**Lean thinking: Eliminating waste and adding value to OR processes**

An orthopedic surgeon has to make a 1,000-ft round trip between cases to get the kind of OR cap he likes. A circulating nurse leaves the room 4 times during a case to get needed items. A hospital performing 500 basic surgical procedures has 9,000 preference cards.

If you started looking for the waste in your OR, what would be on your list? The Japanese call this “putting on your muda glasses”—spotting anything in the workplace that doesn’t add value.

If you do that, you’re starting to practice lean thinking. Then you can use lean methods to systematically and relentlessly get rid of the waste—and keep it from coming back.

Lean thinking, a quality improvement method pioneered by Toyota and adopted by Dell, LensCrafters, and others, is making inroads in health care. Though lean is best practiced with full support and resources from senior leadership, there are practices OR managers can learn and apply on their own. This issue features articles about how ORs are adopting lean thinking.

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**Preop briefings gain momentum as a strategy for patient safety**

Momentum is gathering to extend preoperative briefings. OR teams already must pause before the incision to verify the surgical site. Now some experts would like to see these briefings expanded to include other critical aspects of the procedure.

A new study from Johns Hopkins Medicine published in February found OR teams who participated in 2-minute briefings before the surgical incision said teamwork had improved. They also perceived the risk of wrong-site surgery to be lower.

The study’s results provide scientific evidence for briefings as a method to improve the coordination of care and patient safety in the OR, the lead author, Martin Makary, MD, MPH, a surgeon at Johns Hopkins, told OR Manager.

With these scientific underpinnings, briefings are creating a buzz. Dr Makary said the Joint Commission is talking about the possibility of expanded briefings, and the American College of Surgeons and Association of peri-Operative Registered Nurses are showing interest.

He also said he is partnering with a leading patient safety researcher, Atul Gawande, MD, MPH, FACS, of Harvard and Brigham & Women’s Hospital, Boston, to have preop checklists more widely adopted. Use of preop checklists is one approach being considered by the
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March 2007 Vol 23, No 3

Interim management

Is interim management the right career path for you? Hear the pros and cons from veterans.

Moving to intraop documentation?

Read tips for involving the staff and making a smooth transition.

Guest editorial

Interim management

I get paged a lot every day in my job as director of surgical services. One call I’ll never forget came several years ago. There had been a serious mistake. A surgical team had operated on the patient’s wrong side.

The patient was in the recovery room, just waking up. The surgeon and I had to deliver the devastating news. I cannot begin to describe our disbelief and shock, shared by everyone involved. The patient, naturally and justifiably, was very angry.

Our team’s sense of guilt and grief over this extremely rare event was overwhelming. The surgeon was a good one, the team supporting him, highly accomplished. Thousands of cases come and go without something like this occurring.

Yet this one did happen, and there was no escaping the consequences. New in my job, I prepared to resign. I went to my boss and told her that despite all my years as a surgical nurse, I hadn’t truly recognized the extent of responsibility in this job. The case had shattered my confidence.

Fortunately, she sat me down for a long talk about the case. I had a choice: either quit, or use this terrible experience to make a difference.

A new direction

In part because I had told the patient I would do everything I could to make sure this never happened again, I decided to stay. I also started researching data on preventing serious medical errors such as wrong-site surgery.

I found that many hospitals had tried various approaches—all slightly different, yet nothing completely effective. Soon, a consortium of HealthPartners [a Minnesota HMO], 21 other Minnesota hospitals, and the Institute for Clinical Systems Improvement [a Minnesota nonprofit] began a new approach: collaboration. Calling ourselves Safest in America, we decided that to truly improve patient safety, we needed to share information about our procedures.

I served as lead for the issue closest to my heart, wrong-site surgery. It was difficult because these were events you didn’t traditionally share with other hospitals, but we all recognized that without sharing our experiences, because serious errors happen so rarely to any one hospital, none of us would gain enough insight into our errors to learn from them. To encounter the range of issues that emerge in 22 institutions over a single year would take one hospital decades.

The Safest in America collaborative effort has been supported by an innovative statewide reporting system put in place by the state legislature at the urging of the Minnesota Hospital Association and other health care organizations. [In January,] the state health department released the third annual report listing the adverse health events that were reported in the previous year across the state.

The pioneering, collaborative effort of Safest in America has significantly changed the delivery of care in Minnesota. If you’ve had surgery lately that involves one side of your body or the other, you may have noticed, for example, that your surgeon marked the site. And no fewer than 3 additional people signed off on the location before you arrived in the operating room. Once there, a final check, or “time-out,” takes place before the procedure begins.

This protocol is but one small example. But I think that my colleagues and I are making good on the promise I made to that unfortunate patient years ago: We are doing all we can to make sure it doesn’t happen again.

—Dana Langness, RN, BSN, MA
Director, Surgical Services
Regions Hospital, St Paul, Minn

Dana Langness is the leader of the Safe Site Action Group of Safest in America, a consortium of Minnesota hospitals.

www.safestinamerica.org


A report on Minnesota’s patient safety efforts will be in the April OR Manager.
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Lumbar fusion has grown rapidly, skyrocketing by more than 250% in the past 20 years. Costs have risen even faster, by more than 500% in Medicare patients alone, according to a recent study from Dartmouth.

Lumbar fusion accounts for almost 50% of all back surgery performed in the US. Now there’s increasing scrutiny of its outcomes and the money involved.

Here’s a look at the developments.

**Medicare panel weighs evidence**

A panel took a close look at the evidence for lumbar fusion at a Nov 30 meeting called by the Centers for Medicare and Medicaid Services (CMS).

The panel of 9 physicians and 3 other members listened to presentations and scored 6 questions posed by CMS. One question asked how much confidence the panel had in the evidence on outcomes of lumbar fusion compared with conservative treatment for degenerative disc disease. The panel came down in the middle—with a score of 3 on a scale of 5.

They were also asked to score the evidence on short-term outcomes, giving it 2.48 out of 5. Their score on long-term outcomes was weaker, 1.67 out of 5.

“What’s the evidence?”

As the panel determined, there is not a tremendous amount of evidence that spinal procedures are great procedures for the Medicare population,” said Steve Phurrough, MD, MBA, head of the CMS Coverage and Analysis Group, in an interview with OR Manager. The group makes recommendations on Medicare coverage to the CMS administrator.

There’s some evidence fusion may have some benefit in special cases, particularly for spinal stenosis and spondylolisthesis.

“But for the general patient with pain, the evidence in our population is sparse,” he said.

CMS decided to call the meeting after questions arose last year about the evidence during discussions about coverage for the Charité artificial disc.

The purpose of the meeting, Dr. Phurrough stressed, was only to review the evidence, not to discuss whether CMS should issue a national noncoverage decision on lumbar fusion, which it has never done. Currently, coverage decisions for the procedure are made by local carriers.

Though only about 25% of spinal fusions are performed in the Medicare population, CMS’s deliberations are closely watched.

What is the next step?

CMS will watch to see if more evidence develops and if there is any change in practice patterns, Dr. Phurrough said.

Walter Eisner, senior writer for Orthopedics This Week (www.ryortho.com), who attended the meeting, said, “It seemed to us that CMS was clearly looking for ways to question whether or not fusion works.”

**What’s the evidence?**

A group from Duke University, led by Douglas McCrory, MD, presented a technology assessment to the panel on the evidence for lumbar fusion. Highlights:

- There are no randomized controlled trials in patients over 65 directly comparing lumbar spinal fusion with nonsurgical treatments.

In younger patients:

- 4 randomized controlled trials of back pain due to isolated degenerative disc disease (without spondylolisthesis) failed to find clinically meaningful improvement in disability for lumbar fusion compared with rehabilitation.

More on the meeting and the technology assessment report are at www.cms.hhs.gov/mc crackdown.aspx?where=ind

Or search Google under CMS MCAC. Scroll down to Index of Meetings and click.

**Physician investment raises concern**

There’s increasing concern about a growing trend among some surgeons to invest in companies that make spinal implant devices.

About 30 start-up companies have begun selling spinal devices, including screws, in the past couple of years, according to the Dec 30 New York Times.

*continued on page 7*
Please see the ad for
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Business management meeting offers seminars on key topics

Topics that challenge OR leaders will be the focus of 4 optional all-day seminars on Wednesday, May 9, at the OR Business Management Conference May 9 to 11 in Savannah, Ga.

The seminars include:

**Why, What, and Who of Planning New OR Suites**

Planning for a new OR suite needs to consider major trends affecting the space; the impact of technology; and business and financial factors that influence the design, such as property, existing conditions, and blending a new facility with the old.

The seminar will cover how the planning process should go, with speakers from a major architectural firm, Anshen + Allen, San Francisco; a medical architect from Kaiser Permanente; and a technology planner from Sparling, Seattle.

**Improving OR Efficiency with Multivariate Testing**

After years of success in industry, multivariate testing (MVT) is being introduced in health care. The process starts with many fast, cost-free ideas for improvement and uses advanced statistics to quickly sort out the ideas that could cause harm or make no difference.

In the seminar, attendees will hear about one hospital’s project to test 22 different ideas over 2 months to improve OR throughput and surgeon satisfaction. The speakers will cover the MVT process and how to select an MVT project. Attendees will be able to participate in activities used in MVT and gain experience in MVT techniques.

**Negotiating Capital Dollar Pitfalls**

Financial constraints in today’s environment require OR business managers and directors to manage their capital dollars successfully.

This seminar will cover successful negotiation techniques as well as capital planning and acquisition. Among topics are how to develop an RFP, how to use a decision matrix for capital planning and acquisition, and technology trends and forecasting.

**A Balanced Approach to OR Management**

National cost, quality, and pay-for-performance initiatives have increased the visibility of surgical services for consumers, payers, and regulators. OR leaders will increasingly be involved in efforts to correlate the care they give with process and outcome indicators.

This seminar will provide participants with a methodology for measuring the impact of the surgical care process on cost, quality, utilization, and profitability. Among other things, attendees will learn how to define and automate key indicators of surgical quality, use benchmarking techniques to optimize throughput and increase profitability, and use surgical information and cost accounting data to optimize block utilization.

Download the conference brochure and register online at www.ormanager.com.

Retained objects up in Minnesota report

A “pause for the gauze” policy in labor and delivery is a step some Minnesota hospitals are taking to prevent retained foreign objects during surgery. That is one strategy adopted after the state’s third annual review of preventable adverse events issued Jan 17.

One root cause of retained objects was having no policy for final visual inspection or sponge/gauze counts following vaginal delivery.

Overall, the state reported 154 adverse events, with 24 deaths and 7 serious disabilities. That compares to 106 events, with 24 deaths and 18 disabilities in 2005.

For surgical events in 2006, Minnesota reported:

- 42 retained objects compared to 26 in 2005
- 23 wrong-site operations compared to 26 in 2005

The most common event was pressure ulcers, with 48.

The report is available on the website of the Minnesota Department of Health. —www.health.state.mn.us/patientsafety/
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World Health Organization as part of a 2-year campaign for safer surgery.

Dr Gawande told OR Manager he sees briefings as “an extremely promising approach. It gets the whole team involved in thinking how to make sure safety is a priority.

“I do think it’s potentially a very important patient safety strategy. But this is still a new area and an opportunity for innovations to help show us new ideas.”

How briefings are conducted

Preoperative and postoperative briefings became policy at Johns Hopkins Hospital in June 2006. The policy requires a briefing before and after every surgery and is audited. The 2-minute preop briefing has 3 critical components:

• Each team member states his or her name and role, which are written on a whiteboard.
• The surgeon leads the timeout for surgical site verification.
• Each discipline—surgery, anesthesia, and nursing—discusses relevant issues for the procedure.

For nursing, the issues discussed are:

• Are all necessary instruments available?
• Will any special equipment be considered?
• The plan for breaks (relieving staff are to introduce themselves when switching).

The checklist for the briefing is in the article in the Journal of the American College of Surgeons. For more, see the July 2006 OR Manager.

The study and results

The aim of the Johns Hopkins study was to measure the association between OR briefings and clinicians’ perceptions of collaboration and the risk for wrong-site surgery.

There were 422 participants (147 surgeons, 59 anesthesia providers, 187 nurses, and 29 other staff) who were surveyed twice, before implementing the briefing policy and after the policy had been in effect for 3 months. All OR staff and physicians were trained to use a standard format for the preop briefings. Dr Makary also met with each surgeon in the program.

The survey included 6 items. The results showed clinicians’ perceptions improved on 5 of the 6 items:

• “A preoperative discussion increased my awareness of the surgical site and side being operated on.”
• “The surgical site of the operation was clear to me before the incision.”
• “Surgery and anesthesia worked together as a well-coordinated team.”
• “Decision making utilized input from relevant personnel.”
• “Team discussions are common in the ORs here.”

The only item that did not improve was: “A team discussion before a surgical procedure is important for patient safety.” Responses to that were already favorable before the study (94% after versus 93.3% before).

The survey was adapted from the Safety Attitude Questionnaire, originally from aviation, which has been validated for assessing team collaboration, safety climate, and related issues in health care.

The study follows 2 previous studies from Johns Hopkins published last year. One study, which focused on teamwork ratings OR caregivers give one another, found important differences in the way nurses rate physicians and physicians (surgeons and anesthesiologists) rate one another. The second study described how OR personnel rated their hospital’s safety climate. The studies were based on a survey of more than 2,700 OR personnel in 60 hospitals.

Said Dr Makary about the briefings, “It’s striking to me how surgeons can operate without knowing the names of the members of their team.” Though medical schools and surgical training stress the importance of teamwork, he said there is little formal training on communication, and barriers are established.

He said the new research is helping to apply scientific rigor to patient safety practices, which so far have little data to support them.

Dr Gawande has conducted research on adverse events in hospitals, risk factors for retained foreign bodies, and the role of human factors in surgical error. He is the winner of a 2006 MacArthur Foundation Award. Thumbnail

‘Apgar score’ for surgery

A simple score based on blood loss, heart rate, and blood pressure can be used to measure a patient’s condition at the end of general or vascular surgery, according to a new study.

Until now, surgical teams have not had a routine, reliable scoring method to measure a patient’s condition and chances of major complications or death at the end of surgery.

Using a 10-point score, similar to Virginia Apgar’s score for newborns, researchers from Harvard and Brigham and Women’s Hospital, Boston, found that nearly 60% of study patients with a score of 4 or below suffered major complications or death within 30 days of surgery. Only 4% of patients with scores of 9 or 10 had major complications or died.

The surgical score could have several purposes, such as allowing surgeons to identify patients at highest risk and giving patients and families information on the patient’s condition after surgery. The score could also be used to help identify safety problems and aid quality improvement efforts. Further validation is needed.

Reference


Reference


Reference

Quality improvement

Six practices of the lean operating room

Lean thinking provides a way to do more with less—less human effort, equipment, time, and space—while coming closer to providing customers with exactly what they want, according to James Womack and Daniel Jones, authors of the classic Lean Thinking.

Here’s a look at lean practices for the OR from consultant Jeff McAuliffe, MA.

Eliminate waste

Recognizing and eliminating waste are fundamentals of lean thinking.

It starts by asking, “Where does waste reside?”

“There actually is a small percentage of work that is value added,” McAuliffe notes. For example, the actual work of surgery starts with the incision. All around that are processes that may or may not add value.

One of the best ways to start identifying waste is direct observation. By taking time to actually observe a process, you can spot waste you might never have identified by brainstorming in a conference room.

Example. One orthopedic surgeon agreed to let a member of a lean project team observe him during his turnover activities. She followed him with a device that measures the distance he walked between cases. This surgeon liked a particular style of OR cap that wasn’t stocked near his OR. She discovered he had to walk across the whole surgical suite to get a cap, a round trip of about 1,000 feet. The simple fix: Stock the surgical suite to get a cap, a round trip of 100 feet.

Install a visual workplace

The idea is that your workspace is well organized so you see at a glance where each item is kept. You can tell instantly if something is missing. A visual workplace is safer and more productive.

The guide to a visual workplace is called 5S, derived from 5 Japanese words that describe good housekeeping:

1. Sort
2. Simplify
3. Sweep
4. Standardize
5. Sustain

Example. In observing OR turnover, the project team notices housekeepers have to walk a ways to get a mop. They decide to mount a mop on the wall between every 2 ORs. Behind the mop is painted the visual shape of a mop. That way, a housekeeper passing by can see at a glance if the mop is missing. A missing mop is an “abnormal condition,” prompting the housekeeper to replace the missing mop.

Ensure quality at the source

Lean organizations build quality into processes instead of relying on inspections to catch defects.

“When something isn’t working right, you don’t assume you need to add another inspection. Instead, you try to design a process where it is impossible to make an error,” McAuliffe says.

Employees are empowered to ensure quality. In lean manufacturing plants, any worker who spots a defect can pull a cord and stop the assembly line.

Example. In hospitals, gas connections have distinct couplers to make a incorrect connection all but impossible. Also, following the example of aviation, more healthcare organizations are empowering employees to speak up if they see an error starting to happen or observe a “near miss.”

Redesign for steady flow

Lean organizations design processes so activities have a steady flow without a lot of queuing and waits.

“The big bang is when you look at how many steps you have in a process and ask how much of that is rework or redundant,” McAuliffe says.

Example. An OR team redesigns its supply chain to ensure a steady flow of supplies. They arrange to have supplies delivered directly from the distributor to the sterile core to reduce locations where supplies are stored. That eliminates steps in the process and saves money, both in direct inventory and in labor to maintain it in multiple locations.

Establish standard operations

Standard operations are the effective choreography of people, information, supplies, and equipment into reliable processes that deliver better quality in a safer manner at less cost.

Example. Some physicians are skeptical about standardization of practice because they consider it “cookbook medicine.”

McAuliffe frames the discussion with them this way: “It is important to look at how activities can be standardized so providers don’t have to squander their professional judgment and discretion on just getting thorough the day. If your processes are controlled and standardized, then the only variation that gets presented to you is the patient. That’s where your professional judgment and discretion need to be applied.”

Engage and respect everyone’s expertise

Rapid process improvement (RPI) teams—a core activity of lean thinking—bring people together in a collaborative process focused on a larger goal. An RPI team in the OR involves everyone in the process, from surgeons to environmental services workers and transporters. It may be unrealistic to get physicians to participate in the typical week-long RPI workshop. Still, McAuliffe notes, “When we do bring them into a workshop, they begin to see themselves as part of a larger system that supports patients; in some respects, they are a ‘service partner’ in the hospital to support patients.”

Example. If physicians can’t attend a full workshop, they can still partner with the project team. They can be invited to attend for 1 hour when their input is most needed.

“I think there are ways to engage with physicians without asking them to spend hours of unbillable time,” McAuliffe says. ✤

Jeff McAuliffe can be reached at mcauliffej@earthlink.net.
Practicing ‘wasteology’ in the OR

A n academic medical center is practicing “wasteology” to pare time, expense, and hassle from its OR processes. Using lean thinking, the center is streamlining its operations to get more cases done and improve service to patients, physicians, and staff.

The University of Washington Medical Center (UWMC) in Seattle has applied lean thinking and rapid process improvement (RPI) over the past 2 years in its 14-room main OR and 11-room outpatient surgery center.

A few of the innovations:
- a “block doc,” an attending anesthesiologist with a resident and RN dedicated to starting nerve blocks in the preop holding area
- an OR script that maps each team member’s activities for cases
- a green card signaling when a patient in the holding area is ready to go to the OR
- A time-saving anesthesia drug distribution process.

UWMC has made an investment in lean thinking, lending resources and executive support. Some 200 people are involved. The project manager, Mike Alotis, MHA, recruited after 14 years as director of radiology, teaches lean thinking and facilitates the projects. To get up to speed on lean, he and about 10 others attended a 5-day workshop for a fee of about $2,000 each.

“We try to use lean principles in everything we do,” Alotis says.

Lean drives UWMC’s Surgical Improvement Project (SIP) chartered in January 2005 with executive sponsorship. Five SIP teams were chartered to analyze the surgical process and make recommendations for improvement. Each team reported monthly to an oversight committee of medical center leaders, surgeons, nurses, and managers.

Physicians must be active participants, Alotis notes.

“If you don’t have them, you might as well not do it, especially in the OR.”

Tackling nonoperative time

One recommendation was to charter an RPI team to reduce nonoperative time (NOT), defined as the time from closing the incision on one patient to incision on the next patient. The essence of RPI is a week-long workshop that brings key team members together for a rapid QI cycle that strives not for perfection on the far horizon but 50% improvement today.

“A 50% improvement is a lot easier to come by than sitting around for months trying to make something perfect because it’s not going to be perfect anyway,” Alotis says. “It’s also crucial to involve individuals who are the stakeholders who will have ownership of the improvements.”

A successful RPI workshop takes about 6 weeks of work by the facilitator to do an assessment and gather data that gives the team a foundation to work from. Teamwork training is also essential. Alotis says, “We go through quite a bit on how people relate to each other, including responsiveness and assertiveness, to help people understand that everyone on the team is different and has different strengths.”

A team from thoracic surgery volunteered for the NOT RPI. The aim was to free enough time to add more cases, increase billable hours, and save wear and tear on the OR team.

The team had 6 members: a surgeon, anesthesiologist, scrub nurse, circulating nurse, anesthesia technician, and hospital assistant. Their expectations were to:

- reduce NOT per case by 20%
- implement standard work methods and work balance
- engage staff in the turnover process.

By mid-2006, the thoracic project had:

- reduced NOT by 13%, or an average of about 14 minutes per case
- reduced turnover time by 50%
- reduced the average distance traveled by the OR team per case by 46%, from 2.4 to 1.3 miles (illustration).

Continued on page 13

Lean principles

What is Lean?

Lean production, pioneered by Toyota, is based on the principle that small, incremental changes routinely applied and sustained over a long period result in significant improvements.

What is rapid process improvement?

RPI is an approach for bringing together a team that is knowledgeable about a process to learn tools and techniques to:

- search for and eliminate waste
- reduce time throughout an entire process
- reduce cost
- apply the improvements in the workplace and refine and sustain them.

Principles of Lean

In their 1996 book, Lean Thinking, James P. Womack and Daniel T. Jones defined a set of 5 basic principles that characterize a lean enterprise:

1. Specify value from the standpoint of the end customer by product family.
2. Identify all the steps in the value stream for each product family, eliminating every step and every action and every practice that does not create value.
3. Make the remaining value-creating steps occur in a tight and integrated sequence so the product will flow smoothly toward the customer.
4. As flow is introduced, let customers pull value from the next upstream activity.
5. As these steps lead to greater transparency, enabling managers and teams to eliminate further waste, pursue perfection through continuous improvement.

Quality improvement

Lean thinking at the University of Washington

Mapping out the process for nonoperative time during the RPI workshop.

Activities were mapped out on sticky notes. Each color represents a different team member.

Standardized procedures were developed so hospital assistants would become part of the whole case process.

Standard places for all equipment were determined.

Before: A process map shows the typical thoracic case had 66 steps in the turnover process, and team members walked a total of 2.4 miles.

After: During the RPI project, the number of steps and distance walked were reduced by 46%.
Quality improvement

‘Block doc’ helps OR time, length of stay

In a new concept at the University of Washington, an anesthesiologist is assigned as the “block doc” in the preop holding area each day. The “block doc,” assisted by a resident and a nurse, starts regional nerve blocks for patients.

The selling point for the position was not only a savings in OR turnover time but also a reduced length of stay for orthopedic patients. The hospital’s data showed a 1.4-day savings in length of stay for orthopedic patients having regional nerve blocks.

Performing the blocks in the holding area is also expected to reduce the number of blocks given after surgery in the postanesthesia care unit, reducing stays for the PACU as well.

The team then mapped the process on a wall using sticky notes. From this, they drew a process map for OR 12—and learned a typical thoracic case had 66 steps in the turnover process.

They also looked at “work balance” during the turnover process to see how many minutes each team member spent getting ready for the next case. The analysis showed the circulator, scrub, and anesthesia provider doing most of the work between cases. By redistributing some of the work and using parallel processing during the last hour of the first cases, they dramatically reduced NOT.

The “wasteology” of NOT

The team then began looking at where they could eliminate waste—defined in lean as “any activity that does not add value to the final product.”

The process walk found wasted movement:
- The anesthesia technician made 7 trips in and out of OR 12.
- The circulating RN made several trips looking for equipment.
- Time was spent assessing which lines were which.
- Time was taken searching for information in the patient record.

Next they plotted out the NOT activities. They divided a conference table in half with red tape. On one side, they placed all steps that currently took place before the end of a case and on the other, steps that happened after the case.

Examples of waste identified:
- anesthesia provider not seeing the patient until the previous case is completed
- making hospital assistants part of the turnover process

Where are the opportunities?

After mapping activities, they looked for opportunities to create a leaner process and developed an implementation plan.

Some opportunities:
- Develop parallel processing to perform some tasks in tandem that are ordinarily performed in a series.

Top 10 teams

Each week, reports are run listing turnover times for the previous week’s cases from shortest to longest. The 10 teams with the shortest times are identified. The list is posted and e-mailed throughout the department.

Teams who have gone through RPI training tend to see themselves on the list more frequently than those who haven’t.

“As soon as we worked with urology and OB/GYN, those guys rocketed to the top,” says Mike Alotis, manager of the Surgical Improvement Project. “They had a 17% and 18% improvement. And it was no mistake that those were the groups with most surgeons participating in RPI.”

Alotis says that as soon he started sending out the top 10 list, surgeons started calling him, saying, “I want my group to go through your session.”

- Finish lines and nerve blocks in the holding area before the previous case is completed.
- Collect and organize extra items for the next case during the current case.
- Standardize the process for attaching the patient to monitors.
- Standardize the process for extubation of patients.
- Find a home for patient charts and forms.
- Make hospital assistants part of the entire case process.

Implementing improvements

From the opportunities came innovations, which the OR is implementing:
- The new “block doc” concept, with a savings of up to 30 minutes between cases (sidebar).
- A “top 10” list spurs competition between teams to save on turnover time (sidebar).
- As part of parallel processing, before the case ends, the scrub person places soiled instruments in the case cart and takes the cart back to sterile processing. (In certain situations, the scrub does not leave early in case the surgeon may need to reopen the patient.)
- Whenever possible, the circulating nurse goes to see the next patient.

Continued from page 11

The result: More thoracic cases are being completed within the regular workday.

As other specialties adopted lean strategies, the main OR as a whole saw NOT decline by 12% to 15% and turnover time reduced by 19% as of October 2006.

Because lean is a way of life, teams keep working to improve their record.

Walking in someone else’s shoes

A key step in RPI is flow-charting the process, called “value streaming” in lean.

First, each person takes time to walk in another team member’s shoes in an exercise called the “process walk.” This gives a clearer picture of the process than simply brainstorming in a conference room.

For the NOT RPI, 1 of the 2 thoracic teams scheduled a week with no clinical activities. During that week, the team spent 1 day following the second team through their turnover activities. Each member followed a person with a different role to bring a fresh perspective.

“The surgeon followed the scrub nurse and was blown away by everything she had to do between cases,” Alotis says.

Continued on page 14
before the case is over. Circulating functions for the rest of the case are assumed by another RN (team leader or the nurse who gives breaks).

- To expedite getting anesthesia drugs for the next case, locked anesthesia carts are now placed outside each 2 ORs with drug trays for all of the day’s cases for those rooms. Previously, anesthesia techs, nurses, or anesthesiologists lined up at the pharmacy to get drugs for each case, which could take 10 minutes. A narcotic lock box is being developed so an anesthesia provider can have all drugs at the beginning of the day, which will also save time between cases.

- An OR script outlines each team member’s role for the first case of the day, with activities to accomplish the day before surgery, by 6:45 am, 7:05 am, 7:20 am, and so forth until the 8:00 am start time.

- A green card outside the patient’s bay in the holding area indicates the patient is ready to go to the OR. The green card must be visible before the anesthesiologist starts sedation.

**Measures and audits**

A monthly report tracks the progress of the Surgical Improvement Project, tracking metrics such as:

- nonoperative time
- average turnover time
- percentage of turnovers below 30 minutes
- percentage of patients arriving in main preop area by 6:45 am, anesthesia providers in preop area by 6:45 am, patients in room by 7:20 am, surgeons in room by 7:30 am, anesthesia ready by 7:45 am, and on-time case starts.

“The real philosophy behind the spirit of improvement is to use our minds first and not our money, though sometimes you have to use the money, too,” Alotis says. “You have to challenge current thinking and not just look to the top leaders but leaders at every level. The people who are the experts are the frontline nurses, techs, and physicians.”

Sample tools for lean and RPI are in the OR Manager Toolbox at www.ormanager.com.

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**Average nonoperative time in minutes**

<table>
<thead>
<tr>
<th>OR</th>
<th>Current</th>
<th>After</th>
<th>% Change</th>
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<tr>
<td>Main</td>
<td>1:30 all cases</td>
<td>Trial 1: 50 (0 delay)</td>
<td>50% achievable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trial 2: 63 (30 delay)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Trial 3: 55 (25 delay)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Trial 4: 58 (28 delay)</td>
<td></td>
</tr>
</tbody>
</table>

**Summary of project to reduce nonoperative time**

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>After</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of steps</td>
<td>66</td>
<td>10 (External) 47 (Internal)</td>
<td>15% reduction</td>
</tr>
<tr>
<td>Total process time</td>
<td>1:30 all cases</td>
<td>Trial 1: 50 (0 delay)</td>
<td>50% achievable</td>
</tr>
<tr>
<td>Distance</td>
<td>12,626 ft</td>
<td>1.3 miles</td>
<td>46% reduction</td>
</tr>
</tbody>
</table>

Note: Trials were timings of nonoperative time. Source: University of Washington Medical Center.

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**Lean resources**

**Books**


The companion to the bestseller, *The Toyota Way*, provides practical examples for bringing Toyota’s practices to any organization.


The revised and updated edition of the classic book from those who developed the value-based system for American business based on the Toyota model.

**Website**

Basics on lean and other resources from the Lean Enterprise Institute. www.lean.org/WhatsLean/

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Mike Alotis is presenting a breakout session titled Rapid Process Improvement at the OR Business Management Conference May 9 to 11 in Savannah, Ga. Download the conference brochure and register online at www.ormanager.com.
Want to get started on lean thinking? There’s a method you can apply called 5S.

5S is about cleaning up and organizing work areas. The idea is to create a “visual workplace” that is uncluttered, helping to put an end to the searching, delays, and stress caused when you can’t find what you need quickly. 5S helps make work areas safer and more productive.

At Swedish Hospital in Seattle, which has practiced lean thinking for years, Carla Brannen, RN, BSN, CNOR, manager of general multispecialty inpatient surgery, and her team have “5S’d” a variety of projects, such as case cart staging and equipment storage.

Before 5S, the OR did not have an area for staging case carts. The carts are assembled in sterile processing, 3 floors below, and completed in the ORs’ sterile cores. The team used 5S to come up with a plan for staging the carts and creating space for them in the cores.

“We had places where we stored old supplies and equipment we had not used in a long time,” Brannen says. “We looked at everything in those areas. As we cleaned and sorted out, we put equipment we do use in specific places, with markings on the floor or a sign on the wall.” That freed space for the case carts.

Under the new staging plan, the staff knows specifically where to pick up the carts and drop them off. When they deliver a cart, they mark it off on the white board that lists the day’s surgical schedule.

Planning is key

How is 5S different than a to-do list? Some key concepts:

- **Advanced planning.** A complex 5S project might need 6 weeks of planning, while a simpler one may need less. “This planning is especially important if you are going to involve other departments,” Brannen says. You may need help from Environmental Services for cleaning and buy-in from surgeons to get rid of old equipment.
- **Authorizing manager.** You identify an authorizing manager, as well as leaders from other departments, for support and resources.
- **Goals and targets.** You determine where you are and where you need to go.

- **3 Actuals Walk.** You go to the actual place, talk to the actual people, and observe the actual process. This gives you a better idea what needs to be improved.
- **Preworkshop audit.** You gather baseline data and set up metrics to measure the results.
- **Communication.** 5S uses what it calls a “newspaper” for reporting at 30, 60, and 90 days after the project. The newspaper is really a planning grid that lays out each action, who is accountable, who supports it, when it will be completed, and when it will be checked.

In planning 5S projects, Brannen uses a blueprint that maps out planning steps week by week.

Brannen learned 5S as part of Swedish’s lean training. Managers who want to learn on their own can read a book such as *5S for Operators*. Once Brannen learned 5S, she led a short training session for the staff.

“The more the staff uses 5S, the more they learn the process,” she says. “They’ll start thinking where else they can use it.”

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**Decontamination area before and after 5S.**

---

**The Five S’s**

<table>
<thead>
<tr>
<th>Sort</th>
<th>How to create a visual workplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplify</td>
<td>How to manage a visual workplace</td>
</tr>
<tr>
<td>Sweep</td>
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<tr>
<td>Standardize</td>
<td></td>
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<tr>
<td>Sustain</td>
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</tbody>
</table>

The 5S blueprint is in the OR Manager Toolbox at www.ormanager.com.

**Resource**

Please see the ad for
CARDINAL HEALTH
in the OR Manager print version.
Are you up to speed on flash sterilization?

Flash sterilization is a fact of life in operating rooms—an item is dropped during a case, a surgeon brings a special instrument that needs to be sterilized, and so on.

Professional organizations recommend keeping flash sterilization to a minimum. If it must be done, it must be done properly.

The Association for the Advancement of Medical Instrumentation (AAMI) says, “When performed correctly, flash sterilization is safe and effective.” Emphasis is on the word “correctly.”

Use this checklist to see if your practice is consistent with the latest recommendations.

You’re familiar with guidelines and standards for flash sterilization

_ Association for periOperative Registered Nurses (AORN). Recommended practices for sterilization in the perioperative practice setting. In 2006 Standards, Recommended Practices, and Guidelines. www.aorn.org


AAMI recommends that flash sterilization be considered only if:

- The facility can clean and decontaminate, inspect, and arrange the instruments into the recommended tray or container.
- The physical design of the area permits delivery of the sterilized devices directly into the procedure room.
- The facility has developed procedures that are followed and audited to ensure proper handling of devices and safe delivery to the point of use.
- The item is needed for use immediately after sterilization.

Your facility does not flash sterilize implants

AAMI and AORN say implants should not be flash sterilized. If flash sterilization must be done in an emergency, you have reviewed their recommendations for monitoring the process.

Emphasis is on the word ‘correctly.’

Flash sterilization is as well controlled and rigorous as sterilization for wrapped loads

Among issues to consider:

- You follow a multistep process as recommended by AAMI, including cleaning, decontamination, and preparation. Sterilization will not compensate for poor or inadequate cleaning!
- All devices are thoroughly cleaned and rinsed following the manufacturer’s instructions.
- Instruments are cleaned in a dedicated soiled utility room with negative pressure and 10 air exchanges per hour. Personnel who clean instruments wear the proper personal protective equipment.
- In an emergency, if a single item must be cleaned in a substerile room, all precautions to prevent cross-contamination are taken.
- You’ve planned how to transport flash-sterilized items to the point of use to minimize the potential for contamination.

If the flash sterilizer is in a substerile room adjacent to the OR, the open-mesh pan method is sufficient as long as precautions are taken to protect the device while transferring it from the sterilizer to the OR. Many facilities use flash sterilization containers to contain items during and after sterilization. It is best to standardize to one flash sterilization method—open pan vs container—to reduce the amount of sterilizer testing.

If flash sterilization containers are used, you have written, scientific documentation from the manufacturer that the containers are suitable for this purpose.

What will Joint Commission ask?

The Joint Commission may look at the entire process for flash sterilization. Some questions surveyors may ask:

- How is flash sterilization performed?
- Does flash sterilization practice comply with the facility’s policy?
- Is the documentation correct?
- Can flash-sterilized devices be tracked to the patient?
- Are implants flash sterilized?
- Most important, are items being routinely flash sterilized because of insufficient instrumentation or poor scheduling?

You perform quality monitoring

The quality monitoring process includes:

Physical parameters

Physical monitoring includes time, the temperature and pressure recorder, computer printouts, and gauges.

- Competencies for all sterilizer operators have been verified, including operation and use of sterilizers, interpretation of printouts, and installation of paper rolls.
- At the end of each cycle, the sterilizer operator:
  - reviews the chart or printout
  - verifies that the correct temperature was achieved and maintained for the correct amount of exposure time
  - signs the recording document before items are removed.

Continued on page 18
Sterilizer efficacy testing

- Prevacuum steam sterilizers are tested on installation and routinely to ensure the vacuum system adequately removes air during the sterilization process. This is termed the Dynamic Air Removal Test (DAR), formerly called the Bowie-Dick test.
- For routine testing and when the sterilizers remain on all the time (steam supply is not shut off), the DAR test is performed at the same time daily (usually the first cycle of the day).
- If the sterilization equipment is shut off, the DAR test is performed as the first cycle of the day before the sterilizer is used for any other purpose. (Some sterilizer manufacturers recommend that a warmup cycle be performed first.)

Chemical indicators

Chemical indicators (CIs) are designed to respond with a chemical or physical change to one or more of the physical conditions in the sterilizer chamber. Their main function is to detect potential sterilization failures that could result from personnel errors or sterilizer malfunctions. Important: the “pass” response of a CI does not prove that the item accompanied by the CI is sterile.
- When selecting CIs, you have obtained data from the manufacturer on reliability, safety, storage, and performance characteristics.
- A CI is used in each tray or container being processed as recommended by AAMI and AORN.
- After the sterilization cycle has been completed and before the item is used, the staff interprets the CI results in accord with the manufacturer’s written instructions.
- The device or tray is not used if the CI fails to produce the correct change.

Biological indicators

Biological indicators (BIs) consist of a standardized viable population of bacterial spores known to be resistant to the mode of sterilization being monitored. BIs are intended to demonstrate whether the conditions were adequate to achieve sterilization.
- Only BIs specifically validated and recommended for use in flash sterilization cycles are used.
- The BI manufacturer has provided written instructions for use of the BI.
- The BI manufacturer has provided data on the reliability, safety, performance characteristics, type of cycles, and sterilizer assurance level (SAL) of its product.
- Routine BI testing is performed at least weekly and preferably daily, as recommended by AAMI and AORN. The frequency depends on the age and dependability of the sterilization equipment as well as the frequency of flash sterilization.
- For routine BI testing, the biological challenge test tray is the same type of tray routinely processed through the flash sterilizer, as AAMI recommends. If single instruments are usually flash sterilized, the test tray could be a single instrument placed inside the tray or container. One or more BIs are placed inside the tray or container for the test.
- BI testing is performed for each type of cycle (eg, gravity, flash). The shortest cycle should always be the cycle tested because it represents the greatest challenge to the sterilizer. Be sure to read the package insert to ensure the BI being used is compatible with the cycle (gravity versus prevacuum) and to see if there are any limitations. For example, one type of flash sterilizer may require the minimum exposure time to be set for 4 minutes rather than 3 minutes. In this case, it is important to set the sterilizer’s exposure time to 4 minutes to prevent the staff from selecting the 3-minute cycle.
- If a positive BI occurs, all devices processed in the affected sterilizer are considered nonsterile, back to the last known negative BI.
- BI testing is also performed for sterilizer installation or relocation testing, after any major repairs, and with any loads containing implantable devices (though flash sterilization of implants is not advised).

Flash sterilization containers

- Flash containers are biologically monitored as recommended by AAMI.
- If your facility uses a prevacuum flash sterilizer for open-pan and flash-container flash sterilization cycles, recommended testing includes:
  - DAR test
  - BI for prevacuum cycle (in open mesh pan)
  - BI for gravity cycle (in open mesh pan)
  - BI in flash sterilization container (for cycle usually used).

Flash sterilization is documented

- Documentation includes, at a minimum:
  - date
  - sterilizer number
  - patient ID number
  - surgeon
  - device
  - documentation that device was cleaned (can be a check mark)
  - CI included in load
  - BI run (to document first BI of the day as well as any implant cycles).
- Audits of flash sterilization records are performed monthly and any deficiencies noted. (Initially, audits may be required weekly or even daily.) Followup corrective action is taken.
- Audit results are reported to the infection control and risk management departments.

—Nancy Chobin, RN, AAS, ACSP, CSPDM
Corporate Consultant/Educator
St Barnabas Health Care System
West Orange, NJ

Nancy Chobin is a member of the AAMI Steam Sterilization Standards Committee and the AAMI Steam Sterilization Hospital Practices Working Group.

A sample flash sterilization log is in the OR Manager Toolbox at www.ormanager.com.
Savannah, Georgia

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May 9-11, 2007

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Eugene S. Schneller, PhD

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RICHARD WOLF MEDICAL INSTRUMENTS
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Assessing patient risks from sleep apnea

An alarming 80% of patients with moderate to severe obstructive sleep apnea (OSA) are undiagnosed and untreated before surgery. OSA occurs when the soft tissue in the back of the throat narrows and repeatedly closes during sleep. The brain responds by waking the person up, and breathing resumes. Those with OSA can stop breathing hundreds of times each night, resulting in ineffective sleep. Without proper treatment, OSA can cause high blood pressure, cardiac disease, impotence, and other problems.

What to ask patients
The American Society of Anesthesiologists (ASA) recommends asking preoperative patients:
- Have you been told you snore or stop breathing when you are asleep?
- Do you wake up often or constantly turn from side to side?
- Have you been told your legs or arms jerk when you sleep?
- Do you make abrupt snorting noises while you sleep?
- Do you feel tired during the day or fall asleep at work?

Patients who answer yes to any of the questions may have OSA.

Perioperative care for OSA
ASA’s recommendations for each phase of care:

Preoperative. Develop a protocol for patients suspected of having OSA so they can be evaluated long enough before the day of surgery to prepare a perioperative management plan. Determine whether an inpatient or outpatient setting is best for surgery. Discuss use of continuous positive airway pressure (CPAP), particularly if the patient has severe OSA.

Intraoperative. Keep in mind the potential for postoperative respiratory compromise when selecting intraoperative medications for OSA patients. Their propensity for airway collapse and sleep deprivation make them especially susceptible to the respiratory depressive and airway effects of sedatives, narcotics, and inhaled anesthetics.

Postoperative. Consider regional pain relief techniques to reduce or eliminate use of systemic narcotics.

Discharge. Set up specific criteria for outpatients with OSA to meet before discharge to an unmonitored setting, such as home.

Studies compare screening methods
At the ASA 2006 annual meeting, Frances F. Chung, MD, professor of anesthesiology at the University of Toronto, Ontario, and a leading expert in ambulatory anesthesia, presented abstracts of 2 studies on identifying patients with OSA. She notes a concise, reliable screening tool is needed that can be used on the day of surgery.

One study assessed 3 preoperative tools for determining patient risk for OSA:
- The Berlin questionnaire developed in 1996
- The ASA checklist for OSA
- The Obstructive Sleep Apnea questionnaire created by Dr Chung and her colleagues.

The 3 tools were compared with data from polysomnography, the “gold standard” for diagnosing sleep apnea, which requires an overnight stay at a sleep clinic.

Though all 3 tools were useful, the Berlin questionnaire correctly identified more OSA patients.

In a second study comparing the Berlin questionnaire and Obstructive Sleep Apnea questionnaire against each other and with polysomnography, the Berlin questionnaire correctly identified more OSA patients.

Reducing adverse outcomes
ASA’s guidelines for perioperative management of OSA patients say it is impossible to determine with 100% accuracy whether a patient will develop perioperative complications related to OSA. But anesthesia providers should implement guidelines to improve care in at-risk patients to reduce the likelihood of adverse outcomes.

—Judith M. Mathias, RN, MA

References

OSA screening tools

Berlin questionnaire
- Has your weight changed?
- Do you snore?
- How loud is your snoring?
- How frequent is your snoring?
- Does your snoring bother others?
- How often have you or someone else noticed your breathing pauses?
- Are you still tired after sleeping?
- Are you tired during your awake time?
- Have you fallen asleep while driving?
- Do you have high blood pressure?


ASA checklist for OSA
- BMI 35 kg/m²
- Neck circumference 17 in for men, 16 in for women
- Craniofacial abnormalities affecting airway
- Anatomical nasal airway obstruction
- Tonsils touching or nearly touching in throat midline
- Snoring loudly enough to be heard through closed door
- Snoring frequently
- Pausing in breathing during sleep
- Awakening with choking sensation
- Frequently waking up
- Frequently fatigued despite adequate sleep
- Easily falling asleep in nonstimulating environment.

—ASA. Anesthesiology. 2006;104:1081-1093.

OSA questionnaire
- Has anyone noticed that you stop breathing during sleep?
- Do you snore loudly? (Louder than talking or loud enough to be heard through closed door.)
- Do you feel tired during the day almost every day?
- Are you under 50 years of age with hypertension (defined as systolic >140 mmHg or diastolic >90 mmHg)?

Please see the ad for
GETINGE / CASTLE INC.
in the OR Manager print version.
Getting patients home quickly—and safely

Time is valuable in ambulatory surgical centers (ASCs). Patients need to be moved through the facility as quickly—and safely—as possible.

How can you balance time with safety to achieve success in your ASC? Simply be sure your policies and procedures reflect evidence-based practice guidelines for addressing common factors that contribute to delayed discharge: pain, postoperative nausea and vomiting (PONV), lack of hydration, and lack of a patient escort. Add in a patient discharge criteria system and professional collaboration, and you’ll set yourself up for safety and efficiency.

Ease the pain

Preventing pain begins with assessing the patient for risk factors. One risk factor is the type of surgery, as shown in a study by Frances Chung, FRCPC, department of anesthesia, Toronto Western Hospital, University Health Network, University of Toronto in Toronto, Ontario. Dr Chung and her colleagues found patients undergoing orthopedic procedures have a high incidence of postoperative pain. Two other factors that increased pain: longer surgical time and a high body-mass index (BMI).

One way to ease postoperative pain is to, “give acetaminophen and an NSAID [nonsteroidal antiinflammatory drug] 30 to 60 minutes before surgery,” Dr Chung notes. Walter Maurer, MD, president of the Society for Ambulatory Anesthesia (SAMBA), also supports the use of NSAIDs. He advises moving away from narcotics toward nonnarcotic modes for pain management. He uses intravenous ketorolac tromethamine (Toradol) during surgery to prevent postoperative pain. Dr Maurer, who is head of the ambulatory anesthesia department at the Cleveland Clinic, predicts a resurgence of cox-2 inhibitors, which are effective in managing pain but are now off the market. “The problem was with long-term dosing,” he notes, “I don’t think you have to be concerned about 1 or 2 doses.”

Dr Chung advises using regional anesthesia whenever possible because it’s associated with better pain control and less PONV. An option for patients in whom regional anesthesia can’t be used is continuous local delivery of analgesia to the operative site through a pump such as the Pain Buster Pain Management System or On-Q Post Op Pain Relief System. Patients go home with the pumps, which deliver drugs at a fixed rate.

Prevent nausea and vomiting

Control of pain is just one strategy for reducing PONV. An excellent resource for other methods is the 2006 evidence-based guideline for preventing and managing PONV/PDNV (postdischarge nausea and vomiting) from the American Society of PeriAnesthesia Nurses (ASPAN). The American Society of Anesthesiologists (ASA) and the American Association of Nurse Anesthetists have endorsed the guideline. (See December 2006 OR Manager, p 18.)

Like pain, preventing PONV begins with assessing a patient’s risk. Patient risk factors include being female, a history of PONV or motion sickness, not smoking, and use of opioids to manage pain postoperatively. Surgical risk factors typically reported include surgery time longer than 1 hour and the type of surgery, although research in this area is conflicting. The most common types of surgery associated with PONV are plastic surgery, otolaryngologic procedures, laparoscopic cholecystectomy, and major and laparoscopic gynecological surgery—all common procedures in the ASC setting.

The ASPAN guideline recommends using an established PONV risk assessment tool such as the ones developed by

Continued on page 25

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Apfel and Koivuranta, which are available in the ASPAN guidelines. Have your staff complete the tool and communicate the numeric results (0 to 4 or 0 to 5 depending on the scale used) to the anesthesia provider. You may want to have staff put the results next to the ASA score for ready access.

Four preventive strategies

Most patients will have at least a moderate risk for PONV, so routine prophylaxis before and during surgery is helpful for preventing nausea and vomiting. Dr Maurer credits successful prevention of PONV to 4 key strategies based on ASA and ASPAN guidelines.

• Be sure the patient is well hydrated.
  “Think about the time,” he says. “An afternoon case with a patient who’s been NPO all day is very different in terms of possible nausea and vomiting compared to a 7:30 am case. If patients aren’t well hydrated, their blood pressure will drop postoperatively; then they’ll sit up, triggering the emetic center and causing vomiting.” Allow healthy patients having elective procedures to drink clear fluids up to 2 hours before surgery. Although no set standard for hydration during surgery exists, both Drs Maurer and Chung recommend 20 mL/kg.

• Administer a 5-HT3 (serotonin) receptor antagonist such as ondansetron (Zofran), which has a low-risk profile for side effects.

• Use propofol-based anesthesia, if possible, rather than inhaled gases. Propofol has the additional advantage of antiemetic properties. Dr Maurer recommends using drugs that affect different pathways. For example, propofol may depress receptors causing PONV, while dexamethasone may antagonize prostaglandins or release endorphins. It’s also best to use an antiemetic from a different class than the one given when treating the patient who vomits.

Another strategy important to nurses is to not force patients to eat. Forcing food may contribute to PONV. Dr Maurer uses metoclopramide (Reglan) to keep the stomach empty.

Other prevention and treatment options include scopolamine patch, promethazine (for treatment), and acupoint stimulation. The most common acupoint used is P6, located on the palmar side of the wrist. A fine needle (acupuncture), electrical stimulation (acustimulation), or pressure from fingers or a wristband is applied to the point. The ASPAN guideline categorizes this as a level IIB recommendation, meaning that the benefit equals the risk and that it is not unreasonable to implement the recommendation.

Watch for new PONV guidelines from SAMBA, scheduled for release in the first quarter of 2007.

Choosing fluids

You already know hydration can reduce PONV, but it can also prevent nausea, dizziness, and drowsiness, which can persist for as long as 24 hours after the patient goes home. But hydra-
Please see the ad for SKYTRON, INC. in the OR Manager print version.
Patient discharge: Minimizing risk

Having a sound discharge process is as important to patient safety as selecting the appropriate patients for your ASC.

“I always ask facilities whether there is an anesthesia assessment and clearance for discharge,” says Michael Midgley, RN, MPH, CPHRM, a risk management consultant for AIG Consultants, Inc, Health Care Management Division, New York City.

In some ASCs, an anesthesia provider stays in the building until the last patient has left. “That’s definitely best practice,” he says. In other situations, the anesthesia provider discharges patients after they meet discharge criteria, and a nurse stays until the patient’s escort arrives.

Many ASCs have adopted criteria to guide discharge.

The need for an escort should be made clear to patients before surgery.

“Any patient undergoing anesthesia has to understand preoperatively that they won’t be allowed to leave alone or drive themselves home,” Midgley says. Patients should identify the escort in writing and sign a form prior to the procedure acknowledging that an escort is required.

When escorts don’t show

Even so, in some cases, escorts don’t show up. ASCs need a policy to cover these situations. One option is to use a car service that serves patients with special needs. A taxi is not a good alternative. A taxi driver is not prepared to help patients get to their doors or to take action in an emergency.

Arranging transportation obviously is more difficult in remote locations. ASCs in this situation need to develop a contingency plan and policy.

A policy provides support for a nurse who must stay with a patient after everyone else has left. For example, the ASC could have a transfer agreement with a hospital, clinic, or some other facility.

Of course, there are patients who have a friend accompany them around the corner where they get in their car and drive home.

“You can’t hold patients against their will,” he says. “You can tell them, ‘It is our policy that patients not leave without an escort.’ But if a patient insists on leaving, you can’t put them in restraints. And you don’t need to call the police.

“But if a patient seems incoherent, or you are concerned about the person’s capacity, you should have the patient stay and arrange safe transport home or to another facility.”

This is similar to discharges Against Medical Advice (AMA) in the hospital.

“You would request the patient to sign an AMA form, stating the reasons for leaving,” he says. “You would then document in the patient record the methods used to assess mental capacity and to discharge the patient safely.

“The most important thing is proper documentation of the staff’s actions and the patient’s refusal to adhere to the ASC’s policy,” he says.

For more, see “What’s ASC’s obligation for escorts?” March 2004 OR Manager, and “Tips for enforcing patient escort policies,” July 2006 OR Manager.

Continued from page 25

Don’t forget the escort

Only 0.5% to 2% of patients in the most progressive ASCs have no escort to accompany them home after discharge, but that’s still too many. In addition to causing schedule delays, research suggests, patients without an escort experience more complications and readmissions, so securing an escort is essential.

That begins in the surgeon’s office.

“You have to have the surgeon’s office tell patients they will need an escort,” Dr Chung says. That doesn’t mean a taxi driver. “If you let the patient take a taxi home and something happens, you’re liable.” In some cases patients may not want their family to know they are having surgery, so office staff must work to find an alternative.

Despite preoperative instructions, some patients may arrive at the ASC with no escort plans. In this situation, Dr Maurer says nurses first work with the patient to identify someone. If that’s not successful, the surgery is rescheduled. In some cases, the surgeon may do the procedure under local anesthesia.

Nurses keep an eye out for potential problems from the time they first see the patient. “They ask right away about pickups,” he says. “They get a phone number, and if they are concerned, they call to verify the arrangements.” That decreases the likelihood of an escort not showing up after the surgery. The escort should remain with the patient until the next day.

What happens if despite every effort, the patient’s escort doesn’t arrive after surgery? One option is to admit the patient to a short-stay unit, but insurance is unlikely to cover the cost. If a patient wants to sign out against medical advice (AMA), be sure to document the incident in the medical record.

Sometimes a simple conversation can prevent patients from leaving. Dr Maurer offers this idea: “I say, ‘Do you really want to be driving home, have a...”
Please see the ad for
MCKESSON
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child run out in front of your car and hit them because you couldn’t stop in time? It’s not just the patient, it’s society that’s at risk.” (For more on escort policies, see the July 2006 OR Manager.)

**Deciding on discharge**

Your facility’s policy should include a discharge scoring system to determine readiness to leave the ASC. Such a system helps ensure patient safety and reduce your liability. Dr Chung developed the system most commonly used: the revised postanesthesia discharge scoring system (PADSS) (sidebar, p 25).

“You need to make the scoring system part of the evaluation process,” she says. “It can’t be hiding somewhere in the computer or cabinet.” Keep a copy on the nurse’s clipboard for easy access and have staff document the results.

**Collaboration is key**

Collaboration is essential to ensure patients go home quickly and safely.

“Synergy develops among the OR manager, surgeons, and anesthesiologists,” says Dr Maurer. Surgeons provide an accurate assessment of needs and expectations for patients preoperatively; nurses verify escorts and manage patients postoperatively according to standards and policies; and anesthesia providers take steps to reduce PONV, pain, and other factors that contribute to prolonged stay.

Follow-up calls to patients are essential to determine patient satisfaction and fine-tune processes. “You don’t want patients to feel shoved along like cattle,” says Dr Maurer. Yet perceptions can vary: the staff may feel it took a long time to discharge the patient, but the patient feels rushed. Or the staff may feel the patient was moved through quickly, but the patient feels the process took too long.

Patient expectations can depend on the type of procedure, he notes. Patients who are paying out of pocket for plastic surgery may expect to spend the day and be treated as if they were in a spa setting. On the other hand, patients who are having a cyst removed may want to go home quickly. An important factor is where patients have access to those who can provide emotional support.

Although standards exist, there is no “one size fits all” policy to improve the patient discharge process. Consider the needs of your facility, surgeons, anesthesia providers, staff, and, above all, patients to tailor a system that’s effective and promotes good patient outcomes. 

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**References**


Bill would license CS techs

A bill in New York State would amend the state’s education law to license central service (CS) technicians. If the bill becomes law, only a person licensed or exempt from licensure would be able to perform CS services or use the title Central Service Technician.

Requirements for licensure would include:
- meeting education and experience qualifications set by the state
- being a US citizen or lawful permanent resident of the US
- paying an initial license fee of $150, with license renewal every 3 years with a $150 fee.

There would also be continuing education requirements.

Department requirements

In addition, the bill sets forth requirements for the CS department, including having a qualified manager and being guided by written policies and procedures in specific areas. The manager would need to be licensed as a CS technician and meet other qualifications set by the state.

If the bill becomes law, CS departments in hospitals in New York State would be able to employ only licensed CS technicians. RNs would not need a CS license to perform flash sterilization on an emergency basis in the OR.

The CS community is seeking the legislation “to ensure patient safety,” says Mary Olivera, MS, CRCST, CHL, president of the New York State Association of Central Service Professionals.

With increasingly sophisticated surgical instruments and antibiotic-resistant organisms, CS duties have become increasingly demanding. Yet the jobs are often held by entry-level workers, some with minimal education.

Currently, there are no education or training requirements for those who perform these duties, Olivera notes. New York would be the first state to license CS techs. New Jersey is currently the only state that regulates CS techs, mandating certification and education for CS techs and managers.

To read the bill, go to http://assembly.state.ny.us. In search box, enter the bill number, A3220.

Bariatric surgery for children

A growing number of surgeons are becoming open to performing bariatric surgery on obese children. Improvements in technique and the rising number of dangerously obese children have begun fueling this change. Four hospitals, led by Cincinnati Children’s Hospital Medical Center, are starting a study to see how children respond to types of weight-loss surgery, including gastric bypass and laparoscopic gastric banding.

Though the FDA has not approved the lap band for children, surgeons at New York University Medical Center say the device holds promise. In an NYU study, 53 boys and girls aged 13 to 17 shed nearly half their excess weight in 18 months with relatively minor complications.

—Houston Chronicle

Please see the ad for INTEGRATED MEDICAL SYSTEMS in the OR Manager print version.
Drug used in CABG raises long-term mortality

Aprotinin, a drug used to limit blood loss in patients undergoing coronary bypass surgery, has been found to be associated with an increased risk of death during 5 years following surgery. Researchers report in the Feb 7 issue of *JAMA* that aprotinin use doubled or tripled the risk of perioperative renal dysfunction and failure in coronary bypass patients. Previous research has shown aprotinin to promote thrombosis, but the effect was thought to be self-limited. This study shows the consequences of administering aprotinin continue over months to years.


Virus may be cause of CJD

Creutzfeldt-Jakob disease and other related brain disorders may be caused by a virus and not prions, suggests a new study from the Yale University School of Medicine. In a study published Feb 1, researchers report they found viruslike particles in mouse nerve cells infected with 2 brain-wasting diseases (scrapie and CJD), but they found no traces of the particles in uninfected cells. To prove the viruslike particles are solely responsible for the infection, the researchers plan to isolate the particles and see if they can start an infection when injected into healthy cells.


Four more heart transplant programs may lose funding

The Centers for Medicare and Medicaid Services notified 4 more heart transplant programs that their federal funding may be pulled because they perform too few transplants to remain proficient, the *LA Times* reports. The programs are at Sutter Memorial Hospital in Sacramento, Calif; Hartford Hospital in Connecticut; Washington DC Hospital Center; and Bryan LGH Medical Center East, Lincoln, Neb. In November, CMS said it would revoke funding for 2 other programs—Wake Forest University Baptist Medical Center in North Carolina and St Louis University Hospital. The crackdown came after a June *LA Times* investigation found that a fifth of 236 federally funded transplant centers had subpar patient survival rates or performed too few operations to ensure competency.

Each program can maintain its certification if it submits an acceptable corrective plan, according to the Feb 1 *LA Times.

—www.latimes.com

Nation's top hospitals have lowest morbidity, mortality

The top 5% of US hospitals have 28% lower mortality and 5% lower complication rates than others, according to the 5th annual study from HealthGrades. The study analyzed 26 procedures and diagnoses at all 5,122 nonfederal US hospitals in 2003, 2004, and 2005.

Over those 3 years, the top hospitals reduced their mortality rates by an average of 11.7% and postoperative complication rates by nearly 3.4%. The authors noted that if all hospitals had the same quality of care as the top ones, 158,264 lives might have been saved and 12,409 major complications avoided.

—www.healthgrades.com

Scientists grow HCV in lab

University of Washington scientists have grown the hepatitis C virus (HCV) in the laboratory—an important step in the quest for a vaccine and improved treatment for this widespread disease. HCV, spread by contact with infected blood, is the leading reason for the need for liver transplants.

The researchers for the first time were able to keep the virus thriving and reproducing for 2 months, enabling it to infect liver cells. Developing the new lab culture for HCV took 4 years to perfect.

The next step is to see whether laboratory animals can be infected with the lab-grown virus. The researchers predict a vaccine could be developed in about 5 years.