

## Patient Safety Tip of the Week

January 1, 2013

### Don't Throw Away

### Those View Boxes Yet

This month we learned from researchers at Johns Hopkins ([Mehtsun 2012](#)) that over 4000 surgical never events occur annually in the US (see our What's New in the Patient Safety World column for January 2013 "[How Frequent are Surgical Never Events?](#)"). And we can again benefit from many lessons learned in the most recent California Department of Public Health release of root cause analyses and plans of correction for 12 serious events ([CDPH 2012](#)). Of the most recent group of 12 events, 4 involved retained surgical items, 2 involved wrong-site surgery, 2 medication-related events, one surgical fire, and 3 other types of event.

One theme seen in several of the RCA's reported by CDPH had to do with **imaging studies, or lack thereof, in the operating room**. The plan of correction for one of the hospitals (in a case where the wrong kidney was removed) has now mandated that images must be reviewed in all cases where an image had been obtained and that the OR circulator nurse and the surgeon ensure that all imaging studies are available, displayed and verified. In addition, all OR circulator nurses were given access to and trained on the PACS system.

In the old days we always brought relevant radiologic imaging studies to the OR and put them up on view boxes in the OR where they could easily be referenced. But what we have seen now on multiple occasions is that films and view boxes have been replaced by PACS systems in most hospitals and there are a number of factors that make images on PACS less accessible within the OR:

- Some OR's lack IT connectivity to the hospital PACS system
- Images from PACS displayed on a small computer screen may be harder to discern
- Practitioners who are gowned and gloved and masked may not take the time to adjust the PACS images to the appropriate views needed
- Most PACS systems have automatic time out intervals programmed in and require logging back in after the system times out

- Nursing staff often are not given access to the PACS system or trained on how to use the PACS system
- Images may have been done elsewhere and not have been integrated into your PACS system
- Some imaging done even within your system may not be incorporated into your PACS system (for example, ultrasound imaging is commonly done in multiple different departments, not all of which have interfaces with the PACS system)

Remember, your surgical timeout procedure must include verification of correct patient (using multiple identifiers), the surgical procedure(s) to be done, the side or site of surgery and must use multiple **primary documentation sources** in this process. Primary source materials include things like the H&P, the booking form, the consent form, and imaging studies. Yet we commonly see that failure to review imaging studies (or even the reports) occurs frequently.

There were problems in the old days with radiographic films brought into the OR that sometimes led to adverse events. The classic problem was putting the films up backwards and mixing up left and right. The other classic, of course, was putting up the films on the wrong patient. Often the surgeon would bring in a whole radiology folder for that patient which contained multiple films. And occasionally that folder would mistakenly contain a couple films from a different patient. And a third scenario had to do with surgeons bringing into the OR films for all the patients they had scheduled that day. Allowing films on multiple patients to be in the OR at one time is simply an accident waiting to happen.

But do these potential contributory factors go away with PACS? Well, you are not likely to put a film up backwards (though if a technician puts the wrong side marker at the time the image is taken you are left with reversed images regardless of whether you are using PACS or the old fashioned images). But the wrong patient scenario does not go away. In fact, in some respects it may be easier to get the wrong patient when using PACS (see our Patient Safety Tips of the Week for May 20, 2008 "[CPOE Unintended Consequences: Are Wrong Patient Errors More Common?](#)", June 26, 2012 "[Using Patient Photos to Reduce CPOE Errors](#)" and July 17, 2012 "[More on Wrong-Patient CPOE](#)"). When you search for images in a PACS system you may get multiple search results depending upon how you input your search query. If you get a list of several possible results you might easily choose the wrong one and assume you are looking at images on your patient. The chance of making such a mistake gets amplified when you throw in some of the pressures commonly seen in the OR setting.

The other important factor is the timing out process employed by the PACS system (or other IT systems). This, of course, is implemented in all facilities to maintain confidentiality and meet HIPAA standards. If your PACS system times out at 10 or 15 minute intervals but your OR case lasts several hours there could be multiple times during that case that someone has to reaccess the PACS system, log on again with username and password, and load the correct patient and correct images. Every time that is done is another opportunity for error, particularly when done during some of the

rapidly changing dynamics in the OR. Some systems do allow customization of the IT time out interval for individual locations but most do not.

If you are able to customize your PACS/IT time out interval for the OR, keep in mind that you also have to be careful to exit that PACS system at the end of each OR case (so you don't erroneously start the next case with images from the current patient on the screen).

Having all necessary images available in the OR is important for the surgeon but, frankly, may not help much in the verification process during the surgical timeout. That's because all the other personnel in the room (nurses, surgical techs, CRNA's and anesthesiologists) may not be able to interpret the images and thus might not appreciate which is the correct side to be operated on. In some images the most salient feature may, in fact, be an incidental finding and not relevant to the reason for which the surgery is being done. So from the standpoint of the verification during the surgical timeout you are probably better off having a **copy of the radiology report**.

Also, don't forget that the process of correct site verification begins well before your surgical timeout is done in the OR. We strongly recommend that you do not book cases for surgery until all necessary documents are received (see our October 30, 2012 Patient Safety Tip of the Week "[Surgical Scheduling Errors](#)"). Once those documents are received your preoperative nurse can check for discrepancies between site/side on all documents. Your anesthesiologist also has the opportunity to check for discrepancies when he/she is doing the anesthesia pre-case review. And one of the items on the checklist you use for your **pre-op huddle** should be "Do we have all the imaging studies that we will need for this case?". Years ago, long before Joint Commission began working on Universal Protocol, we instituted at one hospital a policy that the patient could not be taken into the OR until the surgeon was physically on site and ready to go and attested in the medical record that he/she had all the materials he/she would need for the surgery, including necessary images.

As an aside, the "wrong kidney" case also illustrates another problem often encountered in wrong-site surgery events. While we encourage active participation of the patient (or family) in the verification process, sometimes it can be misleading. In the case above the patient indicated to the nurse practitioner and an OR nurse that he had right-sided pain and even pointed to the right side when asked which kidney was to be operated on. However, the procedure was to have been a left nephrectomy for a mass lesion that had been identified on four previous CT scans. Note that the operative booking form also had listed that the surgery was to have been on the right kidney. Review of the imaging studies hence would have been crucial in identifying a disparity in those primary source documents so that a reconciliation could take place before surgery.

We encourage all facilities to review their current practices regarding availability of imaging studies in the OR and take steps to ensure adequate access to them, removing some of the barriers noted above.

## References:

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