Reviewer's report

Title: Design and implementation of a mobile health electronic data capture platform that functions in fully-disconnected settings: a pilot study in rural Liberia

Version: 0 Date: 02 Dec 2019

Reviewer: Cynthia Sung

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Deployment of this program is impressive in terms of number of participating community health workers, supervisors and forms collected in a setting of challenging resource constraints. The authors identified a problem, developed a community-level intervention, performed a pilot phase and implemented a very substantial scale-up phase.

Recommendations to improve the manuscript.

1. It is not reported whether pre-implementation data were collected. Comparisons would have allowed testing whether the program did in fact achieve a higher rate of completeness, and a lower rate of errors and time needed to collect the data. In some cases, the CHW conducted the visits without the mobile device, then later completed the forms by transferring written notes to the device or relying on memory. Under these conditions, it is possible that it took longer for the forms to be completed. The lack of pre-implementation data (or control groups) should be stated as a limitation of this work.

2. It took an average delay of 32.5 days and 30.9 days (please clarify, are these numbers are the mean or median and provide standard deviations or interquartile ranges) for the data to reach the database from CHW and supervisors, respectively. The authors state that this was "acceptable". What criteria were used to set an acceptability threshold?

3. Given these delays, the system is not suitable for individual decision support, but could be useful for improvements at a health systems level. This limitation should be noted in the discussion.

4. It is mentioned that these data are used for routine program monitoring (Discussion section, line 49). Please elaborate.
5. Approximately what fraction of EDC data in these communities was collected by this cell phone method? The program was conducted in 2016. Is it continuing today (ie has it been sustained?)

6. Please report the model of phone used and key specifications e.g memory, speed. The cost of the device is reported as $123 per CHW excluding shipping. Shipping can be a very substantial cost and also should be reported. Cell phones need to be replaced every few years and there are always ongoing CHW training costs. The per capita GDP of Liberia (<$500), hence this potentially could be a fairly large burden on that country's health care system. Can the authors provide some local economic context for the cost of the program and ongoing sustainability?

7. Authors need to provide the source code and the survey questionnaire as supplementary materials.

**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.

No

**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?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript
Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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