Patient safety

Human factors, education help sharpen the OR count process

Surgical counts are an established routine. An OR nurse performs them dozens of times a month. But when you dissect the process and see how it is carried out in a busy OR, it’s clear there are opportunities for errors.

After a couple of incidents of retained items, one health system stepped back to analyze the process. Leaders conducted a root-cause analysis. They called in human factors experts to get a fresh perspective. Then they worked with the staff to fix the process and staged a 5-week education campaign to make sure counts are done consistently in the system’s 4 surgical suites.

Creative communication helped get the point across. A clever PowerPoint presentation featured “Five Commandments of the Count.”

Candy bars with wrappers that had the campaign’s slogan, “I Love to Count,” and the go-live date were handed out.

The count process applies to all 51 ORs in the 2 hospitals and 2 surgery centers in the Christiana Care Health System based in Newark, Del. Christiana embarked on the project after having

Continued on page 7

Can technology help counts?
See page 12.

Ambulatory Surgery Centers

Preventing spread of ‘super bugs’ in the ambulatory surgery setting

A 16-year-old boy goes out to catch a pass during a high school football game. He’s tackled, and his left shoulder hits the turf hard. Three months later, the seemingly minor injury almost costs him his life and leaves him temporarily disabled.

A 13-year-old girl develops what looks like a pimple on her cheek. Her mother gets concerned when it starts to spread and swell. A similar lesion appears above her eye, then one the size of a softball on her buttock and several more on her thighs.

Eleven students in a high school contract skin infections, and one girl is hospitalized. She had gone to the school nurse with what looked like a “spider bite” on her leg.

The culprit—CA-MRSA, or community-associated methicillin-resistant Staphylococcus aureus. CA-MRSA has emerged in the community in people like athletes and children who don’t have the usual risk factors. CA-MRSA is genetically distinct from hospital-associated MRSA, and researchers think it may have emerged separately from regular S aureus. Hospital-associated MRSA and CA-MRSA are among the many antibiotic-resistant “super bugs” health care facilities must contend with.

Though most patients in ambulatory surgery centers (ASCs) don’t have the vulnerability of the more seriously ill patients in hospitals and nursing homes, ASCs increasingly are performing surgery on patients with complex medical conditions. ASC leaders are asking what they should do to prevent spread of MRSA and other antibiotic-resistant organisms.

Continued on page 23
Please see the ad for
MEGADYNE
in the OR Manager print version.
Bariatric Center of Excellence?

Should you go for a Center of Excellence designation? How you need to prepare.

OR governance

What’s needed for effective leadership of surgical services?

Upcoming

Bariatric Center of Excellence?

Should you go for a Center of Excellence designation? How you need to prepare.

Publisher’s Note

In his workshop, Santa was listening to “Rudolph the Red-Nosed Reindeer” on his iPod Nano. Then there was a sharp knock on the door.

“Come in,” he called cheerily.

He warmly greeted the OR director who had been so kind and helpful several years ago when both he and his wife had gastric bypass surgery (OR Manager, December, 2003).

“You look wonderful,” she told him. “With your surgery, you have slimmed down and look fantastic.”

“Well, we are getting more exercise with regular walking and Pilates,” he replied.

“I’ve come to ask your advice,” she said. “In our OR, we do a lot of gastric bypass surgery, and we are concerned with the obesity epidemic.

“It is hard to make good choices about eating during the holiday season. We love the cookies and candies. And the classic Christmas dinner is wonderful with roast beef and Yorkshire pudding or turkey with all the trimmings—mashed potatoes, butter-nut squash, and stuffing. But it takes a lot of time to prepare, and maybe it isn’t healthy.”

“Ah, yes,” replied Santa. “I think people are confused about what they should be eating, and public policy is scaring them. New York City, which has proposed a ban on the use of trans fat in restaurants, is now considering having restaurants post the number of calories on their menus. It sort of takes the fun out of eating.”

“But how can we eat healthy during the holidays?”

“Martha, it’s Santa”

“Let’s call on the experts,” Santa suggested. He quickly dialed his cell phone.

“Martha, it’s Santa. People need help on eating sensibly during the holiday season. Can you help with some timely advice?”

“Oh yes. First, make sure everything is prepared. It’s a little late for that approach,” commented the OR director.

“But,” sputtered the OR director, “we already get up pretty early because our workday starts at 7 am.”

“Oh, you could bake the cookies one morning and frost them the next morning,” Martha suggested.

“But how can we eat healthy during the holidays?”

“Martha, it’s Santa”

“Let’s call on the experts,” Santa suggested. He quickly dialed his cell phone.

“Martha, it’s Santa. People need help on eating sensibly during the holiday season. Can you help with some timely advice?”

“Oh yes. First, make sure everything is prepared. That way, you will know no trans fat is involved. Get up earlier to make cookies and other Christmas goodies.”

“Sure, you can prepare a ‘delish’ holiday dinner in 30 minutes. Remember, there is nothing wrong with store-bought. You don’t need to make a big deal out of Christmas dinner.”

“Thanks, Rachael, I think that will help simplify things in the kitchen.”

“I suppose that will save time, but what about tradition?”

“Let’s try another expert.”

“Julia, what can you recommend for healthy eating during the holidays?”

“I have one more source,” said Santa. “Alice, I am here with my favorite OR director, who needs some direction about preparing a healthy holiday dinner.”

“What’s important is to grow your own food. Or if you can’t do that—say you live in a condo in mid-Manhattan—buy all your food at the local farmer’s market.”

“It’s a little late for that approach,” commented the OR director.

“We have our contacts . . . ,” replied Santa.

“Food is to be enjoyed, not feared. I think people are losing sight of the pleasure of preparing wonderful food, sharing it with family and friends, and celebrating the holiday season. Moderation is the key.”

“Oh, and I am working on a new cookbook . . . Mastering the Art of Cooking in Heaven. The food here is divine.”

“My advice for the holidays—Bon Appetit.”

—Elinor S. Schrader
Please see the ad for CARDINAL HEALTH in the OR Manager print version.
Keynote: Supply chain’s ‘burning platform’

When the oil platform Piper Alpha in the North Sea caught fire, a worker was trapped by the fire on the edge of the platform. Rather than certain death, he chose probable death by jumping 100 feet into the freezing sea.

The term “burning platform” is now used to describe a situation where people are forced to act because the alternative is worse.

Managing the health care supply chain may not be that dramatic. But with supplies and related purchases hospitals’ second largest cost, managers may be feeling the heat.

They don’t need to jump, but they do need to be aware of the forces that could affect their strategy—cost, safety, and the drive for improved outcomes,” says Eugene S. Schneller, PhD, professor of business at Arizona State University, Tempe, who will keynote the OR Business Management Conference May 9 to 11 in Savannah, Ga.

“If you think of almost every industry outside of health care, such as Amazon.com and Dell, the major way they’ve achieved efficiencies is by changing the supply chain,” he says.

“I see that supply chain managers—and I see OR managers very much in that role—really are change managers. Much of what they do is to orchestrate change around products and processes. And that is a real challenge.”

Schneller has studied how high-performing health care organizations are adapting their supply chains to the changing environment. He will base his keynote on the book he coauthored with Larry R. Smeltzer, Strategic Management of the Health Care Supply Chain (Jossey-Bass, 2006).

In his talk, Schneller will describe some characteristics of progressive hospitals and health systems, including:

- the role of clinical and nonclinical leaders
- enablers of progressive supply chain management
- guidelines that lead to progressive practices
- what health care organizations can learn from leading companies.

He’ll describe how OR leaders can evaluate what level their organizations are at in supply chain management and how they can help move the organization to the next level.

For instance, do supply chain leaders focus mainly on ordering supplies and getting them delivered? That focus on transactions, of course, is necessary. But do they also take a broader view, analyzing the lifecycle cost of products, building bridges with physicians, and developing a sound value-analysis and technology assessment program?

Aligning with physicians

In a breakout session following the keynote, Schneller will talk about how high-performing organizations are achieving better alignment with physicians on supply chain management.

Among questions he’ll explore: What influence will gainsharing have on physician-hospital relationships? How can data, especially through new information systems that link cost, quality, and outcomes, be used effectively to forge these relationships? What makes value-analysis teams more effective?

Schneller and his colleagues have been studying the hospitals that first adopted gainsharing to see how they have achieved cost savings. They are preparing to publish their results. They’re also researching the success factors for value-analysis teams.

Once an organization gains the support of key physicians, he says, “I think it helps you to effectively engage suppliers,” because the physicians are more likely to support a needed change.

“I think what a lot of the discussion is about—and it’s a big phrase in the health care industry today—is ‘evidence-based management,’” he says.

A brochure for the OR Business Management Conference will be available on the OR Manager website, www.ormanager.com in late January and mailed to subscribers in February.
Please see the ad for
MOBILE INSTRUMENTS SERVICE AND REPAIR
in the OR Manager print version.
3 retained sponges and a retained clamp. There was also a near-miss with intentional packing in a patient leaving the OR.

**Root-cause analysis**
The root-cause analysis identified these factors as contributing to the retained items:
- relying on memory when documenting the baseline count
- variations in sterile setups (instrument trays) in ORs and procedure areas
- variations in the method for performing counts
- potential for distractions and interruptions during counting
- lack of consistency in assigning staff breaks and handoffs when going on break.

Breaks were sometimes taken during procedures as short as 30 minutes.

“There was no rigor in how breaks and lunches were given and no rigor in how communication was passed along when the staff left the room,” says Judith Townsley, RN, MSN, CPAN, Christiana Care’s director of clinical operations for perioperative services.

**Human factors experts observe counts**
The human factors experts, Kathleen Harder, PhD, and John Bloomfield, PhD, cognitive psychologists from the University of Minnesota, Minneapolis, helped Christiana Care rethink the way counts were being conducted. They spent time in the OR observing both long and short procedures. Clinicians knew the experts were there but didn’t know they were looking specifically at counts.

The human factors experts employed what they call a process-analysis or systems-analysis approach.

“We don’t use an established form. We go in with open minds and take lots of notes,” Harder explains.

“We observed many kinds of proce-

### Human factors analysis of surgical counts

<table>
<thead>
<tr>
<th>Observation</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline counts were not always performed before the patient arrived or even before the incision. “Once the patient arrives, other activities may distract the scrub and circulator, and the baseline count may not be accurate.”</td>
<td>Perform an uninterrupted count before the patient comes into the room.</td>
</tr>
<tr>
<td>A lack of rigor in how counts were conducted:</td>
<td></td>
</tr>
<tr>
<td>• Scrub person did not always arrive in time for a baseline count before the patient arrived.</td>
<td></td>
</tr>
<tr>
<td>• Scrub and circulator did not always count together out loud according to policy.</td>
<td></td>
</tr>
<tr>
<td>Counts not always recorded immediately. Circulator relied on memory for documenting baseline count on form.</td>
<td>Use preformatted dry erase board to record baseline counts. The boards replace count worksheets.</td>
</tr>
<tr>
<td>Sterile setups varied in Christiana Care’s ORs.</td>
<td></td>
</tr>
<tr>
<td>Counts not always conducted according to policy. For example, the policy called for a count when closing a cavity within a cavity, but that was not always followed.</td>
<td>Counts will always be conducted according to policy.</td>
</tr>
<tr>
<td>Counts were not always performed when one team member relieved another. Breaks were not well controlled.</td>
<td>Staff are more mindful of the impact of break scheduling on patient safety.</td>
</tr>
<tr>
<td>Multiple interruptions created distractions during counts. Final counts were sometimes rushed.</td>
<td>Distractions will be minimized. Counts will not be interrupted. “Pause for the count” may be called for final count if necessary.</td>
</tr>
<tr>
<td>When patients left the OR with intentional packing, that fact was not always communicated to receiving unit.</td>
<td>Packing communication form is sent with patient, and purple bracelet is placed on patient. Bracelet is removed after packing level reaches zero and is confirmed by x-ray.</td>
</tr>
</tbody>
</table>

*Source: Christiana Care Health System.*
Please see the ad for
STERIS CORPORATION
In the OR Manager print version.
Patient safety

Continued from page 7

dure to get an overview of some of the problems in the process.” Examples of their observations and recommendations Christiana implemented are in the sidebar on page 7.

“I love to count”

Christiana Care’s initiative includes a revised counting policy backed by education plus physician and administrative support. Education laid the foundation for rollout of the new policy.

“It was absolutely critical to have education take place before we went live. We wanted everyone on the same page,” says Townsley.

The 5-week education initiative included these mandatory activities:
• in-service sessions on the procedure and process change
• demonstrations, practice, and return demonstrations by each staff member
• an online self-learning module.

It helped that the whole staff was involved in developing the policy. The effort included staff RNs and surgical technologists from all 4 sites as well as physicians, anesthesia providers, educators, perioperative leaders, and representatives from labor and delivery, cardiovascular services, performance improvement, and risk management.

It also helped that the message was the same for everyone on the surgical team. Perianesthesia educators aided in education of anesthesia providers. Townsley made presentations at the surgical executive committee and section meetings.

Nurse leaders added a playful touch. Along with the candy wrappers and the PowerPoint, they used posters and a video illustrating how to count correctly according to the policy.

Key changes

Among key changes in the count process:

Preformatted dry erase boards in each OR for the baseline count

The dry erase boards make the counts visible to everyone.

“This functions as a primary record. The surgeon and scrub can see the count. It acts as a double check for what the circulator is reporting,” says Mary Cay Curran, RN, MSN, CPAN, manager for process and system standards for perioperative services.

“It also fosters a team spirit and brings everyone into the process.”

Completing baseline counts before the patient enters the OR

The human factors experts observed that the scrub and circulator were less likely to be distracted if the baseline count is performed before the patient arrives in the room. If they are distracted, the baseline count is less likely to be accurate.

This was a dramatic change in practice for the staff. But after the 5 weeks of education, everyone knew what to expect.

“The day it was rolled out was actually uneventful, it went so smoothly,” Townsley says. “People knew it was coming and seemed like they were ready.”

Support for staff for uninterrupted counts

Some staff members were concerned about whether surgeons and anesthesia providers would support uninterrupted counts.

“We told the staff that perioperative leadership was there to support them,” she says. “We tried to give them confidence to say, ‘This is a patient safety issue, and I need to count. I will not be answering your beeper for you during the final count.’

“The staff really stood up the few times when it was necessary and were advocates for their patients,” she says.

More controlled breaks and handoffs

The staff were asked to consider counts and patient safety in planning for breaks.

Decision not to make changes in the count policy for at least a year

The human factors experts explained that introducing changes too soon could confuse the staff and interfere with the goal of improving consistency.

Concern about turnover time

Some physicians expressed concern that turnover time would be longer if the baseline count is done before the patient enters the room. In meeting with the surgeons, Townsley says she emphasized patient safety and told them that being rigorous in the counting process could enhance patient safety and save the human and financial costs of retained items.

“I don’t think the uninterrupted counts increase your turnover time that much.”

Continued on page 11

New policy goes live April 3, 2006

Perioperative Services is committed to our mission of focusing on excellence for every patient.

A representation of a possible candy wrapper similar to the one used by Christiana Care Health System.

Resources

American College of Surgeons

Statement on prevention of retained foreign bodies after surgery (ST-51). www.facs.org

Association of periOperative Registered Nurses

Five Commandments of the Count

These five commandments were part of a PowerPoint presentation for Christiana Care’s education campaign on surgical counts.

I. Counts must be conducted for all procedures

**Baseline count**
- Initial counts provide a baseline for all other counts and are required for all surgical procedures.
- The baseline count must be recorded on a preformatted dry erase board.
- All items on the field must be included in the count.
- Counts must be performed by the RN assigned to the room at the time of the count.

**What to count**
- all radiopaque sponges
- all sharps
- miscellaneous items
- instruments on procedures in which there is a possibility of an instrument being retained.

**When to count**
- A count must be conducted:
  - before the procedure to establish a baseline
  - before closure of a cavity within a cavity
  - before wound closure begins
  - at skin closure or end of procedure
  - at the time of permanent relief of either the scrub person or the circulating nurse
  - whenever requested by any member of the surgical team.

II. Baseline counts must be completed before patient enters the room

**Adding items to the field**
- When additional sponges, sharps, needles, or small items are added to the sterile field, they will be counted when added and recorded as part of the count documentation.
- As items are counted off, they are subtracted from the tally on the dry erase board.
- All counted items must remain accessible in the room.
- Counts are recorded immediately on the preformatted dry erase board.

III. Count audibly

Sponges, sharps, and instruments must be counted audibly with the scrub person and the circulating nurse concurrently viewing each item as it is counted.

**Sponges**
- Sponges should be separated to determine whether a sponge has been inadvertently deleted or added to the package.
  - Perioperative personnel should never assume the count on prepackaged sterile sponges is correct.
  - A package containing an incorrect number of sponges should be bagged, labeled, and isolated from the rest of the sponges.
- Only radiopaque sponges with an x-ray detectable element should be placed on the sterile field.
  - X-ray detectable sponges facilitate finding an item that is lost or left in the patient should a count discrepancy occur.
  - X-ray detectable sponges must never be used as dressing sponges.

**Sharps**
- The needle count pad should be used to secure needles, hypodermic needles, scalpel blades, cautery blades, etc.
  - Sharps remaining free on the surgical field may be inadvertently introduced into the incision, penetrate the surgical drapes, or drop onto the floor.
  - Collecting used sharps in a container minimizes the chance of injuries.
- Whenever possible, handle sharps on an exchange basis only.
  - Do not discard any sharp that has inadvertently been discarded or dropped from the field until all counts are reconciled. Place in a puncture-proof cup until the case is over.

(Commandment III continues on next page.)
Patient safety

IV. Counts should not be interrupted

Cases in which there have been a change in staff, temporary or permanent, have a higher risk of a retained foreign object. Whenever a circulator or scrub person is relieved during a case:

- A count should be done.
- The person leaving should communicate a brief report to his or her relief person, including:
  - sponges packed
  - number of needles up
  - type and strength of medications on the field
  - other pertinent information.
- Never offer or accept relief while a count is in progress.

V. No patient will leave the OR unless every team member is sure the count is reconciled

Interventions for an incorrect count

- Notify the surgeon immediately and state what is missing.
- Request help if needed.
- Recount.
- Conduct a search for the missing item.
- If the item is located, a complete recount must be conducted.
- If the item is not located:
  - Notify the coordinator/charge nurse.
  - Request help if needed.
  - Notify the surgeon that an x-ray of the wound must be taken prior to the patient leaving the OR.
  - Call for an x-ray. The x-ray must be taken and read before the patient leaves the OR.
  - Complete an event report.
  - Document!

(Editor’s note: This commandment also includes documentation of counts and special events including emergencies, intentional packing, wounds packed open, and organ donors, which are not included here.)

Study finds huge variations in spine surgery

A patient with low back pain in Idaho Falls, Idaho, is more than 4 times as likely to have a lumbar fusion as a patient in Bangor, Maine, or Terre Haute, Ind, finds a new study from Dartmouth.

Lumbar fusion rates are as much as 20 times greater in some parts of the country than others. Rates have skyrocketed by more than 250% in the past 20 years, while the cost has jumped by more than 500% in Medicare patients alone, according to the report.

While other common procedures such as laminectomy and discectomy have actually decreased slightly, rates of lumbar fusion rose from 0.3 per 1,000 Medicare enrollees in 1992 to 1.1 per 1,000 in 2003.

“What’s most disquieting about these findings is that we really haven’t advanced our knowledge as to whether fusion for several back conditions works for patients,” says lead author James N. Weinstein, MD, a surgeon and professor of orthopedics at Dartmouth.

Lumbar fusion now accounts for almost 50% of all back surgery performed in the US.

The US has the highest rates of spine surgery in the world, though the rates of spine disorders are similar to those in other countries.

The authors say the data for lumbar fusion, except for specific etiologies, “is particularly weak,” despite its rapid growth. They also note the proliferation of additives such as bone morphogenic proteins, saying most have come to market without randomized trials to test whether they make a difference in patient outcomes and quality of life.

Left alone, the practice variations will not go away, the authors say. They call for an expanded research agenda, saying it should include evaluation of new technologies and new theories about current technologies as well as ongoing studies of existing practices.

Medicare is convening an expert panel Nov 30 to examine the evidence on spinal fusion.

Reference

Could technology help in OR counting?

Sponge counts are necessary. Yet they can occur at the busiest phases of an operation, heightening the risk for error. And the human element means an error is always possible.

Help from technology is on the way.

Two new sponge-count technologies may help improve patient safety and OR efficiency. Both systems alert the surgical team to any missing sponges before the surgeon closes the incision.

The Safety-Sponge System (SurgiCount, Temecula, Calif), cleared by the Food and Drug Administration (FDA) in March, uses a scanner to count and record sponges and towels embedded with data matrix tags.

The SmartSponge System (ClearCount Medical Solutions Inc, Pittsburgh) uses radiofrequency identification (RFID) to scan sponges embedded with smart chips to make sure none are left in a patient. The company expects FDA clearance by the end of 2006.

Sponges have ID tags

Similar to groceries with barcodes, each sponge and towel in the Safety-Sponge System is labeled by the manufacturer with a data matrix tag.

"Each sponge has its own unique identification, so the system can tell whether you are missing a 4 x 4 or a lap sponge," notes Rick Bertran, president of SurgiCount.

The system is on the market and has 4 customers with others conducting trials.

The tags, made of liquid-shedding polymers, are heat sealed into the sponges and towels to prevent them from detaching. The tags can store more information than barcodes and can still be read even if degraded up to 25%, which isn’t true of a barcode, says Bertran. A nurse uses a scanner with a touch screen to read and record the data tags. The scanner can be handheld or attached to an IV pole for hands-free counting (photo).

Counting with the scanner

At the beginning of the case, the scrub nurse passes each sponge under the scanner, and it is counted by the system. At the end of the case, the circulating nurse manually counts the sponges again and passes each one under the scanner. The system takes a half second to count a sponge, and Bertran says the method is consistent with the recommendation of the Association of periOperative Registered Nurses (AORN) to separate and count each sponge.

The scanner records the time the sponge is introduced to the sterile field and the time it is removed, providing an audit trail for every sponge. The software does not allow an item to be counted twice, and no item can be counted out that was not counted in. For example, if a relief nurse tries to count a sponge that has already been counted, the scanner will alert the nurse.

During the case, the scanner’s touch screen shows the circulating nurse the current status of the sponge count. The circulator can take the sponges out of the kick bucket and count them in order. The nurse can choose to pile the sponges in groups of 5 or 10 or not.

At the end of the case, the circulating nurse places the scanner in its printing device to print a report for the patient’s record. The report also can be downloaded to other information systems.

Besides patient and staff information, the report lists every sponge counted in and out by ID number, including the time each was counted in and counted out.

“If a sponge is missing, the report can tell you what kind of sponge it is and what time it was scanned into the case, which gives the team an idea of when it was used and where it might be,” says Bertran.

The scanner’s software will not verify a final count until all items scanned in are accounted for.

Bertran says SurgiCount continues to refine the scanning software, and says improvements are coming that will make the system faster and easier to use. The company also is looking at how the technology can be expanded to counting of needles and instruments.

He says the cost of the system averages $8 to $10 per procedure.

Common sense approach

Janet Lewis, RN, MA, CNOR, describes the Safety-Sponge System as “a common-sense approach to address a safety issue.” The system has been used since July at Integris Baptist Medical Center, Oklahoma City, where Lewis is administrative director for surgical services, outpatient care, the burn center, and renal transplant clinic. She says nurses agree the system is a help, though there is always some resistance to change and a learning curve.

Each OR has a scanner, and all sponges have data matrix tags.

“The system gives us trackability we have never had before. It helps take that human factor element out of the count,” she says.

Lewis says an analysis showed the system is cost-effective.

A better way

“There has got to be a better way,” Sharon Morris, RN, BSN, CNOR, said to
herself after a tedious day of accounting for sponges. She went home that evening and began drawing up ideas for a smart chip for sponges using radiofrequency identification (RFID). Ten years later, Morris, who is OR manager at Montana’s Kalispell Regional Medical Center, says her idea is becoming a reality in the SmartSponge System being developed by ClearCount Medical Solutions Inc.

Her idea was to be able to pass a wand over the patient’s body and know immediately if anything was left inside. The wand evolved into a flat 8 in-by-10 in scanner that weighs slightly more than a pound. The smart chip is the size of a dime and about as thick as a shirt button (photos). The chip, embedded in the sponge, acts as a transponder, listening for a radio signal sent by the scanner and responding with a unique ID code. The chip contains specific data, such as the type of sponge, its inventory number, and its date of manufacture. The chip is made so it can function after sterilization.

Morris says the company continues to work on making the scanner and microchips smaller and lighter.

The company can’t make the scanner too small because scanning is easier and faster with a larger scanner, notes ClearCount Medical Solutions cofounder and chief marketing officer, Gautam Gandhi.

**Replacing the postop x-ray**

Gandhi says he sees the scanning system replacing x-rays, which are used in certain situations to verify that no sponges are left behind. He says the system could also save the time of waiting for x-ray personnel to come to the OR and take the x-ray and to have the x-ray read.

Even with x-rays, mistakes are sometimes made, he points out.

“More than 30% of intraoperative x-rays after incorrect counts are inconclusive,” he says. “And the mistakes are always made when the counts are documented as correct.”

Once the SmartSponge system is cleared by the FDA, Gandhi says ClearCount will suggest it be used on every case.

“You wave it over the patient, and if there is something there, you will know immediately. The scanner will tell you how many sponges are there and what kind of sponge it is,” he says. “If there is nothing there, you also will know that immediately.

It is recorded in a window on the scanner.” The cost of the Smart-Sponge System has not yet been determined.

**Study shows scanning effective**

When creating the scanner, Gandhi says the company’s biggest question was whether the technology could read through the body 100% of the time. A feasibility study, conducted by Alex Macario, MD, of Stanford University School of Medicine’s Departments of Anesthesia and Health Research and Policy, proved that was possible, he says. The study found the scanner was 100% correct every time used and took less than 3 seconds to find the sponge or sponges.

The scanner can count multiple sponges at once without separation and can distinguish types of sponges such as 4 x 4s and lap sponges.

Dr. Macario told OR Manager that the challenge now is how to incorporate the device into the work flow of the operating room.

“We need a counting system that is fail-safe—that does not allow a patient to leave the operating room with a retained foreign body,” he says. Though the device may need further testing in a variety of surgeries and modifications to make it as easy as possible to use, Dr. Macario says he believes in the future, RFID tags will be used to track all surgical items and supplies as they enter and leave a patient’s body. ✷

—Judith M. Mathias, RN, MA

**References**


Check our website for the latest news, meeting announcements, and other practical help.

www.ormanager.com
Taking steps to keep OR patients warm

Part of a series on the Surgical Care Improvement Project.

Even a small drop in patients’ core temperatures triples the risk of surgical site infections after colon surgery and increases the hospital stay by 20%. Since these landmark findings were reported in 1996, clinicians have taken steps to make sure patients stay warm before, during, and after surgery.

In 2005, the Surgical Care Improvement Project (SCIP) chose immediate postoperative normothermia for colorectal surgery patients as 1 of 7 infection control measures. These patients were targeted because many of the studies on normothermia focus on this population.

OR Manager interviewed Daniel Sessler, MD, senior author of the landmark study and a leading researcher on normothermia, about his research and advice for maintaining normothermia.

Warm patients before surgery

Dr Sessler advises active warming of every patient preoperatively, saying that is key for preventing intraoperative hypothermia.

“Patients need active warming for at least 30 minutes to be effective,” he adds. An hour or more of prewarming prevents core hypothermia for 2 to 3 hours of open abdominal surgery without any intraoperative warming, his research shows.

“It is remarkably effective, and patients love it because they feel warm and toasty preoperatively,” he says.

Warming patients in the preoperative holding area prevents “redistribution hypothermia,” the most important cause of hypothermia in most patients (sidebar). About 80% of hypothermia in the first hour of surgery results from a redistribution of heat from the internal core to peripheral tissues. This large internal flow of heat is induced by anesthesia and occurs independently from the environment, heat loss from the skin, or a net decrease in body heat content (sidebar).

Preoperative warming does not change patients’ core temperatures because they are unanesthetized and thus able to regulate their core temperatures. But it does transfer body heat into the peripheral tissues, which reduces the core-to-periphery temperature gradient. If a patient is prewarmed sufficiently, there is essentially no temperature gradient between the core and the periphery, he says. Then when anesthesia is induced and causes vasodilation, heat cannot flow from the core to the periphery because of the Second Law of Thermodynamics, which holds that heat can only flow down a temperature gradient.

Warming every patient

Warming every patient is a reasonable strategy given the low cost, high efficacy, and safety of forced-air warming, Dr Sessler says. He would accept not warming patients having short operations, but says patients should be warmed when a procedure lasts for close to 1 hour. His personal cutoff time for not warming is about 30 minutes.

Paradoxically, “it is actually harder to keep patients normothermic in short operations than in long ones,” he says. The reason is that a short procedure is finished before the redistribution hypothermia can be treated by active warming.

Which warming method?

SCIP does not recommend how to measure patients’ temperatures or keep them warm. Each organization needs to determine what methods are most efficient and give the most reliable results.

Dr Sessler does not have a preference for a patient warming device. He says ORs tend to use forced-air warming covers because they are effective, safe, and inexpensive—noting that the blowers are often free, and the blankets cost about $8.

His research has found the newer circulating water devices, such as circulating water garments and energy transfer pads, warm about 50% better than forced air because they also warm the posterior skin.


How hypothermia develops

Hypothermia develops during general anesthesia in 3 phases:

1. An initial rapid reduction in core temperature occurs after anesthesia induction and results from an internal redistribution of body heat. Redistribution occurs because anesthetics inhibit the tonic vasodilatation that normally maintains a large core-to-peripheral temperature gradient.

2. Core temperature subsequently decreases at a rate determined by the difference between heat loss and production.

3. When surgical patients become sufficiently hypothermic, they trigger thermoregulatory vasconstriction, which restricts the core-to-peripheral flow of heat. Constraint of metabolic heat, in turn, maintains a core temperature plateau—despite continued systemic heat loss—and eventually reestablishes the normal core-to-peripheral temperature gradient.

The patient’s postoperative return to normothermia occurs when the anesthetic agents decrease sufficiently to trigger the body’s normal thermoregulatory defenses.


Normothermia definitions

Normothermia: Core temperature range of 36°C to 38°C (96.8°F to 100.4°F)

Hypothermia: Core temperature less than 36°C (96.8°F)

Core temperature: Core temperature is the single best indicator of a patient’s thermal status. Roughly speaking, the core thermal compartment consists of the head and trunk and is nearly half the body mass. About 80% of thermal input to the regulatory system is derived from the core, and most complications associated with hypothermia are related to core temperature.


Warming every patient

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SCIP targets normothermia

This article is the fifth in a series focusing on the Surgical Care Improvement Project (SCIP). SCIP targets 4 broad areas:

• Surgical site infections
• Adverse cardiac events in patients having noncardiac surgery
• Venous thromboembolism
• Postoperative ventilator-associated pneumonia.

SCIP process measure for normothermia

Maintaining normothermia is one of the measures for preventing surgical infections. The measure is:

• Colorectal surgery patients with immediate postoperative normothermia.

Previous articles discussed antibiotic prophylaxis (April 2006), venous thromboembolism prevention (May 2006), using computerized data to guide OR QI (June 2006), and glucose control (September 2006).

More information on SCIP is at www.medqic.org/scip.

They are also more expensive.

Manufacturers of the circulating-water devices say their products are cost-effective because they result in improved patient outcomes compared with traditional warming methods. They also say their devices can be placed on all body surfaces, not just on the anterior surface as with forced-air covers. They say this is important for patients having surgery that requires large areas of their anterior skin to be exposed.

As long as the patient’s temperature is approximately normal at the end of surgery, it doesn’t matter whether the method used is circulating water, forced air, an increase in the ambient room temperature, or prewarming patients in the holding area, says Dr Sessler, who is chair of the Outcomes Research Department at the Cleveland Clinic and professor of anesthesiology and director of the Outcomes Research Institute at the University of Louisville in Kentucky.

About warming of IV fluids, he says, “There is no scientific basis for this approach in 90% of patients. Fluid warming costs as much as forced air but transfers a tiny amount of heat compared to forced air.”

What’s best for measuring temperature?

Measuring core body temperature is important because of the redistribution effect caused by anesthetics.

For intubated patients, the best route is the distal esophagus, Dr Sessler says, noting that flexible esophageal probes “are inexpensive, easy to insert, and resistant to artifact.”

For nonintubated patients, he recommends oral, axillary, or forehead skin temperature measurement. Bladder temperature is a good alternative for patients who require catheters for other reasons, he says.

“The data show the forehead strips work remarkably well,” says Dr Sessler. In a 1997 study that tested use of the liquid-crystal forehead temperature indicator strips in 3 different ways, the strips didn’t fail, though he says he thought they would.

He doesn’t recommend using aural canal (typanic membrane) or temporal artery infrared thermometers to monitor core temperature during surgery, having found these to be “insufficiently accurate to be used in the perioperative period.” Both appear to be “little better than random number generators,” he says.

In a 1998 study, Dr Sessler and researchers from Japan studied the accuracy of 4 infrared aural canal thermometers during cardiac surgery and concluded none was sufficiently accurate and precise for perioperative care. In a 2002 study of temporal-artery thermometers in adult and pediatric patients, his team found their accuracy was poor in adults and suboptimal in infants and children.

Temperature measurement methods

Methods for monitoring core temperature in perioperative patients.

Effective methods

Intubated patients
Distal esophageal probe

Nonintubated patients
Oral thermometer
Axillary thermometer
Liquid crystal forehead strip
Bladder catheter thermometer

Ineffective methods

Aural canal (ear) infrared thermometer
Temporal artery infrared thermometer

Source: Daniel Sessler, MD.

Other researchers have come to similar conclusions for use in intensive care unit (ICU) patients.

In the postanesthesia care unit (PACU), his first choice is oral temperatures.

For axillary temperature, he says, “any electronic thermometer will work. The only important thing is to locate the sensor over the artery and keep the patient’s arm at the side to keep the axillary space closed.”

Turning up the thermostat

There are patients who will not be normothermic despite the best of efforts, he adds. Procedures such as a colectomy in lithotomy position entail so much skin exposure that there is not enough surface area to warm. In these cases, some clinicians turn up the temperature in the operating room. This can help, says Dr Sessler, though raising the OR temperature enough to help “makes everyone in the operating room miserable.”

A more sophisticated approach, he says, would be to keep the ambient temper...
Surgical Care Improvement

Key research on normothermia

Colorectal surgery patients
The study involved 200 patients divided into 2 groups:
- Control patients: routine intraoperative thermal care (mean temperature 34.7°C)
- Treatment patients: active warming (mean temperature on arrival to PACU 36.6°C).

Results
- Control patients: 19% surgical site infection (SSI) (18/96)
- Treatment patients: 6% SSI (104), P=0.009


Clean surgery
In the study, 421 patients having clean surgery (breast, varicose vein, or hernia procedures) were divided into 3 groups:
- Unwarmed group (standard)
- 2 warmed groups (local and systemic): warming applied for at least 30 minutes before surgery.

Results
- Unwarmed group: 14% SSI (19/139)


Preoperative warming
Patients were divided into 2 groups:
- Control patients: covered only with a wool blanket during a 1-hour preinduction period
- Treatment patients: received forced-air warming for 1 hour before induction.

Results
- Control patients: following induction of anesthesia, core temperature decreased at a rate of 1.1 +/- 0.1°C/hour. After 1 hour of anesthesia, only 1 of 8 patients had core temperatures of at least 36.5°C
- Treatment patients: following induction, core temperature decreased at a rate of only 0.6 +/- 0.1°C/hour. After 1 hour of anesthesia, 6 of 8 prewarmed patients had core temperatures of at least 36.5°C


Postop warming nice but not necessary
If patients are normothermic at the end of surgery, they won’t necessarily need or want warming postoperatively.
“Patients won’t get colder in recovery because they are not anesthetized, and they are thermoregulating very well on their own,” Dr Sessler says.
“There is nothing wrong with leaving active warming devices on patients in the PACU if they feel more comfortable, and they like it.” SCIP calls for patients to be normothermic immediately postoperatively, he points out. This means patients have to be normothermic during surgery—not be allowed to become hypothermic and rewarmed at the end of surgery.
“It is okay to keep the warming blanket on patients postoperatively, but warming in recovery is no excuse for inadequate intraoperative thermal management. Intraoperatively is when hypothermia occurs, and most complications develop,” he says.

—Judith M. Mathias, RN, MA

References


Have an idea?
Do you have a topic you’d like to see covered in OR Manager? Have you completed a project you think would be of help to others? We’d be glad to consider your suggestions.
Please e-mail Editor Pat Patterson at ppatterson@ormanager.com
**Surgical Care Improvement**

**ORs on board with warming protocols**

Two hospitals recognized by the Institute for Healthcare Improvement (IHI) describe their protocols.

**Small hospital diligent on warming**

Perioperative staff at 45-bed Porter Hospital Inc in Middlebury, Vt, has paid close attention to patient warming. Porter was recognized by IHI for a 0 infection rate in more than 350 surgical procedures performed during IHI’s 100,000 Lives Campaign. The campaign’s goal is to prevent unnecessary hospital deaths by encouraging evidence-based practice.

The current record at Porter Hospital is 1 infection in more than 400 procedures.

Porter’s normothermia protocol includes monitoring patients’ temperatures in the preoperative holding area, the OR, and the postanesthesia care unit (PACU).

Forced-air warming blankets are placed on all patients in the OR and remain on into the PACU. The blankets are removed either when patients say they are too warm or are discharged from the PACU. All patients also receive warmed IV solutions.

Ann Beauregard, RN, BS, Porter’s performance improvement manager, reviews all patient charts monthly to monitor that the normothermia protocol is being followed. The team checks for readmissions within 30 days of surgery. They also send questionnaires to surgeons asking them to report any postoperative infections they see in their offices.

The nursing staff and physicians “eagerly anticipate the monthly data reports” and usually ask for the numbers before she has them ready, Beauregard says.

“They want to keep that infection rate at 0,” she says. “Once the staff see the value in what they are doing, they will take it on and go with it.”

Porter has 3 ORs and is opening a new 3-room OR suite this fall.

**Staff, physicians back protocol**

All surgical patients at OSF St Joseph Medical Center, Bloomington, Ill, receive forced-air warming blankets in the OR, even for short procedures such as dilatation and curettage. The blankets are left on in the PACU if the patients want them for comfort, says Jan Weaver, RN, CNOR, clinical manager of surgical services. Each of the 5 ORs has a blower for the blankets, and the PACU has 2.

Patients also receive warmed irrigation fluids for laparoscopic cases and warmed IV fluids for longer cases. The ambient OR room temperature has been raised. Bladder catheter thermometers are used to monitor patient temperatures for long cases, and liquid-crystal forehead temperature indicator strips are used for short cases.

One sticking point with the staff was raising the ambient room temperature to 64°F from about 55°F.

Many staff said 64°F was too warm, “so we looked at ways to cool the staff, such as cooling vests,” says Weaver.

The normothermia protocol was developed by Patricia Conte, RN, MSN, CNOR, director of surgical services, as a part of the hospital’s participation in the Surgical Infection Prevention (SIP) program sponsored by the Centers for Medicare and Medicaid Services and the Centers for Disease Control and Prevention in 2002 and 2003. Because SIP was a corporate initiative, the administration supported development and funding of the normothermia protocol, Conte says.

St Joseph has been so successful at lowering its infection rate that it is nationally recognized by IHI as a mentor for other facilities in the fight to prevent surgical site infections (graph).

“Putting forced-air warming blankets on all surgical patients adds a small cost to each case, but the cost of having a patient with an infection is so much higher, and the administration recognized this,” she says.

**Monitoring surgical site infections**

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Source: OSF St Joseph Medical Center, Bloomington, Ill

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**The staff is behind the protocol 100%.”**

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—Judith M. Mathias, RN, MA

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**December 2006**

**OR Manager Vol 22, No 12**
If there’s any side effect patients dread after surgery, it’s nausea and vomiting. It’s also the most common, occurring in about a third of patients.

Practical, evidence-based advice on how to prevent the problem is available in a new evidence-based guideline from the American Society of PeriAnesthesia Nurses (ASPAN).

The guideline on postoperative nausea and vomiting (PONV) and postdischarge nausea and vomiting (PDNV) represents the consensus of a work group of nurses, anesthesia providers, pharmacists, and other experts and has been endorsed by the American Society of Anesthesiologists (ASA) and American Association of Nurse Anesthetists.

Recommendations are rated on the strength of the evidence, and algorithms are included that clinicians can take and apply. The guideline sorts out the evidence on use of antiemetics, anesthesia techniques, and complementary therapy.

The guide is designed to be user friendly. “You can print out the algorithms and post them in the units. You can make them into posters—however you can best get them into place,” says the project director for the guideline, Vallire Hooper, RN, MSN, CPAN, FAAN.

She highlighted aspects of particular interest to OR managers.

Adopt a simple risk assessment tool

“One thing we are recommending is a strong preoperative assessment strategy,” Hooper says. Steps include an assessment tool and good communication between nurses and anesthesia providers.

Good news—the simplified risk assessment tools are as effective as more complicated ones, the guideline states. Two simple tools are by Apfel and Koivuranta (sidebar). The Apfel tool, for example, asks about gender, smoking, and a history of PONV or motion sickness.

“Most of these the preadmission nurse are already asking,” Hooper notes. Using a simplified tool relieves strain on nurses and patients because it avoids unnecessary questions.

Convey risk score to anesthesia

There should be a well defined way to communicate the risk score to the patient’s anesthesia provider.

“It doesn’t do any good for the nurse to assess the risk factors and give the patient a risk score if anesthesia doesn’t look at it and base their approach on the risk score,” Hooper says.

She suggests reviewing documentation tools to see how the risk score can best be conveyed.

“The PONV score needs to be added where anesthesia providers will be most likely to see it,” she says. “Work with anesthesia to make sure you are putting it in the right spot.”

A box could be added to the preoperative checklist next to the pain score or ASA score (American Society of Anesthesiologists patient classification), for example.

“Or you could flag the chart with a sticker, in the same way charts are flagged for latex allergy or malignant hyperthermia,” she says.

Brush up on preop fasting guidelines

Proper hydration helps avoid PONV/PDNV. The guideline encourages having healthy patients undergoing elective surgery drink clear fluids up to 2 hours before surgery, as recommended by ASA.

Continued on page 22
Savannah, Georgia

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AAMI updates ‘bible’ on steam sterilization

The Association for the Advancement of Medical Instrumentation (AAMI) has updated its “bible” of recommendations for steam sterilization, formerly ST74. Also, for the first time, AAMI has gathered all of its major steam sterilization documents into one collection, titled AAMI/ANSI ST79: Comprehensive guide to steam sterilization in health care facilities.

In addition to steam sterilization, the collection covers guidelines for decontamination and packaging. Also included are guidelines for steam sterilization for wrapped loads, flash sterilization, and table-top sterilizers.

AAMI says the guide is intended to cover all steam sterilization activities in hospitals, ambulatory surgery centers, and physician and dental offices. The guide is available in a single PDF document as well as a hard copy in a binder to permit easy updates.

A consensus document

AAMI recommendations are considered consensus documents because they represent the collective expertise of health care and industry professionals who served on the working group that developed them. Among those on the working group for this guide are the Association of periOperative Registered Nurses, the Association for Professionals in Infection Control and Epidemiology (APIC), both sterile processing professional organizations (ASHCSP and IAHCSSM), as well as independent hospital representatives. The majority of working group members, however, are from industry.

This article highlights a few of the important principles and changes in the AAMI document. Major areas the document addresses are:

- selection and use of rigid containers: how to evaluate them and biologically test them in your facility
- use of flash sterilization containers, including how to perform biological testing
- biological testing of steam sterilizers, including recommendations for routine monitoring, implantable devices, and testing after major repairs and installation or relocation of sterilizers
- classification, selection, and use of chemical indicators and integrators
- steam quality and purity
- prevention of wet packs
- selection of packaging materials, including proper set configuration and wrapping techniques
- correct loading and unloading of steam sterilizers
- product testing.

Quality control for sterilization

Managers will want to take time to digest the quality control section, which runs 30 pages and covers, among other things, product identification and traceability, monitoring of steam sterilization cycles, and sterilizer efficacy monitoring.

AAMI has added 2 helpful charts:

- a summary of sterilization process monitoring recommendations (Table 7)
- types and applications for use of sterilization monitoring devices (Table 8).

There is an extensive discussion of “process challenge devices” (PCDs), a term that may be new to some. These are test packs used to challenge sterilizer performance that are either assembled by the user or purchased. If PCDs are purchased, AAMI advises using only those cleared by the Food and Drug Administration. The document advises how to select PCDs and how to use them for release of loads with and without implants as well as for sterilizer monitoring.

The section also includes criteria for routine release for loads with and without implants.

More on release of implants

AAMI continues to strongly recommend quarantining loads with implants until the BI results are available. BIs, which consist of spores, are the only direct measure of the lethality of the sterilization process. Conventional BIs must be incubated for the specified amount of time (usually 48 hours for wrapped items and 24 hours for flash sterilization cycles) until it is determined whether the microorganisms grew or failed to grow. For the rapid-result BI, AAMI permits release of the implant with the 3-hour reading (for wrapped items) and the 1-hour reading (for flash sterilization cycles). (AAMI continues to state that implants should not be flash sterilized, however.)

AAMI says that when “documented medical exceptions dictate,” and an implant needs to be released before the BI results are known (eg, the need for trauma-related orthopedic screw-plate sets that may still be in quarantine), the early release of the implant should be documented. When the final BI result is obtained later, that should also be documented.

“It is critical that this documentation be fully traceable to the patient,” AAMI states. “Releasing implants before the BI results are known is unacceptable and should be the exception, not the rule.” AAMI further recommends that emergencies be defined and reviewed periodically to see if there are consistent patterns causing emergency release that should be corrected. (The guide has a sample form for documenting and tracking emergency release in Annex L.)

Biological testing for steam sterilizers

If rigid containers are used, AAMI advises performing biological testing prior to purchase of the containers and on an ongoing basis (at least annually). This recommendation was in the previous container standard, but many users were not aware of it. Biological testing of flash sterilization containers is also recommended.

Biological testing of steam sterilizers is recommended weekly, preferably daily, and with all loads containing implantable devices.

Steam sterilizers should also be tested after major repair (defined in the document), relocation, or new installation. This is referred to as “qualification testing.”

There is one major difference in the new standard. Routine testing of dynamic air-removed (DAR, or prevacuum) sterilizers includes performing the DAR test first, followed by a biological test in the first cycle (for wrapped cycles, the first wrapped load). For qualification testing, the process is reversed, and each test is performed 3 times. Therefore, on a DAR sterilizer:

Continued on page 22...
Sterilization & Infection Control

Continued from page 21

• 3 biological tests using a process challenge device containing a BI would be performed (for each type of cycle available)
• followed by 3 DAR tests.

Many sterilizer operators are not aware that each type of cycle must be tested. Because prevacuum steam sterilizers can be operated as gravity displacement sterilizers, the gravity displacement cycle should also be tested.

Product testing

For quality control, AAMI advises periodic testing of routinely sterilized items. In addition, AAMI says product testing should “always be performed when major changes are made in packaging, wraps, or load configurations (e.g., dimensional changes, weight changes, or changes in the type or material of packaging or wrapper).” This should include biological and chemical testing (with indicators located throughout the inside of the packs or containers) and poststerilization assessment of moisture content (e.g., “wet packs”).

Guidance on CJD

The guide has a new appendix with general guidance for reprocessing devices exposed to patients with diagnostic or suspected Creutzfeldt-Jakob disease (CJD) (prion contamination). The guidance is based on the scientific literature and advice from health care authorities. AAMI notes that these recommendations may change and urges readers to check with agencies such as the Centers for Disease Control and Prevention for the latest recommendations.

As managers, we have a responsibility to ensure the safety of the devices we process for our patients. The AAMI document, which is a national standard, will provide the information managers need to develop and implement effective steam sterilization protocols to ensure the safety and efficacy of devices sterilized.

—Nancy Chobin, RN, AAS, ACSP, CSPDM
Corporate Consultant/Educator
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West Orange, NJ

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

AAMI/ANSI ST79 can be ordered by phone at 877-249-8226 or at www.aami.org. Price is $100 for AAMI members and $200 for nonmembers.

FDA action plan calls for device identifier system

The Food and Drug Administration (FDA) on Nov 9 said it will “aggressively pursue” a unique identifier system for medical devices. The system would make it easier to track devices in case of a problem such as a recall.

Developing the system will probably take years, the agency said. But it plans to “leverage the efforts” of the Department of Defense, which is making identifiers mandatory in 2007.

The identifier system is part of the FDA’s action plan to strengthen the way it monitors safety of devices once they are on the market.

The FDA has been criticized for failing to address safety concerns such as those that led to recalls and warnings affecting more than 200,000 implantable defibrillators.

Other action items the FDA says it will pursue immediately:

• creating a cross-cutting structure to coordinate efforts for product groups in various specialties
• developing methods and metrics for tracking and assessing the ability to handle postmarket issues such as recalls
• making electronic reporting of adverse events mandatory to improve surveillance
• updating and improving the medical device reporting database (MAUDE)
• improving the FDA’s ability to communicate in a clear and timely way with practitioners, patients, and consumers
• giving a larger role to the FDA’s device safety network (MedSun), a pilot reporting program for adverse events that currently involves 350 facilities.

Preventing PONV

Continued from page 18

Too often, “patients are coming in dry,” Hooper says. Supplemental IV fluids may be needed for high-risk patients.

“Most patients arrive at the facility at least 2 hours in advance of their surgery. If they need fluid volume, there’s really no reason why they shouldn’t be able to get this preoperatively,” she says.

Score nausea before discharge

The guidelines advise assessing—and quantifying—postoperative nausea before discharge.

“If the patient is complaining of nausea, we recommend that you have them quantify the nausea on a scale of 1 to 10, similar to a pain scale,” she advises. That’s more accurate than simply recording, “patient complains of nausea,” giving medication, then saying, “nausea is better.”

Prevent nausea and vomiting at home

Though there’s little evidence on how many patients have nausea and vomiting after going home, the best estimate is one-third. The guideline offers some basic advice. This includes assessing patients using the Apfel or Koivuranta basic advice. This includes assessing one-third. The guideline offers some basic advice. This includes assessing

Guidance on reprocessing devices exposed to patients with diagnostic or suspected CJD.

To prevent nausea and vomiting, ask patients: “How bad was the nausea?”

• assess nausea on a scale of 1 to 10
• get nausea preoperatively, postoperatively

PONV guidance offers some basic advice. This includes assessing patients using the Apfel or Koivuranta scale. A review of nausea and vomiting should be completed preoperatively, postoperatively.

Guidance on PONV

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“If the patient is complaining of nausea, we recommend that you have them quantify the nausea on a scale of 1 to 10, similar to a pain scale,” she advises. That’s more accurate than simply recording, “patient complains of nausea,” giving medication, then saying, “nausea is better.”

Prevent nausea and vomiting at home

Though there’s little evidence on how many patients have nausea and vomiting after going home, the best estimate is one-third. The guideline offers some basic advice. This includes assessing patients using the Apfel or Koivuranta tool, and if they’re at high risk giving prophylactic antiemetics. Also recommended are educating patients on PDNV as part of outpatient discharge teaching and assessing for PDNV in any outpatient followup contact.

Reference


Download the guideline at www.aspan.org.

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Reports of antibiotic-resistant staph have risen dramatically in the past 5 years. Thirty years ago, hospital-associated MRSA accounted for only 2% of aureus infections. By 2004, it was up to 63%, according to the Centers for Disease Control and Prevention (CDC).


A CA-MRSA infection usually manifests as a skin or soft tissue infection like a “pimple” or abscess. Rarely, invasive infections arise, such as joint infections, pneumonia, or septicemia.

“Otherwise healthy people—not only immunocompromised people—may end up developing surgical site infections with MRSA that in the past would not have,” Gary Noskin, MD, hospital epidemiologist at Northwestern Memorial Hospital in Chicago, tells OR Manager.

Are certain people at increased risk of CA-MRSA?

The CDC has investigated clusters of CA-MRSA skin infections in athletes, military recruits, children, Pacific Islanders, Alaskan Natives, Native Americans, men who have sex with men, and prisoners.

Factors associated with spread of MRSA skin infections are close skin-skin contact, openings in the skin such as cuts or abrasions, contaminated items and surfaces, crowded living conditions, and poor hygiene.

—Minnesota Department of Health

Steps ASCs can take

• Be sure your infection control policies and practices are up to date and strictly followed.

• Be diligent about hand hygiene. Make alcohol-based hand rubs available.

• Educate staff and physicians about antibiotic resistance. The CDC and state health departments have resources.

• Be vigilant for skin infections. A “spider bite” is the way patients often describe the start of a CA-MRSA skin infection.

• Follow them religiously.

• Be relentlessly about hand hygiene.

The CDC issued new guidelines in October on multidrug-resistant organisms, which recommend adhering to standard precautions and existing guidelines for cleaning, disinfection, and sterilization. (On the CDC website, see Management of Multidrug-Resistant Organisms in Healthcare Settings at www.cdc.gov/ncidod/dhqp.)

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“You can’t tell by looking whether any patient could have a multidrug-resistant pathogen. So we have to use appropriate precautions for all patients. One critical thing is to follow the CDC’s hand hygiene guidelines,” says Tammy Lundstrom, MD, senior vice president and chief for quality and safety at Detroit Medical Center and a member of the Association for Professionals in Infection Control and Epidemiology Inc (APIC).

Human hands—especially health care workers’ hands—are the main route of transmission for MRSA, the CDC says. Everyone knows hand hygiene is important. Still, compliance is poor—averaging about 40%. ASCs need to underline the hand hygiene basics:

- Clean hands before and after every patient contact and after every case.
- Remove gloves and perform hand hygiene before moving to the next patient or touching anything like a phone or computer keyboard.

“What you don’t want to see is people putting on gloves, examining a patient, and then going with these gloves to the telephone or computer keyboard. Or taking off the gloves and not doing hand hygiene before going to the next patient,” Dr Lundstrom says.

In one study, potentially pathogenic bacteria were cultured from more than 50% of computer keyboards. Disinfectants were effective in removing more than 95% of the test bacteria (Rutala WA, et al, Infect Control Hosp Epidemiol. 2006;27:372-377).

Making it easy

Make it easy to comply with hand hygiene.

Studies have shown that having dispensers of alcohol-based hand rubs handy improves hand hygiene compliance.

“Alcohol-based hand rubs are very quick,” says Dr Lundstrom. “You can apply them while you’re walking to the next patient, and they’re dry by the time you get there.”

Have a dispenser by every patient room and bay. Make it available to everyone, including the receptionist and patients.

A urologist at Cedars-Sinai Medical Center in Los Angeles used a creative tactic to get better physician hand hygiene compliance. He’d been on a cruise where passengers who went ashore weren’t allowed back on board until they had Purell squirted on their hands. He wondered whether the cruise ship was more diligent than the hospital.

Campaign waged

The Joint Commission on Accreditation of Healthcare Organizations was due to arrive, and the hospital needed to boost hand hygiene. So he and other leaders waged a campaign:

- They handed out bottles of alcohol-based hand sanitizer to physicians at the parking lot entrance.
- They started a Hand Hygiene Safety Posse to catch physicians who were washing their hands and rewarded them with a $10 Starbucks card.
- At a lunch for the medical executive committee, the hospital epidemiologist had the members press their palms into agar plates. He had the plates cultured and photographed. “The results were disgusting and striking, with gobs of colonies of bacteria,” said the chief of staff.
- One of the photos was posted as a screen saver on every computer in the hospital.

Good data changes behavior

“A woman who has been in practice 25 or 30 or 40 years, it’s hard to change their behavior,” said the urologist, Leon Bender, MD. “But when you present them with good data, they change their behavior very rapidly.”

In this case, he says, the image was worth 1,000 statistical tables. The campaign was described in the Sept 24, 2006, New York Times Magazine.
Physicians and hand hygiene

Physicians are the biggest challenge for hand hygiene.

“Physicians are much poorer at hand hygiene than nurses in many studies,” Dr Lundstrom says. “You want to reinforce hand hygiene for every patient, every time.” There are clever ways to get the point across.

A company called Glo Germ (www.glogerm.com) has a kit that dramatically shows the results of handwashing. The kit comes with a gel and black light. You rub the gel on your hands and put your hands under the black light to make sure the gel has covered them. Then you wash as usual and put your hands back under the light. The light shows what you missed—results are often startling.

Cedars-Sinai in Los Angeles waged a campaign to boost compliance with physicians—including culturing the palms of physician executives and displaying the results on a screensaver (sidebar, p 24).

Preop assessment

Is there anything ASCs should add to their preop assessments to address antibiotic resistance?

Because the average person with CA-MRSA doesn’t even know they have it, there are no additional risk factors that could identify a carrier, Dr Noskin notes.

“Oh of course, if someone comes in with an active infection of any type, there should be an assessment to determine whether surgery should be performed,” he adds.

A clinician’s antenna should go up if a patient says he or she has a sore or boil, or one is spotted during a physical exam. A “spider bite” is a way patients often describe the start of a CA-MRSA skin infection.

Patients with an active infection should be referred back to the primary care physician.

Environmental cleaning

Beyond following existing guidelines, no additional cleaning measures are needed for antibiotic-resistant organisms.

“The standard methodology is equally efficacious whether it’s MRSA or susceptible aureus,” Dr Noskin says. “It’s important to always follow well-established infection control practices.”

Review guidelines from the CDC, APIC, the Society for Healthcare Epidemiology of America (SHEA), and the Association of periOperative Registered Nurses (AORN) (www.aorn.org).

Educate physicians, staff, and patients

It’s important to raise consciousness of physicians and staff about MRSA and antibiotic resistance. Consider inviting an infection control professional or state or local health official to conduct an in-service.

Educational materials, including fact sheets, posters, and slide presentations, are available from the CDC and state health departments. (See resources.) APIC has a tool kit for educating patients and families.

“Even if you don’t have direct access to an infection control professional, the health department often has free resources and will do phone consultations,” Dr Lundstrom notes.

Learn what’s happening in your community

ASCs should be in contact with state and local health departments to keep

Continued on page 26
Medicare to expand hospital quality reporting

Hospitals will need to report on quality measures for outpatient services plus more measures for inpatient care to receive a full payment update from Medicare in future years.

The new requirements are outlined in a final 2007 outpatient prospective payment rule issued Nov 1. Under the rule, hospital outpatient payments will rise by 3.4% in 2007. Ambulatory surgery centers (ASCs) will see 19 procedures added to Medicare’s approved list.

The new quality reporting requirements:

• Beginning in 2009, outpatient rate increases will be tied to quality reporting, with quality measures developed specifically for the outpatient setting. Originally, Medicare proposed tying outpatient payments to reporting on inpatient quality measures.

• Inpatient quality reporting will be expanded in 2008, including reporting on patient satisfaction. To get a full update, hospitals also will have to report on 30-day mortality for patients with an acute myocardial infarction or heart failure. They will also have to report on 3 additional measures from the Surgical Care Improvement Project (SCIP):
  —VTE prophylaxis ordered for surgical patients
  —VTE prophylaxis within 24 hours pre/post surgery
  —antibiotic selection for surgical patients.
For ambulatory surgery centers, in addition to adding 19 procedures, the rule implements a statute requiring ASC payments not to exceed payments for the same procedure in a hospital outpatient department. That will reduce ASC payments for about 280 procedures beginning Jan 1, 2007.

In a press conference, Medicare officials said they are concerned about the 12% growth in outpatient spending between 2005 and 2006, which came mainly from growth in volume and intensity of services. They estimated spending would rise about 9.2% in 2007. Among other issues addressed in the rule are new codes for emergency billing and revised billing and coding for drug administration.

The 1,300-page rule is posted on the CMS web site at www.cms.hhs.gov. Look under Medicare, then Hospital Outpatient PPS.

‘Super bugs’

Continued from page 25

abreast of the situation in their community. The local hospital epidemiologist is another resource.

“Antibiotic resistance is a local phenomenon. In some places, the problem is far worse than the national trend, so it’s important to understand what’s occurring in your community,” says Dr Noskin.

It’s also a good idea to have an ongoing relationship with an infection control expert, whether hospital infection control specialist or consultant, to serve as a resource on infection trends and on meeting national guidelines.

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--- Index by Mary Walsh, MLS

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Why some patients lose sight after spine surgery

An analysis of 93 visual loss cases after spine surgery in the prone position found 89% were caused by ischemic optic neuropathy. The other cases were caused by central retinal artery occlusion.

The ischemic optic neuropathy cases had significantly longer anesthesia, higher blood loss, more patients in Mayfield pins, and more patients with bilateral disease compared with the retinal artery occlusion patients, the authors say.

In 96% of the cases, blood loss was 1,000 mL or greater or anesthesia was 6 hours or longer. Surgeons should discuss the risk of visual loss with patients who will have lengthy spine surgery in the prone position, the authors suggest.

The cases were from a registry set up by the American Society of Anesthesiologists (ASA) to collect detailed information on visual loss after monocular surgery.


www.anesthesiology.org

Arthroscopy blades found contaminated in study

Reprocessed single-use arthroscopic shaver blades were found to be contaminated and functionally compromised in a study from California’s Loma Linda University.

Of 27 blades reprocessed with mechanical cleaning and ethylene oxide sterilization, 13 had detectable levels of protein, and 17 had detectable levels of nucleic acid. The 7 new shaver blades that served as controls showed no contaminants.

Of 20 reprocessed blades with teeth that could be tested, the authors said all had at least some damage. The new blades had no visible damage, they reported.

When the reprocessed blades were used to cut meniscal tissue, rougher edges appeared on the tissue, while the new blades produced smooth edges, the report noted.

Of the reprocessed blades, 16 were obtained from 4 reprocessing companies, and 11 were purchased from local hospitals.

The first phase of the study was funded by Smith & Nephew; Loma Linda University funded the second phase.


http://journals.elsevierhealth.com/periodicals/yjars

Gastroplasty through the mouth?

Patients might one day be able to have weight-loss surgery through the mouth. Transoral gastroplasty—entering the abdomen through the mouth or nose—has been successfully performed in 12 patients under general anesthesia using a flexible transoral stapling device, according to a report at the American College of Gastroenterology annual meeting.

Patients lost from 12 to 28 lbs the first month with no serious side effects, the researchers said. The transoral technique has also been found to be feasible for cholecystectomy in lab animals.

—www.acg.gi.org

Reducing nonoperative OR time

Parallel processing—performing some tasks in tandem—was one strategy that helped an Ohio hospital reduce nonoperative time from nearly 65 minutes to 42 minutes. Turnover time was reduced from about 43 minutes to 26 minutes.

The 3-month study was conducted in 2 of 17 ORs and involved cases estimated to have an operating time of 2 hours or less; similar cases in the other 15 ORs served as controls.

Among tasks performed in parallel were starting OR cleaning before the patient leaves the room and having the anesthesiologist see the patient in the holding area during the preceding case when possible.

The study is from MetroHealth Medical Center and Case Western Reserve University, Cleveland.


Transplant monitor fails to find, fix problems

The United Network for Organ Sharing (UNOS), which oversees the nation’s organ transplants, frequently fails to find or fix problems at hospitals under its supervision, even when patients are dying at abnormal rates, according to an investigation by the Los Angeles Times.

The report says UNOS also keeps its findings of its investigations secret, leaving patients and families unaware of potential risks.

The government contracts with UNOS to oversee the transplant process, from harvesting to placement of organs. Though UNOS can censure hospitals and recommend closing transplant programs, the Times says UNOS has never recommended closing an active program and has been reluctant to take action against troubled programs.

—www.latimes.com