Reviewer’s report

Title: A qualitative study of design stakeholders’ views of developing and implementing a registry-based learning health system

Version: 0 Date: 07 Nov 2019

Reviewer: Philip Van der Wees

Reviewer's report:

This is an interesting study evaluating a real-world example of applying the concept of a learning health system. This study is of importance in an emerging field, in which in-depth knowledge for developing, implementing and evaluating learning health systems is still lacking. I have listed my recommendations below for improving the manuscript:

My first concern is that the manuscript lacks details about methodology and data analysis. I recommend using reporting standards for qualitative research as checklist (e.g. SRQR or COREQ). I have listed several specific issues below that should be addressed:

- Specify in the title, abstract, objective and methods that you used a case study approach, which is now only briefly mentioned in the introduction

- Specify (with initials) who conducted the interviews and who conducted the initial analyses.

- Specify characteristics, experience of the researchers and their relationship with interviewees

- Specify techniques to enhance trustworthiness and credibility of data analysis

My second area of concern is the build-up of the presentation of the results. The authors start the results with presenting four propositions which are further elaborated in the main text under subheadings. Are these propositions the thematic categories that derived from the analysis as described in the methods? Or should the subheadings be considered as themes? The reason I am asking is because the propositions, subheadings and elaborations of these themes could be better aligned:

- Proposition 4 (improved patient outcomes and increased service improvement and research activity) is not specifically addressed under the subheading

- The potential and limitations of co-design is a separate subheading which does not directly derive from the four propositions or the introduction to the subheadings as presented in lines 166-170

- In addition, obstacles that emerged as the system was put into practice, and the prospects for overcoming them (line 170) are described under the subheading about co-design. The obstacles mainly address (problems with) alignment of stakeholders and inter-operability between the
dashboard and patients' electronic medical records. I would also be interested in obstacles and solutions for actually using the data to improve patient outcomes and increase service improvement and research activity (proposition 4).

My third concern is related to ambiguity in the use of the underlying program theory. The authors aimed to elicit an initial program theory of key stakeholders and to explore any updates in light of experience of implementing the RCLS-CF. The conceptual (logic) model is presented at a fairly high abstract level in figure 1, but it does not become clear which changes were made in the program theory and if and how it was updated. I recommend providing more details on how program theory was used to build and potentially update the conceptual model.

**Level of interest**
Please indicate how interesting you found the manuscript:

An article of importance in its field

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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