System Safety in Healthcare

Dev Raheja & Maria C. Escano, M.D.

The Challenges of Sign-offs

With increasing demand for efficiency and productivity from a clinical team that's often overworked and understaffed, provision of seamless patient care is challenging. Clinicians need to hand off — or sign off — essential information to the next provider to help transition care. An effective hand-off supports the transition of critical information, along with continuity of care and treatment. This article offers an overview of sign-offs, hazards and suggestions for quality improvement initiatives, as well as recommendations for potential remedies.

Healthcare has become more specialized, and more clinicians are involved in patient care, which often leads to more complex patient sign-offs compared to years ago. Erroneous sign-offs can contribute to gaps in patient care and hazards in patient safety, including medication errors, wrong-site surgeries and patient deaths. Clinical environments are dynamic and complex, presenting many challenges for effective communication among health care providers, patients and families.

Sign-offs are not free of human errors. Clinicians are overwhelmed with the volume of electronic notifications and may ignore them because of warnings and alerts fatigue. If clinicians do not check the messages, the EMR's safeguards are ineffective. Another risk occurs when a clinician uses the e-prescribing function of an EMR, but if the computer is temporarily unavailable, the clinician may prescribe on paper, which may not be entered into the system. The next prescriber may be totally unaware of the prescription.

Other hazards include:

- **System Crashes —** A clinician may fail to back up files and may end up losing patient records, which may also create problems for payers when it is time for an audit.

- **Automatic Orders —** Sometimes, a computer software program will order diagnostic tests automatically. This may result in overtreatment. A physician recently commented that "Doctors want to practice medicine the way it was intended to be practiced — individualized in care" [Ref. 1].

- **Usability Errors —** These errors, omissions and hazards can range from missing an important finding that is buried in a template charting and inadvertent selection of the wrong patient from the drop-down menu to computer glitches that result in a loss of unsaved data, and auto-population of incomplete or erroneous data from generic templates.

- **Distraction Oversights —** These oversights can include omission of vital information presented by the patient while the clinician is entering data. He or she may fail to hear everything the patient is saying or ignore the body language of the patient when the computer becomes a barrier instead of an adjunct to patient care [Ref. 2].

- **Computer Entry Errors —** Computer entry errors can range from clinicians clicking the wrong box to the system pulling incorrect data. In one survey, 75 percent of clinical staff indicated they have identified multiple errors on a weekly basis. One hundred forty-two nurses from Contra Costa County Hospital filed formal complaints alleging errors in the EHR, which resulted in medication dosing errors. The system also wouldn't allow them to document medication administration appropriately. Dosages recommended by the system would have been fatal had they been administered [Ref. 3].

“Computers, just like any other technology, have advanced health care in ways that were not possible generations ago. However, patient care is a dynamic and complex process. This challenge needs to be met and balanced with individual patient needs, staff/clinician resources, and technological limitations to minimize patient harm.”

What are the Remedies?

The usual remedies (not always practiced) are to use risk analysis tools on the sign-off process, such as Preliminary Hazard Analysis and Fault Tree Analysis [Ref. 4 & 5]. These tools help predict harmful errors and provide guidelines for risk mitigation.

Dr. Mark Chassin, president of The Joint Commission, and Dr. Jerod M. Loeb, executive vice president for healthcare quality evaluation of The Joint Commission, suggest paying attention to reliability methods. They report that “too many hospitals and healthcare leaders currently experience serious safety failures as routine and inevitable parts of daily work” [Ref. 6]. To prevent the harm that results from these failures, which affect millions of Americans each year, the article specifies a framework for major changes involving leadership, safety culture and robust process improvement. This framework is designed to help hospitals make progress toward high reliability, which is the achievement of extremely high levels of safety that are maintained over long periods of time — safety comparable to that demonstrated by the commercial air travel, nuclear power and amusement park industries.”

Dr. Chassin further said that although no hospital has been able to achieve high reliability, there are some practical changes that can be made to improve safety and quality. “The time is now to start taking the steps needed to get from where we are today to where we want to be,” he said.

Computers, just like any other technology, have advanced health care in ways that were not possible generations ago. However, patient care is a dynamic and complex process. This challenge needs to be met and balanced with individual patient needs, staff/clinician resources, and technological limitations to minimize patient harm.

References

1. Makary, Martin, M.D. “What Hospitals Won’t Tell You and How Transparency Can Revolutionize Healthcare,” March 24, 2013, http://articles.mercola.com/sites/articles/archive/2013/03/24/modern-medical-errors.aspx
2. Buppert, Carolyn. “Electronic Medical Records: 18 Ways to Reduce Legal Risks,” *Topics in Advanced Practice Nursing* eJournal, January 13, 2010, http://www.medscape.com/viewarticle/714812_1
3. Roberts, Laura and Amy Bailie Muckler. “Electronic Health Records – Auditing Quality and Compliance,” American Health Lawyers Association, http://www.healthlawyers.org/Events/Programs/Materials/Documents/FC12/205_muckler_roberts_slides.pdf, accessed on October 10, 2014.
4. Raheja, Dev. “System Safety in Healthcare: Preliminary Hazard Analysis for Minimizing Sentinel, Adverse and Never Event,” *Journal of System Safety*, July-August 2009.
5. Raheja, Dev, and Maria C. Escano, M.D. “Reducing Patient Healthcare Safety Risks Through Fault Tree Analysis,” *Journal of System Safety*, September-October 2009.
6. Zhani, Elizabeth Eaken. “Hospitals Still Far from Being Highly Reliable,” *The Milbank Quarterly*, September 17, 2013.