Reviewer's report

Title: On the alert: future priorities for alerts in computerized decision support identified from a European workshop

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Reviewer: Lisa E Hines

Reviewer's report:

Overall: This is a very important topic and readers would be interested in hearing the opinions of experts from Europe. Overall this paper needs revision to improve clarity. Many of the statements need citations or should be clearly stated as opinion. Since much of this paper appears to be opinion, without strong actionable recommendations, it should be condensed. For example, the entire section on research methods to evaluate alerts provided little added value to the manuscript.

Major Compulsory Revisions

1. Please clarify, is the focus of paper on medication-related CDS (including alerts) or just alerts?

2. The transition between the priorities and research methods to evaluate alerts is confusing. Is the section on research methods to evaluate alerts necessary?

1. Many of the statements need citations or should be clearly stated as opinion.

2. Page 5 Alert specificity and sensitivity: Do you have a reference for your definition of specificity? This definition is awkward – perhaps clarification would be helpful. For example, the term “events” caught my eye. Please clarify.

3. Page 6 Knowledge of alert fatigue in CDS systems: In the first paragraph on this page you imply that overridden alerts results in alert fatigue. Please clarify.

4. Page 8 Priority #1 This whole paragraph/topic of sensitivity and specificity would benefit from clarification. Here it is stated that a research priority is to determine the ideal (do you mean realistic?) sensitivity and specificity, and then the ideal sensitivity and specificity are stated to be 100%. If ideal is 100%, then why should research be conducted to determine the obvious? Perhaps the research priority should be to determine how to improve sensitivity and specificity (and what is the impact of this improvement?) Or whether improving these factors improve alert fatigue?

Minor Essential Revisions

5. Page 8 Priority #1 The sentence that starts, “However, this must be undertaken…..” To what is “this” referring?

6. Page 8 Priority #1 Do you have an answer (or hypothesis) for the question you
pose, “should we instead be looking for better specificity?”

7. Page 8 Priority #1 Are you referring to drug interactions when you state “evidence-based information about drugs and their interactions”? So are you referring to a drug interaction knowledge base or a general drug knowledge base intended for medication-related CDS (allergies, disease interactions, dosing).

8. Page 9 top of the page: The first sentence is confusing regarding research showing that systems can be both sensitive and specific, or lack both qualities. Do you have a reference? The examples following this statement do not clearly relate.

9. Page 9 Priority #2 Do you have a reference for the statement saying that CDS alerts are often boring, difficult to see and understand, and thus frustrating to users?

10. Page 10 Top of page: Do you have a reference for the statement about users having negative feelings.

11. Page 10 Priority #3: Do you have evidence to support the statement that alerts should be displayed as early as possible in the prescribing process or no more than one alert for any prescription?

12. Page 10 Priority 3. Can you clarify what you mean by a hierarchy of agreed alerts? Would lower levels not be displayed?

13. Page 11 Table 2: How are synthetic quality measures different from other quality measures? i.e., What is a synthetic quality measure?

14. Page 11: The correct balance (of what?) needs to be established?

Discretionary Revisions

15. Page 8 Priority #1 I suggest that not all knowledge bases are “evidence-based,” at least in the strictest sense of term.

16. Page 11: Can you clarify what you mean by the need by consistent definitions of error and harm? Are you referring to medication errors? Some definitions have been proposed in the literature. Perhaps there is a need for adoption and consistent use of these safety-related terms? Perhaps you could propose some definitions? Or maybe just delete this statement.

**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 receive US federal grants for research related to this topic