There’s new evidence that the Surgical Safety Checklist developed by the World Health Organization (WHO) improves patient safety. In a worldwide pilot study, patient death and complication rates declined substantially after the checklist was introduced at 8 hospitals.

The 19-item checklist, launched in 2008, covers 3 phases of the surgical process: Sign in, timeout, and sign out. The checklist gives the team members an opportunity to introduce themselves and confirm such items as the patient’s identity and surgical site, allergies, and risk of blood loss. They also discuss any anticipated critical events for the case and at the end, review key concerns for the patient’s management and recovery.

In the wake of the findings, the United Kingdom announced it will roll out the checklist in all of its hospitals. The Institute for Healthcare Improvement called for a “sprint” for all hospitals to try the checklist in 1 OR by April 1 (sidebar). The State of Washington is promoting the checklist at all 42 of its hospitals, with leadership of the University of Washington (UW), Seattle, the sole US participant.

The study compared outcomes for inpatients having noncardiac surgery before and after the checklist was implemented. Characteristics of patients didn’t differ significantly. In major findings:

- The rate of complications dropped from 11% to 7% (P<0.001).
- The inhospital death rate dropped from 1.5% to 0.8% (P=0.003).
- Surgical site infections and unplanned reoperations also dropped significantly.

The checklist, designed to take less than 2 minutes under routine conditions, was used in 1 to 4 ORs in 8 hospitals that serve diverse populations. The report is in the Jan 29, 2009, New England Journal of Medicine.

A focus on the common killers

Surgical patient safety is a public health issue worldwide, Atul Gawande, MD, MPH, the senior researcher, told OR Manager in an interview.

“The number of major operations worldwide is now in the range of 230 million per year—1 for every 25 human beings on earth. This has exceeded the number of childbirths, but the death rates are 10 to 100 times higher,” he says.

“From a public health point of view, we wanted the focus to be not just on wrong-site problems but on the most common killers, which have to do with infection, anesthesia complications, management of bleeding, and other issues related to teamwork.”

How did the researchers identify the 19 items to include in the checklist?

Dr. Gawande says these are items that carry the highest risk of harm, address issues of public health, and could be included in ways that allow the checklist to be as short as possible. Dr. Gawande, the director of the WHO Global Challenge for Safer Surgical Care, is a surgeon at Brigham & Women’s Hospital and associate professor at the Harvard Medical School and the Harvard School of Public Health, Boston.

Implementing the checklist

What is critical to implementing the checklist successfully?

“You need a respected clinician, preferably a surgeon, or even better, a respected surgeon, anesthesiologist, and nurse leader who all believe in the concept and will
sell it to their troops and model it in practice,” says E. Patchen Dellinger, MD, a coauthor of the study who is professor and chief of general surgery at UW.

The effort at UW began in general surgery, which has 13 surgeons.

“Every general surgery case since early April has been done with the checklist,” Dr Dellinger says, and all surgical specialties began using it in November. “We believe the attending surgeon should initiate and lead the checklist but that all team members and professionals in the room should participate. Everyone should stop whatever else they are doing and pay attention when the checklist is done, and the leader needs to ensure that this happens.

“The nurses in our OR have told me they believe the checklist has definitely improved communication and teamwork,” he adds.

**Practice needed**

Realize practice is needed, and don’t expect perfection, Dr Gawande advises.

“It never works right the first time,” he says. “People have to practice it, and the wording has to fit the local hospital and what they are used to.”

In the pilot, “there would be some surgeons who didn’t want to do it or teams that would skip it. It’s a learning curve. They had to gradually become used to making it part of their routine.”

It’s important to measure compliance to know where there are gaps, he notes. How often is the antibiotic not given on time? How often does the team not know everyone’s name? How often do they not know how long the operation will take or what the blood loss is expected to be?

It’s also important to monitor outcomes. “That provides reinforcement that this isn’t just a piece of paper,” he says.

**Why does a checklist make a difference?**
What is it about using the checklist that seems to make a difference in outcomes? That still needs to be studied, Dr Gawande says. With the checklist, “there was a lot of transfer of information that people didn’t feel they normally knew,” he observes. “And the irony is that in taking those 2 minutes, many people are qualitatively reporting that they found cases more efficient.”

The study findings are substantial enough that he thinks there is something more to the results than just whether a particular step is taken, such as giving the antibiotic. “It had something to do with teamwork improving, but exactly how and what was happening is really interesting.”

Dr Dellinger says an important element is the introduction of all team members at the beginning of the procedure as well as the “briefing” at the beginning where all 3 professional team members are asked to express any concerns or special considerations plus the “debriefing” at the end to confirm correct counts and proper labeling of any specimens.

**What’s the reaction to the checklist?**

In findings still to be published, the researchers surveyed the study participants about their reactions to using the checklist. The survey found that about 80% did not think the checklist took long to do, while 20% thought it did take too long. And 80% didn’t think it was hard to do, but 20% did think it was hard, Dr Gawande says.

Interestingly, however, 93% said that if they were having surgery, they would want the checklist used for their case.

**Improving on process measures**

The study hospitals showed substantial improvement in some of the process measures after the checklist was implemented. Overall, the 8 hospitals improved by two-thirds on these 6 safety indicators:

- appropriate antibiotic use
- objective airway evaluation
- use of pulse oximeter
- use of 2 peripheral catheters or 1 central IV catheter when 500 mL or more in estimated blood loss is expected
- oral confirmation of the patient’s identity and surgical site
- sponge count completed.

Appropriate antibiotic use rose from 56% to 83%—a step by itself shown to reduce surgical site infection rates by 33% to 88%. Oral confirmation of the patient’s identity and operative site jumped from 54% to 92%.

**What’s next?**

The leaders plan to study whether they can replicate the study results with the same kinds of reductions in complications. More detailed qualitative studies are also planned on changes in team culture.

In Washington State, 15 hospitals are using the checklist in an effort promoted by the state’s Surgical Care and Outcomes Assessment Program (SCOAP).

“Our goal is to have every hospital using it before the end of the year,” Dr Dellinger says.

Though cautious about making too much of a prediction based on the pilot study, Dr Gawande says he thinks there is the prospect that routine use of a checklist could reduce surgical deaths and complications by up to a third, with potentially millions of lives saved and potential savings of $15 billion to $25 billion from reducing complications.

It is striking, he adds, that in the pilot study, the reductions were almost equally strong in rich and poor parts of the world.

—Pat Patterson

The Surgical Safety Checklist is available at www.safesurg.org. The website has videos showing how to use—and NOT use—the checklist.

Watch UW’s video about implementing the checklist and find other information at www.scoap.org/checklist/index.html.
Reference

“Sprint” to adopt checklist urged

The Institute for Healthcare Improvement (IHI) is urging a “sprint” to have every hospital in the country test the World Health Organization (WHO) Surgical Safety Checklist with 1 OR team by April 1, 2009. Here’s how to participate:

• Visit IHI’s “sprint” home page for information and links.
• Watch the video on the checklist by Atul Gawande, MD, MPH, from the IHI’s 2008 conference (link available through the “sprint” home page).
• Download IHI’s starter kit.

Visit the IHI checklist page at www.ihi.org/IHI/Programs/ImprovementMap/WHOSurgicalSafetyChecklist.htm