OR utilization and other efficiency metrics are things that many healthcare facilities are constantly striving to improve. At Sarasota Memorial Health Care System in Sarasota, Florida, concern about utilization and turnover scores prompted a team to look into the causes and possible solutions. Adopting new technology and changing workflow not only improved efficiencies but also communication and education.

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New technology and workflow lead to surgical volume growth

Sarasota Memorial Health Care System (SMH) in Sarasota, Florida, is a Level 2 trauma center with 839 beds and more than 900 physicians. The 430 members of the surgical staff perform more than 24,300 inpatient and outpatient surgical procedures in the 34 operating suites each year. With this level of volume, improving efficiency and maximizing capacity is essential to its success.

A few years ago, as SMH's patient volume continued to increase, staff started looking more closely at operating room utilization. With utilization at 48% and an average turnover time of 33 minutes (both below national benchmarks), a team was established to consider questions such as: Was utilization low because of delays in surgical processes? Were more OR suites needed? Was there a way to increase the efficiency of the existing suites?

The team was led by Charlotte Damato, Lean Six Sigma manager, and included Thomas Nutter, MD, anesthesiologist and CWS implementation champion; Janet Steves, executive director of organizational capacity & patient throughput; Jim Young, senior manager, OR operations; Brandon McAllister, manager, administrative surgical services; Jim Grimes, capacity project manager; and Stacy Steffen, information technology project management consultant.

Delving into these questions led to the adoption of new technology as well as operational, process, and staffing changes that dramatically improved efficiencies within 18 months.

To address the delays SMH was experiencing, the OR team conducted observations in the preoperative (preop) area, noted in-to-incision times, and analyzed all components within those processes to identify bottlenecks to patient flow.

The team looked at everything from setting up the room and prepping the patient to the time the patient is rolled into the OR, to the arrival time of the anesthesiologist, to the time the surgeon enters the OR, to the time the patient is moved out of the OR.

Four key areas for improvement were identified that could be accomplished without major capital investment:
- Redesign OR processes for patients and staff—from patient registration to the OR to the postanesthesia care unit, as well as the processes that staff follow to prepare the OR for surgery.
- Ensure the availability of all surgical equipment and instrumentation to start on time.
- Improve communication between staff in the preop area and the OR to keep all team members apprised of real-time patient status.
- Eliminate manual processes, and educate staff on new automated approaches.

The team also determined it was critical to improve the in-to-incision time, which could be accomplished by:
- transporting the appropriate equipment and instrumentation to the room in a timely manner
- improving communication in the OR and between staff in all areas of the surgical suite.

At the time, staff members were using land lines, pagers, overhead pages, etc.

A technology solution

The team sought a technology solution to help streamline these processes, and while touring another hospital, they discovered the technology that appeared capable of improving efficiency and communication: the Clinical Workflow™ Suite (TeleTracking, Pittsburgh).

"I was on the visit and immediately said, 'We have to have this,'" says Damato. "So we added the solution to our systemwide capacity improvement project and provided the ROI [return on investment] analysis and efficiency gains to our C-suite. They agreed that this technology would be beneficial."

Process changes

From the process perspective, Lean techniques were used to redesign workflows, including:
- Factoring in the time necessary for sterile processing of equipment.
- Working closely with the transport manager to determine the causes of delays and removing them in order to get patients to the preop area in a timely manner.
- Creating a surgery precheck process—including having a liaison from the OR review the checklist with the unit nurse the day before a procedure to discuss tasks/procedures such as cardiac clearance,

MRI, CT, special medications, etc, that needed to be completed before a surgery could proceed.

- Educating surgeons on the new technology and updating the preop to wheels-in process. Surgeons had to check in electronically when they were in the preop area and again when they entered the OR. This helps ensure that all staff who are needed in the OR are there at the designated time.
- Eliminating manual processes that lead to delays and making the new technology system the single, comprehensive source for patient flow information.
- Using the data generated by the technology to further refine underperforming processes.

After implementation, staff immediately noticed how quiet it was—the constant stream of phone calls was no longer needed; instead, staff could simply look on the board in the preop area and see every patient who was in registration or the surgery check-in area. And because staff knew these patients were going to be coming to the preop area, they were able to proactively assign them a bay, which immediately alerted the volunteer to escort the patient to a ready bay. That level of improved communication extended to the OR.

"The system really helps when I'm running the board," says Jeffrey Torine, MD, an anesthesiologist. "Our anesthesiology team worked closely with TeleTracking on design and implementation because we saw how it could work to the betterment of the whole perioperative system. Perioperative staff could look at the boards and, through a system of icons, quickly assess whether the anesthesiologist had been to preop, whether the surgeon had been to preop, and if the nurse had completed all preop functions to ready the patient for surgery. It was true transparency."

New data capabilities are further enhancing transparency. Reports now go to the C-suite, the hospital's capacity management team, and anyone else who needs to know OR performance metrics. Data reveal the percentage of on-time patients for the first case of the day, making it possible to see early on if there are any potential issues that could impact the rest of the day.

When there are delays, nurses enter specific delay codes—late surgeon; late anesthesiologist; medication, preop or equipment delay—and then troubleshoot the problem and develop contingency plans to maintain flow. Nurses have fewer administrative tasks and phone calls, so they can spend more time at the patient's bedside.

Staffing enhancements

Creating a dual OR director/associate chief nursing officer role has provided the authority to make the necessary changes to improve OR efficiency.

To meet the demand for competent surgical technologists, SMH collaborated with the local technical college in 2017 to establish a training program for surgical tech students in all types of surgical services.

Students actively participate in scrubbing all service lines and are also taught about the unique culture of SMH, the hospital's specific processes, and general role expectations. Once hired, these students start with increased knowledge of process and culture as well as a better surgical skill set.

Since the program started, job satisfaction among surgical techs has been high; feedback from the surgical teams has been positive; and surgical techs have integrated successfully into specialty teams. SMH is also building on the success of its OR RN internship program by establishing similar principles and processes to build the surgical tech internship programs.

Staffing changes also included an increase in the number of educators to help with surgical department-wide education needs. During the due diligence process, enhanced education was identified as a critical component to maintaining a strong OR organization. The educators' responsibilities extend to all facets of surgical services, including preoperative, intraoperative, and postoperative care.

Like most health systems across the country, SMH has been impacted by the national nursing shortage, but the implementation of new processes and SMH's positive reputation in the community have helped the team's ongoing efforts to attract excellent nurses.

"From improved communications and streamlined processes to having the right staffing levels and specialty teams, physician satisfaction has increased," says Young. "With the specialty teams, the surgeons like knowing who they're going to be working with on a day-to-day basis. The specialty teams are happy because they know what the surgeons on their team expect, what their needs are, what equipment they want, and what special instruments they might want to have. We now have the metrics and reports to help us continue to drive positive change."

Mobile app/post-implementation gains

SMH also now has a mobile application that provides transparency to the surgeon and other team members. Surgeons know in real time, from any location, where their patient is and can plan their time accordingly. Surgeons no longer need to make calls, nor are they receiving calls. Roadblocks are quickly identified, and corrective actions can be taken immediately.

In addition, the mobile application is surgeon specific and available at all hours. Staff can look at the overall schedule when trying to add a case to determine OR availability. The increased efficiency in the OR as a whole has decreased patient wait time.

"The integrated approach of people, process, and technology has given surgical staff access to real-time patient information and transparency across the surgical continuum, and has led to more satisfied and informed staff and surgeons," says Young.

Robust reporting capabilities make it possible to track performance metrics, which include:

- an increase of first case on-time surgery starts from 39% to 61%
- a decrease in turnover time from 33 minutes to 29 minutes
- an increase in utilization from 48% to 71%.

"Surgical staff now can see every patient in registration and in the surgery check-in area. This lets staff know who's coming to the preop area so that a nurse is assigned. Once the patient is in the OR, several large monitors show whether the anesthesiologist and surgeon have been to preop, if all other preop tasks have been completed, and if the patient is ready," Young notes.

"Focusing on these details is critical because at the end of the day, it's about the patient," says Damato. "It's about using technology and processes to make sure a positive experience is delivered to every patient, every time. Getting the patient to the OR in a timely manner is critical to that goal, so they can get the care they need, recover, and return to their normal activities." ❖

James Fiorica, MD, is chief medical officer, Sarasota Memorial Health Care System, Sarasota, Florida.

David K. Patterson, MBA, BSN, RN, is associate chief nursing officer—surgical and cardiovascular services, Sarasota Memorial Health Care System.

Leadership

program will trigger an alert to the manager to make sure they are put back in that service area and that type of case.

Goals met

Staff are now required to be competent in at least three services. This has resulted in a lot more collaboration and a lot more surgeon satisfaction, says Welde.

"It has also reduced call on the night shift because, for example, there are staff who can scrub liver transplants, which has decreased our liver call," she says. "It's the same thing on weekends and holidays," she says.

Welde notes that their goal is to eventually have at least 80% of staff on the off shift competent to circulate or scrub on liver transplants.

Santos added that as they cross-train more staff, they are increasing productivity and using call teams less, which results in cost savings.

At 3 pm, there used to be an average of eight RN call slots and five scrub tech call slots to fill. After implementation of the pilot project, the eight RN call slots were down to five, and the five scrub tech slots were down to three, which reduced labor costs by approximately $1 million.

When the cross-training program began, there were 43 staff members on the off shift. From September 2017 to May 2018, 17 of 30 RNs and 8 of 13 scrub technologists were cross-trained.

Lessons learned

"We have learned so many lessons, and we are still in the process of learning more," says Welde.

Among them:

- **Time is only one indicator of competency.** It is important to look not only at time, but also at other modalities to train people, such as simulations, critical thinking skills, and one-on-one education, says Welde.
- **Cross-training increases competency, productivity, physician satisfaction, staff satisfaction, and morale, and it reduces labor costs.** The highly skilled staff no longer feel like they are taking the brunt of overtime because other staff members are also expected to do more, says Santos.
- **Technology can aid in developing staff members' professional growth and development.** "We are fortunate that we work in an organization where we have access to all different types of technology, such as simulation labs," says Welde.
- **Stakeholder buy-in can be challenging because of the upfront cost of cross-training.** "This can be tricky, but we were able to come up with good data and say: 'This is where we want to be, and this is what we want to accomplish,'" says Santos.
- **Engagement of managers, charge nurses, administrative staff, and clinical staff is critical for building programs.** "You have to have everyone's buy-in or you won't be successful, and the staff are a key component," says Welde.

Welde adds that more people on day shift want to transfer to the off shift. "I think this means we are doing something right," she says. "People are being more accountable and are wanting to learn more. It's a learning process for all of us." ❖

—Judith M. Mathias, MA, RN

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