

# What’s New in the Patient Safety World

November 2023

## EHR Usability and Patient Safety

A new study has confirmed an association between poor EHR usability and EHR safety performance. Classen et al. ([Classen 2023](#)) note that, despite the demonstrated ability of EHR’s to reduce medication errors, commercial EHR systems have largely failed to consistently deliver this benefit. They also note that one explanation for these results has been poor EHR system usability, which has been shown to negatively affect the safety of these systems, not only failing to prevent, but in several cases leading to, medication errors. So, they decided to formally assess the relationship between usability and an objective measure of safety. The primary outcomes were hospital performance on the Leapfrog Health IT Safety measure (overall and 10 subcomponents) and the ARCH collaborative frontline user experience scores (overall and 8 subcomponents). We’ve discussed the Leapfrog Health IT Safety evaluation tool in several columns (listed below).

There were 112 hospitals and 5689 frontline user surveys included in the study. Hospitals scored a mean of 0.673 on the Leapfrog Health IT safety measure. The mean ARCH EHR user experience score was 3.377 (range, 1 [best] to 5 [worst]). The adjusted  $\beta$  coefficient between the overall safety score and overall user experience score was 0.011. The ARCH overall score was also significantly associated with 10 subcategory scores of the Leapfrog Health IT safety score, and the overall Leapfrog score was associated with the 8 subcategory scores of the ARCH user experience score.

The authors note that the Leapfrog EHR/CPOE safety measurements primarily focus on prescriber medication ordering. There was a significant association between the safety of the operational EHR and the experience that frontline clinicians have in using it. They note this is probably related in part to the frustration that they experience with medication ordering in poorly designed HER’s (for example, too many clicks and too many alerts often frustrate physicians but also cause them to ignore the alerts).

Though an association does not prove causality, the positive association between frontline user-rated EHR usability and EHR safety performance in this study certainly identifies a need to improve EHR usability. The authors conclude that both health systems and vendors need to consider usability as critical for the frontline users and also

as a critical safety issue and, as such, should work together with frontline users and organizations to improve usability without compromising the integrity of safety performance.

**See some of our previous columns dealing with the Leapfrog CPOE EHR evaluation tool:**

- July 27, 2010 “[EMR’s Still Have a Long Way to Go](#)”
- June 2012 “[Leapfrog CPOE Simulation: Improvement But Still Shortfalls](#)”
- April 23, 2013 “[Plethora of Medication Safety Studies](#)”
- March 2015 “[CPOE Fails to Catch Prescribing Errors](#)”
- May 3, 2016 “[Clinical Decision Support Malfunction](#)”
- November 22, 2016 “[Leapfrog, Picklists, and Healthcare IT Vulnerabilities](#)”
- June 2020 “[EMR and Medication Safety: Better But Not Yet There](#)”

**References:**

Classen DC, Longhurst CA, Davis T, Milstein JA, Bates DW. Inpatient EHR User Experience and Hospital EHR Safety Performance. JAMA Netw Open 2023; 6(9): e2333152

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2809149>



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