

## Patient Safety Tip of the Week

October 30, 2012

# Surgical Scheduling Errors

Last week we discussed latent factors in the OR and other things that can go wrong in the OR itself (see our October 23, 2012 Patient Safety Tip of the Week “[Latent Factors Lurking in the OR](#)”). This week we are going to discuss some of the issues that occur well before the patient goes to the OR that may have an impact on patient safety, patient outcomes, and even hospital finances. And in a future column we’ll deal with issues related to postoperative care.

Our August 2011 What’s New in the Patient Safety World column “[New Wrong-Site Surgery Resources](#)” highlighted the Joint Commission Center for Transforming Healthcare’s [Wrong Site Surgery Project](#). This was a collaborative done in conjunction with 8 healthcare systems. They basically identified many of the key factors contributing to cases of wrong-site or wrong-patient surgery, then planned and tested interventions aimed at eliminating or mitigating those factors. They found important factors in scheduling, the pre-op/holding area, the OR itself, and organizational factors that were important contributors to wrong-site surgery. The “[fact sheet](#)” they provide lists the contributing factors in each domain along with identified solutions and the “[storyboards](#)” walk you through the steps they used in each domain, identifying “defective cases” and measuring the improvement over time in the rates of defective cases.

One of the areas quite vulnerable to contributing to wrong site surgery was the **surgical booking and scheduling** process. Some of the booking and scheduling issues predisposing to wrong site surgery (their list plus some of our own) are:

- Verbal requests accepted without written documents
- Booking documents not verified by office schedulers
- Miscommunications between surgeons and their own office staff
- Scheduling delegated to staff unaware of nuances of scheduling
- Nonclinical people on either end not understanding clinical issues
- Unapproved abbreviations, cross-outs, and illegible handwriting used on booking forms
- Faxed booking documents with artifacts
- Missing consent, history and physical, or surgeon’s orders at time of booking
- Use of secondhand information rather than primary document verification

- Booking multiple cases simultaneously
- Last minute scheduling changes
- Computer systems not able to talk to each other
- Procedures added on to the primary procedure
- Thinking a case is scheduled when it is not

In a study looking at factors related to wrong site surgery Clarke et al. found the most commonly implicated factor reported to the development of wrong-site errors was scheduling of the procedure with the OR but it was implicated in only a minority of events that actually touched the patient ([Clarke 2007](#)).

A new study ([Wu 2012](#)) did a qualitative and quantitative analysis of errors occurring during the surgical booking/scheduling process and identified not only patient safety issues but also analyzed the costs associated with the delays such errors end up causing. Looking at over 17,000 surgeries they found a booking error rate of 0.86%. Of the booking errors wrong side was listed on 36%. Another 25% were incomplete and may not have included the laterality. Wrong approach (eg. laparoscopic rather than open) accounted for 17% of the errors. Other booking errors included wrong patient information, wrong procedure, wrong site, and even wrong patient.

The type of booking error was influenced by the nature of the surgical specialty. For example, most wrong approach errors were in general surgery but laterality errors were more common in plastic surgery, orthopedic, ophthalmologic, and ENT procedures.

Most of the errors were caught in the holding area or the OR but some were caught in the admission/registration area or assessment areas. The errors were discovered about equally between the first case of the day, the rest of the morning, and afternoon. We'll see later that the time of catching the error also impacts on the costs associated with that error.

They did focus groups with OR nurses and technicians to address the impact of such errors and identify potential solutions. Such scheduling errors create additional paperwork and lead to time pressures, hurriedness, and delays. The time delays depended on the type of surgery. For example, a wrong approach booking error in general surgery might take 15-30 minutes to correct and even longer if the case is in the afternoon when other ongoing cases might create staffing and equipment issues. On the other hand, ophthalmology booking errors might take seconds to 15 minutes to correct.

On average, the delay was about 20 minutes. They calculated that at OR costs of \$16 per minute the average cost per delay was \$320. That does not include potential costs for overtime (if the case was late in the afternoon) or costs for extra equipment (if two separate surgical setups were required). So the costs of these errors can add up considerably. This is another reason you want to bring your CFO to your quality meetings and patient safety rounds!

Hospitals can start by limiting the number of sites or persons that can do surgical bookings and then use checklists or other tools for verification that all appropriate materials have been received and are accurate.

Your surgical booking process should require specific items be filled in and specific documents received before giving that case a final time slot. For example, you should require a copy of the informed consent and the history and physical before booking so that you can match the information on those against the scheduled procedure. Note that having a copy of the history and physical will also allow you to identify cases in which the H&P will “expire” before the 30-day Joint Commission requirement. You should also include pre-op orders where appropriate (eg. for prophylactic antibiotics).

The Wu paper notes that the Minnesota Alliance for Patient Safety created a [sample booking form](#) that contains a **section which must be filled out by the physician** performing the surgery (i.e. that cannot be delegated to staff). The Minnesota Alliance for Patient Safety has several other valuable resources as part of its [Surgery Scheduling and Verification Pilot Project](#). These include algorithms for scheduling for either the hospital or ambulatory surgery center and for the clinic or physician office, and verification checklists for both sites. The Pennsylvania Patient Safety Authority also has a [sample OR scheduling form](#) as part of its extensive resources on preventing wrong site surgery plus a [checklist for the surgeon’s office](#).

Your booking form should also have an area any needed special equipment or implants can be recorded. We also recommend you have an area that indicates whether a surgical specimen (for pathology) is anticipated.

Abbreviations on booking logs and forms can be problematic and should not be used. Ophthalmologists like to use OD/OS for right eye and left eye in their notes. They should spell out right eye and left eye. We’ve seen cases where “OD” gets misinterpreted as “AD” and antibiotic drops get put in the right ear instead of the right eye. Similarly, some of us like to indicate right or left or bilateral by using circles around an “R”, “L”, or “B” respectively. That is particularly dangerous in scheduling since it is very easy to mistake these for the wrong side. Note that fax artifacts can further lead to misinterpretation of some abbreviations (see our June 19, 2012 Patient Safety Tip of the Week “[More Problems with Faxed Orders](#)” for a discussion on types of errors related to faxes and how to avoid them). So you really shouldn’t use abbreviations at all on your booking forms. Similarly, you should not use acronyms on your scheduling forms since all parties may not understand those.

Surgical procedure codes may not match the description of the procedure being scheduled. For those who enter a procedure code on the scheduling form we always recommend a written description also be included so that staff can cross check to make sure what the intended procedure is and reconcile any discrepancies.

If more than one procedure is being scheduled on the patient, be sure that the consent form includes all the procedures (and that the other information for that subsequent procedure is also included if relevant).

Availability of imaging studies is another important facet to be considered during scheduling. Some hospitals or ASC's include a checkbox on their booking form for the need for images to be present in the OR and clarify who is responsible for being sure those images are present. The same applies to copies of office notes. Having copies of office notes available may become critical when a discrepancy is noted when the patient is in the pre-op area or OR.

In one of their earliest studies on wrong site surgery the Pennsylvania Patient Safety Authority noted that discrepancies in information obtained from the surgeon's office was common in both near-misses and actual wrong site cases ([PPSA 2007](#)).

The sample verification checklists available at the Minnesota Alliance for Patient Safety website for its [Surgery Scheduling and Verification Pilot Project](#) are tools you should be using at your hospital/ASC and your physician offices, respectively.

The Clarke study pointed out that the patient, family, and preoperative nurse were the most important protections against wrong site surgery. They noted that nurses doing verification and reconciliation in the preoperative holding area were most effective in catching errors before they might reach the patient. But they also point out important roles for the surgeon and anesthesiologist. We've emphasized over and over the importance of the **pre-op huddle**. That is the brief meeting of the surgeon, anesthesiologist, and OR nurse that should occur before every case before the patient is taken into the OR itself. That is where many of the wrong site/wrong patient/wrong procedure errors can be identified and where missing equipment or missing implant issues can be identified. We recommend you develop checklists to guide those pre-op huddles and the checklists can be tailored for the specific type of surgery being done (i.e. the needs for an ob/gyn surgery pre-op huddle will differ considerably from an orthopedic one).

The Wu study also identified 3 other potential areas/times where booking errors might be identified before the pre-op huddle or OR timeout. These include when the patient first arrives and checks in, when the patient is admitted and has an identification bracelet put on, and when the nursing assessment is being done.

Some scheduling errors may occur outside the traditional surgical booking process. Add-on cases and last minute scheduling changes can also be problematic. Where verbal requests are being accepted (as above, we don't recommend you accept such verbal requests but sometimes in emergent situations you have no choice) "**hearback**" and "**readback**" should be utilized just as you would taking a verbal order via telephone. Day of surgery changes in the order of cases is also a practice that may lead to errors. Cases where the schedule is changed to accommodate an angry patient who thought he was

going to be the first case of the day have been known to result in wrong patient procedures.

Because wrong site surgery remains a relatively rare occurrence it is, of course, difficult to monitor the success of your interventions to prevent it. However, as in the Joint Commission collaborative, you can audit the error rates in the individual processes that may contribute to wrong site surgery. So formally auditing your surgical scheduling processes and identifying errors is a good practice.

**Some of our prior columns related to wrong-site surgery:**

Patient Safety Tip of the Week columns:

September 23, 2008 “[Checklists and Wrong Site Surgery](#)”

June 5, 2007 “[Patient Safety in Ambulatory Surgery](#)”

March 11, 2008 “[Lessons from Ophthalmology](#)”

September 14, 2010 “[Wrong-Site Craniotomy: Lessons Learned](#)”

November 25, 2008 “[Wrong-Site Neurosurgery](#)”

January 19, 2010 “[Timeouts and Safe Surgery](#)”

June 8, 2010 “[Surgical Safety Checklist for Cataract Surgery](#)”

December 6, 2010 “[More Tips to Prevent Wrong-Site Surgery](#)”

June 6, 2011 “[Timeouts Outside the OR](#)”

What’s New in the Patient Safety World columns:

July 2007 “[Pennsylvania PSA: Preventing Wrong-Site Surgery](#)”

August 2011 “[New Wrong-Site Surgery Resources](#)”

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storyboards

[http://www.centerfortransforminghealthcare.org/UserFiles/file/CTH\\_WSS\\_Storyboard\\_final\\_2011.pdf](http://www.centerfortransforminghealthcare.org/UserFiles/file/CTH_WSS_Storyboard_final_2011.pdf)

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<http://www.mnpatientsafety.org/OurWork/PastWork/SurgerySchedulingandVerificationProject.aspx>

The Pennsylvania Patient Safety Authority. Wrong Site Surgery tools.  
sample OR scheduling form

<http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Documents/orschedule.pdf>

checklist for the surgeon's office

[http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Documents/office\\_tip.pdf](http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Documents/office_tip.pdf)

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