Quarterly Update on the Preventing Wrong-Site Surgery Project

Where is the Sense of Urgency?

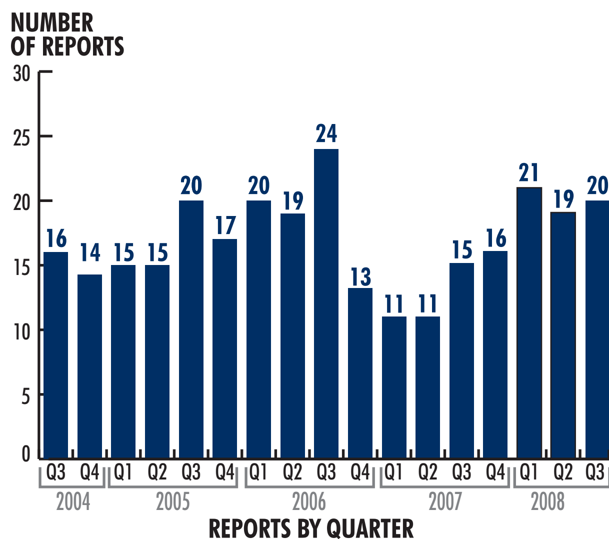
Wrong-site surgery is a "never event," and now it is also a procedure for which hospitals and ambulatory surgical facilities will probably not get reimbursement (if they ever did). The Centers for Medicare & Medicaid Services intends to add wrong procedures and procedures on wrong body parts and wrong patients to its list of unreimbursed preventable conditions.[1]

The latest update from PA-PSRS shows that another 20 wrong-site surgeries were reported during the third quarter of 2008 (see Figure). Minor adjustments have been made in previous quarters to reflect new information. Altogether, Pennsylvania facilities have reported 286 wrong-site surgeries in 51 months, or about one every five to six days. Overall, about 27% of wrong-site procedures were anesthesia blocks or other preliminary invasive procedures, 63% involved a failure of the Universal Protocol for the principal procedure, and 10% were wrong-level spinal procedures that could only be caught by radiographic confirmation of the spinal level during the initial surgical exposure of the operative site.

The Joint Commission has recognized the persistence of wrong-site surgery nationally,[2] noticed a decrease in compliance with the Universal Protocol time-out (most recently in ambulatory care centers from 94% in 2003 to 83% in 2008),[3] and issued more explicit directions for the conduct of the Universal Protocol in 2009.[4]

Wrong-site surgery happens every week in Pennsylvania and, by extrapolation, every day in the United States. It happens despite knowing how it happens and what keeps it from happening.[5,6] Misinformation problems can be prevented by a robust design of the information system supporting scheduling and the verification of the perioperative documents. Misperception problems require attentive (rather than automatic) behavior by multiple members of the operating team, acting redundantly, to reliably catch the errors.

Figure. PA-PSRS Wrong-Site Surgery Reports by Quarter



Past studies have shown that physician behavior is critical to preventing wrong-site surgery.[5] Physicians catch potential errors by seeing their patients and reviewing their records before the patients enter the operating room (OR). However, physicians are major contributors to wrong-site errors that first arise in the OR.

Improvement in the efforts to prevent wrong-site surgery requires both improvement in the accuracy of information in the preoperative scheduling and documentation systems and improvement in provider involvement in the process. Reliability that depends on human behavior requires redundancy, meaning everyone on the patient care team must make the patient's safety his or her personal responsibility—not the responsibility of someone else.

Preliminary Results of a One-Year Analysis of Wrong-Site Errors in Pennsylvania Using a Common Analysis Form

From August 2007 through August 2008, facilities in Pennsylvania used a common analysis form to analyze 44 wrong-site surgeries and 97 near misses. PA-PSRS analysts thank the facilities that took the time to complete the common assessment form and contribute to the statewide initiative to prevent wrong-site surgery. A complete analysis of the differences between near-miss wrong-site errors that are caught and those that go on to actual occurrences will be published in the future. The following are preliminary conclusions based on comparisons of wrong-site surgeries to near misses.

- Reports of near misses were more likely to identify errors in scheduling, errors on the consent form, and discrepancies between the patient's understanding and the written documents.
- Reports of near misses were more likely to mention the use of multiple identifiers during preoperative verification and the use of the identification wristband during the time-out.
- The surgeon was more frequently involved in the preoperative verification process in reported near misses than reported wrong-site surgeries. (This observation is consistent with the observations in a previously reported retrospective analysis authored by PA-PSRS analysts.[5])
- Near-miss reports more frequently indicated that the time-out was done after the patient was prepped and draped and that the operative site mark was visible during the time-out.

- Near-miss reports indicated participation in the time-out of more members of the OR team.
- The operating surgeon was more likely to encourage members of the team to speak up if concerned during the time-out and to respond to concerns raised in reported near misses than in reported wrong-site surgeries.

Because of the successful use of the common analysis form for wrong-site surgery, near misses, and actual occurrences in Pennsylvania, the wrong-site error analysis form has been posted on the Pennsylvania Patient Safety Authority's Preventing Wrong-Site Surgery Web page.[6] PA-PSRS analysts encourage anyone faced with a wrong-site surgery near miss or occurrence in his or her facility to use the form to aid in the analysis.

Multiple Wrong-Site Surgeries of the Same Type at Multiple Facilities

PA-PSRS analysts looked at the 64 facilities that had reported more than one wrong-site surgery since reporting began in June 2004; 25 had some similarities within their multiple reports of wrong-site surgery, suggesting a problem with the facility's system or with an individual provider's behavior. Of those 25 facilities, 21 had multiple reports of problems that also occurred multiple times at other facilities, suggesting system problems rather than individual provider problems. The problems that occurred multiple times at each of multiple facilities were as follows:

- Local anesthesia blocks, nerve blocks, regional blocks, periorbital blocks, nerve root injections, epidural injections, and other injections were done at the wrong site 40 times in 17 facilities that made this wrong-site error more than once.
- Other wrong-site errors associated with eye surgery occurred four times in two facilities.
- Wrong-site ureteral procedures occurred four times in two facilities.
- Cervical spine fusions, other spinal fusions, and other spinal procedures were done at the wrong vertebral level 16 times in five facilities that made this wrong-site error more than once.

These results suggest that the greatest potential for *system* improvement to prevent wrong-site surgery is adherence to the Universal Protocol for preliminary anesthetic procedures[4] and strengthening of the system for radiographic confirmation of the correct vertebral level during spinal surgery.[7]

Rationale for Surgeons to See Patients in the Preoperative Holding Area, Rather Than Initially Greeting Them in the OR

As noted above, a significant contributor to physician behavior that prevents wrong-site surgery is the surgeon's practice of participating in the preoperative verification of written documents with awake patients in the preoperative holding area so that potential wrong-site errors based on misinformation (rather than misperceptions of right and left) are corrected before the patient enters the OR. Informational errors should be corrected before the patient reaches the OR, freeing up the very busy operating team to worry only about errors of misperception due to right-left confusion, confirmation bias, and other causes.

Before a panel on OR safety at the 2008 Clinical Congress of the American College of Surgeons, the author asked the surgeons in the audience whether they would see their preoperative patients in the holding area if they were not required to do so and, if so, why. Of 29 respondents, 27 said they would; 2 said they would not. Time constraint was the common reason for not seeing patients. One of the 27 surgeons now sees patients in the holding area because of a previous experience of performing a wrong-site surgery associated with the practice of not seeing patients before they entered the OR the day of the surgery.

Altogether, the 27 surgeons gave 51 reasons for voluntarily seeing their patients in the holding area. These reasons were grouped into several categories. The most common reasons cited were to provide psychological support for the patient: to reassure patients and their families and decrease their anxiety (12), to affirm the surgeons' rapport with their patients within the context of the doctor-patient relationship (7), to convey caring and concern for their patients (3), and to address concerns or questions of patients or their families (5). More than two-thirds (19) of the surgeons gave one or more reasons related to psychological support of patients and their families as their rationale for seeing patients in the holding area.

Two other groups of reasons were related to acquiring information. One group of reasons was associated with the review of information to avoid treating patients based on incorrect information from faulty memories: to review information relevant to the patient and procedure (11), to specifically check information while the patient was still alert (1), to check documents such as the consent form (2), and to mark the site (1). About half (14) the surgeons gave the opportunity to refresh their memories by reviewing information as a reason for seeing patients in the holding area. The other information-related reason cited was a desire to see whether patients' conditions had changed since they had last been seen, which might alter or even lead to cancellation of the procedure. Interest in checking for changes in patients' conditions (4) added another two surgeons to those who visited patients in the holding area to acquire information from alert patients before bringing them into the OR.

Other reasons centered around the surgeons' sense of the standard of care: visiting the patient preoperatively was part of the doctor-patient relationship, as noted above (7), represented best medical care (1), was a safe practice (3), or was safer than not visiting the patient, based on personal experience (1). About

40% of the surgeons indicated their belief that visiting patients in the holding area was, for them, the standard of care.

Surgeons appear to be motivated to see patients in the preoperative holding area. For 93% of the surgeons surveyed, the reasons fell into one or both of the following categories:

1. Providing psychological support to the patient and/or family
2. Reviewing and updating information

These positive motivations may encourage compliance with the most recent revisions of the Universal Protocol.[4]

Setting the Patients' Expectations

Properly following the Universal Protocol involves asking a preoperative patient the same questions repeatedly. Prompted by reports of hospitals that have informed patients about what to expect as a consequence of following the Universal Protocol, the Pennsylvania Patient Safety Authority has developed a brochure that surgeons or facilities can give to preoperative patients so that they understand why so many providers ask the same questions. Surgeons and facilities can download the brochure from the Pennsylvania Patient Safety Authority's Preventing Wrong-Site Surgery Web page.[6] They can add their logos or contact information to personalize the brochure to their environment.

Ongoing Projects to Prevent Wrong-Site Surgery

This issue of the *Advisory* contains a review of the literature addressing the sterility of site marking and the potential for cross-contamination with use of markers on multiple sites. The review also looks at the performance of site markers with various skin prep solutions. Because the literature on this latter topic is inconclusive, PA-PSRS analysts will be surveying the experiences of Pennsylvania facilities that use surgical site markers with their skin prep solutions. Pennsylvania Patient Safety Officers are encouraged to help their OR managers to complete the survey when it is distributed in the near future. Also, others are encouraged to tell PA-PSRS analysts about their experiences using site markers (see the contact information below).

Two submissions have been made to the Time-Out in the OR Competition mentioned in the previous issue of the *Advisory*. The contest remains open to more entries (see "Enter the Time-Out in the OR Competition").

The Pennsylvania Patient Safety Authority is committed to preventing wrong-site surgery. Comments, suggestions, and specific inquiries are welcome from facilities with particular problems or questions concerning wrong-site surgery. Communications should be directed to John Clarke, MD, FACS, clinical director of the Pennsylvania Patient Safety Reporting System at ECRI Institute, by telephone at (610) 825-6000 or by e-mail at JClarke@ecri.org.

Enter the Time-Out in the OR Competition

Does your facility have a particularly good script for the time out in the operating room (OR)? If so, please enter the Time-Out in the OR competition. Here's what you have do:

Write down your script for a Time-Out in the OR for Mary Jones' (MR# 007) Left Total Hip Replacement as if it were a Shakespearean play. For example:

Circulating nurse: *"Time-out. We are doing a left total hip replacement on Mary Jones, medical record number 007; is that right?"*

Surgeon: *"Right."*

Anesthesia provider: *"Agree."*

Submit the script in a Word document or its electronic text equivalent to JClarke@ecri.org.

The entries will be posted for peer review and comments. The winning entries will be determined by a vote of your peers, posted on the Pennsylvania Patient Safety Authority Web site, and profiled in an upcoming issue of the *Advisory*.

This is your opportunity to share your expertise with others.

Notes

1. Onigman M. CMS to add surgical errors to 'never event' list [online]. 2008 Dec 4 [cited 2008 Dec 5]. Available from Internet: http://iafaw.blogspot.com/2008/12/cms-to-add-surgical-errors-to-never.html.
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6. Pennsylvania Patient Safety Authority. Preventing wrong-site surgery [toolkit online]. [cited 2008 Dec 5]. Available from Internet: http://www.psa.state.pa.us/psa/cwp/view.asp?a=1293&q=448010.
7. North American Spine Society. Sign, mark & x-ray (SMaX): a checklist for safety [online]. 2001 [cited 2008 Dec 5]. Available from Internet: http://www.spine.org/Pages/PracticePolicy/ClinicalCare/SMAX/Default.aspx.

PENNSYLVANIA PATIENT SAFETY ADVISORY

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The Pennsylvania Patient Safety Authority is an independent state agency created by Act 13 of 2002, the Medical Care Availability and Reduction of Error ("Mcare") Act. Consistent with Act 13, ECRI Institute, as contractor for the PA-PSRS program, is issuing this publication to advise medical facilities of immediate changes that can be instituted to reduce Serious Events and Incidents. For more information about the PA-PSRS program or the Pennsylvania Patient Safety Authority, see the Authority's Web site at http://www.patientsafetyauthority.org.

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