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Patient Safety Tip of the Week

May 21, 2019

Mixed Message on Number of Open EMR Records

Over 10 years ago, when we were doing our first electronic medical record (EMR) implementation, we predicted that wrong patient errors would likely increase as EMR adoption became more widespread (see our May 20, 2008 "CPOE Unintended Consequences – Are Wrong Patient Errors More Common?"). One of the reasons we identified was the ability to have the record of more than one patient open simultaneously. Back then, the major problem was that multiple IT systems were not yet integrated. So, it was possible to have one patient record open on a CPOE system and that of another open in a separate lab IT system or radiology PACS system. But, even as EMR's became more integrated, some systems allowed users to have open records of more than one patient at a time.

The Joint Commission (TJC 2015) and the Office of the National Coordinator for Health Information Technology (ONC 2016) have agreed with us and recommended that the number of open EMR records be restricted to one record.

A recent study by Adelman and colleagues, whose work we have referenced in so many of our columns, has challenged that concept. The researchers (Adelman 2019) took advantage of a rollout of a new EMR to randomize users to being restricted to one open record at a time vs being allowed to have as many as four records open simultaneously. They then used their RAR (Retract-and-Reorder) methodology (see our July 17, 2012 Patient Safety Tip of the Week "More on Wrong-Patient CPOE") to identify instances where a user initially entered an order on the wrong patient. The RAR methodology is also nicely described in the supplement to the current Adelman study. It is a tool we've recommended you use in tracking and monitoring patient misidentification issues as part of your quality improvement program (see our March 26, 2019 Patient Safety Tip of the Week "Patient Misidentification"). The RAR methodology, of course, measures near misses (by definition, it identifies instances where the user recognized the error and corrected it). But it is one of the only proxies we have for assessing the frequency of potential wrong-patient ordering errors.

Overall, there was no significant difference in wrong-patient order sessions per 100,000 in the restricted vs unrestricted group, or in any setting. However, in the unrestricted group overall, 66.2% of the order sessions were completed with 1 record open, thereby limiting the power of the study to detect a treatment effect. Furthermore, when they did a post hoc analysis of order sessions in the unrestricted group, the number of wrong-patient order sessions completed with 1 record open was 52.0 per 100,000 order sessions, 132.0 per 100,000 with 2 records open, 165.7 per 100,000 with 3 records open, and 184.5 per 100,000 with 4 records open. Those results were also statistically significant.

The authors conclude that a strategy that limited clinicians to 1 EHR patient record open compared with a strategy that allowed up to 4 records open concurrently did not reduce the proportion of wrong-patient order errors. But they note that, since clinicians in the unrestricted group placed most orders with a single record open, the power of the study to determine whether reducing the number of records open when placing orders reduces the risk of wrong-patient order errors was limited.

In the accompanying editorial (Wachter 2019), Wachter et al. note there are confounders in this issue. One is that circumstances in which a user might want more than one record open are also ones that might engender errors. In complex healthcare environments workload and multitasking may be more important factors contributing to errors. They also remind us that we need to consider unintended consequences and look at the whole picture. An example they give is someone entering a complex heparin titration order who is interrupted for an urgent need for an analgesic on another patient. Closing one record, opening another, then reopening the first record could lead to errors that are not wrong-patient errors. Such tradeoffs between safety and efficiency have been a topic of many of our columns (see, for example, our Patient Safety Tip of the Week "ETTO's: Efficiency-Thoroughness Trade-Offs").

Both the Adelman researchers and the editorialists seem reassured that the trial had sufficient power to test the primary question of whether a restricted vs unrestricted configuration reduces wrong-patient orders and that the less restrictive approach (allowing multiple records to be open simultaneously) does not lead to an overall increase in wrong-patient orders.

We don't agree. Most of the points made in the editorial are ones we do agree with and have often discussed in our columns. But the major problem with the Adelman study is akin to the argument we've made in the overlapping surgery debate: the sheer size of the data buries the important findings. The sheer volume of instances where only one record was open dilutes out the findings that occurred when multiple records were open. It is hard to ignore the post-hoc analysis that has what we consider to be the most important facet of this study. It clearly shows that there is an increase in wrong-patient orders when multiple records are open simultaneously and this phenomenon occurs in a dose-dependent fashion.

We hope the study does not open the door to widespread adoption of the less restrictive policy. And, if healthcare systems do start to allow multiple records to be open at the

same time, they should incorporate the RAR methodology as part of their quality improvement activities to monitor and track for patient misidentification errors.

We hope you'll go back to our March 26, 2019 Patient Safety Tip of the Week "Patient Misidentification" to review the multitude of issues related to wrong-patient events and what you should be doing to reduce the risks of such events in your organizations.

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"
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- April 20, 2010 "HIT's Limited Impact on Quality To Date"
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- 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 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"
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- 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…"
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- 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"

References:

Adelman JS, Applebaum JR, Schechter CB, et al. Effect of Restriction of the Number of Concurrently Open Records in an Electronic Health Record on Wrong-Patient Order ErrorsA Randomized Clinical Trial. JAMA 2019; 321(18): 1780-1787
https://jamanetwork.com/journals/jama/fullarticle/2733207

TJC (The Joint Commission). Safe use of health information technology. Sentinel Event Alert. Issue 54. March 31, 2015
https://www.jointcommission.org/assets/1/18/SEA_54.pdf

ONC (Office of the National Coordinator for Health Information Technology). Self-assessment: patient identification: general instructions for the SAFER Self-Assessment Guides. September 2016
https://www.healthit.gov/sites/default/files/safer/guides/safer_patient_identification.pdf

Wachter RM, Murray SG, Adler-Milstein J. Restricting the Number of Open Patient Records in the Electronic Health Record. Is the Record Half Open or Half Closed? JAMA 2019; 321(18): 1771-1773
https://jamanetwork.com/journals/jama/article-abstract/2733189

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