**Reviewer's report**

**Title:** Improving health information systems during an emergency: lessons and recommendations from an Ebola Treatment Centre in Sierra Leone

**Version:** 1  **Date:** 21 Oct 2018

**Reviewer:** Abigail Carlson

**Reviewer's report:**

This descriptive methodology paper is a fascinating review of the process required for developing and implementing a health information system in the context of the Ebola outbreak. Documentation and information exchange is one of the fundamental processes of medical care, and yet it is often taken for granted. The authors have done an excellent job of providing readers with a description of the challenges faced in documentation and exchange when stringent infection control requirements are necessary in infectious disease outbreaks. The methods described in this paper will be of interest to many groups, including infection preventionists, clinical informatics personnel, emergency response coordinators, and international health practitioners.

My major comment is that the length of the manuscript could be reduced. There is much excellent information here, but there is a fair amount of redundancy between methods, results and discussion. I realize this is in part because descriptive methodology papers don't fit well into the traditional "methods-results-discussion" framework, but I would suggest to the authors that they can still condense some of the information presented in the methods and discussion sections particularly, which will also help the flow of the paper through the three sections. My other major comment is that I would like to know more about lessons learned as the HIS was built and revised. I would see this as a key component of the "results". The authors state that an iterative process was undertaken, but it would be valuable for readers to know what did *not* work and why. Not every iteration is required to be described, but highlighting some of the major changes made would strengthen this paper.

Other minor comments:

Line 183: Can the authors describe how they obtained the opinions of stakeholders regarding inputs? Was this informal or via a formalized process? Interviews? Surveys? Workgroups?
Line 498: I believe there is a typo here, as it currently reads as if the average LOS for all Ebola-positive patients was 3 days and the LOS for the subset of survivors was 9 days. I assume the 3 day LOS is supposed to be for Ebola-positive patients who died?

Line 511: It seems like a small number of clinical staff completed the survey? How many total clinical staff were at the ETC at the time of the survey? What proportion completed the survey? Also, more exact data about the survey responses would be preferred, as it would make this section more robust than simply saying "many" or "most".

Figure 1: I would introduce this much earlier in the paper since the concept of "red" and "green" zones is talked about right away in the introduction, and knowing the flow of people helps visualize the challenges to the flow of information. Also, the figure is missing most of the green zone - where were the green zone areas like the clinician workspace and the pharmacy relative to the red zone? The authors may additionally want to show the flow of providers in and out of the red zone, as it is actually more important than the flow of patients for the purposes of this paper.

Figure 5: The patient ID number at the bottom of this figure would generally be considered a medical record number and thus protected health information that should be blacked out. Related to that, stating the ID numbers of the first five patients within the paper would also likely be considered protected health information and the authors should probably provide hypothetical example numbers instead.

**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.

Yes

**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.

I am able to assess the statistics

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Acceptable

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