



## PROFESSION

### Ways EHRs can lead to unintended safety problems

Wrong records and failures in data transfer impede physicians and harm patients, according to an analysis of health technology incidents.

By **KEVIN B. O'REILLY**, *amednews staff*. *Posted Feb. 25, 2013.*

In spring 2012, a surgeon tried to electronically access a patient's radiology study in the operating room but the computer would show only a blue screen. The patient's time under anesthesia was extended while OR staff struggled to get the display to function properly.

That is just one example of 171 health information technology-related problems reported during a nine-week period to the ECRI Institute PSO, a patient safety organization in Plymouth Meeting, Pa., that works with health systems and hospital associations in Kentucky, Michigan, Ohio, Tennessee and elsewhere to analyze and prevent adverse events.

Eight of the incidents reported involved patient harm, and three may have contributed to patient deaths, said the institute's 48-page report, first made privately available to the PSO's members and partners in December 2012. The report, shared with *American Medical News* in February, highlights how the health IT systems meant to make care safer and more efficient can sometimes expose patients to harm.

The institute's report did not rate whether electronic systems were any less safe than the paper records they replaced. The report is intended to alert hospitals and health systems to the unintended consequences of electronic health records.

The leading cause of problems was general malfunctions, responsible for 29% of incidents. For example, following a consultation about a patient's wounds, a nurse at one hospital tried to enter instructions in the electronic record, but the system would not allow the nurse to type more than five characters in the comment field. Other times, medication label scanning functions failed, or an error message was incorrectly displayed every time a particular drug was ordered. One system failed to issue an alert when a pregnancy test was ordered for a male patient.

A quarter of incidents were related to data output problems, such as retrieving the wrong patient record because the system does not ask the user to validate the patient identity before proceeding. This kind of problem led to incorrect medication orders and in one case an unnecessary chest x-ray. Twenty-four percent of incidents were linked to data-input mistakes. For example, one nurse recorded blood glucose results for the wrong patient due to typing the incorrect patient identification number to access the record.

Most of remaining event reports were related to data-transfer failures, such as a case where a physician's order to stop anticoagulant medication did not properly transfer to the pharmacy system. The patient received eight extra doses of the medication before it was stopped.

It is not enough for physicians and other health care leaders to shop carefully for IT systems, the report said. Ensuring that systems such as computerized physician order entry and electronic health records work safely has to be a continuing concern, said Karen P. Zimmer, MD, MPH, medical director of the ECRI Institute PSO.

"Minimizing the unintended consequences of health IT systems and maximizing the potential of health IT to improve patient safety should be an ongoing focus of every health care organization," she said.

The report recommends that hospitals and clinics conduct extensive tests before using a new electronic system in patient care. They also should incorporate interfaces designed to prevent errors. For example, an interface should not allow alphabetic characters in numeric entry fields. To prevent wrong-record retrievals, systems should require validation of a patient's identity, such as the patient's initials, gender and age, before the electronic record is opened.

### Rise in EHR safety reports

The institute's findings are just the latest to draw attention to the safety problems posed by health IT systems, such as EHRs. A December 2012 Pennsylvania Patient Safety Authority study found that the number of EHR-related adverse events reported to the authority doubled in just one year, from 555 in 2010 to 1,142 in 2011. A study in February's *Critical Care Medicine* showed that three-quarters of physicians' progress notes for intensive care patients were copy-and-pasted, a practice dubbed "sloppy and paste" that experts say can lead to mistakes in care.

In response to a November 2011 Institute of Medicine report, the Health and Human Services Dept.'s Office of the National Coordinator for Health Information Technology in January released a plan to make tracking and fixing EHR-related problems easier. The ONC is urging health IT vendors to work with PSOs to collect and analyze adverse events. The agency's plan also says vendors should stop using nondisclosure agreements that bar doctors and other health professionals from sharing the safety problems they encounter with their systems. The ONC received about 100 public comments on its plan, including one from the American Medical Association.

In a Feb. 1 letter to ONC head Farzad Mostashari, MD, AMA Executive Vice President and CEO James L. Madara, MD, said more work should be done to isolate IT problems in the ambulatory care setting.

“Physicians are concerned about potential liabilities from EHR system design and software flaws as well as lack of interoperability among EHR systems that could result in incomplete or missing information, which may lead to errors in patient diagnosis and treatment (e.g., patient matching),” Dr. Madara wrote. “In addition, the impact that EHRs have on physician practice workflows can lead to unintended consequences.”

More should be done to address those concerns during the ONC’s process of certifying EHRs, he added. One related measure that is part of stage 3 of the EHR meaningful program requires a health IT safety risk assessment.

“We are concerned that physicians do not have the necessary tools or resources to make a meaningful safety risk assessment,” Dr. Madara wrote. “We seek clarification on this proposal. Without clear standards and guidance, this measure could be burdensome for health care providers, especially smaller practices, to meet.”

Separately, the AMA has asked the Centers for Medicare & Medicaid Services to slow down its meaningful use implementation schedule to allow for further research on EHR-related problems.

The ONC said it plans to issue its final IT safety plan this spring. A February report released by the Bipartisan Policy Center — a Washington think tank founded in 2007 by former Senate Majority Leaders Howard Baker, Tom Daschle, Bob Dole and George Mitchell — said oversight for IT safety should be the responsibility of everyone in the health care system. Oversight also should encourage a nonpunitive environment for safety reporting but take care not to stifle innovation, the center’s report said.

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#### ADDITIONAL INFORMATION:

### 11 ways to make health IT safer

Patient-safety experts recommend that hospitals and clinics seeking to reduce the potential for patient harm linked to their health information technology systems should:

- Enlist leaders’ commitment and support for the organization’s health IT projects.
- Involve health IT users in system planning, design and selection.
- Review workflow and processes to determine how they must be modified.
- Evaluate the ability of existing IT systems within the organization to exchange data reliably with any health IT system under consideration.
- Conduct extensive tests before full implementation to ensure that the health IT system operates as expected.
- Provide user training and ongoing support; educate users about the capabilities and limitations of the system.
- Closely monitor the system’s ease of use and promptly address problems that users encounter.
- Introduce alterations to a health IT system in a controlled manner.
- Monitor the system’s effectiveness with metrics established by the organization.
- Require reporting of health IT-related events and near misses.
- Conduct thorough event analysis and investigation to identify corrective measures.

Source: “ECRI Institute PSO Deep Dive: Health Information Technology,” ECRI Institute PSO, December 2012

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#### WEBLINK

“An Oversight Framework for Assuring Patient Safety in Health Information Technology,” Bipartisan Policy Center, Feb. 13 ([bipartisanpolicy.org/library/report/oversight-framework-assuring-patient-safety-health-information-technology](http://bipartisanpolicy.org/library/report/oversight-framework-assuring-patient-safety-health-information-technology))

“Prevalence of copied information by attendings and residents in critical care progress notes,” *Critical Care Medicine*, February ([www.ncbi.nlm.nih.gov/pubmed/23263617/](http://www.ncbi.nlm.nih.gov/pubmed/23263617/))

“Health Information Technology Patient Safety Action & Surveillance Plan for Public Comment,” HHS Office of the National Coordinator for Health Information Technology, Dec. 21, 2012 ([www.healthit.gov/sites/default/files/safetyplanhhspubliccomment.pdf](http://www.healthit.gov/sites/default/files/safetyplanhhspubliccomment.pdf))

American Medical Association comment on ONC health IT safety plan, Feb. 1 ([www.ama-assn.org/resources/doc/washington/2013-02-01-comments-onc-hit-safety-plan.pdf](http://www.ama-assn.org/resources/doc/washington/2013-02-01-comments-onc-hit-safety-plan.pdf))

“The Role of the Electronic Health Record in Patient Safety Events,” *Pennsylvania Patient Safety Authority Advisory*, December 2012 ([www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2012/Dec;9\(4\)/Pages/113.aspx](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2012/Dec;9(4)/Pages/113.aspx))

“Health IT and Patient Safety: Building Safer Systems for Better Care,” Institute of Medicine, Nov. 8, 2011 ([www.iom.edu/Reports/2011/Health-IT-and-Patient-Safety-Building-Safer-Systems-for-Better-Care.aspx](http://www.iom.edu/Reports/2011/Health-IT-and-Patient-Safety-Building-Safer-Systems-for-Better-Care.aspx))

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