

## Patient Safety Tip of the Week

### October 5, 2021 Wrong Side Again

The State of Florida Board of Medicine recently fined a physician \$2,500 and issued a letter of concern after he performed surgery on the wrong testicle ([Neal 2021](#)). In addition, the physician must take some continuing medical education courses and give lecture at a medical facility on wrong-site surgeries.

The patient was scheduled for a varicocelectomy. Prior to the procedure, while in conversation with the patient, the physician marked the right testicle (the incorrect testicle) for the procedure. Following his erroneous mark, he did a varicocelectomy on the right testicle. But, during the procedure, he realized that the patient had consented to a left testicle varicocelectomy. He then performed a left testicle varicocelectomy.

Since the physician was the Board of Medicine’s purview, it is apparent why the focus was on the physician’s role. But what about the facility’s role? There should have been several opportunities to prevent this wrong-site mistake. We discuss those opportunities below.

Opportunities to prevent wrong-site surgery occur during:

- Booking/scheduling
- Pre-op clinic
- Informed consent
- Pre-op huddle
- Site marking
- Surgical timeout and Surgical Safety Checklist

Let’s start with the **booking** of the surgical case. In our October 30, 2012 Patient Safety Tip of the Week “[Surgical Scheduling Errors](#)” we highlighted a study by Wu et al. ([Wu 2012](#)), who 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. 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.

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).

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 (ambulatory surgery centers) 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.

We also recommend that the surgical booking should include a question about whether a surgical specimen is likely to be taken. That can be of value in preparing staff to receive

and correctly process any specimens and avoid lost or misplaced surgical specimens (note that this should also be an item on your Surgical Safety Checklist or equivalent).

Often it is a non-clinical person calling in the case from the physician's office or clinic and just as often a non-clinical person is receiving the request at the facility and entering it into the schedule. That certainly can add vulnerabilities to scheduling. The Minnesota Alliance for Patient Safety, which has great resources on surgery scheduling and verification on its [Safe Surgery website](#), has a [scheduling form template](#). An important facet of that form is that there is **a section that must be completed by the surgeon** (or physician performing the procedure).

And there is one logical question that very few hospitals consider when scheduling cases: are there patients with similar names or similar sounding names scheduled on that same day? Our many columns on patient misidentification (see, for example, our March 26, 2019 Patient Safety Tip of the Week "[Patient Misidentification](#)") discuss the frequency with which patients having similar sounding names are in the hospital at any one time. One statistic we like to point out is that, in one hospital district in Texas, 2488 patients were named Maria Garcia, and 231 of these (9.3%) also shared the same date of birth ([Lippi 2017b](#))! Where possible, you should attempt to schedule cases with similar names on different days. If you can't, you should attempt to somehow flag such cases with similar names on the paper or electronic schedule and on the surgical schedule white board.

The absence of **primary source documents** at any of these levels is a major factor contributing to wrong-site events. In some cases, the documents are available but staff do not take the time to review them. We suspect that may be more of a problem when doing what some would consider "minor" procedures.

Primary source documents include office notes or hospital admission notes, the booking document, the signed informed consent, and any relevant imaging studies. One critical issue we often see relates to the availability of the H&P at the time of surgery. Particularly since most patients having elective surgery are admitted on the day of surgery or are having same day surgery, the H&P must be available in advance. We've seen cases where the surgeon dictates the H&P on the day of admission and a readable copy may not be available for all the OR players to read. Therefore, it is imperative that your OR require the H&P from the surgeon's office be available prior to the day of surgery (and remember it must be appropriately updated when it is done in advance). Having a "surgical home" is a good way to ensure this, whether the "surgical home" is staffed by surgeons, anesthesiologists, or preferably a multidisciplinary group. The other way, as described in our October 30, 2012 Patient Safety Tip of the Week "[Surgical Scheduling Errors](#)" is to cancel any elective cases for which a copy of both the informed consent and the H&P are not available at least a couple days in advance of the scheduled procedure.

But, speaking of primary source documents, what do you allow in the OR? We have seen cases where surgeons brought into the OR medical records or radiology images on

multiple patients, not just the patient currently being operated on. That, of course, increases the risk that someone may inadvertently refer to the record of a different patient. We recommend you **never allow records of more than one patient in the OR at a time**. Find a place for the surgeon to temporarily store all those other records outside the OR.

A second opportunity to verify patient, site, laterality, and procedure is in **the pre-surgical clinic or “surgical home”**. Many of these are run by anesthesiologists, nurse practitioners, physician’s assistants, or surgeons themselves, though we prefer the truly multidisciplinary clinic. But we won’t go into detail about such pre-surgical venues since not all patients are seen in them.

A third important event in preventing wrong site surgery is the **informed consent**. We discussed this in detail in our September 10, 2013 Patient Safety Tip of the Week [“Informed Consent and Wrong-Site Surgery”](#). In that column we note that the preoperative area is not the appropriate place for the informed consent process to take place. Proper informed consent requires the physician or practitioner provide the patient with details of the procedure, the potential benefits and potential harms, and the alternatives (including what might happen with the alternative of doing nothing). That discussion takes time and there must be adequate opportunity for the patient (and any surrogate) to ask questions. The pressures in the preoperative area cause considerable truncation of the informed consent process. Moreover, once a patient has committed to coming to the hospital or ASC for a procedure, they are very unlikely to say no. So, the more appropriate place for the informed consent to be performed is the physician’s office, clinic, or inpatient bedside if the patient is already admitted.

We strongly recommend that you not schedule surgery until you (the hospital or ASC) have in hand copies of the H&P, the booking form, the consent form, and imaging studies. While you might provide a tentative date and time for surgery you must have a “drop dead” date on which you will cancel that tentatively scheduled slot if you have not received these items. Things like the H&P may need updating to meet regulatory time frames, but you should have available at least the H&P from the office at the time the case was originally scheduled.

Having the consent form ahead of time will help in the preoperative verification process. It should prompt the surgeon to address the issues well before the day of the procedure and allow preoperative personnel to spot discrepancies long before the day of surgery so they can be resolved. We suggest all hospitals and ASC’s do **spot audits** to determine how frequently informed consents are being done on the day of the case rather than being done in advance.

The next opportunity to verify patient, site, laterality, and procedure is **the pre-op “huddle”**. Done correctly, the pre-op huddle includes the surgeon/operator, anesthesiologist, and circulating nurse plus the patient (before the patient has been administered any medications that might cloud his/her cognition). The pre-op huddle is a good time to ensure that all necessary equipment, supplies, implants, primary source

documents, and images are ready to go and to discuss potential contingencies. That is also a good time to perform the surgical site marking so that multiple team members can verify the site marking.

Aside from the surgical “time out”, **site marking** has probably been one of the most important interventions aimed at reducing wrong-surgery events. Protocols do exist for site marking for most surgical specialties. But, in general, the site should be marked with indelible ink and the mark should be as close to the incision site as possible (keeping in mind how surgical draping might relate to that mark). See our May 14, 2019 Patient Safety Tip of the Week “[Wrong-Site Surgery and Difficult-to-Mark Sites](#)” for a discussion on marking those sites that are midline or otherwise difficult to mark. The site marking should be verified by the surgeon (or clinician responsible for the procedure) and the responsible nurse. Note that we also recommend including the anesthesiologist if the site marking is done as part of the pre-op “huddle”. And the patient must be included in verification of the site and the procedure to be performed. That means this must be done before the patient is administered any medications that might cloud his/her cognition. If the patient is incapable of participating in the site verification, a patient family member or other advocate should participate. And remember to have an interpreter for patients who don’t speak English or a signer for the hearing impaired patient present for the site marking. Note that the Minnesota Alliance for Patient Safety [scheduling form template](#), mentioned above, includes an item regarding need for an interpreter.

The **surgical time out** and use of the **Surgical Safety Checklist** (or equivalent) are the last lines of defense for preventing wrong site surgery. See our many prior columns listed below for details on time outs and use of the checklists. But it is critical that you have full attention of all the surgical team members during the surgical time out and use of the checklist(s). **Failure to speak up** remains a problem in cases of wrong-site surgery. Unfortunately, the persistence of hierarchies in the OR remains problematic and all too often staff are afraid to speak up when they have questions. It is crucial that hospital clinical and administrative leadership support, not just with words but also with actions, a culture where all member of the team are encouraged to speak up.

We are often dismayed that hospitals or ambulatory surgery centers have no idea what their time out compliance rate is. A recent article in Outpatient Surgery ([Bouchat-Friedman 2021](#)) described how a hospital improved its time out compliance rate from 60% to 80-90%. But there is no reason you should not have rates of nearly 100%, especially for non-emergency procedures.

And we are not just talking about whether a surgical time out took place. We are talking about **active participation** by all OR staff during the time out. Our May 2020 What's New in the Patient Safety World column “[Poor Timeout Compliance: Ring a Bell?](#)” discussed how frequently one or more individuals are distracted during the time out.

How do you audit compliance with time outs? You can have an observer in the room to assess compliance. But the mere presence of an observer typically leads to the OR team

complying with the time out in that session (the Hawthorne effect). Alternatively, as we have often recommended, you can use audio/video recording. A good system uses audio/video recording not only to audit time outs, but also to provide critiques to improve the time out process.

The Bouchat-Friedman article ([Bouchat-Friedman 2021](#)) focused on building a culture of safety. They found that, by giving each team member a specific role in the time out process, team members had less fear of speaking up if a potential problem is detected, and it also emphasizes the importance of the time out process.

They also note the importance of designating a specific team member to lead the time out. They recommend that individual should be someone who can refer to the consent form in the chart in order to ensure that what's noted on it matches the patient identifiers verbalized during the time out. We'll add that they must also have access to all primary source documentation, including any relevant imaging studies and reports.

The Bouchat-Friedman article also emphasizes the importance of having support from the top of the organization, as we've emphasized above. They discuss an individual who still refused to take part in the process, so concerns were escalated up the chain of command and the hospital's leadership fully supported those efforts and made sure that individual was an active participant in the time out process moving forward.

The article goes on to discuss use of "awake time outs" where the patient can participate in the process. Our personal recommendation is that the items typically included in the surgical time out also be discussed in the pre-op "huddle". Done correctly, the pre-op huddle includes the surgeon/operator, anesthesiologist, and circulating nurse plus the patient (before the patient has been administered any medications that might cloud his/her cognition).

Don't forget that the time out should be repeated any time there is a change in the surgical team. For example, if a second surgeon enters the OR after the case has begun, a second time out should occur.

**Patient positioning** in the OR can also be a factor contributing to wrong-site events. If a patient's position is changed during the procedure, there may be right-left confusion. Also, in our September 2021 What's New in the Patient Safety World column "[Ambiguous Language in the OR](#)" we noted it is a good idea to define a directional frame of reference at the start of a procedure, eg. left-right from the patient's perspective or the surgeon's prospective, use "toward the head" rather than "up/down", etc. ([Liu 2021](#)). Change in position of the patient can also obscure the site marking. It's a good practice to discuss right-left orientation with all staff any time you change a patient's position.

The Pennsylvania Patient Safety Authority, which for many years has reported extensively on wrong-site surgery and wrong procedures, did its most recent extensive report last year ([Yonash 2020](#)). From the Pennsylvania Patient Safety Reporting System (PA-PSRS) database over a five-year period from 2015 to 2019, the authors found 368

instances of wrong-site surgery, 76% of which contributed to or resulted in temporary harm or permanent harm to the patient. That was an average of 1.42 wrong-site surgery events per year in Pennsylvania. Events occurred at both acute care hospitals (79%) and ambulatory surgical facilities (21%). There wasn't much change in event frequency for this period compared to the previous two five-year periods (mean frequency 65.8, 51, and 58 during the five-year periods of 2005-2009, 2010-2014, and 2015- 2019, respectively).

The distribution by error type was: wrong side (52.7%), wrong site (31.5%), wrong procedure (12.5%), wrong patient (2.7%). Almost all body sites were affected, with spine procedures accounting for the largest portion (24%), followed by head/neck (17%), lower extremity (14%), and upper extremity (13%). Almost every specialty experienced wrong-site surgery events, though the type of event varied by specialty. For example, pain management was primarily associated with wrong side errors while interventional radiology had a relation with several types of error (wrong side, wrong site, and wrong procedure). And within specialties, certain procedures were more likely related to wrong-site surgical events. For example, in urology, procedures involving stents were over-represented.

The authors finish with a nice table containing 14 strategies to reduce the likelihood of wrong-site surgery, broken into the following 3 categories.

- Preoperative Verification and Reconciliation
- Site Marking
- Timeout and Intraoperative Verification

We've discussed most of those strategies above.

A recent Medscape article had some sobering statistics on wrong-site surgery ([Page 2021](#)). It noted studies which found that 25% of neurosurgeons had performed wrong-site surgeries and 25% of orthopedic surgeons reported performing at least one wrong-site surgery during their career. And it's often more experienced surgeons who are involved in wrong-site surgery cases. Page notes that two thirds of the surgeons who perform wrong-site surgeries are in their 40s and 50s, compared with fewer than 25% younger than 40. Page also notes this "chilling statistic": 12.4% of doctors who were involved in sentinel events in general had claims for more than one event.

Not all "wrong side" events are technically "surgeries". For many years, the most frequent wrong site events in New York State were **wrong side chest tube insertions**. And wrong side thoracenteses can lead to pneumothoraxes (see our July 2014 What's New in the Patient Safety World column "[Wrong-Sided Thoracenteses](#)"). More recently, **wrong side nerve blocks** have topped the list in some states. Discussion of those is beyond the scope of today's column but we refer you to good discussions of wrong side nerve blocks and strategies to prevent them ([Vandebergh 2021](#), [Balocco 2019](#)). And, in our September 14, 2021 Patient Safety Tip of the Week "[Wrong Eye Injections](#)", we discussed intraocular injections into the wrong eye. So, it is incumbent upon organizations to ensure that **pre-procedure time outs** and use of **checklists** are used for all procedures, whether in the OR or elsewhere. We often recommend policies and

procedures that require a pre-procedure checklist be completed before the “procedure tray” is dispensed and opened. Some hospitals and ASC’s are using that concept for surgeries as well as procedures.

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

September 23, 2008	<a href="#">“Checklists and Wrong Site Surgery”</a>
June 5, 2007	<a href="#">“Patient Safety in Ambulatory Surgery”</a>
July 2007	<a href="#">“Pennsylvania PSA: Preventing Wrong-Site Surgery”</a>
March 11, 2008	<a href="#">“Lessons from Ophthalmology”</a>
July 1, 2008	<a href="#">“WHO’s New Surgical Safety Checklist”</a>
January 20, 2009	<a href="#">“The WHO Surgical Safety Checklist Delivers the Outcomes”</a>
September 14, 2010	<a href="#">“Wrong-Site Craniotomy: Lessons Learned”</a>
November 25, 2008	<a href="#">“Wrong-Site Neurosurgery”</a>
January 19, 2010	<a href="#">“Timeouts and Safe Surgery”</a>
June 8, 2010	<a href="#">“Surgical Safety Checklist for Cataract Surgery”</a>
December 6, 2010	<a href="#">“More Tips to Prevent Wrong-Site Surgery”</a>
June 6, 2011	<a href="#">“Timeouts Outside the OR”</a>
August 2011	<a href="#">“New Wrong-Site Surgery Resources”</a>
December 2011	<a href="#">“Novel Technique to Prevent Wrong Level Spine Surgery”</a>
October 30, 2012	<a href="#">“Surgical Scheduling Errors”</a>
January 2013	<a href="#">“How Frequent are Surgical Never Events?”</a>
January 1, 2013	<a href="#">“Don’t Throw Away Those View Boxes Yet”</a>
August 27, 2013	<a href="#">“Lessons on Wrong-Site Surgery”</a>
September 10, 2013	<a href="#">“Informed Consent and Wrong-Site Surgery”</a>
July 2014	<a href="#">“Wrong-Sided Thoracenteses”</a>
March 15, 2016	<a href="#">“Dental Patient Safety”</a>
May 17, 2016	<a href="#">“Patient Safety Issues in Cataract Surgery”</a>
July 19, 2016	<a href="#">“Infants and Wrong Site Surgery”</a>
September 13, 2016	<a href="#">“Vanderbilt’s Electronic Procedural Timeout”</a>
May 2017	<a href="#">“Another Success for the Safe Surgery Checklist”</a>
May 2, 2017	<a href="#">“Anatomy of a Wrong Procedure”</a>
June 2017	<a href="#">“Another Way to Verify Checklist Compliance”</a>
March 26, 2019	<a href="#">“Patient Misidentification”</a>
May 14, 2019	<a href="#">“Wrong-Site Surgery and Difficult-to-Mark Sites”</a>
May 2020	<a href="#">“Poor Timeout Compliance: Ring a Bell?”</a>
September 14, 2021	<a href="#">“Wrong Eye Injections”</a>

**See our prior columns on huddles, briefings, and debriefings:**

- April 9, 2007 [“Make Your Surgical Timeouts More Useful”](#)
- May 22, 2007 [“More on TeamSTEPPS™”](#)
- December 9, 2008 [“Huddles in Healthcare”](#)
- March 10, 2009 [“Prolonged Surgical Duration and Time Awareness”](#)
- January 11, 2011 [“NPSA \(UK\) ‘How to Guide’: Five Steps to Safer Surgery”](#)
- March 2009 [“Surgical Team Training”](#)
- April 2012 [“Operating Room Briefings and Debriefings”](#)

- July 31, 2012 “[Surgical Case Duration and Miscommunications](#)”
- January 2014 “[A Tool to Assess Pre-op Briefings](#)”
- July 22, 2014 “[More on Operating Room Briefings and Debriefings](#)”
- March 17, 2015“[Distractions in the OR](#)”
- July 2021 “[Mid-Shift Huddles](#)”
- July 13, 2021 “[The Skinny on Rapid Response Teams](#)”

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Minnesota Alliance for Patient Safety

<https://mnpatientsafety.org/safe-surgery>

Minnesota Alliance for Patient Safety scheduling form template

<https://mnpatientsafety.org/sites/default/files/uploads/attachments/scheduling-form-template.doc>

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