That's because there are some things monitors and equipment can't tell you. How pale is the patient? Is his or her skin flaccid or sweaty? Electronic urinometers may be great for listing urine output, Matute says, but nurses also have to check the urine's color and look for sedimentation.

Every nurse interviewed has developed or gone through training designed to prevent too much reliance on the equipment. Matute says his facility regularly holds mock codes, just to make sure the nurses are prepared for that big earthquake (or other disaster).

What happens if you just don't have enough of each device on a floor? Bader notes that her unit once managed to get a \$15,000 monitor on a trial basis, but the unit actually needed three monitors. A generous donor supported the other two, but what if it hadn't happened?

Carlson recalls finding a less-experienced nurse waiting for the BP spot-check machine.

"I pointed to the old-fashioned sphygmomanometer hanging on the wall and said, 'Why not use that?' " It had never occurred to the younger colleague. Some newer nurses are willing to admit that while they're a whiz at newer

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technology, some of the old methods can stump them. Prior's nemesis, he admits, is "IV starts. Every patient gets a central line," so he doesn't get much practice with the former.

Dahlberg says, "Computers are a mixed blessing. In critical care, you check on the patient so often that if the data don't automatically download, you can't keep up with data entry. It's also difficult to see what's going on with patient trends." One reason may be a too-small monitor; many nurses find even 17-inch screens hard on the eyes.

That's a rare complaint about computer technology in CCU or even hospitals in general. Sandra Lombardi and Johanna Van Dijk are both RNs in the pulmonary vascular program at the University of California, San Diego. Their patients come from around the world, but need constant check-ins once home (using a "slow CAD pump" to deliver their drug). Both nurses use e-mail to answer questions; Van Dijk uses an Excel spreadsheet to keep track of patients' lab tests and her Palm Pilot to juggle thousands of other details, such as patient appointments and call reminders.

### The devil's in the details

Matute says top-notch devices are great, but notes that sometimes it's simple solutions that nurses need — easier-to-read fonts and screens or urinometers with longer-lived batteries, for example. When the hospital first brought in computer charting, he says, it started the nurses (on average in their 40s and not computer techies) with checkboxes on paper forms; when they transferred to a screen, it already seemed familiar.

Carlson points to the pros — and possible cons — of some new wireless communications that have been approved for installation at UC Davis. Like handheld communicators, it could end the frustration in the 36-bed unit of not getting to a phone quickly, but "confidentiality might be a problem if you don't remember to step away from people or simply say, 'Now's not a good time.' "

Bader cites the "small" expense of regularly supplying Mission's brain oxygen monitors with \$500 catheters that can strain budgets. Matute adds, "Sure, I can bring in the technology. Where you make the case to the administration is proving that you can support all the costs," like those \$500 catheters, training, and the additional infrastructure that supports the equipment.

So it's vital to talk to people who've used the equipment. Find out how well it really works and make sure you know all the details (including expenses) for maximizing the equipment's viability. Ultimately, our experts agreed that all the technology in the world doesn't substitute for a nurse at the bedside. Carlson says, "Technology gives you lots of data, but it won't do the thinking, to plan the care."

Matute emphasizes, "In a CCU, we can't forget that we're taking care of people and their families." These are not just numbers and digital readouts, they're people, he said.

And if — despite all the planning — that disaster does occur and the

technology's useless, you can still count on well-trained CCU nurses. As Carlson says, "When the chips are down, nurses go the extra mile. That's the awesome thing about nurses."

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