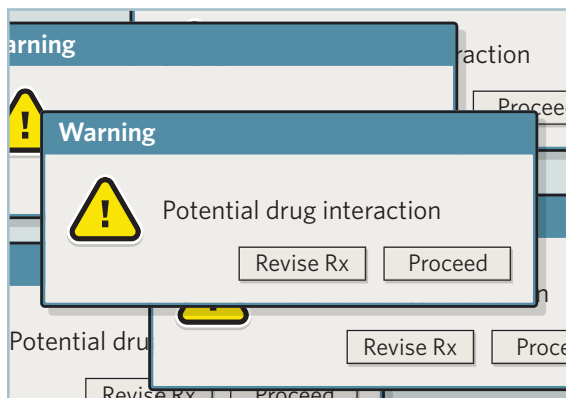




# How to Make Electronic Health Records Easier to Use—and Safer for Patients

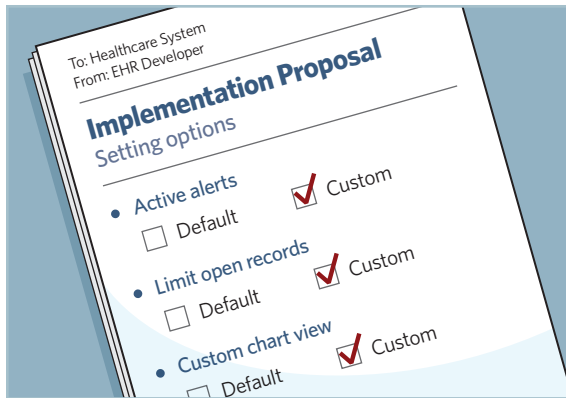
The transition from paper medical records to electronic health records (EHRs) has transformed health care and improved safety and quality. Digitizing has also highlighted issues with usability—how clinicians interact with EHR systems—that can contribute to patient harm. Varied EHR formats and a lack of consistent, intuitive interfaces—combined with EHR customization by health care facilities and lack of post-implementation testing and insufficient clinician training—can lead to errors, some of which may cause serious injuries or even death.

## How usability issues can harm patients:



### Alert fatigue

EHR systems should be designed to flag potential problems, such as dangerous interactions of different medications. But some clinicians may reflexively ignore certain alerts because they occur too frequently, so a lifesaving warning might not be noticed.<sup>1</sup>



## Unintended consequences of customization

Health care facilities may work with vendors to customize certain aspects of their EHR system to fit their workflow, displaying information deemed most critical to clinicians at a particular facility. But these customizations—which may be requested by the facility or staff—may not have undergone rigorous testing and could lead to unintended safety consequences.<sup>2</sup>

Patient	Bed	Patient	Bed
Adams, Emily	25	Yeater, Sherril	2
Bennett, James	11	Mastin, Carla	3
Darlington, Theo	17	Bennett, James	11
Graham, Erik	14	Lopez, Michael	12
Jones, Martha	20	Graham, Erik	14
Lopez, Michael	12	Darlington, Theo	17
Mastin, Carla	3	Jones, Martha	20
Yeater, Sherril	2	Adams, Emily	25

## Autorefresh mix-ups

Providers often choose views that sort their patients by specific criteria, such as last name or bed number. But some EHRs automatically refresh patient lists regularly and revert to the default view—even after the provider has selected a different one. As a result, providers may inadvertently make medical decisions based on the records of the wrong patient.<sup>3</sup>



## Unclear default settings

Providers can order medication using the EHR, but they may not consider their EHR system's default dosage settings. Clinicians may think they are ordering a fixed dose of a drug, when instead what they enter is multiplied by the patient's weight, potentially contributing to overdoses.<sup>4</sup>

Lab Order	Results	Value
WBC	WBC	2.7
RBC	RBC	4.51
Hgb	Hgb	11.1
Hct	Hct	42.3
MCH	MCH	31.2
MCHC	MCHC	33.3
Bands		

## Incomplete lab results

Providers may think all lab results are shown on their screen, not realizing some are still undergoing testing or have been delayed. This may lead to incorrect medical decisions based on incomplete information.<sup>5</sup>

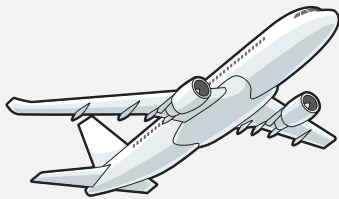
## 2 ways to improve EHR usability

As EHRs have become widely adopted, unforeseen issues have emerged in how doctors and nurses use them. Addressing these concerns and ensuring that EHRs reach their full potential to improve patient care and reduce burdens on providers will require input from stakeholders across the health care system.

### 1. Health information technology (IT) safety collaborative



A safety collaborative could bring together stakeholders from across the health care industry to share data on health IT patient safety incidents in a nonpunitive environment and to develop solutions for common and significant usability issues.



#### A Safety Collaborative Worked for the Airline Industry

The Commercial Aviation Safety Team, formed by the airline industry and stakeholders in 1998, contributed to a more than **80 percent decline in passenger deaths from 1998 to 2008.**<sup>6</sup>

### 2. Safety testing during development and after implementation



EHRs are tested for basic functionality but not for the safety or usability of those functions—and testing typically occurs only after the product is created but before implementation. Usability testing focused on safety should include all parties, including developers, doctors, nurses, pharmacists, and all other health care professionals who will regularly use the system. Those tests should take place throughout the life cycle of an EHR, including during development and after implementation and customization at a facility.

## Endnotes

- 1 Agency for Healthcare Research and Quality, "Alert Fatigue," accessed Jan. 19, 2018, <https://psnet.ahrq.gov/primers/primer/28/alert-fatigue>.
- 2 The Pew Charitable Trusts, "Improving Patient Care Through Safe Health IT" (2017), <http://www.pewtrusts.org/en/research-and-analysis/reports/2017/12/improving-patient-care-through-safe-health-it>.
- 3 Raj M. Ratwani and Rollin J. "Terry" Fairbanks, "Experiencing EHR Usability" (presentation at Pew Health IT Safety Day, Washington, Dec. 6, 2016), [http://www.pewtrusts.org/-/media/assets/2017/01/health\\_it\\_safety\\_day.pdf](http://www.pewtrusts.org/-/media/assets/2017/01/health_it_safety_day.pdf).
- 4 Jennifer Bresnick, "EHR Defaults Cause Medication, Patient Safety Errors," *EHR Intelligence*, Sept. 5, 2013, <https://ehrintelligence.com/news/ehr-defaults-cause-medication-patient-safety-errors>.
- 5 Ratwani and Fairbanks, "Experiencing EHR Usability"; Jim Dwyer, "An Infection, Unnoticed, Turns Unstoppable," *The New York Times*, July 11, 2012, <http://www.nytimes.com/2012/07/12/nyregion/in-rory-stauntons-fight-for-his-life-signs-that-went-unheeded.html>.
- 6 Ben Moscovitch, "Health IT Experts Identify Ways to Improve Patient Safety," The Pew Charitable Trusts (Jan. 10 2017), <http://www.pewtrusts.org/en/research-and-analysis/analysis/2017/01/10/health-it-experts-identify-ways-to-improve-patient-safety>.

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## For further information, please visit:

[www.pewtrusts.org](http://www.pewtrusts.org)

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