Robot coming? How you can prepare

If robots are coming to your OR suite, you’ll want to get involved early. You’ll need to be prepared for staff training, new instrumentation, a bigger budget, and longer procedures and turnover time during the learning curve, say managers who have these high-tech devices.

City of Hope, a cancer research center in Duarte, Calif, a leading site for the most common robotically assisted surgery, radical prostatectomy, has performed more than 675 of the procedures. City of Hope embarked on robotics almost 2 years ago when it purchased a da Vinci Robotic Surgical System. A second da Vinci was added about 6 months ago.

Poudre Valley Hospital in Fort Collins, Colo, purchased a da Vinci system in June 2004 and is using it in 3 specialties so far: cardiac surgery, gynecology, and urology. Surgeons also have been trained for Roux-en-Y procedures in bariatric surgery.

Directors of surgical services from these 2 facilities discussed areas to consider in launching a robotic surgery program.

Surgeon credentialing

In planning for its robot, Poudre Valley formed a multidisciplinary committee to guide the preparations. The committee developed the physician credentialing requirements, laid out a timeline for robotics training as well as laparoscopic training for surgeons who needed it, and planned a quality review process. During the initial phase, all charts for patients having robotic surgery are flagged for review of surgical and nursing care.

Staff training

Nurses and surgical technologists (STs) as well as surgeons need education.

“When the physicians are trained on this technology, it’s essential that the staff have training as well,” says Robin Ramsey, RN, BSN, CNOR, administrative director of surgical services at Poudre Valley. “It is very complex to set this up and coordinate the process.”

Poudre Valley sent 3 staff per specialty with the surgeons for the company-provided 2-day training.

In selecting the staff for the program, Ramsey asked them, “Are you willing to commit to potentially having to work past your normal shift or change your day off until we get enough experience with this?” She says, “People have been very willing to do that.” She noted that there also needs to be a plan to train additional nurses, which most organizations probably will choose to do in-house because of the cost.

“You need to be proactive in planning your staffing to allow for people who will leave for hands-on training,” adds Sally Bixby, RN, MS, CNOR, director of surgical services at City of Hope.

City of Hope initially sent 2 RNs and 2 STs for training. Later, the remaining staff attended a 1-day regional program, notes Pam Kenz, RN, BSN, CNOR, clinical manager of surgical services. With 4 ORs, a small staff, and a high volume of robotic surgery, the hospital needed a cadre of staff who knew the equipment.

Bixby suggests assigning the same team to robotic cases at the beginning so they can gain experience. “We had an RN and a tech who became experts. Then as we brought new people in, they would mentor them,” she says.

Staffing pattern

Robotic surgery requires 2 surgeons, one at the da Vinci console to operate the robot and one at the table with the instrumentation.
In addition, City of Hope assigns 1 circulator and 1 scrub person per case. Poudre Valley started with 2 circulators and 1 scrub person because of the setup. Ramsey says she plans soon to assign 2 staff with a roving nurse to assist as needed with the setup and turnover.

**Instrumentation**

Instrumentation and repairs are on-going costs. Maintenance costs about $100,000 a year, and limited-use instrument sets are $2,000, according to the Health Technology Center, San Francisco. The da Vinci uses specialized instruments that are attached to the robotic arms.

The instruments are “reposable,” meaning they can be reused for a specific number of times, says Bixby. A chip keeps track of the number of reuses. She estimates that the instruments are replaced after 10 uses, except for the Harmonic Scalpel, which is replaced after 20 uses. The cost per case for instrumentation is about $1,900 even with the reposables, she says.

City of Hope has more than 1 set of instruments to expedite turnover time.

Poudre Valley is having its service coordinators work together to standardize robotic instruments as much as possible.

“They not only need to coordinate with their physicians but also to communicate with each other to see how we can implement these procedures with a minimum amount of cost,” Ramsey says.

Both facilities say support from Intuitive Surgical, the company that makes the da Vinci robot, has been good, with company personnel readily available for troubleshooting. Bixby notes that reliability with the devices has improved, though there were some problems initially.

**Room setup and tear-down**

Extra time is needed during early cases to get the room ready and disassemble the equipment afterward. Because the equipment is large, room logistics are important. Time is needed to run diagnostic tests on the robot to make sure it is ready for the surgeon to use.

Initially, City of Hope’s turnover time was 1½ hours. It since has dropped to about 30 minutes. “We think that’s the minimum with all of the setup and positioning,” says Bixby.

In addition, the staff needs to be prepared to convert to a traditional procedure, whether laparoscopic or open, in case the surgeon decides that is necessary.

The robot is primarily used in the same 2 ORs. City of Hope is building a new surgical suite with larger ORs of 650 sq ft that will better accommodate the equipment.

**Procedure time**

Robotic procedures take more time initially. City of Hope’s first robotically assisted prostatectomies took 8 hours; they now take 2 to 2½ hours. It took about 3 weeks for the procedure time to drop to 4 ½ hours and about 8 months to reduce the time to the current 2½ hours, Bixby says.

**Reimbursement**

Hospitals can’t expect additional reimbursement from robotics.

“In many ways, this is not a decision for financial gain, but there is a clinical advantage and a marketing advantage to using robotics,” says Ramsey.

There are no billing codes specific to robotic surgery. Poudre Valley charges for the instrumentation, and other costs are included in the OR minute rate. During the learning curve, the minute rate was reduced. The rate will be moved back up once physicians determine what their average case time is.

**Strategic benefit**

A robotics program can have a strategic benefit. City of Hope attracts patients from all over the country and even abroad. In early February, it was booked through April for robotically assisted prostatectomies.
Don’t underestimate the planning involved, Ramsey advises.

“The process of making the decision, getting the robot here, and getting everyone geared up to use it was more time consuming and challenging than we anticipated,” she says. That may have been because multiple specialties were involved.

“It seemed like we had a million-dollar flower pot sitting in our storage area for a while, but now we feel we’re really starting to use it,” she says.