

Quarterly Update on the Preventing Wrong-Site Surgery Project

Three years have passed since the first definitive article from the Pennsylvania Patient Safety Authority on wrong-site surgery at the end of June 2007.¹ When compared to the first three years of reporting, the number of events during the more recent three years has doggedly persisted (see Figure). During the first year of focus (2007 to 2008), the number of reported events increased to near a previous high, perhaps because of increased awareness and standardization around the National Quality Forum definitions.² After that initial focus on wrong-site surgery, the number of events has decreased each year. However, the Commonwealth of Pennsylvania still averages more than one report per week.*

Numerous studies, available on the Authority's Preventing Wrong-Site Surgery Project Web page,³ have identified evidence-based best practices for preventing wrong-site surgery. Of the 14 events for this last reported quarter (April 1, 2010, through June 30, 2010), 4 (29%) were repetitions of wrong-site anesthetic blocks. Best practices for preventing wrong-site anesthetic blocks were discussed in the December 2009 and March 2010 issues of the *Pennsylvania Patient Safety Advisory*,^{4,5} initiating the recent description of evidence-based best practices for specific procedures.†

The patient was to have a block on the right hand. The block was done on left side by the anesthesiologist. . . . The right side was then marked and a second block was completed.

The patient was scheduled for right eye surgery. . . . As the nurse was preparing to prep the patient, he noticed the surgeon blocking the left eye. An official time-out had not been done at this time. . . .

One facility that reported a wrong anesthesia block in the previous quarter submitted additional information to share its recommendations for system improvement:

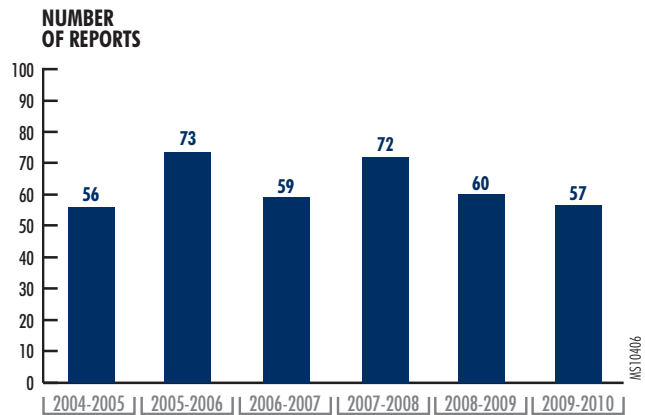
The time-out was performed with two anesthesiologists and another individual. The patient confirmed that the right leg was the operative site, although the patient was to have surgery on the left leg. The anesthesiologist inserted a catheter in the right groin. When the surgeon saw the catheter, she informed the anesthesiologist that the patient was having surgery on the left leg. The anesthesiologist removed the catheter and placed a new catheter on the left side.

The facility's root-cause analysis indicated that, although a time-out had been done, the anesthesiologist did not mark the site prior to the time-out. The anesthesiologists rely on sites marked by surgeons, but this mark had not yet been made. The facility

* As usual, this update includes any belated additions and corrections from previous quarters.

† All report narratives have been edited to remove identifying information.

Figure. Pennsylvania Patient Safety Authority Wrong-Site Surgery Reports by Academic Year, 2004 to 2010



REPORTS BY ACADEMIC YEAR (July 1 through June 30)

recommended marking the insertion site, especially since the procedure involved a femoral nerve block completed in the supine position and a sciatic nerve block completed in the prone position.

The importance of properly following the Universal Protocol⁶ is reinforced by the following reports:

Two patients with the same name were operated on by the same surgeon the same day. The surgeon operated on the first patient, thinking she was the second patient. Fortunately for the patients, both had the same operation, but the Authority considers this event wrong-patient surgery. Two patient identifiers are necessary for proper identification prior to surgery.

The Authority received a report that illustrated reasons for following the Universal Protocol other than preventing wrong-site surgery:

[After the anesthetic was injected, but] before the incision was made, the surgeon realized that the consent stated the "index finger." The surgery was cancelled, and rescheduled. The consent was incorrect. The injected anesthetic was on the correct side, correct site (middle finger).

The surgeon had started the intended procedure when he or she realized that the consent did not cover the correct operation. The incorrect consent would have been identified with proper preoperative verification of the documents, including the documents in the verification of the site marking, and doing a time-out before any localized anesthetic procedure.

Can the "time-out" work? An ambulatory surgical facility reported a save attributed to this last step in the Universal Protocol:

The OR [operating room] staff initially draped the wrong leg before knee arthroscopy procedure. The

error was caught during the time-out process. The correct leg was draped and the procedure completed by the surgeon.

The recent description in the *Advisory* of evidence-based best practices for specific procedures also included spinal surgery,⁴ pain management procedures,⁵ ureteral stenting,⁵ and hand surgery.⁵ Reports in this quarter include problems with two other specific types of procedures: (1) surgery on the wrong scar, skin lesion, or subcutaneous lesion, and (2) procedures involving the wrong device.

Surgery on Scars, Skin Lesions, and Subcutaneous Lesions

Of the 375 total reports of wrong-site surgery, 13 reports (3.5%) involved visible scars, melanomas, moles, or other skin lesions, or palpable subcutaneous lesions. Five involved pediatric patients and their parents.

These events resulted from the presence of multiple visible or palpable candidate sites. In four events, the surgeons referenced the wrong incisional scar in patients with multiple prior procedures. In another five reports, the surgeons excised nearby similar lesions instead of the intended lesions. In three other events, different pigmented lesions were widely excised instead of the intended melanomas. In one, a scar was removed instead of a subcutaneous lesion.

Seven reports cited issues with the information for identifying or marking the sites. The patients or parents were cited six times, including twice when the information was noted to be correct and twice when it was not. Incorrect office notes were also cited once. No other documents were mentioned as a source of information. In fact, two reports indicated that properly collected consents were not part of the verification processes and another two events indicated that information from the patients was not sought.

The site identification and markings were noted to have been done by the surgeons four times (three described as incorrectly), by residents twice, and a nurse once; one anesthesia provider correctly identified a site. When mentioned, most sites were marked by circles. Three reports indicated that the wrong lesions were marked. Another two events were associated with extra circles. Another report suggested that the mark was not close to the lesion.

The following report illustrates multiple high-risk behaviors known to be associated with wrong-site surgery:

Preoperatively, the parent identified the left chest as the site of the lesion to the nursing staff. In the OR, the surgeon was marking a left neck lesion as the site for removal and the nursing staff stated that the site was incorrect site per the parent. The surgeon said that the office notes indicated that the left neck was correct and continued to remove the left neck lesion. When the patient was in the PACU [postanesthesia

care unit], the parent said the lesion removed was the incorrect lesion.

The surgeon did not see the patient preoperatively. The site was marked after the patient was in the OR. The site was marked without verifying it with all the documents and the patient or surrogate. The surgeon did not properly respond to concerns raised by OR staff (by reconciling the discrepancies using the information from all the documents and the patient or surrogate).

When operating on skin and subcutaneous lesions that could be present in multiple sites, extra care is needed to ensure that the intended sites are identified, marked, and operated on. The patient may not be a perfect source of information, in part because the lesions may be on a part of the body that is not visible or palpable. Marks should identify the lesions as accurately and unambiguously as possible. In addition to the standard evidence-based practices for preventing wrong-site surgery in general, the following are proposed for skin and subcutaneous lesions:

1. The person doing the surgery should mark the correct lesion as accurately and unambiguously as possible.
2. Precise, detailed, accurate preoperative documents should be maintained to verify the location of the operative site.
3. A mirror and/or a patient advocate should be used, if necessary, to assist the patient in participating in the site verification and marking.

Procedures Involving the Wrong Device

Ten reports of procedures (2.7%) involved a device other than the one intended. (This analysis excludes procedures involving insertion of correct devices with the wrong specifications, such as the wrong-diopter intraocular lens implant, which can be due to different error mechanisms.^{7,8}) Seven of the ten reports involved the insertion of a vascular access device other than the one intended. One report involved enteric feeding tubes. One involved tympanoplasty tubes, and one involved a nerve simulator and cardiac pacemaker. Four of the reports specifically noted that the patients had major, long-term medical problems.

Of the seven reports involving the wrong vascular access device, five reports indicated confusion between subcutaneous venous access ports and Hickman or Broviac intravenous catheters (three one way and two the other). One report indicated confusion between a dialysis catheter and an intended port and another confusion between a dialysis catheter and an intended arteriovenous fistula.

Three of the reports identified errors. One incorrect procedure was due to a scheduling error. One report cited a failure to do a time-out. One event involved an incision for a different device, immediately

corrected, due to a mental error by the surgeon after the time-out.

Insertion of the correct vascular access device from among all the potential options appears to be the most common challenge involving insertion of devices. Vascular access devices are adjuncts to treatment of major, long-term medical problems. The surgeon is usually in a supportive role. The patient may have had many of the different options in the past. To supplement the general evidence-based practices for preventing wrong-site surgery, the following refinements are proposed for procedures involving the insertion of a device, when the device is not part of a controlled specialty inventory:

1. The specific device should be mentioned on the schedule, the consent, and the surgeon's preoperative evaluation of the patient. This information should be checked for its presence and agreement with all the documents in the preoperative verification.
2. The specific device should be mentioned during the time-out.
3. The specific device should be called out when delivered onto the operative field.

Resources, Consultation, and Other Education

The Authority's Preventing Wrong-Site Surgery Web page has been reorganized for easier navigation of its many resources. They include self-assessment tools, sample forms and checklists, educational posters and videos, illustrative figures and tables, patient-education brochures, and online information at other sites.³

The Authority has an on-site consultation program for Pennsylvania facilities that wish to analyze their vulnerabilities for wrong-site surgery, particularly following a wrong-site event (or a close call) in a surgical suite. Those interested in taking advantage of this program should contact the Authority office or their regional patient safety liaison (PSL). The Authority's PSLs will assist facilities in assessing their policies and procedures, measuring staff compliance, and doing a thorough analysis of any events using the resources developed by the Authority.³

Pennsylvania facilities in need can also request a Webinar to educate OR and surgical staff about

evidence-based best practices to prevent wrong-site surgery. Those requests should also be made to the Authority office or the regional PSL.

Notes

1. Doing the "right" things to correct wrong-site surgery. PA PSRS Patient Saf Advis [online] 2007 Jun [cited 2010 Aug 7]. Available from Internet: [http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2007/jun4\(2\)/Pages/29b.aspx](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2007/jun4(2)/Pages/29b.aspx).
2. National Quality Forum. Serious reportable events in healthcare—2006 update. Washington DC: National Quality Forum; 2007.
3. Pennsylvania Patient Safety Authority (Authority). Preventing wrong-site surgery [patient safety tool collection online]. [cited 2010 May 3]. Harrisburg (PA): Authority. Available from Internet: <http://www.patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Pages/home.aspx>.
4. Quarterly update on the preventing wrong-site surgery project: improving, but still room for perfection. Pa Patient Saf Advis [online] 2009 Dec [cited 2010 Aug 7]. Available from Internet: [http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2009/Dec6\(4\)/Pages/14I.aspx](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2009/Dec6(4)/Pages/14I.aspx).
5. Quarterly update on the preventing wrong-site surgery project: digging deeper. Pa Patient Saf Advis [online] 2010 Mar [cited 2010 Aug 7]. Available from Internet: [http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/Mar7\(1\)/Pages/26.aspx](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/Mar7(1)/Pages/26.aspx).
6. Joint Commission. Revised Universal Protocol; some changes are effective immediately. Joint Commission Online 2009 Sep 9 [cited 2010 Aug 7]. Available from Internet: <http://www.jointcommission.org/NR/rdonlyres/25D5EC4D-F17C-4DCB-B0D2-8967EE48D5F1/0/jconlineSept909.pdf>.
7. Focusing on eye surgery. PA PSRS Patient Saf Advis [online] 2005 Mar [cited 2010 Aug 7]. Available from Internet: [http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2005/Mar2\(1\)/Pages/12.aspx](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2005/Mar2(1)/Pages/12.aspx).
8. Still not seeing clearly—a second look at intraocular lens implant events. Pa Patient Saf Advis [online] 2008 Jun [cited 2010 Aug 7]. Available from Internet: [http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2008/Sep5\(3\)/Pages/106.aspx](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2008/Sep5(3)/Pages/106.aspx).

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