Reviewer's report

Title: Emergency department patient safety incident characterization: an observational analysis of the findings of a standardized peer review process

Version: 2
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Reviewer: Erik Kulstad

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This is an interesting manuscript describing a standardized peer review procedure occurring at a single hospital over the course of 2 years, highlighting findings associated with patient safety incidents (PSI) and their relationship to systems failures and practitioner-based errors. This is an area of increasing interest, and the manuscript is likely to be appreciated by readers of the journal. Some comments/suggestions are as follows.

Discretionary revisions:

ABSTRACT
If space permits, might enhance clarity by specifying how PSIs were characterized (e.g., using an approach modeled on that developed at Detroit Receiving Hospital); however, clarification as to whether this was the approach that drove the categorization of the PSIs would be useful.

BACKGROUND
As you rightly point out, studies describing ED PSIs remain limited, but some work in this area that would be worth citing/mentioning include the fairly significant ones by Croskerry (Croskerry P. The importance of cognitive errors in diagnosis and strategies to minimize them. Acad Med. 2003 Aug;78(8):775-80., and Campbell SG, Croskerry P, Bond WF. Profiles in Patient Safety: A “Perfect Storm” in the Emergency Department. Academic Emergency Medicine 2007; 14:743–749., as two examples). The American Academy of Emergency Medicine some years ago initiated an "M&M" styled presentation at their scientific assemblies, using a checklist (see below) that also may have some relevance. As Croskerry notes, "The cognitive revolution in psychology that took place over the last 30 years gave rise to an extensive, empirical literature on cognitive bias in decision-making, but this advance has been ponderously slow to enter medicine. Decision-making theorists in medicine have clung to normative, often robotic, models of clinical decision making that have little practical application in the real world of decision making. What is needed, instead, is a systematic analysis of what Reason (J. Human Error. New York: Cambridge University Press, 1990.) has called “flesh and blood” decision-making. This is the real decision making that occurs at the front line, when resources are in short supply, when time constraints apply, and when shortcuts are being sought."
In the last paragraph of this section (if not also in the Abstract), many readers may be expecting to see a "hypothesis" of some sort; as a descriptive report, this may not be necessary, but if any existed during the development of this work, would be nice to include.

METHODS
Study Design, Setting, and Population
No comments.

Methods and Measurements
This paragraph may leave readers unclear as to what changes were made to the DRH-described process; an additional sentence clarifying here may help.

Was there a standardized incident report form? And were the "direct communications" limited to verbal reports if/when a member of ED leadership was available?

If space permits, a listing of the prompting questions used in the peer review response document may help readers.

Is there a source used for the breakdown you utilize on the six types of systems failures and five types of practitioner based errors?

Particularly in a journal with an international readership, further details describing what was needed in order to comply with state legal statutes related to peer review protection would be warranted (or at least elaborating on the legal statutes existing in your state).

Data Collection and Analysis
The use of the 20 different systems/disease-based diagnostic categories for classification seems like it may have been challenging. For example, how does a pneumonia patient with possible CHF get classified (cardiovascular, infectious disease, pulmonary?). Is this a classification system used/recommended by any particular organization?

RESULTS
This seems to be an extraordinarily high number of incident reports (approximately 20 per month)! I suspect this may be due to a more robust internal system you’ve developed to facilitate reporting, encourage reporting, etc., and maybe starkly different from many other institutions both US and international. This of course may subsequently affect external validity, so may warrant brief additional comment.

Although not mandatory for publication (and in fact may instead be something that could result in a separate publication), stratifying out the cognitive errors using a classification system such as proposed by Croskerry might be valuable.

Some estimate of the denominators of the diagnostic categories seen at your
hospital, if possible to obtain, would help in putting the resulting numbers of cases in which a PSI was identified into perspective.

DISCUSSION
As mentioned above, some mention of the Croskerry references would be useful to include here.

LIMITATIONS
I think some readers might disagree that there is no reason to suspect that the phenomenon of underreporting would bias the proportion of systems failures versus practitioner-based errors, since I think in general people are eager to report issues that the “system” cause, but much less eager to report issues that can be perceived to have been caused by one of our own.

CONCLUSIONS
The first sentence here (as well as the last sentence in this paragraph) may be a little bit of a stretch based on the inherent limitations that exist in this methodology. Although I think we all agree that systems failure reduction is important, whether or not that is the most effective approach to reduce PSI’s probably can’t be determined from this data.

TABLE 1
Some of the examples listed under the Practitioner Based Errors section seem hard to discern from Systems Failures (for example, failure to diagnose or treat ST elevation myocardial infarction in a timely manner seems like something that would more commonly occur due to a systems error, such as EKG not being brought to the physician promptly, etc.).

AAEM Morbidity and Mortality Checklist
1. Brief presentation of the clinical scenario including: date, patient volume, objective description of the patient and the family
2. Communication issues: written, verbal, with patient, family, providers or consultants
3. Knowledge base issues
4. Affective bias (factors that made this patient difficult, or conversely, overly rewarding, to work with)
5. Systems issues, to include ergonomic and information accessibility
   a. ED
   b. hospital
   c. consultant
6. Teamwork issues: failures, could improvement here have prevented the situation?
7. Equipment issues
8. Cognitive issues and bias (see Croskerry papers)
9. Procedural complications
10. Which issue was the single greatest contributor to the error in this case?
11. What could the SYSTEM do better in order to preclude a similar situation in the past?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests