Patient Safety Tip of the Week

April 30, 2013

Photographic Identification

to Prevent Errors

When we first got involved in CPOE implementation back in 2008 we speculated that an unintended consequence might be that wrong-patient errors might actually become more common for a variety of reasons (see our May 20, 2008 Patient Safety Tip of the Week "CPOE Unintended Consequences - Are Wrong Patient Errors More Common?"). We wondered why HIT vendors had not made it easy to incorporate patient photographs into their EHR's.

In our December 2008 What's New in the Patient Safety World "Patient Photographs Improve Radiologists' Performance" we noted a paper presented at the Radiological Society of North America's annual meeting showing that inclusion of photographs of patients improved accuracy of radiologists' reports (Turner 2008). Putting a photograph of the patient aside their images on a PACS screen resulted not only in the radiologists feeling more empathy toward the patient but they also identified more incidental findings (the files were chosen because of incidental findings in this randomized study) without taking more time to review the images.

A few weeks ago a study was presented as an abstract at the American Roentgen Ray Society (ARRS) 2013 Annual Meeting (Tridandapani 2013) that demonstrated how integration of patient photos with imaging studies can be used to identify wrong-patient cases. The researchers at Emory University gave 20 pairs of x-rays to reviewers for interpretation and purposely included mismatched pairs in 2-4 cases. They found that radiologists identified the patient mismatch in 12.5% of cases when no photograph was included. But when patient photographs were included they identified the mismatch in 64% of cases. And when radiologists were told to use the photos in rendering their interpretations they identified 94% of mismatches. Including the photographs did not increase the time required for interpretation. In fact, the time was actually shorter when photographs were included (though not statistically significantly so). Nevertheless the researchers speculated that clinical clues provided by the patient photos may have actually made interpretation more efficient (see below).

The same group from Emory recently described in detail the system they had developed for integration of patient photographs with imaging studies (Ramamurthy 2013). The authors describe the system, which is simple, uses readily available technology and software and widely used standards, and is relatively inexpensive. But the biggest value of this paper is the description of the anticipated advantages of such systems. In addition to increasing the detection of mislabeled or mismatched studies, they felt it would actually improve radiologists' efficiency and throughput. For example, they might need less time looking for anatomical landmarks and also improve diagnostic capabilities. An example they give is the portable chest X-ray on the patient with multiple lines and tubes. With a patient photograph the radiologist might more readily determine what artifacts are due to such external devices.

They also note that facial recognition software capabilities are rapidly improving and such is likely to perform even better than humans at recognizing mismatched studies.

The authors note that the photographs are not used as one of the two identifiers required for patient identification but rather are used to supplement the other identifiers. But they do note that the photos are sometimes helpful in emergency trauma patients in whom the other identifiers may not be readily available. They also address the potential privacy and HIPAA concerns in the article. They also note circumstances where facial recognition may not be possible (eg. trauma patients with significant bandages, etc.). And they note that for the patient's first imaging study at the facility any comparison photo would have to come from another source, such as the EHR. They also note that the system works better with color monitors.

But they also recognize there could be unintended consequences. They might distract the reader or provide some information that is conflicting relative to the medical images and the readings might become more subjective. (They note that the study we cited above which showed radiologists were more empathetic when photos were included also showed the radiology reports were longer and contained more incidental findings). And they quote a survey of radiologists that found 67% were not in favor of including photographs.

We think this technology is exciting and really has the potential to reduce wrong-patient errors. Any gains in efficiency or accuracy would be bonuses.

Of course, there are multiple other potential applications of patient photographs in promoting patient safety. In our July 28, 2009 Patient Safety Tip of the Week "Wandering, Elopements, and Missing Patients" we briefly mentioned using photographs of patients when broadcasting an alert for a missing patient. We recommend that you include in your IT system a digital photograph of patients you identify as being at risk for wandering and elopement. Many communities, often in conjunction with their local chapter of the Alzheimer Association, have programs where families provide photos of their relatives with Alzheimer's Disease or other dementia to the local police department to facilitate searches when such individuals go missing.

In our January 12, 2010 Patient Safety Tip of the Week "Patient Photos in Patient Safety" we noted programs that have used patient photographs to reduce the risk of patient misidentification during medication administration (AHRQ Health Care Innovations Exchange). The JPS Health Network in Fort Worth, Texas implemented such a system on its psychiatry units. They first implemented it on adolescent psychiatry in 2000 then, based on success of that program, extended it to their adult psychiatry service in 2006. They noted that this additional method of correct patient identification is especially needed on psychiatry because patients frequently remove their wristband identifications and may be unable or unwilling to respond to questions at the time of medication administration. In the year after implementation on the adult unit, there were no misidentification errors on either unit. Reappearance of misidentification errors a year later led to a reeducation effort and such errors again fell to almost zero.

The AHRQ document nicely describes how JPS went about implementing the program. The resources needed for the program basically amount to a few digital cameras and some staff training. The cameras should be easy-to-use digital cameras. Nurses take a digital photograph of each patient at the time of admission and print one copy for the chart and a second for a 3x5 inch index card that includes the patient label (with patient's name, date of birth, medical record number, and barcode). That index card then gets clipped to the patient's MAR (medication administration record). Nurses then use the photograph as a second means of identifying the patient during medication administration (or other nursing activities). The first means of patient identification remains the more standard multiple-identifier method (they use verifying the patient's name, date of birth and match on the barcode). Other healthcare workers, including physicians and phlebotomists, also use the photographs for patient identification.

On admission, the nurse taking the photograph explains to the patient the reason for the photography (i.e. to avoid patient misidentification) and assures them it will only be used for that purpose. The process is simple and inexpensive and has become a routine part of the admission process on the psychiatry units at JPS.

The American Association for Clinical Chemistry (AACC April 2009) reported some healthcare organizations are attaching patient photos to requisitions for Pap smears or other specimens that are being examined.

Our June 26, 2012 Patient Safety Tip of the Week "Using Patient Photos to Reduce CPOE Errors" highlighted a Children's Hospital of Colorado study showing their successful implementation of patient photographs to reduce CPOE errors (Hyman 2012). Beginning with a nice review of the literature on patient-note mismatches, they implemented tools to help avoid such mismatches during CPOE. First they modified their CPOE workflow to include a verification screen asking the provider to verify that this is the patient on whom he/she intends to enter orders. They then began taking photographs of patients at admission or registration and including these on the above noted verification screen. They found a dramatic reduction in the number of events of actual ordering on the wrong patient or near misses. And when such events or near misses did

occur, it was usually in charts that did not have a photograph of the patient. While they could not separate out the impact of the verification screen from that of the photograph, they felt that the photographs played a large role in reducing the number of orders placed in the records of wrong patients.

They note that, unlike other CPOE alerts that have a high likelihood of being ignored, the presence of the large centrally placed photograph is effective in capturing the attention of the CPOE user. They do note that photographs have limitations, particularly for newborns and when pictures are poorly exposed. And they note that photographs need to be updated at appropriate times.

Patient photographs might also be used on patient identification cards issued by a healthcare system. This might help avoid "medical identify theft" or other fraudulent use of identification. Also, you'd be surprised at how issuing identity cards for your health system fosters loyalty to your system. We recall many years ago when our health system stopped issuing patient cards. The patients complained! They liked having them to carry around. It gave them a measure of security and sense of belonging. So don't underestimate the potential value of such cards!

But are there **downsides** to using patient photographs? Though there is a paucity of literature on use of patient photographs for patient safety, we can certainly anticipate there might be **unintended consequences**. Just like many other examples we have seen, it could happen that photographs of two patients get mixed up. For example, one might anticipate two patients being admitted around the same time. Each would get photographed. It is conceivable that someone might print out both photographs and erroneously transpose them into the charts or IT system. That is one reason you should never do anything intended for more than one patient simultaneously.

And what about those patients (eg. trauma patients) whose faces may not be recognizeable on admission? And all those babies in the nursery look the same to me! And some patients, particularly those with long stays, may have considerable changes in appearance over time. In a FMEA performed on a radiation therapy program (Scorsetti et al 2010) it was found that photos were often not representative of the patient's appearance at the time of treatment so staff tended not to rely on the photographs. In another FMEA (Skibinski et al 2007) it was found that in those patients with a wristband present and checked, a second form of patient verification (photograph, verification of birthdate, positive response to stated name, etc.) was not checked 30% of the time. So not only is training and reinforcement necessary but some audit function would be appropriate.

One other common scenario where we think having patient photographs may be very important is the multiple applications/multiple windows scenario. Most health systems still do not have full integration of all their HIT systems. For example, you may be viewing the hospital electronic record for most patient data but may be viewing a radiologic image on the separate PACS system. Particularly if you have been looking through records on multiple patients it is easy to lose synchronization between the two

applications so that you may be viewing the EHR on one patient and the PACS images of a different patient. We suspect that having patient photographs, rather than simply name and DOB, on every page in both systems would help avoid this mismatch.

Do you use patient photographs in your organization? Do any of you use them during handoffs? Let us know how you use them.

References:

Turner Y, Hadas-Halpern I. The effects of including a patient's photograph in the radiographic examination. Abstract presented at: annual meeting of the RSNA; December 3, 2008; Chicago, IL (As reported in RSNA press release: Patient Photos Spur Radiologist Empathy and Eye for Detail. December 2 2008) http://www2.rsna.org/timssnet/media/pressreleases/pr_target.cfm?ID=389

Tridandapani S, Ramamurthy S, Galgano SJ, Provenzale JM. Increasing Rate of Detection of Wrong-Patient Radiographs: Use of Photographs Obtained at Time of Radiography. American Journal of Roentgenology 2013; 200(4): W345-W352 http://www.ajronline.org/doi/abs/10.2214/AJR.12.9521?journalCode=ajr

Ramamurthy S, Bhatti P, Arepalli CD, et al. Integrating Patient Digital Photographs with Medical Imaging Examinations. Journal of Digital Imaging 2013; Published online: 14 February 2013 10.1007/s10278-013-9579-6 http://link.springer.com/article/10.1007/s10278-013-9579-6/fulltext.html

AHRQ Health Care. Innovations Exchange. Innovation Profile: Use of Photographs as Second Means of Identifying Patients on Psychiatry Units Virtually Eliminates Medication Errors Related to Misidentification. http://www.innovations.ahrq.gov/content.aspx?id=2626

AACC. Clinical Laboratory News. April 2009. Patient Safety Focus: Disconnection from Patients and Care Providers. A Latent Error in Pathology and Laboratory Medicine. An Interview with Stephen Raab, MD http://www.aacc.org/publications/cln/2009/april/Pages/safety0409.aspx

Hyman D, Laire M, Redmond D, Kaplan DW. The Use of Patient Pictures and Verification Screens to Reduce Computerized Provider Order Entry Errors. Pediatrics 2012; 130: 1-9 Published online June 4, 2012 (10.1542/peds.2011-2984)

http://pediatrics.aappublications.org/content/early/2012/05/29/peds.2011-2984.abstract

Scorsetti M, Signori C, Lattuada P, Urso G, Bignardi M, Navarria P, Castiglioni S, Mancosu P, Trucco P. Applying failure mode effects and criticality analysis in radiotherapy: Lessons learned and perspectives of enhancement.
Radiother Oncol. 2010 Jan 27. [Epub ahead of print]
http://www.ncbi.nlm.nih.gov/pubmed/20116118?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=1

Skibinski KA, White BA, Lin LI, et al. Effects of technological interventions on the safety of a medication-use system. Am. J. Health Syst. Pharm., Jan 2007; 64: 90 – 96
http://www.ajhp.org/content/64/1/90.abstract?sid=ff5fbec8-741a-43a0-85f5-9c63476df1b6

http://www.patientsafetysolutions.com/

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