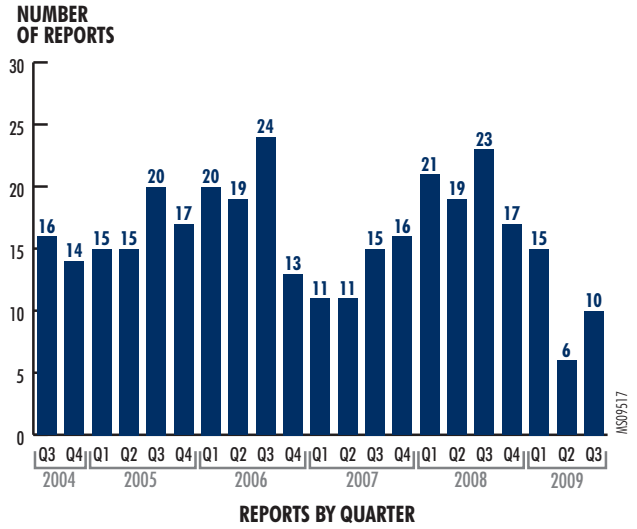
Quarterly Update on the Preventing Wrong-Site Surgery Project: Improving, but Still Room for Perfection

The latest update from the Pennsylvania Patient Safety Authority's reporting system database continues to show an encouraging decrease in the number of reports of wrong-site surgery (see Figure 1, which includes adjustments for late reports from previous quarters). The number of reports for the third quarter of 2009 was the second lowest quarterly total ever (the previous quarter's total was the lowest), and was the lowest-ever total for a third quarter, during which the resident training cycle traditionally starts. The total number of reports for the past six months (16) is lower than the previous average for three-month periods (16.9).

The trend toward fewer reports of wrong-site surgery reinforces the Authority's belief that the advice developed from the Preventing Wrong-Site Surgery Project is useful. As further evidence, the regional collaborative to prevent wrong-site surgery that was sponsored by the Health Care Improvement Foundation again reported no wrong-site surgeries since the first quarter, meaning that the participating facilities have had no such events in more than seven months. The collaborative's time without wrong-site surgery now exceeds 97% of its previous event-free intervals.

Figure 1. Pennsylvania Patient Safety Authority Wrong-Site Surgery Reports by Quarter



Anesthetic Blocks

The 10 reports received in the third quarter all described problems previously addressed by the Authority. In particular, four events, like three of the six reported last quarter, were wrong-site anesthetic blocks (all reports have been edited for contextual deidentification):

> *A patient was scheduled for a surgical procedure of left hand under axillary block. The anesthesiologist blocked the right arm. The correct arm, left, was marked appropriately. The error was discovered by the anesthesiologist after initiating the block.*

> *A patient was brought to the OR [operating room] after being identified by the attending surgeon. The informed consent was reviewed. Prior to the time-out identifying the eye to be operated on, a peribulbar block was inadvertently performed on the right eye by the surgeon; the left eye was marked. The error was realized by the surgeon. The left eye then was blocked, sterilely prepared, and draped in the usual manner. The time-out was performed.*

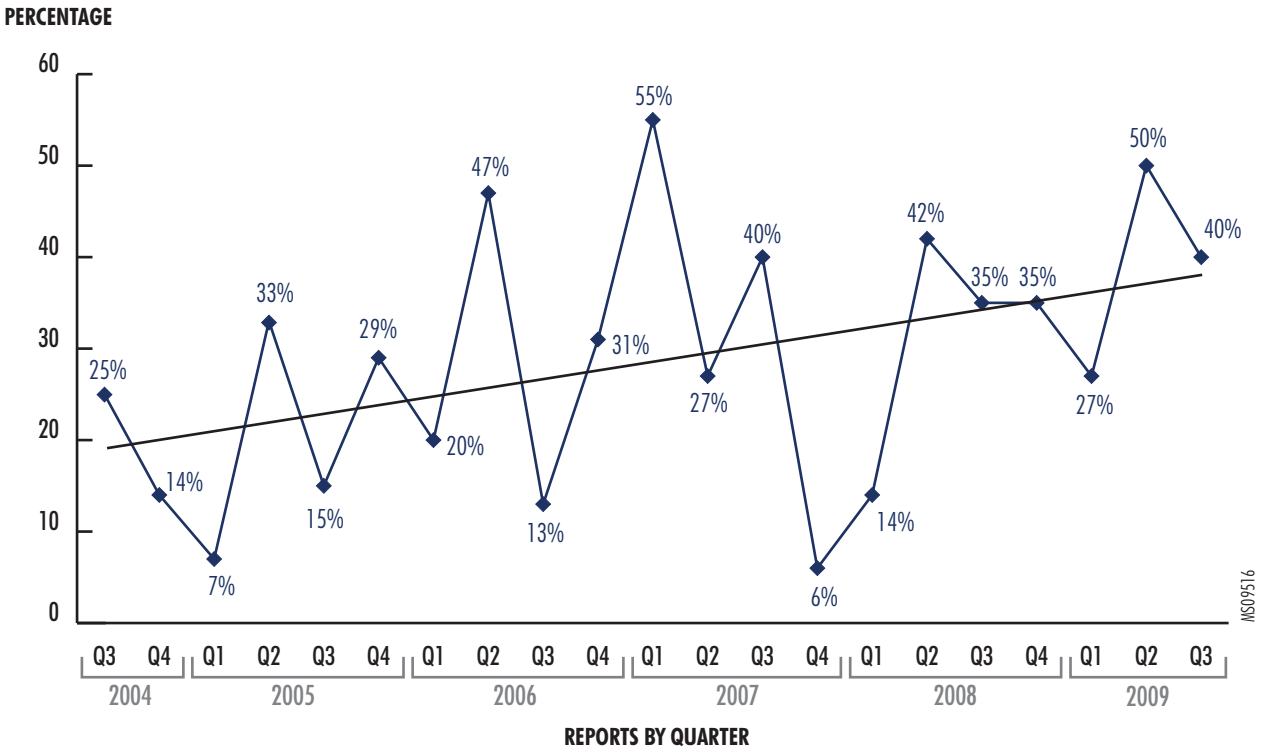
> *A patient was scheduled for left cervical injection. The time-out was done prior to procedure, and all parties, including the patient, verified the procedure was to be done on the left side. The physician injected the right side. He did not mark the site. The patient asked after the procedure why the right was injected rather than the left.*

> *A patient was admitted for surgery [on the right knee]. The patient was seen by the anesthesiologist, who asked the patient which knee was to be operated on. The patient stated "left." The anesthesiologist performed the nerve block on the left side. The patient was taken to the OR for the right-knee surgery and it was determined the nerve block was done on the wrong side.*

Whereas wrong-site blocks constituted 20% of the wrong-site events in the first six months of data reporting to the Authority, they accounted for 44% of wrong-site events in the most recent six months of reporting (see Figure 2), suggesting that the implementation of best practices to prevent wrong-site blocks lags behind other efforts to prevent wrong-site surgery (the p value for the linear regression is 0.06, just above the cutoff for statistical significance). Doing a formal time-out before an anesthetic block could potentially eliminate about 27% (92 of 337) wrong-site errors in the surgical suite. However, based on the data from the Preventing Wrong-Site Surgery Project, a time-out before an anesthetic block does not eliminate the need to do a time-out just before the start of the surgical procedure, with the site marking visible in the prepped and draped surgical field, as illustrated by two other reports from this quarter.

> *The patient consented [to] and verbally affirmed procedure on L side lumbar area. The patient was brought to the OR. The time-out was conducted with all members of surgical team present. All members agreed. The patient was moved onto table and positioned in the prone position. The patient tolerated the procedure well and was transferred to the PACU [postanesthesia care unit]. The physician met the patient and staff in PACU and explained he had done the procedure on the wrong side.*

Figure 2. Percentage of Wrong-Site Surgery Reports That Describe Wrong-Site Anesthesia Blocks



The side (left) was marked by the surgeon. When the perineal area is the operative site, the hand is marked by the surgeon after checking consent, reading note, and confirming with patient. The hand is left undraped during procedure for confirmation of side. In this procedure, the doctor did not place the mark on the hand; he marked it on the forearm. The patient was taken to the OR and positioned on table. The surgeon made the incision without a formal time-out. The surgeon asked which side. Without rechecking consent or site marking, the nurse stated the right side. The doctor [explored right side]. There was no evidence of pathology noted. Rechecked note. Completed procedure on left.

The 2010 revision of the Joint Commission's Universal Protocol does not help the confusion, in the Authority's opinion, about when to do the time-out. The 2009 version states that the time-out should be done before the start of anesthesia; the 2010 version reverts to stating that the time-out should be done before the incision.[1] Based on multiple studies from the Preventing Wrong-Site Surgery Project,* *the Authority strongly advises that a formal time-out be done with the anesthesia provider just before any anesthetic block and that another time-out be done with the surgeon just before the incision,* unless the surgeon performs the anesthetic block and incision in continuity after the surgical field has been prepped and draped.

Spinal Surgery

Wrong-level spinal surgery continues to represent roughly 10% of the wrong-site surgery events reported to the Authority. This quarter, the Authority received two reports. Also, two parties requested that the Authority give suggestions on how to avoid this problem, which cannot be solved just by following the Universal Protocol, because the site (level) verification occurs intraoperatively. The North American Spine Society (NASS) suggests an intraoperative imaging study, after surgical exposure of the operative site, using markers that do not move, to confirm the vertebral level to be operated on, with a radiologist's interpretation as well as the surgeon's.[2]

The Authority advises the following, which summarizes its findings and the NASS checklist:

1. Note the level on the schedule and on the consent form.
2. Have relevant existing imaging studies available in the OR.
3. As always, the surgeon should include in the preoperative time-out an explicit empowerment for team members to speak up if concerned.

* The Pennsylvania Patient Safety Authority has a Web page devoted to educational tools for preventing wrong-site surgery (available at http://www.patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Pages/home.aspx). Its resources include all the Authority's publications on the subject, including self-assessment tools, sample forms and checklists, educational posters and videos, illustrative figures and tables, and patient education brochures, as well as links to information from other Web sites.

4. Conduct an intraoperative imaging time-out:
    a. Localize the desired site with an immobile radiopaque marker, such as a needle in the bone or a Kocher clamp on the spinous process.
    b. Obtain and read an imaging study that confirms the site exactly.
    c. Have the imaging study also officially read by a radiologist before proceeding.

The Authority developed an addendum to the "Wrong-Site/-Side Surgery Error Analysis Form" that addresses wrong-level spine surgery and that is now on the Authority's Web site. Facilities should consult these additional questions when wrong-level spinal surgery has been done.

The Wrong-Site Surgery Consultation Program

The Authority has begun an on-site consultation program for Pennsylvania facilities that wish to analyze their vulnerability for wrong-site surgery, particularly following a wrong-site event (or a close call). Requests can be made by contacting the Authority office or the regional Patient Safety Liaison. The Authority clinical specialists will assist facilities in assessing their policies and procedures, measuring staff compliance, and conducting a thorough analysis of any events.

The Authority remains committed to eliminating wrong-site surgery.

Notes

1. Joint Commission. Revised Universal Protocol; some changes are effective immediately. Joint Commission Online 2009 Sep 9 [cited 2009 Oct 26]. Available from Internet: http://www.jointcommission.org/NR/rdonlyres/25D5EC4D-F17C-4DCB-B0D2-8967EE48D5F1/0/jconlineSept909.pdf.
2. North American Spine Society. Sign, mark & x-ray (SMaX): a checklist for safety [online]. 2001 [cited 2009 Oct 26]. Available from Internet: http://www.spine.org/Documents/SMaXchecklist.pdf.

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