Reviewer’s report

Title: Advancing the Application, Quality and Harmonization of Implementation Science Measures

Version: 2 Date: 14 August 2012

Reviewer: Jonathan Tobin

Reviewer’s report:

This paper describes an important approach to standardization and harmonization of concepts and measures in the emerging field of dissemination and implementation (“D&I”) science. The paper is significant in two domains, as it describes (1) the genesis, development and future plans of the NCI-supported Grid-Enabled Measures (GEM) initiative, and (2) a model for building a team-science, web-based approach (“crowd-sourcing”) to launching a 4-phase campaign for building and engaging the “invisible college” of D&I researchers in order to accelerate building consensus and standardization (“harmonization”) around key D&I concepts and measures. One particular strength of the GEM initiative is its building a dual-core approach to identifying measures with high scientific validity, according to conventional psychometric standards, such as validity, reliability, variability (“Gold-standard measures”). At the same time, GEM is also mindful that not all D&I research should or will be conducted place under more stringent research conditions, and therefore, a parallel track of measures that can be implemented in real-world settings (“Practical Measures”). The figure and tables support the manuscript and provide enticing details about the project. The GEM website development, stakeholder engagement and preliminary results are well presented in this manuscript, and the paper suggests that more exciting results are yet to come from this important and timely work.

Major Compulsory Revisions
NONE

Minor Essential Revisions
1. GEM’s reach to date, not surprisingly, has been primarily academic researchers. Please comment on strategies to increase reach among private and non-profit organizations which represented only 14% of the early adopters. This heterogeneous target audience will be critical to enhancing both research participation and impact.

Discretionary Revisions
1. Are there examples of well-described measures in both the gold standard and practical domains? If so, it would be helpful to establish the level of concordance between the gold standard and practical measures, which would strengthen the selection of practical measures without sacrificing scientific rigor (consider adding
to Table 1 and might enhance acceptability in study sections). Are these “separate but equal” or inferior but implementable?

2. It would be helpful to know what specific interventions will be implemented to help populate sparse measures, and are there innovative approaches that utilize Web 2.0 methods?

3. Are there metrics being considered (eg, bibliographic/bibliometrics using PubMed; Web of Science;) to examine over time whether D&I research is converging on a more narrow set of measures, and if so, does this convergence correspond to better described GEM concepts/measures as compared to less well described concepts/measures. This might be a more robust measure of GEM’s impact on science.

4. A framework to the planned qualitative analysis of feedback would be helpful, and might stimulate discussion of how to implement this feedback.

5. It would be helpful to provide further details to understand how the metadata are collected and coded.

6. The practicality dimension opens up a number of D&I science possibilities, and the authors should comment on the plans to summarize the user feedback around collection, interpretation, feedback, and impact (eg, are there any opportunities for users/viewers to share time-series data from practical measures adopted in practice-based settings?).

7. The authors present data from Google analytics and GEM user reports (Figure 4), which may represent measures of adoption and/or reach. Please comment on the suitability of using these measures (also, the details in the text about Twitter, etc. should be added to the x-axis). Are the y-axis measures simple or cumulative counts (cumulative counts indicate growth in science and may be more indicative of the developmental stage).

**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 a grant funded by NCI and have collaborated with Russ Glasgow informally on an NIMH and CDC funded research project prior to his moving to NCI.

Otherwise, I declare that I have no competing interests