

## Quarterly Update on Wrong-Site Surgery: Queries and Responses

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This update focuses on near-miss reports, which are bellwethers to potential wrong-site events, plus consent problems caused by electronic health records (EHRs). Also, do wrong-site blocks correlate with wrong-site operations? In addition, the article addresses two queries to the Authority's Preventing Wrong-Site Surgery Program, one with a suggestion for possibly preventing wrong-side ureteral stenting.

Ten wrong-site procedures were reported in Pennsylvania operating suites this past quarter.

Near-miss reports continue to demonstrate both areas of continued weakness and the effectiveness of the evidence-based best practices to prevent wrong-site surgery.<sup>1,2</sup>

There continue to be failures to reconcile documents during the preoperative verification step of the Universal Protocol, leaving them to be caught during the time-out, if at all:

*It was discovered during the time-out that the operative consent did not match the reservation, schedule, and history and physical, which was for [surgery on the] left ring finger. The consent stated "index finger." The surgeon spoke with [the patient's] wife; the consent was corrected.*

However, there were also successes in identifying and reconciling discrepancies even before the patient came to the preoperative holding area:

*The surgery scheduling sheet was sent to the scheduler without correct information. The procedure failed to state fifth metacarpal on scheduling sheet. The revised scheduling sheet was sent to scheduler with corrected information. Surgery schedule corrected.*

*The incorrect patient's paperwork was faxed to the hospital from the physician's office.*

*The preprocedure paperwork all state left side for cystoscopy and removal of left ureteral stent. However, the patient states right side, and the surgical report from the original case support right side. The error was caught in pretesting.*

*Upon reviewing patient's surgery chart, the consent and H&P [history and physical] state left knee. The scheduling sheet and schedule state right knee. The patient [was said to have] stated right knee when scheduling the surgery. Patient [now] states left knee. The call was made [by hospital reviewer] to PAT [preadmission testing] to verify site. A phone call to the patient revealed that the left knee is the correct site of surgery. All paperwork was corrected to reflect correct site of surgery.*

An unusual problem with reconciling the documents was successfully resolved:

*An infant was scheduled for surgery. The name on the surgical consent did not match the name on the anesthesia consent, OR [operating room] schedule, or chart. The date of birth and MRN [medical record number] matched documents. The surgeon, anesthesia providers, and nurse manager were notified. The mother confirmed that the patient's name was changed after consent was done in clinic and name on [surgical] consent was patient's name prior to name change.*

There continue to be problems with site markings, including not making them, not talking to the patient before making them, and not reconciling the mark with the documents:

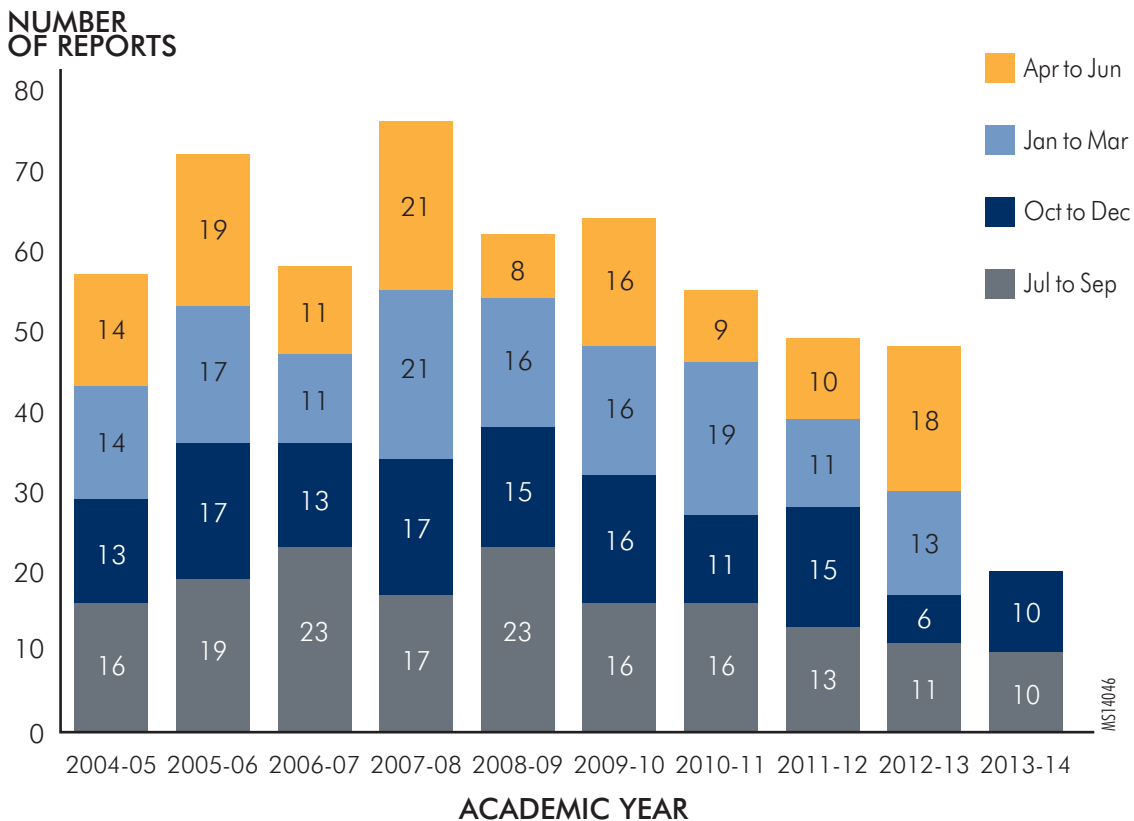
*The patient was brought to the OR without the surgical site being marked for a right carotid endarterectomy. The charge nurse and surgeon were notified. Site [was then] marked prior to surgery.*

*A patient was brought into the room without being marked. The case was scheduled as exploratory laparotomy, possible gastric resection, and possible biopsy of left cervical mass. When signing the patient in, the patient stated she was having left cervical mass removed as second part of procedure and did not have a mark. When brought to*



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Figure. Pennsylvania Patient Safety Authority Wrong-Site Surgery Reports by Academic Year



anesthesia [provider’s] attention, he said he must have missed that on consent and didn’t know about cervical part. Doctor was called into room and spoke to patient and marked her before any sedation was given in the room.

Doctor approached patient and put first initial on patient’s right knee. At that point, he was told that was not his patient. Cleaned the initial off of patient’s right knee.

The patient entered room and, while nurse was conducting the interview for the procedure, nurse asked the patient what eye we were operating on. She responded “left.” The right eye was the eye marked for the

procedure. Doctor notified, and the left eye was marked.

During a time-out before the start of the procedure, it was discovered that the patient was initially marked on the left side and the consent was for the right side. Everything was stopped at that moment, and the patient was re-marked on the right side to agree with the consent.

When doing the debriefing in the OR, it was noted that the patient was marked on both sides of chest. The patient was scheduled for a left breast biopsy. . . . The consent did state that we were doing left side.

One of the purposes of the mark is to be a constant reminder of the surgical site during the preparation for surgery. This

OR team was able to identify a wrong-site problem before the final time-out:

Knee holder and tourniquet placed on right knee after anesthesia induction. Patient consented for left knee. Tourniquet and knee holder taken off right knee and placed on left knee as consented.

The wrong patient or patient chart continues to be delivered to the waiting OR:

Arrived for block with incorrect patient information on the chart. The stickers and pretesting info were correct, but the pre-op packet was for another patient who was also having surgery today. All incorrect papers removed from chart. New packet printed and placed on chart.

Patient A was called to go to the OR. Patient A's chart was taken with patient B to the holding area by transporter. On arrival to holding, doctor stated that this was not his patient. Transporter did not check patient ID [identification] band prior to transporting patient to holding area. [Then] patient A brought into OR for surgery. Upon interview with patient, it was discovered that the wrong patient had been brought into the room. The correct chart for the patient assigned to have surgery, patient B, accompanied the wrong patient, patient A. Patient A was taken back to the pre-op holding area. The time-out procedure caught the problem immediately.

Other gratifying reports indicate that OR team members are speaking up during time-outs, preventing wrong-site surgery, including one resolution of confusion between two procedures, weeks apart, for bilateral disease; one major save from a wrong-knee replacement; and one unique save from the wrong anesthetic procedure:

*Surgeon marked left eye. Consent and surgery schedule both stated right eye. During time-out, RN [registered nurse] alerted surgeon that left eye was marked, but patient consented for right eye. Surgeon examined patient's eyes and agreed that surgery was for right eye.*

*Patient arrived in OR for scheduled left saphenous vein ablation, but upon interview, stated she was having her right leg worked on. Patient stated that her right leg had been marked preoperatively. Patient stated that she was having both legs operated on but three weeks apart. Anesthesia noted that the patient had been scheduled for a right procedure and a left procedure. Consent in patient chart noted left procedure. Nursing staff stopped the procedure until confirmation was obtained that patient was to have left procedure today and right procedure three weeks later. Patient was re-marked in the OR, and left procedure was completed without further incident.*

*Patient processed through outpatient surgery department. All paperwork correctly stated left total knee arthroplasty. Consent signed, and left knee marked per policy. Patient taken to OR. Surgeon started prepping the right knee. Nurse started the time-out process, and error caught before drapes applied. Correct knee prepped, and procedure performed without incident.*

*Patient was a scheduled cesarean section with scheduled general anesthesia due to her history (instead of the usual spinal anesthesia). Anesthesia was preparing to inject the anesthetic agent [with a spinal] to anesthetize the patient for surgery when a staff member spoke up.*

Again, another wrong-side labeling of a specimen, a previously discussed problem:<sup>3</sup>

*Specimen received in cytology with incorrect side labeled. Received labeled as "left" renal washing when it was from the "right."*

### WRONG-SITE SURGERIES RELATED TO HEALTH INFORMATION TECHNOLOGY

Although health information technology, such as EHR systems, is advocated to decrease medical errors, EHR systems can also create problems. Based on discussions with facilities, it was determined that problems involving consents in EHR systems were present in the following two cases:

*Patient was consented for C3-4, 4-5 discectomy and iliac crest bone graft. Patient changed mind about bone graft and was re-consented [three weeks] later for C3-4, 4-5 discectomy with fusion and allograft. Patient presented [two weeks after that] for surgery and received an iliac crest bone graft rather than the allograft he requested.*

*Patient had prior surgery on right knee. Consented for surgery on left knee. Called up [in EHR] old consent [for right knee] by mistake during time-out.*

In the first event, the EHR system did not have a mechanism for flagging incorrect information in the chart that had been

superseded by newer information. In the second event, the availability of all the medical records facilitated access to outdated information from prior visits.

Again, redundancy with verification using multiple documents and the patient's understanding is key.<sup>1</sup>

### THE RELATIONSHIP BETWEEN WRONG-SITE ANESTHESIA BLOCKS AND WRONG-SITE SURGERY

The 551 wrong-site procedures reported to have occurred between July 1, 2004, and September 30, 2013, were analyzed to investigate the relationship between the 116 wrong-site anesthesia blocks and the 281 wrong-site surgical procedures; excluded were 60 pain procedures and 94 procedures requiring intraoperative site verification (64 vertebral procedures, 29 ureteral procedures, and 1 rib resection). The 551 procedures were distributed among 192 facilities. The number of wrong-site anesthesia blocks ranged from 0 to 5, and the number of wrong-site surgical procedures ranged from 0 to 14 over the 9.25 years. There were more wrong-site anesthesia blocks than wrong-site surgical procedures in 28 facilities, with 7 facilities having 2 more wrong-site anesthesia blocks and 1 facility having 4 more. However, the correlation between wrong-site anesthesia blocks and wrong-site surgical procedures was highly significant ( $R = 0.48$ ,  $t = 7.46$ ,  $p < 0.001$ ), with an  $R^2$  of 0.23, suggesting that 23% of the prediction of the number of wrong-site blocks could be made using the number of wrong-site surgical procedures. The conclusion is that the tendency to do wrong-site anesthesia blocks is not independent of the general tendency to do wrong-site procedures in the operating suite. The findings suggest that some reasons for wrong-site procedures are systematic and some may be specific to a discipline.

### QUERIES ABOUT UROLOGICAL PROCEDURES

#### Lithotripsy (Prompted by an E-mail Query from a Facility)

An e-mail query from a facility asked, "Do you know the best practice for lithotripsy

site marking?" Background for the query was then provided: "I had a discussion with one urologist, and he identifies the stone on x-ray and is wondering why he needs to mark a site. He says if there is no stone, he does not do the lithotripsy no matter what the site marking is. My answer to date is that site marking is not only for laterality but also for correct procedure (i.e., we could take the wrong patient to the OR)."

There are 1 external and 2 laser wrong-site lithotripsy events in the database versus 18 other wrong-side ureteral stenting procedures, 12 of which were on the side other than the one planned. The other six were planned for the wrong side.

*Patient was on the OR schedule for a right extracorporeal shock-wave lithotripsy. He has renal stone on both sides. Brought to the OR. Sign-in procedure was followed. Time-out was [done]. Everyone agreed on the right side. Patient was not positioned in any manner that emphasized the laterality. Circulator and anesthesiologist were at the head of the table. The litho tech and the surgeon were at the litho console. They were talking, but circulator did not hear the conversation. Surgeon was viewing real-time images on litho screen with tech. Procedure was completed without event. Circulating nurse and anesthesiologist took patient to the recovery room. The surgeon was in the recovery room talking to the recovery room nurse about the case. The circulator overheard him say we did his left side. She said, "You mean right side," and he said, "No, left." Nurse reminded him that he had signed off on the right. Patient was rolled, and redness of skin noted*

*over left side of back, confirming left side was done. Nurse said she could not hear the discussion between the surgeon and litho tech. Litho tech did admit he knew that left was agreed upon, but he did not alert anyone. . . . It appears initially that only the litho tech . . . knew that the doctor was doing the left side instead of the right. The tech did not make anyone else on the OR team aware of this, but he clearly documented left side on his documentation form postprocedure.*

*Case was scheduled as a right ureteroscopy, laser lithotripsy, and ureteral stent. Consent was signed consistent with scheduled case. Surgeon made aware that CT [computed tomography] scan showed left renal calculi. Surgeon decided to proceed with scheduled case. Right side was done, but no stone was found. Then, the surgeon decided that the other side should have been done. [The surgeon] removed the right ureteral stent and performed left ureteroscopy. No stones were found on left either.*

*Procedure consented for right ureteroscopy and lithotripsy. No stone was seen in right ureter. Stone was seen in left ureter. The left ureteroscopy and laser lithotripsy were performed. The surgeon called the office to review ultrasound results, which reported a large stone in the patient's left ureter.*

A site mark might have benefited the first patient, who was undergoing an external lithotripsy. Apparently, lapses can occur in reconciling the imaging studies and the scheduled procedure. The e-mail correspondent is correct about the potential for the mark to potentially flag that the patient is the wrong patient or that a procedure is the wrong procedure.

## Possible Aid for Preventing Wrong-Side Ureteral Stents

A query was received from Linda Waddell, RN, MSN, CEN, an improvement specialist at the Donald D. Wolff, Jr. Center for Quality Improvement and Innovation at the University of Pittsburgh Medical Center and a member of the Authority's Editorial Advisory Board for the *Pennsylvania Patient Safety Advisory*: "A unit in our facility would like to use an EKG [electrocardiogram] electrode to radiographically mark the physician's initials on the skin for reference during procedures under fluoroscopy to avoid doing the procedures at the wrong site. Does this seem reasonable?"

Facilities may wish to consider placing a radiopaque mark on the surgeon's preoperative site mark to make the mark visible during intraoperative verification of the ureteral stent with imaging studies. Twelve of the previously mentioned 18 wrong-site ureteral stent insertions (two-thirds) might have benefited from radiopaque marking of the surgeon's preoperative site mark, assuming the urologists follow the Authority's suggestion for intraoperative verification of the stent placement before the patient leaves the OR.<sup>1,2</sup> The Authority suggests that the radiopaque marker be unambiguous. An EKG electrode could be appropriate, but only if the patient is not being monitored using multiple other EKG electrodes that could be confused with the radiopaque site marker. Alternative radiopaque markers could be recommended by the department of radiology, if necessary. The Authority would appreciate any feedback regarding an experience with such a strategy to prevent wrong-side ureteral stenting.

## NOTES

1. Pennsylvania Patient Safety Authority. Principles for reliable performance of correct-site surgery [online]. 2012 [cited 2014 Jan 22]. <http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Documents/principles.pdf>
2. Quarterly update: the evidence base for best practices for preventing wrong-site surgery. Pa Patient Saf Advis [online] 2010 Dec [cited 2014 Jan 22]. [http://patient.safetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/dec7\(4\)/Pages/151.aspx](http://patient.safetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/dec7(4)/Pages/151.aspx)
3. Bixenstine PJ, Zarbo RJ, Holzmüller CG, et al. Developing and pilot testing practical measures of preanalytic surgical specimen identification defects. *Am J Med Qual* 2013 Jul-Aug;28(4):308-14.

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