Reviewer's report

Title: A Meta-model for Computer Executable Dynamic Clinical Safety Checklists

Version: 0 Date: 25 Mar 2017

Reviewer: Alexander Arriaga

Reviewer's report:

This is an interesting manuscript on an important topic. The authors present a largely conceptual piece on a "dynamic checklist meta-model" using modeling languages (such as Business Process Modeling and Notation language, as well as Gaston). As a working example, they share some of their preliminary experience with a "coronary artery bypass graft peri-operative checklist set with dynamic features considering workflow and patient context."

This paper addresses a fundamental need relating to implementation, and the potential benefit of using information technology to better integrate safety checklists into the daily practice/routine of providers. As relevant prior work, the authors mention the efforts from Amsterdam Medical Center and the rollout of SURPASS Digital (citations as noted in the authors references).

The authors present five modeling requirements ("R1-R5" on page 3, lines 7-30) for the implementations they discuss. For a conceptual paper, it makes sense to do this, and this template could be helpful to others who attempt to generalize their methods for design.

There is an abundance of grammatical errors in this manuscript. Almost every page (if not every page) contains an error in grammar. As an example, the Conclusion section starts with the sentence: "Checklist is a widely used technique to help improving medical quality and reducing avoidable errors" (page 8, lines 58-62). In theory, most of these errors can be corrected by the publishers, but it is unfortunate that this was not presented in a better fashion by the authors. If this manuscript is accepted, the grammatical issues should be corrected before publication. In some instances, the publishers may have to go back-and-forth with the authors, as some of the word choices by the authors are ambiguous and likely have different interpretations based on how the word choices are adjusted. As an example, I read the following sentence several times, and I was not sure precisely what the authors meant: "The checklist item and every element in the checkable item is a Checklist Element" (page 7, lines 14-17).

There are numerous technical acronyms/abbreviations and terms in this manuscript. Not all of them may be familiar to the reader. The authors partially attempt to help the reader by listing some of them at the end of the paper (page 9, 26-31). I encourage the authors to put more of their acronyms/abbreviations on this list, and to note to the reader that a list of abbreviations can be
found at the end of the text. As examples, the acronyms GLIF, CMMN, and EMF are used freely in the manuscript, yet they do not appear in the "list of abbreviations."

Overall, this is a conceptual manuscript that presents minimal data. Further research will tell if these concepts improve outcomes, but I respect the role of developing the conceptual models to figure this out. In this regard, this manuscript has meaningful potential to add to generalizable knowledge.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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Not relevant to this manuscript

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Not suitable for publication unless extensively edited
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