Reviewer's report

Title: Representation and execution of clinical decision support using workflow engine technology

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Reviewer: Siaw-Teng Liaw

Reviewer's report:

This paper describes an implementation that uses workflow engine technology to enable user-friendly modelling and execution of clinical decision support logic. It builds on their and others’ work over the past decade and more. The only possible gap is the work done in the UK with scenario modelling with Protege. Nevertheless, the concepts described, especially the utility of the retrospective and prospective modes, are important and the findings should be disseminated as part of a range of strategies to facilitate the uptake of CDSS. The title reflects the documented aims of the paper, although the authors could have used similar and consistent terminology in the text.

1. The main problem I have with this paper is that it is not focused on the main concepts (as described in the title) but probably tries to do too much and included too much detail about the technical bases. It needs to be very specific about the objectives and include more details about the evaluation methodology. As this is a research methodology journal, the focus should be on the methodology for a cost-effective evaluation of the implementation. In fact, the excessive technical details have detracted from the research methodology approach and IMRAD format.

2. In addition, there were many unexplained acronyms and assumptions about the technical aspects of the implementation. For example, the i2b2 should be better described and should have been earlier in the paper. The paper should be re-written in a style that is understandable by the clinical end-user or clinical researcher. It is paradoxical that a paper that describes user-friendly scenario-based modelling is so technically dense. The other aspect is the rather lax referencing e.g. reference #14 in paragraph 4 of the Methods section.

3. The use of examples with clear explanations e.g.in the section on “relationship to query systems”.

4. The instruments used to evaluate the “user-friendly scenario-based modelling” and implementation of the CDSS should also be described in greater detail and made available for scrutiny.

5. I could not assess the software directly because installation was a fairly complex process requiring many separate downloads.

In summary, this is important work and should be reported. However, the paper needs to be focused and explicit with the aims and research questions (and
therefore explicit with the paper). My recommendation is “to decide on acceptance or rejection after the authors have responded to the major compulsory revisions”

On the other hand, this “technical” paper may be better received in a more technical software development journal.

The Quality of written English is acceptable

No Statistical review is indicated.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I have no competing interests