EFFICIENCY BY DESIGN

TECHNOLOGY AND PROCESS REDESIGN LEAD TO ENHANCED OR EFFICIENCY AT SARASOTA MEMORIAL HEALTH CARE SYSTEM

Story By James Fiorica, MD, Chief Medical Officer and David Patterson, Associate Chief Nursing Officer – Surgical and Cardiovascular Services

Sarasota Memorial Health Care System [SMH] is one of the largest public health systems in Florida. Located in Sarasota, FL, SMH is a Level II Trauma Center with 829 beds and 900 physicians. The 430 members of the surgical staff perform more than 24,300 inpatient and outpatient surgeries in the 34 operating suites each year. With this volume, finding ways to improve efficiency and maximize capacity was essential to the economic success of the hospital.

As SMH's patient volume continued to increase, staff started looking more closely at operating room utilization [the percentage of available operating room time used vs. the amount of time available] which was 48%, and the average turnover time was 33 minutes, well below national benchmarks. A team was established to determine the cause(s). 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 IMPACT OF DELAYS

Delays are inefficiencies that can have negative impacts on patients, physicians and staff. Frustrations and anxiety associated with delays are unnecessary stressors for those in the peri-operative arena. A first case delay has an exponential trickle-down effect on all cases in a particular OR suite for the day, which also impacts a surgeon's time and their ability for rounding or seeing patients in the office prior to arriving in the OR.

To help address the delays, actions included observations in pre-op and timing in- to-incision times and analyzing all components within those processes to identify bottlenecks to flow. However, the challenges of communication and lack of transparency that emerged posed particular difficulties. A new, cross-functional approach that integrated technology and process redesign was needed.

PROCESS REVIEW AND AREAS IDENTIFIED FOR IMPROVEMENT

Recognizing that change was necessary, members of the OR team took another deep dive and reviewed every step of the OR process to determine where positive changes could be implemented. The team looked at everything from when the patient rolled in the operating room, the prep time, and the time out of the operating room, to the time the surgeon walked in the operating room, to the time the anesthesiologist arrived. In the end, four key areas for improvement emerged—ones that could be changed without an expensive and time-consuming capital investment:

- Redesigning OR processes for the patient and the staff—from patient registration to the OR to the PACU, as well as the processes that staff follow to prep the OR for surgery.
- Ensuring availability of all equipment and instrumentation that surgeons need to start on time.

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- Improving communication between pre-op and OR suites to know what the real-time status of patients is.
- Eliminating manual processes and educating staff on the new automated approaches.

Drilling down even further, the team determined a critical step in the OR process that needed to be improved was the in-to-incision time—a step that has a significant impact on subsequent activities. Being able to improve this metric depended on two key processes:

- Transporting the right equipment and instrumentation to the room in a timely manner, along with making sure it was working properly, and;
- Improving communication in the OR and between staff in all areas of the surgical suite. Staff members were using hard-wired phones, pagers, overhead pages, etc.

A TECHNOLOGY SOLUTION

The team believed that a technology solution could help streamline these processes and started researching options to improve communications so that the staff in the OR suite could understand what was happening in pre-op and vice versa. The solution emerged while touring another hospital on a different matter, when the team discovered a technology solution that they believed could deliver the improved efficiency and communication they needed—TeleTracking's Clinical Workflow™ Suite [CWS].

"I was on the visit and immediately said, 'We have to have this,'" says Charlotte Damato, Lean Six Sigma Manager at SMH. "So, we added TeleTracking CWS to our system-wide capacity improvement project and provided the ROI analysis and efficiency gains to our C-Suite. They agreed that this technology would be beneficial."

PROCESS CHANGES

The decision to move forward became one component of a wide-reaching project that was also supported with operational, process and staffing 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 pre-op area in a timely manner.
- Creating a surgery pre-check process—including having a liaison from the OR review the checklist with the unit nurse the day before a procedure to discuss the tasks/procedures that need to be completed before a surgery can proceed. For instance, a cardiac clearance, MRI, CT, special medications, etc.
- Educating surgeons on the updated pre-op to wheels-in process, which involved checking in electronically when they were in pre-op and again when they entered the OR. This helps ensure that all the staff members who need to be in the OR for a surgery to proceed are there at the designated time.
- Eliminating the manual processes that lead to delays and making Clinical Workflow Suite [CWS] the single, comprehensive source for patient flow information.
- Using the data generated by the technology to further refine underperforming processes.

COMMUNICATION AND TRANSPARENCY

After implementation, the first thing noticed by staff was how quiet it was—instead of the constant stream of phone calls, staff could simply look on the board in the pre-op area and see every patient who was in registration or the surgery check-in area. And because they knew these patients were going to be coming to the pre-op area, they were able to proactively assign them a bay, which immediately alerted the volunteer to escort the patient to a ready bay in pre-op. That level of improved communication extended to the OR.

"I love the system. For me, it really helps when I'm running the board," says Jeffrey Torine, MD, Anesthesiologist. "Our anesthesiology team saw the benefits and took the time to work closely with TeleTracking on the 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 to quickly assess whether the anesthesiologist had been to pre-op, whether the surgeon had been to pre-op, and if the nurse had completed all pre-op functions to ready the patient for surgery. It was true transparency."

Enhanced transparency also resulted from the data capabilities. Reports go to the C-suite, the hospital's capacity management team, and basically anyone else who needs to know OR performance metrics. It contains the percentage of on-time patients for the first case of the day, so it's 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, pre-op or equipment

delay—and then they can troubleshoot the problem and develop contingency plans to maintain flow. Another important benefit is the reduction of administrative tasks and phone calls for nursing staff, giving them even more time at the patient's bedside.

STAFFING

From a staffing perspective, a major change involved creating a dual OR Director/Associate Chief Nursing Officer role. This combined role continues to provide the authority to make the necessary changes to improve OR efficiency.

The department also focused on enhancing training of surgical techs. Some delays could be linked to a shortage of surgical techs due to difficulties associated with preparation and training of the specific skill set needed for a busy OR. The year-over-year increase in surgical volume also increased the need for surgical techs. To address these barriers, in 2017, SMH collaborated with the local technical college to establish a program for training surgical tech students in all types of surgical services.

The 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. Upon employment, these students enter with increased knowledge of process and culture and a better surgical skill set. Since the program started, job satisfaction among the surgical techs has been high. The feedback from members of the surgical teams has been positive and the techs have integrated successfully into specialty teams. They are also building on the success of the OR RN internship program at SMH—which has a 70% retention rate of nurse interns beyond their contract over the past four years—by establishing similar principles and processes to build the surgical tech internship programs.

"From improved communications and streamlined processes to having the right staffing levels and specialty teams, physician satisfaction has increased," says Damato. "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

We also have a mobile application, which 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. If there is a roadblock, it is quickly known, 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 the time patients have to wait for procedures.

THE RESULT: TRUE TRANSPARENCY FOR IMPROVED PATIENT CARE

The integrated approach of people, process and technology give 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. Communication improvements include staff alerts for issues that need immediate action, which has significantly reduced phone calls and gives staff more time to focus on patient needs. Robust reporting capabilities make it possible to track daily, weekly and monthly performance metrics, along with the ability to track staff compliance with the streamlined processes and a surgical scorecard.

From an outpatient perspective, surgical staff now has visibility into the pre-op area to see every patient who is either in registration, or the surgery check-in area. This lets them know who's coming to the pre-op area so that a nurse is assigned. And, once in the OR, several large monitors display the patient's journey thus far, if the anesthesiologist and surgeon have been to pre-op, if all other pre-op tasks have been completed and if the patient is ready. True transparency is the result.

The associated metrics 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%

At the end of the day, it's all about the patient. We use technology and processes to make sure a positive experience is delivered to every patient, every time. And 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.