An Upstream Approach to Selecting Progressive Care Technology

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The technology pool for the progressive care unit (PCU), like that for the intensive care unit (ICU), is integral to providing top-notch patient care. While many similarities exist among the equipment used in various PCUs, there’s no standard list of what’s needed. In general, patient demographics determine necessary technologies.

As described in Part 3 of this 6-part series exclusively endorsed by the American Association of Critical-Care Nurses (AACN),1 types of PCU patients and their needs vary between institutions and may even differ among PCUs within one institution. Technology falls into three categories based on its application: monitoring and assessment, testing, or treatment provision. (See “Examples of PCU technology.”)

The PCU’s anticipated patient flow and your administrators’ philosophy of care may also influence technology requirements. For example, do you move patients from unit to unit as their acuity changes? Or do you prefer to keep a patient in one room, and flex the technology and nursing care accordingly? These questions are among those to consider when evaluating PCU technology.

Choose the Evaluation Team

When considering purchasing a particular technology, first determine who should help evaluate it. It’s best to include representatives from key areas where staff will use the new technology. For instance, staff throughout the facility will use many items, such as IV pumps, thermometers, computer systems, or peripheral blood glucose analyzers. For such items, an established process for their evaluation and selection, such as a new products committee, may already exist. In contrast, only staff in the ICU, PCU, or emergency department (ED) may use other items, such as defibrillators, ventilators, and transport monitors. When selecting these types of products, be sure that PCU, ICU, and ED staff collaborate.

Sometimes the team managing a particular patient population selects big-ticket items for that population, such as ventricular assist devices. When staff across a multihospital system use a technology, such as a monitoring system, include a representative from these sites when evaluating equipment.

Clinicians who’ll use the equipment will be key members of the evaluation team. Along with nurses, you may include physicians and other health care providers who’ll use a particular technology, such as ST segment monitoring. Their perspective is critical when considering parameters previously not used in your facility, such as continuous ECG monitoring. As exciting as some technologies may appear, such as impedance cardiography or continuous ST segment monitoring, if your physicians and health care...


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providers aren’t ready to integrate this data into their clinical decision-making, consider how you’ll change this mindset before you recommend purchasing the technology.

Other stakeholders with responsibility for the technology may participate on the evaluation team, such as lab personnel who evaluate point-of-care (POC) testing equipment. Include biomedical engineers, who’ll support maintenance and repair of all equipment purchased. These staff members will be much more involved with prepurchase evaluation of some items, particularly if they’ll play a role in product installation. Respiratory staff should help evaluate new equipment and purchasing decisions for items that directly affect them, such as telemetric respiratory monitoring, end tidal CO₂ monitoring, and pulse oximetry. Include staff from the information technology department if the committee plans to interface new technology with the facility’s computer systems. Depending on the amount of capital needed for purchase, you may also need to involve upper administration.

Evaluate Facility Needs

Before looking at various products, consider how you expect to use a particular kind of technology. Some questions for the team to consider include:

- How many machines or channels will you need, and how often do you expect to use them? Base this calculation not only on current needs, but anticipated trends in your patient population and any planned expansion of your facility.
- How will you use the equipment? For instance, will you use your defibrillators in emergencies and for cardioversions? Will you use the equipment when transporting patients? Do you need transcutaneous pacing capability? Do your practice protocols require manual documentation of resuscitation attempts, or do you need a device that can print a summary?
- What specifications must your product meet? Consider aspects such as size, weight, portability, and battery life. Think about the target patient population’s mobility needs. For a monitor system, what parameters do you need (ECG, pulse oximetry, invasive or non-invasive blood pressure), and what do you need in terms of alarms, storage, and data retrieval? Do you need bedside display, access at the nursing station, a networked system, or remote access to data? Do you need data to electronically follow the patient on transfer?
- What are your expectations for ease of use? Who’ll primarily use the equipment? For POC testing, determine an acceptable level of complexity for performing the procedure. What’s the acceptable time commitment per test?
- For POC testing, how quickly do you expect test results?
- Do you need a product that can interface with other systems? For example, do you need to share data with an electronic medical record system? Are you trying to integrate various monitoring systems into a central surveillance area? Should your POC testing interface with your computer systems for patient charges and for reporting test results? Do you use barcodes for patient and staff identification, and should the product support this approach?
- Do you need to become familiar with established standards for this type of technology regarding safety, reliability, and validity?
- Do you expect this technology to decrease the risk of medical errors? What kind of performance monitoring do you perform regarding this aspect of care, and how might the chosen technology support this?
- If you’re considering emerging technology, such as biphasic defibrillation, consult the literature to learn about relevant issues and develop questions you’ll want to ask the different vendors.
- What are your expectations of vendor support for staff training and competency? Do you expect support only during the start-up period or ongoing? Will the vendor charge additional fees for this support?

Review the Possibilities

After determining patient and facility needs, you can explore avail-
Key questions for a site visit

If you visit a facility that uses a product your facility is considering purchasing, ask clinicians these questions:

- How do you use this technology? For what patients?
- What do you consider the most important advantages of this technology?
- What does your staff like best about it?
- What do you consider the limitations of this technology?
- What would you change about this product, if you could?
- How’s the product’s reliability and validity?
- Can you offer any recommendations for implementing this technology?
- Lessons learned?
- Do you have related care protocols or competency tools that you could share?
- How’s the vendor support? Specifically ask if the vendor delivered the product on time, gave adequate installation and educational support, and responded promptly and thoroughly to problems.
- When the vendor has promised new capabilities with future releases of the product, has he or she met these predictions? Were new capabilities delivered in the anticipated timeframe?

Select the Finalists

Using only clinical selection criteria, a final choice may be evident at this point. But more often, you’ll identify two or three finalists, each with different advantages to carefully consider. Are you being drawn to bells and whistles that your evaluation team didn’t specify as required elements? Are these features nice to have or do they add a new dimension to how you’ll use this technology? Will they enhance care provision? Will they increase safety, efficiency, or broaden the application of this technology in a meaningful way?

The next step will depend, in part, on the culture at your facility. Generally, you would ask the remaining vendors for a request for proposal (RFP) to define precisely what they could deliver to address your needs and the associated cost. If the evaluation team is solely responsible for the decision and they have outstanding questions, you may ask the manufacturers to arrange site visits for some of your team members so they can see the technology installed and in use with actual patients. Most evaluation teams use site visits for major purchases, such as a monitoring system, and if the application under consideration will constitute a significant practice change, such as a centralized monitoring system. (See “Key questions for a site visit.”)

For a technology with less facility-wide impact, telephone interviews with manufacturers’ customers may satisfy team members’ questions. Manufacturers should readily provide customer names and information; be cautious if they’re reluctant to supply customer contacts or arrange site visits. Product demonstrations with simulated patients won’t glean the quality of evaluation you’ll get through interacting with staff who actually use the equipment.

Third, you may arrange a product demonstration from each manufacturer and invite the PCU staff and others not directly involved on the evaluation team to contribute their perspectives. Benefits of this approach include the variety of observations you’ll gain and the potential to discover more advantages or concerns with the product. This option also makes staff aware of how highly management values their contributions and demonstrates a collaborative management approach. The potential disadvantage is staff discontent if the selected product isn’t the one staff preferred. This may occur if the team makes a financial decision between products they feel are clinically equivalent. It may also occur if staff members are overly impressed by features that don’t fulfill the requirements of the needs evaluation or enhance care provision.

Financial considerations will, of course, enter into the decision at some point. You may be operating under a preapproved budget or need to develop a purchase proposal. A clear definition of the clinical advan-
Swim Swiftly, but Cautiously

Exciting new technologies appear often, such as handheld bedside devices to facilitate administration and documentation of medications and IV fluids. New applications for existing technology, such as using impedance cardiography to manage patients with heart failure, will move ICU technology to the PCU. Also, new approaches to old issues, such as transfer-assist devices, may facilitate patient care with less risk to the patient or the caregiver.

Whatever the technology, it’s essential to follow a systematic approach to evaluating your needs and the available equipment so you choose products that enhance your ability to provide safe, efficient, quality progressive care.

References
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