Reviewer's report

Title: A study of diverse clinical decision support rule authoring environments and requirements for integration

Version: 3  Date: 29 July 2012

Reviewer: Jim Warren

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The paper is well-executed. In some ways I find the results very unsurprising - naturally it’s a mess having 10 different rule authoring environments, and it would be messy just as indicated, and consolidation would be helpful (again, just as indicated). The context at Partners would be one of the most matured in this regard, and thus the results are interesting to set the requirement that better management is needed as institutions race headlong into CDSS for HIMSS EMR level 7 maturity and Meaningful Use. On balance, it’s a useful paper to have out there, and I'll cite it to justify some of my own grant proposals.

I have only one major area where I believe there should be more clarification, if not considerable expansion of the material. In the middle of the first paragraph of the Background, in one paragraph, with citation of references 5-14, the entire 'guideline modeling tools' literature is brought to our attention; and with just the following sentence it is summarily dismissed. As a minor aspect of my dis-satisfaction with this, I note that this is the first time the word 'guideline' is used in the paper, and it's never defined. I'm not sure that it must be (probably does), but the relationship between rule authoring environments and guideline modeling needs to be drawn out more carefully. More importantly, I believe that some of the work from this genre should be brought back in for the Discussion for consideration in how it might play roles in at least informing the solution for Partners. In particular, I saw a tool at Silvia Miksch's lab about 8 years ago, that was very relevant. I believe it's the one described in:
http://dl.acm.org/citation.cfm?id=1567114

Similarly, on the authoring side, isn't this what GEM Cutter was all about?
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243287/

And also much of the work from Raza Abidi's lab would seem aimed at executable guideline engines and associated tools covering much of the desired space, e.g.:
http://www.springerlink.com/content/g7524337244k8nr7/

Thus, in summary, I think the relationship of past literature under the 'guideline modeling' label to RAEs should be made clearer; and relevant work should be cited as part of the Discussion of the possibilities for the way ahead for Partners.

Minor points: 'Shahar' is written once as 'Sharhar'; DDI isn't defined.
**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