November 14, 2018

**Comprehensive ROI pitch helps to procure OR equipment**
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Diane Skorupski, MS, RN, CNOR, NE-BC

Multiple requests for new equipment and technology—usually from surgeons but also sometimes from staff—are not uncommon. As part of their due diligence, OR leaders must determine whether the return on investment (ROI) justifies the purchase. Doing ROI calculations systematically—and involving key stakeholders—can help ensure that the organization makes the best choices.

"I try to put science behind the purchase to help justify it and then do a business plan around that," says Diane Skorupski, MS, RN, CNOR, NE-BC, vice president of surgical services at Tampa General Hospital in Florida. "I think about what it will contribute to the hospital." Skorupski says that working with others is a key part of developing that science.

**A collaborative approach**
OR leaders need to partner with their business colleagues when purchasing new equipment. "The business people help with forecasting because they build our budgets, and they work closely with our department of surgery to see who they [the surgeons] are recruiting," says Hope Johnson, DNP, MBA, RN, CNOR, NEA-BC, director of perioperative and endoscopy services at Lehigh Valley Health Network (LVHN)—Cedar Crest Campus in Allentown, Pennsylvania.

Stephen Spring, senior administrative director for finance at Massachusetts General Hospital (MGH) in Boston, collaborates with several others in determining ROI, including the surgeon, chief of the service, perioperative medical director, OR nursing director, and another finance staff member. "If [the purchase] affects other areas in the hospital, we'll add a person from the inpatient side," Spring says.

For a recent purchase of endoscopy cabinets, Skorupski says, she worked with staff from quality, sterile processing, infection prevention, and endoscopy to determine ROI. She coordinated the project, and finance staff wrote the proposal.


Ave Perrino, MSN, RN

"It's good to build a team to help you," adds Ave Perrino, MSN, RN, administrative director of surgical and anesthesia services at UPMC Presbyterian in Pittsburgh. Perrino works closely with her business manager and reaches out to other facilities in the system to see if others have purchased, or plan to purchase, the equipment. "We might be able to purchase two and get a better price," she says.

**Considering the numbers**

At its most basic, an ROI consists of the cost of the equipment and how many procedures need to be done to recoup that cost. A simple formula for calculating ROI is:

ROI (%) = Gain from investment – Cost of investment/Cost of investment X 100

However, determining costs and revenue is far more complex; it involves calculating the following:

- cost to purchase the equipment
- estimated life span of the equipment
- amount of revenue that will be generated each year (note that revenue may decrease as innovative technology is adopted by competitors)
- operating (including costs of consumables, staff) and maintenance costs each year.

OR leaders also need to consider the financial impact of the following areas.


Hope Johnson, DNP, MBA, RN, CNOR, NEA-B

**Consumables and current expenses.** Determine the cost of consumables associated with each use of the device, or, in some cases, the cost of consumables that will be avoided by using the device. For example, Johnson says an ROI for a surgical fluid waste management system, which treats waste so it can be emptied into a regular drain, factored in costs of consumables such as

suction liners that would no longer be needed with the new system. Johnson also showed how eliminating the cost of trucking heavy fluid to a disposal facility would save money at LVHN.

**Current expenses include repairs.** Using an Excel spreadsheet to analyze costs and expenses, Johnson justified a major purchase of laparoscopy equipment by showing that it would reduce the high repair costs associated with aging equipment. "You have to think globally and far and wide because you might miss some costs," she says.

**Staffing.** "If the new equipment will require additional staff to operate it, you'll need to include salary and hours of work," Perrino says. Also consider the cost of educating staff and/or surgeons on the new device.

**Utilization.** Utilization of the equipment is determined by volume of cases. The requesting surgeon can estimate anticipated cases, but OR leaders should also consider use by other surgeons and how to ensure maximum utilization. For example, Perrino says that, at UPMC, if a surgeon who has assigned time for a robot goes on vacation, that time automatically reverts to the service line so others can schedule cases.

**Volume.** Whether the new equipment will bring in additional volume is important for OR leaders at any size facility, but particularly for those in smaller organizations. "If you run a four-OR community hospital, even adding a few more cases a week has a significant impact, so you want to capture that," Skorupski says.

**Reimbursement.** If the equipment will result in a new procedure being offered to patients, Spring recommends examining the payer mix to see if the procedure will be profitable. Even if the payer mix isn't favorable, other factors, such as reducing length of stay (LOS), may save the organization money and help justify the request.


Steven Chew, MHA, CPC

**Service line impact.** Consider whether the equipment is part of a new service line or will enhance an existing one. Johnson says LVHN recently added an ophthalmologist to increase the number of retinal procedures performed. "We had to make a large capital purchase up front for the equipment," Johnson says. To quantify the impact, it was important to talk to the surgeon to determine initial volume and time frame for ramping up the volume.

Tampa General Hospital is getting ready to add the Robotic Stereotactic Assistance robot for performing surgery related to epilepsy. "This was a brand-new area for us, but it fit well with our

robust neurosurgery department," says Steven Chew, MHA, CPC, senior administrator for orthopedics and neurosciences at the hospital. A review of market share data for the relevant DRGs and procedure codes showed that this was an opportunity to capture surgical patients who don't currently have a surgical option for their condition.

Innovative new technologies can also serve as marketing tools to promote both the service line and the hospital. For example, a rural hospital that purchases a robot can promote the fact that patients don't have to travel as far for surgery, Skorupski says.

**More than dollars**

One of the most common mistakes new OR leaders make is failing to understand the scope of ROI, according to Johnson. "The tendency is to think of just the money, but you have to determine value," she says. Value includes time, quality, patient and employee safety, and staff and physician satisfaction.

"Our institution [MGH] doesn't just look at dollar return," Spring adds. Other factors include patient outcomes, lengths of stay, infection rates, readmission rates, and time saved in the OR or the postanesthesia care unit. "We take a holistic approach."

Here's a closer look at some factors that may not, at first glance, directly tie to money.

**Time.** Time is a valuable commodity in the OR, so whether the equipment will save time is worth considering. But, Chew says, "OR time can be a red herring." Realistically, saving 20 minutes won't make it possible to schedule another case. However, that 20 minutes can translate to possibly less OR time and a shorter length of stay. Chew adds that if the new equipment can reduce overtime by even a few minutes, those minutes can add up. "If you shave off 30 minutes a week times 2.5 staff, all of a sudden, you're at a solid number, and it adds up to an FTE [full-time equivalent]."

**Safety.** Employee safety played a role in determining ROI for the fluid waste management system at LVHN. "When somebody is using a suction container and never has to touch the waste, it's going to protect our employees," Johnson says. "There wasn't a big ROI on that project [$15,000 over 10 years], but we considered it from the angle of employee satisfaction, safety, and environmental concerns," she says. Johnson worked with her colleagues in risk management and infection prevention to outline these benefits.

**Satisfaction.** Physician satisfaction can make or break on organization. For example, physicians at LVHN were increasingly unhappy with the frequent problems associated with the older laparoscopy equipment. With the new equipment, physician satisfaction increased, which spilled over to better staff satisfaction because cases ran more smoothly.

**Outcomes.** Spring says data on outcomes related to a new surgery for which equipment is being purchased can often be found in the literature, or the surgeon making the request can provide the information. Estimating cost savings from preventing complications can also help in justifying a purchase, notes Chew.

For example, at Tampa General Hospital, he worked with infection prevention staff to determine the cost of each postoperative infection in a patient undergoing a hysterectomy. “If it costs an extra $58,000 to treat each patient, and you bring in a product that costs $100,000 a year but decreases the infection rate by two, you’ve justified the expense,” he says (numbers are hypothetical).

The key is to collect as much information as possible (sidebar below). Surgeons at MGH complete a product request form, which helps collect basic information to start the analysis (sidebar below).

**Questions to ask before purchasing new equipment**

- *What is the cost of the equipment?
- *What is the cost of consumables used with the equipment?
- *Are there any disposables that will need to be used outside of the OR (for example, on inpatient units for postoperative care) as a result of the purchase?
- *What is the cost of maintenance, including service contracts?
- *Will the new equipment replace something?
- *Will it change patient volume?
- *How will it affect market share?
- *What will be the effect on service line(s)?
- *How will it affect reimbursement?
- *What current expenses will it reduce or eliminate (for example, repair costs)?
- *Will it affect staffing?
- *Will staff/surgeon education be needed?
- *Will it save time?
- *How will it affect staff and physician satisfaction?
- *How will it affect staff or patient safety?
- *Will it affect patient outcomes?
- *What will be the impact of not making the purchase?

**Product request form**

The form used at Massachusetts General Hospital in Boston is divided into five sections:

- ***Requestor information.** This includes a question about whether the requestor or any family member has a financial interest in the company that makes the product.
- ***Type of request.** Single-case use, replacement of current product, addition to inventory, product evaluation, IRB (institutional review board)
- ***Product information.** This section includes the manufacturer, product name and catalogue number, cost, brief description of the product, procedure(s) where product will be used, and whether additional physician or staff training or proctoring is required.
- ***Rationale for request.** The requestor chooses from four boxes (new procedure, offers clinical advantage, improves efficiency, reduces cost), writes a justification of the product request, lists competing devices and what is currently offered, and explains the differences between the requested product and the current product(s). (Requestors are asked to submit materials such as research, white papers, and data that support the request.)
- ***Requestor sign-off.** The surgeon has to attest that the request has been approved by the chief of the service.

The form is completed and submitted online to the business manager.

**Creating the document**

The ROI analysis usually ends up being presented as a proposal or business plan. In writing the document, Johnson says it's important to explain why the item is needed now, what is being spent now, what costs can be avoided, and what are the consequences of not getting the item. For example, Johnson's laparoscopy equipment ROI found a repair cost avoidance of $300,000 annually.

Failure to purchase a new robot for a surgeon may mean loss of revenue should the surgeon decide to take his or her cases elsewhere. Or, as Skorupski notes, there could be regulatory implications. For instance, failure to purchase the correct storage and drying cabinets to properly store endoscopes could result in a citation or even financial penalties from a regulatory agency.

The length of time for the financial projections varies according to the project. Considerations include the life expectancy of the equipment and how long it will take to recoup costs of the purchased item. For instance, based on the life of the equipment, Johnson projected out 10 years for the fluid waste management system to get to a total cost savings of $15,000.

Most projections will be far less. Although 5 years is common, Chew recommends projections be 36 months or less. "As volatile as healthcare is in its current state, if I can't get my investment back within 3 years, it's going to be a hard sell," he says. "Thirty-six months is an eternity in healthcare when it comes to information technology improvements, technology advancements, and brand new 'toys'. I can't guarantee that 2 years from now, new technology won't change everything we just made an investment in."

Manufacturers can provide equipment life expectancy estimates, and the organization's biomedical department may have data as well.

The final ROI report may be one page or a lengthy document, depending on the scope of the project, but even longer documents should have an executive summary. “You want to be short and sweet, and to the point,” Johnson says.

Chew agrees that longer isn’t necessarily better: “An underappreciated art is the ability to convey a lot of information in a very succinct and accurate way. ‘Here is what we plan to do, here is why we’re going to do it, here’s the effect it’s going to have, and here’s how much it’s going to cost.’” The first two are the most important and should center on the patient.

The team working on the ROI should be sure that material supporting the information in the proposal is organized and readily available to the presenter.

**Presenting the case**

The purchase cost will partially determine how much scrutiny an ROI analysis receives. Like most organizations, LVHN has a value analysis team, and Johnson provides information to them. She says it’s important to make a case for the value of the purchase, whether that’s adding volume or reducing current costs.

Larger projects will likely need signoff from the C-suite. The person presenting the project to the C-suite varies by organization. For example, at MGH, Spring makes the case to hospital administration if necessary.

Spring notes that the OR receives a set amount of money for capital purchases each year, so the procedural products team typically decides on purchases. It takes an average of 4 weeks for the finance team to complete a full analysis, and the team meets on the second Tuesday of each month. “We let the surgeons know it can be a lengthy process, and we don’t always get to a ‘yes,’” Spring says.

If the benefit of a new purchase isn’t clear, Spring says an option might be to rent the equipment for a few months to determine if projections such as increased patient volume or decreased LOS are met. If so, the purchase proceeds.

At Tampa General Hospital, Skorupski first ensures that her boss, the chief operating officer, is on board with the project before she presents to the C-suite. She then lines up key stakeholders, most of whom have already been involved in writing the proposal. “I try to have ‘meetings before the meeting,’” she says. “It helps you know what questions might come up so you’re better prepared. Don’t ever go in cold.”

Skorupski also notes the importance of the surgeon’s role: “They talk to the C-suite, so they can plant that seed: ‘This is what I’m looking for, and this is how it’s going to benefit the patient, my practice, and your hospital.’”

During the presentation, Skorupski says, she begins by discussing how the investment will benefit the patient in terms of safety, infection prevention, pressure ulcers, or any other impact. “You have to sell the story about patients first,” she notes. Then she dives into costs and the ROI, as well as what might occur if the purchase is not made.

Chew agrees, noting that the patient focus is particularly important for high-ticket items. “At the end of the day, we are here for one purpose, and that is the patient,” he says. “When you make that the focal point, you can really get everyone on the same page.”

**Follow up**

An OR leader’s work isn’t done once the purchase is made. Spring checks in after 6 months and at 1 year to see if projections are on track.

“You want to ensure that the ROI comes to fruition,” Chew says. “The executive suite wants to see the results.” For example, if the OR leader projected postoperative infections would be reduced, it’s important to document that that occurred.

**Don’t give up**

What if an OR leader has done all the homework, but still faces resistance for the purchase? “If you, as a manager, really think it’s the right thing to do, you need to not give up,” Johnson says. State why the technology is important, and go back to stakeholders for additional support, including those who have informal power within the organization.

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