Reviewer's report

Title: Designing an automated clinical decision support system to match clinical practice guidelines for opioid therapy for chronic pain

Version: 1 Date: 9 November 2009

Reviewer: Steven Dobscha

Reviewer's report:

The objective of this manuscript is to describe the process and outcomes associated with operationalizing a clinical guideline on chronic pain into a computerized decision support system. This manuscript is well-written, presents new ideas, and is an excellent fit for Implementation Science. I do have a number of comments as outlined below, in order of priority:

MAJOR COMPULSORY REVISIONS

1. More could be done by the authors to define the model they use to develop the system. Did the investigators base their iterative process of designing, testing, and revising on any previous models or experience? It would be great to reference or show such a model. The model could be illustrated using a figure or flow chart, labeling the objectives of each step, who exactly participated in each step (which is not very clear especially when comes to how or how many primary care providers were involved).

2. The Clinical Tools part of this paper seems like a bit of an add-on. I can understand the authors’ wanting to disseminate information about these potentially important tools, but the presentation doesn’t fit well with the main objective. I might suggest integrating the presentation of tool development into the rest of the model/paper. I think the tools themselves could be described and/or presented in an Appendix.

3. Consistent terminology and flow should be used throughout the manuscript. Ideally the subsection headings in the methods section should match the subsection headings in the Results section. What exactly constitutes an end-user?

4. In the discussion, it would be very helpful to know what the developers might have done differently in terms of the process—what did they learn? How might the findings presented here influence development of similar sets of tools by other developers?

MINOR ESSENTIAL REVISIONS

5. What does ATHENA stand for? What does EON stand for?

6. I would note earlier in the manuscript and more overtly that results for providers (on usability and utility) are to be published separately.

7. I don’t think Figure 2b is very interesting or helpful. I would rather see some
type of example of true decision support—this is just a summary of data that has been collected from the patient.

DISCRETIONARY REVISIONS

8. I really like the use of examples throughout the text and in tables. I think it would be helpful if a sample of the rules document could be included as an Appendix.

9. In the discussion at the bottom of page 18 it might be further emphasized that pain guidelines may be especially challenging to operationalize due to the heterogeneity of patients, limited evidence-base for many criteria, and controversies surrounding treatment. As such, another guideline, for example, for depression, might be simpler to operationalize and implement.

10. I might change the Title of Table 1 to be “Examples of Boundaries of ATHENA-Opioid Therapy.”

**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 declare that I have no competing interests.