

What's New in the Patient Safety World

July 2014

Wrong-Sided Thoracenteses

We've long known that wrong-site procedures outside the OR are frequent. We discussed them in our Patient Safety Tips of the Week for December 6, 2010 "[More Tips to Prevent Wrong-Site Surgery](#)" and June 6, 2011 "[Timeouts Outside the OR](#)" and our August 2011 What's New in the Patient Safety World column "[New Wrong-Site Surgery Resources](#)". These included links to some excellent resources ([Neily 2011](#), [Stahel 2010](#)).

In our Patient Safety Tip of the Week November 25, 2008 "[Wrong-Site Neurosurgery](#)" we noted that chest tube inserted on the wrong side was the most frequent wrong-site occurrence in New York State in the past. Wrong-side chest tube insertions and wrong-side thoracenteses continue to occur. Now a new study ([Miller 2014](#)) has analyzed factors associated with wrong-side thoracenteses. The researchers searched the VA's extensive root cause analysis database from 2004 through 2011 and found 14 cases of thoracenteses performed on the wrong side outside the OR setting. These were complicated by pneumothorax in 4 cases, bleeding in 3, and attributable death in 2. Length of stay was increased for 8 cases where reported (by an average of 2.6 days, including 1.9 ICU days).

A resident performed the procedure in 10 of the cases and an attending performed 2. **An attending was present in 6** cases and **a nurse was present in just 3** cases.

The most frequent associated factor was **failure to perform a timeout** (12 of the 14 cases). **Laterality was missing from the consent** form in 10 cases and the **site was not marked** in 12 cases. **Medical image verification was not done** in 7 of the 10 cases where information was available.

They found 30 root causes in the 14 cases (**average 2.1 root causes per event**). These most often included communication issues, failure to follow policy or procedures, and equipment issues. In several cases, the **images were not available** at the time of the procedure. That is particularly problematic in today's computerized environment. If the PACS system is down you may not have immediate access to the images. In the old days we'd bring the actual films with us to the bedside. Today there are no films, only the images on the computer system.

Of interest, most of the wrong-side thoracenteses were performed on the patient's right side when the pleural effusion was on the left. The authors note that right-left confusion is a common human error in many scenarios. They note one resident knew the pleural

effusion was on the left side on the x-ray but when he went behind the patient the x-ray image in his mind reversed.

Miller et al. note a number of strategies that are helpful in preventing such events. First is formal standardization of Universal Protocol and timeouts for invasive procedures anywhere, not just in the OR. Checklists, site marking, and ultrasound localization are also useful. Learning and practicing the procedures in a simulation environment is also encouraged. Development of a culture of patient safety and good communication is also critical.

We prefer to use **forcing functions** or **constraints** as actions whenever possible (see our March 27, 2012 Patient Safety Tip of the Week “[Action Plan Strength in RCA’s](#)” including our illustrative [slides](#) of strong vs. weak actions). Particularly for thoracenteses, there are **two good ways to ensure** that a timeout gets done and force all the appropriate elements to prevent a wrong-site, wrong-side, or wrong-patient procedure. One is to prevent a physician from accessing a thoracentesis tray all alone. That is best done by **requiring an order for the tray, which would require a nurse to access the tray and accompany the physician to the patient’s room (or other site where the thoracentesis will be performed) and participate in the procedure.** Second is to include on the outside of the sterile tray a **checklist that must be completed prior to opening the sterile tray.** That checklist, of course, would include the items typically in the Universal Protocol and timeouts (things like consent, verification of the patient, procedure, laterality including review of relevant imaging studies, etc.).

The Miller paper is a reminder that wrong-site procedures continue to occur and that we must put in place system interventions to help reduce the risk of their occurrence, not only in the OR but everywhere in our facilities.

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](#)”

July 1, 2008 “[WHO’s New Surgical Safety Checklist](#)”

January 20, 2009 “[The WHO Surgical Safety Checklist Delivers the Outcomes](#)”

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](#)”

October 30, 2012 “[Surgical Scheduling Errors](#)”

January 1, 2013 “[Don’t Throw Away Those View Boxes Yet](#)”

August 27, 2013 “[Lessons on Wrong-Site Surgery](#)”

September 10, 2013 “[Informed Consent and Wrong-Site Surgery](#)”

What’s New in the Patient Safety World columns:

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

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

December 2011 “[Novel Technique to Prevent Wrong Level Spine Surgery](#)”

January 2013 “[How Frequent are Surgical Never Events?](#)”

References:

Neily J, Mills PD, Eldridge N, et al. Incorrect Surgical Procedures Within and Outside of the Operating Room. A Follow-up Report. Arch Surg 2011; Published online July 18, 2011

<http://archsurg.ama-assn.org/cgi/content/full/archsurg.2011.171>

Stahel PF, Sabel AL, Victoroff MS, et al. Wrong-Site and Wrong-Patient Procedures in the Universal Protocol Era. Analysis of a Prospective Database of Physician Self-reported Occurrences. Arch Surg. 2010; 145(10): 978-984

<http://archsurg.ama-assn.org/cgi/content/short/145/10/978>

Miller KE, Mims M, Paul DE, et al. Wrong-Side Thoracentesis. Lessons Learned From Root Cause Analysis. JAMA Surg 2014; Published online June 11, 2014

<http://archsurg.jamanetwork.com/article.aspx?articleid=1879844>



Healthcare Consulting
www.patientsafetysolutions.com

<http://www.patientsafetysolutions.com/>

[Home](#)

[Tip of the Week Archive](#)

[What’s New in the Patient Safety World Archive](#)