

Patient Safety Tip of the Week

July 1, 2014

Interruptions and Radiologists

We've done many columns on the importance of prompt and accurate communication of test results, particularly those with significant findings, back to physicians. This applies especially to imaging and other radiology studies. But did you ever think about what impact that communication might have on a radiologist's workflow? And what other interruptions and distractions that radiologist might have? We know that interruptions have a detrimental impact on nurses and physicians in many settings and would anticipate such interruptions would be detrimental to the radiologist's function as well.

A recent study looked at how often a radiologist on-call gets interrupted ([Yu 2014](#)). Yu and colleagues utilized data from their central telecommunications center to determine how often radiologists on-call might have their workflow be interrupted by phone calls. They excluded calls between 8AM and 5PM Mondays thru Fridays because there is no "on-call" radiologist during those hours.

During a typical 8PM to 8AM overnight shift there was an average of 72 telephone calls, with a median call duration 57 seconds, and the average time spent on the phone was 108 minutes. The median interval from the start of one telephone call to the start of the next ranged from 3 to 10 minutes, depending on the time of day. There was also a correlation between volume of phone calls and the volume of CT scans being done (volume of other imaging studies was not measured as part of this study).

The study did not include any measure of image interpretation accuracy or disparities between interpretations by the on-call radiologist and any subsequent interpretations. But one would strongly suspect, based upon studies on the impact of interruptions in multiple other medical and non-medical settings, that all these interruptions might have a detrimental impact. Yu and colleagues noted that between 1PM and 1AM the chance of being interrupted at least once by an incoming telephone call was 37% for a study requiring 5 minutes to read and 59% for a 10-minute study (they note the average time to read a CT scan of the abdomen and pelvis is 8-10 minutes so a radiologist might be interrupted up to 2.5 times during such interpretations).

Yu and colleagues point out that while interpretation of imaging studies is the primary function of the radiologist there are numerous other activities and responsibilities for the

on-call radiologist. They have to review exam protocols, do injections for contrast and nuclear studies, do ultrasound scans, and do clinical consults in addition to communicating test results to referring physicians. The Yu study did not quantify all these other “interruptions” but they are likely to also substantially impact the workflow of the on-call radiologist. We would also note that the radiologist has a whole host of other activities that are important in preventing adverse events occurring in the radiology suite that are not directly related to the radiology procedure being done (see our October 22, 2013 Patient Safety Tip of the Week “[How Safe is Your Radiology Suite?](#)”).

The overall frequency of interruptions for on-call radiologists thus is comparable to the frequency of interruptions for emergency physicians (see our March 8, 2011 Patient Safety Tip of the Week “[Yes, Physicians Get Interrupted Too!](#)”).

So how can the system be changed to reduce the frequency of interruptions for the on-call radiologist? Yu and colleagues note that posting preliminary reports on the electronic medical record has likely had a beneficial effect on frequency of calls. They have also begun having medical students assist the on-call radiologist by answering the phone and triaging imaging reports. We would add that we have seen both academic and community hospitals utilize radiology physician assistants during high activity periods. These PA’s can help with things like contrast injections, etc. Hospitals having the luxury of larger radiology staffs might have a dedicated second radiologist during high volume periods whose sole responsibility is interpreting images. Note that the latter might also be reading images off-site via teleradiology.

We certainly would not want to do anything that would interfere with the radiologist communicating significant findings to the appropriate physician (see our numerous columns list below on communicating significant findings). But while incoming calls were the majority in the Yu study, outgoing calls may also be significant. One problem we frequently encounter is difficulty tracking down the responsible physician to whom to communicate results. That is particularly problematic in academic settings where coverage responsibilities are frequently changing. Sometimes it’s even difficult to track down the service responsible for the patient. So anything you can do to facilitate identification of the responsible physician would be a positive step.

Being the on-call radiologist is no cushy job! We need to appreciate the frequent interruptions they encounter and try to help minimize those.

Prior Patient Safety Tips of the Week dealing with interruptions and distractions:

- August 25, 2009 “[Interruptions, Distractions, Inattention...Oops!](#)”
- November 3, 2009 “[Medication Safety: Frontline to the Rescue Again!](#)”
- December 15, 2009 “[The Weekend Effect](#)”
- May 4, 2010 “[More on the Impact of Interruptions](#)”
- October 12, 2010 “[Slowing Down in the OR](#)”
- March 8, 2011 “[Yes, Physicians Get Interrupted Too!](#)”
- July 31, 2012 “[Surgical Case Duration and Miscommunications](#)”

- August 28, 2012 “[New Care Model Copes with Interruptions Better](#)”
- November 27, 2012 “[Dealing with Distractions](#)”
- April 16, 2013 “[Distracted While Texting](#)”
- May 21, 2013 “[Perioperative Distractions](#)”

See also our other columns on communicating significant results:

- Patient Safety Tip of the Week May 1, 2007 “[The Missed Cancer](#)”
- Patient Safety Tip of the Week February 12, 2008 “[More on Tracking Test Results](#)”
- Patient Safety Tip of the Week October 13, 2009 “[Slipping Through the Cracks](#)”
- What’s New in the Patient Safety World July 2009 “[Failure to Inform Patients of Clinically Significant Outpatient Test Results](#)”
- Patient Safety Tip of the Week March 9, 2010 “[Communication of Urgent or Unexpected Radiology Findings](#)”
- Patient Safety Tip of the Week March 1, 2011 “[Tests Pending at Discharge](#)”
- Patient Safety Tip of the Week August 21, 2012 “[More on Missed Followup of Tests in Hospital](#)”
- What’s New in the Patient Safety World October 2013 “[New AHRQ Toolkit: Improving Your Office Testing Process](#)”
- What’s New in the Patient Safety World January 2014 “[Email Alerts for Pending Test Results](#)”

References:

Yu J-P, Kansagra AP, Morgan J. The Radiologist's Workflow Environment: Evaluation of Disruptors and Potential Implications. JACR 2014; published online April 26, 2014
<http://www.jacr.org/article/S1546-1440%2813%2900850-8/pdf>


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