

# Patient Safety Alert: Electronic Health Record Risks in the Emergency Department

Issue 27 | 2016

As healthcare delivery continues to increase in complexity and scope, hospitals and providers are hoping the electronic health record (EHR) will be an effective tool to assist in managing all the moving parts. EHRs have the potential to transform the healthcare industry and improve the overall quality and safety of care delivery. Over the years, EHRs have evolved from home grown single hospital-based to enterprise-wide systems allowing providers across different organizations to view and share records<sup>2</sup>. While the use of EHRs has great potential to improve the safety and quality of care, EHR use has also come with accompanying risks. For this reason, work on the recognition and mitigation of EHR risks has become a focus on a national level<sup>5</sup>.

The Emergency Department (ED) is one such area that faces unique challenges and risks associated with EHR use.<sup>7</sup> Because of the somewhat hectic nature of a typical ED, workarounds are ingrained in the work culture. When EHR workflows do not align with ED clinical workflows, common workarounds erupt, increasing the potential for error. For example, providers multitasking amongst numerous patients place themselves at risk for placing orders or documenting on the wrong patient, or completely failing to document an assessment or intervention.

While there has been recent focus on EHR risks, this has not filtered down to the level of areas with unique workflows and potentially high severity outcomes, such as the ED. It was because of this, the AMC PSO decided to convene a group of Emergency Medicine thought leaders to identify significant areas of concern and to explore potential mitigation strategies.

## Risks

Through the lens of CRICO's clinical coding taxonomy, EHR-related adverse events were analyzed according to their contributing factors. These factors were then further classified as either *system-based* or *user-based*.

System-based issues feature inconsistencies in the EHR system's design, security and or technological components. Examples of this include failure to access information from other EHR systems due to incompatibility or the system "being down."

Poor EHR system design coupled with improper use can cause EHR-related errors that may endanger the integrity of the medical record, consequently decreasing the quality of care delivered and possibly impacting patient safety. An example of this type of issue would be test results and evaluations that can be filed in multiple locations in the medical record.

User based issues feature inconsistencies with the user's operation of the EHR. Examples include circumventing the rules of the system (i.e., bypassing alarms) and

carrying forward previous notes to a newer patient visit. Another example would be a provider receiving and bypassing an allergy alert to a medication and then ordering it.

Examples of some common system versus user issues are detailed in Table 1.

System Issues	User Issues
Lack of integration or incompatible systems	Pre-populating, copy and paste of text
Failure to ensure EHR security	User created EHR or CPOE workarounds
Insufficient scope or area for documentation	Bypassing of alerts and decision support tools
Use of hybrid records: paper and electronic	Insufficient user training
Lack of, or overabundance of alerts and/or decision support tools	EHR patient safety issues not reported

## Case

Patient A arrives at the ED and is awake, alert and oriented but complains of abdominal and lower back pain. The patient is evaluated and treated with medication for the pain by a physician. The physician then flags the patient's record as ready for discharge. Concurrently the physician is seeing patient B with a high Hepatitis B risk and orders labs and prophylaxis. Patient A receives the order and the lab draws for Hepatitis serology and receives the order and administration of prophylaxis instead of patient B.

### SYSTEM ISSUES

- EHR allows orders after patient is flagged for discharge
- EHR screens are similar for all patients, thus easy to confuse patients when toggling back and forth

### USER ISSUES

- Provider had multiple patient records open
- Provider was managing multiple patients in a busy ED environment

## Convening

The case above represents a common scenario that highlights inherent risks related to EHR use in busy environments such as the ED. As part of the AMC PSO convening process, non-identifiable case reviews and data analyses help frame and provide a basis for deliberations on patient safety risks, contributing factors and strategies to mitigate harm. Discussion amongst the members identified additional risks related to EHR in the emergency department. These risks, summarized below, help direct the discussions that organizational leaders and front line providers should have to effectively leverage the use of the EHR for safe care delivery.

In an analysis of cases using the CRICO Comparative Benchmarking Service (CBS), approximately 72 percent of EHR-related cases in the ED were medication and diagnosis-related; medical treatment accounted for 12 percent of cases. More than half of the total ED EHR cases involved a high severity injury to the patient, with more than one-third leading to patient death. Further analyses identify EHR *user-related* issues as the most common contributing factor in the cases.

The AMC PSO's analysis of safety events reveals Emergency Medicine as the sixth highest responsible service for EHR related events.

System design and integration (and lack thereof) were noted as leading contributing factors to EHR-related events in the Emergency Medicine service.

## Risk Mitigation Strategies

Several risk mitigation strategies were brought forth during the convening. Of most importance, was the importance of leadership (C-suite) engagement in framing concerns with a focus on patient safety.

Other strategies included:

- Use a photo, watermark, or room number in the EHR to easily and readily identify a patient <sup>7</sup>
- Limit the number of open patient records per user to reduce errors related to toggling between charts
- Request EHR prompts to confirm if patient is correctly chosen
- Encouraging providers to complete EHR data entry before leaving the patient's room
- Select and support judicious use of alerts and clinical decision support tools
- Encourage reporting and tracking of EHR issues via the patient safety event reporting system

## Conclusion

The introduction of the EHR in the ED environment has allowed for many operational, financial and patient safety improvements; however the design and use of EHRs can present new risks with the potential to negatively impact patient safety and the quality of care, if not recognized and mitigated. The AMC PSO is hopeful the strategies offered in this alert will provide a first step toward implementing a multidisciplinary approach to resolving EHR related adverse events.

## ABOUT CRICO'S COMPARATIVE BENCHMARKING SERVICE (CBS)

CBS is a robust repository of approximately 30 percent of U.S. malpractice cases. The database of unique risk indicators currently holds 350,000+ medical malpractice cases from 400 hospitals, including more than 30 academic and teaching hospitals covered by both captive and commercial insurers.

### MEDICAL EDITORS:

1. Jay Schuur, MD: Associate Medical Director
2. Carol Keohane, MS, RN: Assistant Vice President
3. Ashley Yeats, MD: AMC PSO Associate Medical Director

### MEDICAL WRITERS:

1. Jerin Raj, MPH; AMC PSO Program Administrator
2. Lori Rizzo, MBA BSN RN; AMC PSO Director

## REFERENCES

1. Bowman S. Impact of electronic health record systems on information integrity: quality and safety implications. *Perspect Health Inf Manag.* 2013 Oct 1; 10:1c. eCollection 2013. Review. PubMed PMID: 24159271; PubMed Central PMCID: PMC3797550.
2. EMR use in the ED: scant data connect EMRs with positive outcomes, but experts advise managers, providers to consider long-term benefits. *ED Manag.* 2012 Mar; 24(3):25-8. PubMed PMID: 23687734.
3. Graber, Mark L. "Electronic Health Record–Related Events in Medical Malpractice Claims." *Journal of Patient Safety* (2015).
4. Quinn MA, Kats AM, Kleinman K, et al. The relationship between electronic health records and malpractice claims. *Arch Intern Med.* 2012; 172:1187–1189.
5. Ruder, Debra Bradley. "Malpractice Claims Analysis Confirms Risks in EHRs." *Patient Safety & Quality Healthcare* 11.1 (2014): 19-23. Web.
6. Sparnon E, Marella WM. The role of the electronic health record in patient safety events. *PA Patient Safety Advisory.* 2012; 9:113–121.
7. Yamamoto, L. (2014, October). Reducing Emergency Department Charting and Ordering Errors with a Room Number Watermark on the Electronic Medical Record Display. *Hawaii Journal of Medicine & Public Health*, 73(10).

© 2016 Risk Management Foundation of the Harvard Medical Institutions. All rights reserved. This material may not be reproduced, displayed, modified or distributed without the express prior written permission of the copyright holder.

For permissions and secure methods of communication to the AMC PSO, please contact:

[amcpso@rmf.harvard.edu](mailto:amcpso@rmf.harvard.edu)  
617-450-5586