

What's New in the Patient Safety World

March 2021

ECRI Partnership Whitepaper on Alert Fatigue

All would agree that alerts generated by clinical decision support systems are valuable patient safety tools. But we've all seen how alerts can be obtrusive and interfere with clinician workflow, thus giving rise to "alert fatigue" in which alerts are simply ignored or overridden.

ECRI's Partnership for Health IT Patient Safety is a multi-stakeholder collaborative that sets priorities in health IT safety. You'll recall we highlighted its previous work on "closing the loop" (see our September 2018 What's New in the Patient Safety World column "[ECRI Institute Partnership: Closing the Loop](#)"), which focused on improving communication to prevent things from "slipping through the cracks".

The Partnership has now concluded efforts of a similar workgroup focused on finding ways to reduce alert fatigue associated with Computerized Physician Order Entry (CPOE) systems. Recommendations are included in their report "Safe Practices to Reduce CPOE Alert Fatigue through Monitoring, Analysis, and Optimization" ([ECRI 2021](#)). The workgroup makes four main safe practice recommendations:

- **Governance:** Identify, develop, and execute a CDS and knowledge base governance plan.
- **Monitoring:** Gather data and information using CDS-specific metrics and other tools to identify real-time and/or near real-time CDS alert functioning and impact.
- **Analysis:** Regularly assess, evaluate, and interpret metrics, functionalities, usability, and impact to determine effectiveness and value while balancing and minimizing burden.
- **Optimization:** Maximize the use of technology and various tools to create and promote effective, targeted, relevant, and routinely updated alerts.

The report reiterates the "5 Rights" model of clinical decision support (CDS) adopted from Osheroff et al. ([Osheroff 2012](#)):

1. The right information: evidence-based, suitable to guide action, pertinent to the circumstance

2. To the right person: considering all members of the care team, including clinicians, patients, and their caregivers
3. In the right CDS intervention format: such as an alert, order set, or reference information to answer a clinical question
4. Through the right channel: for example, a clinical information system such as an electronic medical record, personal health record, or a more general channel such as the internet or a mobile device
5. At the right time in workflow: for example, at time of decision, action, or need

When we did our first CPOE implementation back in 2007, we were flooded with suggestions for potential alerts that could be used for patient safety. But we readily recognized the need to limit such alerts in order to avoid alert fatigue. We set up a multidisciplinary committee to assess all suggested alerts and to monitor at specified intervals both the impact of such alerts and any unintended consequences. Monitoring included documentation of how often alerts triggered and what the acceptance and override rates were. In addition, clinicians were interviewed to assess their impression of both the utility and the degree of obtrusiveness of any alerts.

The Partnership report provides excellent guidance in identifying alert metrics, asking the following key questions:

- How many alerts fired and who received them?
- Did the alert fire appropriately or not?
- How did the alert recipient interact with the alert?
- What was the impact of alerts on recipients?

The report stresses, in initiating optimization efforts, that it is important to ask the following questions:

- What problem is the alert going to solve?
- Is the alert in line with the goals and policies of the practice or organization?
- How will the alert impact the clinician's workflow?
- Is the alert beneficial (e.g., does it reduce adverse events, increase screening, or increase referrals)?
- Is an alert the appropriate tool (i.e., is there another alternative to accomplish the same goal)?

We'd like to emphasize that last point. In our March 3, 2009 Patient Safety Tip of the Week "[Overriding Alerts...Like Surfin' the Web](#)" we noted that use of standardized order sets may avoid the need to generate some alerts (though standardized order sets can create some problems of their own, particularly when they contain outdated information that is no longer appropriate).

We refer you to the full Partnership report for details on all their recommendations. This is an excellent resource that every organization using any form of clinical decision

support tools needs to review and incorporate their recommendations into their own programs.

See some of our other Patient Safety Tip of the Week columns dealing with unintended consequences of technology and other healthcare IT issues:

- June 19, 2007 “[Unintended Consequences of Technological Solutions](#)”
- May 20, 2008 “[CPOE Unintended Consequences – Are Wrong Patient Errors More Common?](#)”
- June 17, 2008 “[Technology Workarounds Defeat Safety Intent](#)”
- August 26, 2008 “[Pattern Recognition and CPOE](#)”
- September 9, 2008 “[Less is More...and Do You Really Need that Decimal?](#)”
- December 16, 2008 “[Joint Commission Sentinel Event Alert on Hazards of Healthcare IT](#)”
- February 2009 “[Healthcare IT The Good and The Bad](#)”
- March 3, 2009 “[Overriding Alerts...Like Surfin’ the Web](#)”
- October 2009 “[A Cautious View on CPOE](#)”
- November 24, 2009 “[Another Rough Month for Healthcare IT](#)”
- April 20, 2010 “[HIT’s Limited Impact on Quality To Date](#)”
- July 27, 2010 “[EMR’s Still Have a Long Way to Go](#)”
- March 22, 2011 “[An EMR Feature Detrimental to Teamwork and Patient Safety](#)”
- January 24, 2012 “[Patient Safety in Ambulatory Care](#)”
- June 26, 2012 “[Using Patient Photos to Reduce CPOE Errors](#)”
- June 2012 “[Leapfrog CPOE Simulation: Improvement But Still Shortfalls](#)”
- July 17, 2012 “[More on Wrong-Patient CPOE](#)”
- January 2013 “[More IT Unintended Consequences](#)”
- April 23, 2013 “[Plethora of Medication Safety Studies](#)”
- April 30, 2013 “[Photographic Identification to Prevent Errors](#)”
- October 8, 2013 “[EMR Problems in the ED](#)”
- March 11, 2014 “[We Miss the Graphic Flowchart!](#)”
- October 2014 “[Ebola Exposes Fundamental Flaw](#)”
- January 2015 “[Beneficial Effect of EMR on Patient Safety](#)”
- March 2015 “[CPOE Fails to Catch Prescribing Errors](#)”
- March 31, 2015 “[Clinical Decision Support for Pneumonia](#)”
- August 2015 “[Newborn Name Confusion](#)”
- December 2015 “[Opioid Alert Fatigue](#)”
- January 12, 2016 “[New Resources on Improving Safety of Healthcare IT](#)”
- January 19, 2016 “[Patient Identification in the Spotlight](#)”
- February 9, 2016 “[It was just a matter of time...](#)”
- April 5, 2016 “[Workarounds Overriding Safety](#)”
- May 2016 “[Name Confusion in the Pharmacy](#)”
- May 3, 2016 “[Clinical Decision Support Malfunction](#)”
- May 24, 2016 “[Texting Orders – Is It Really Safe?](#)”
- August 23, 2016 “[ISMP Canada: Automation Bias and Automation Complacency](#)”

- November 22, 2016 “[Leapfrog, Picklists, and Healthcare IT Vulnerabilities](#)”
- January 2017 “[Joint Commission Thinks Twice About Texting Orders](#)”
- February 28, 2017 “[The Copy and Paste ETTO](#)”
- March 2017 “[Yes! Another Voice for Medication e-Discontinuation!](#)”
- April 2017 “[How Much Time Do We Actually Spend on the EMR?](#)”
- June 27, 2017 “[Texting – We Told You So!](#)”
- August 1, 2017 “[Progress on Wrong Patient Orders](#)”
- January 2018 “[Can We Improve Barcoding?](#)”
- January 16, 2018 “[Just the Fax, Ma’am](#)”
- January 30, 2018 “[Texting Errors Revealed](#)”
- June 19, 2018 “[More EHR-Related Problems](#)”
- September 2018 “[More Clinical Decision Support Successes](#)”
- December 11, 2018 “[Another NMBA Accident](#)”
- January 1, 2019 “[More on Automated Dispensing Cabinet \(ADC\) Safety](#)”
- February 5, 2019 “[Flaws in Our Medication Safety Technologies](#)”
- March 26, 2019 “[Patient Misidentification](#)”
- May 2019 “[Too Much Time on the EMR](#)”
- May 21, 2019 “[Mixed Message on Number of Open EMR Records](#)”
- July 23, 2019 “[Order Sets Can Nudge the Right Way or the Wrong Way](#)”
- September 10, 2019 “[Joint Commission Naming Standard Leaves a Gap](#)”
- September 24, 2019 “[EHR-related Malpractice Claims](#)”
- December 17, 2019 “[Tale of Two Tylers](#)”
- June 2020 “[EMR and Medication Safety: Better But Not Yet There](#)”
- June 16, 2020 “[Tracking Technologies](#)”
- July 2020 “[Patient Requests for EHR Corrections](#)”
- July 21, 2020 “[Is This Patient Allergic to Penicillin?](#)”
- September 2020 “[More on Workarounds](#)”
- November 17, 2020 “[A Picture Is Worth a Thousand Words](#)”

References:

Partnership for Health IT Patient Safety. Safe Practices to Reduce CPOE Alert Fatigue through Monitoring, Analysis, and Optimization. ECRI 2021
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 (ECRI 2021)

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