PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Staffs' and managers' perceptions of how and when discrete event simulation modeling can be used as a decision support in quality improvement: a focus group discussion study at two hospital settings in Sweden
AUTHORS	Hvitfeldt Forsberg, Helena; Mazzocato, Pamela; Glaser, Daniel; Keller, Christina; Unbeck, Maria

VERSION 1 - REVIEW

REVIEWER	Anastasia Anagnostou Brunel University London, UK
REVIEW RETURNED	05-Sep-2016

GENERAL COMMENTS	The work presented in the paper is really interesting and can contribute considerably to simulation modeling acceptance in the healthcare sector and beyond. The methodology is well defined. The paper is clear and easy to read however the language needs improvement. I suggest proof reading by a native English speaker. In the introduction, there is a short description of the problem and a statement on the aim of the study. In my opinion, the introduction needs to be expanded. It would be helpful for the reader to see in the introduction a clearer statement of the motivation behind the study, and a short description of what the study is about and how the findings contribute towards solving the problem. In the data collection section, it would be useful to mention what type of simulation models the authors used for the study. One of the findings is that stakeholders (staff) engagement from the early stages of a simulation study can lead to trust and therefore use the model with confidence. Considerable work has been done in this direction and it should be included in the discussion (e.g., Stewart Robinson, Claire Worthington, Nicola Burgess, Zoe J. Radnor "Facilitated modelling with discrete-event simulation: Reality or myth?", EJOR, 2014;234(1): 231–240; Antuela A. Tako, Kathy Kotiadis "PartiSim: A multi-methodology framework to support facilitated simulation modelling in healthcare", EJOR, 2015;244: 555–564).

REVIEWER	Phoebe H. Yager Massachusetts General Hospital, Boston, Massachusetts, USA
REVIEW RETURNED	23-Sep-2016

GENERAL COMMENTS	The use of computerized modeling to help predict outcomes when

	trialing various changes is a worthwhile tool to explore as it relates to healthcare quality improvement. This qualitative study explored healthcare management and staff perceptions of the utility of computerized modeling to assist with QI endeavors. The research, itself, does not represent quality improvement research. The title is a bit misleading, as it implies that the paper will show how in-silico change leads to in-reality change. The title also implies that the paper with demonstrate the value of computerized modeling to healthcare improvement when really what the paper offers is the value of computerized modeling perceived by healthcare workers involved in quality improvement. The abstract and paper should be careful not to overstate the outcome measures. For example, on page 2 , Main Outcome Measures section, consider adding the phrase, "participant perceptions of" in front of 'how and when simulation modeling could be used...' Also, I might suggest clarifying the term, "simulation modeling" by adding the word "computerized" in front for those of us who aren't as familiar with the term 'in silico' or 'simulation modeling'. Also in the Abstract, please spell out FGDs as this is the first place in the manuscript where this term is used. Further comments as follows: Introduction - suggest defining the term "in silico" and adding 'computerized' in front of 'simulation' in paragraph 2, line 3 Aim - clearly stated Methods - clearly described; were the researchers who conducted the FGDs trained to facilitate these discussions? I worry that some participants may not have felt comfortable speaking up or saying anything negative, since the facilitators were clearly invested in the outcome and seeking positive feedback. Findings - quotes from participants should ascribed to the author (could simply say, "One participant commented, "...." Limitations - again, I worry whether participants all felt free and open to share their perceptions. Also, in any group there are those who speak up and those who hang back. Sometimes it can be helpful to allow participants to share their thoughts via written, anonymous questionnaire as well. Manuscript should be reviewed for syntax.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1

1. The paper is clear and easy to read, however, the language needs improvement. I suggest proofreading by a native English speaker. An editor who is a native English speaker has proofread the manuscript.

2. In the introduction, there is a short description of the problem and a statement on the aim of the study. In my opinion, the introduction needs to be expanded. It would be helpful for the reader to see in the introduction a clearer statement of the motivation behind the study, and a short description of what the study is about and how the findings contribute towards solving the problem. The introduction has been expanded.

When reporting studies from healthcare, the description of the study usually belongs to the method section and the discussion about how the findings contribute towards solving the problem belongs to

the discussion section.

3. In the data collection section, it would be useful to mention what type of simulation models the authors used for the study. This has been clarified in the manuscript on page 5.

4. One of the findings is that stakeholders (staff) engagement from the early stages of a simulation study can lead to trust and therefore use the model with confidence. Considerable work has been done in this direction and it should be included in the discussion (e.g., Stewart Robinson, Claire Worthington, Nicola Burgess, Zoe J. Radnor “Facilitated modelling with discrete-event simulation: Reality or myth?”, EJOR, 2014;234(1): 231–240; Antuela A. Tako, Kathy Kotiadis “PartiSim: A multi-methodology framework to support facilitated simulation modelling in healthcare”, EJOR, 2015;244: 555–564). We have added new references and rewritten parts of the discussion.

Reviewer 2
1. The use of computerized modeling to help predict outcomes when trialing various changes is a worthwhile tool to explore as it relates to healthcare quality improvement. This qualitative study explored healthcare management and staff perceptions of the utility of computerized modeling to assist with QI endeavors. The research, itself, does not represent quality improvement research. The title is a bit misleading, as it implies that the paper will show how in-silico change leads to in-reality change. The title also implies that the paper with demonstrate the value of computerized modeling to healthcare improvement when really what the paper offers is the value of computerized modeling perceived by healthcare workers involved in quality improvement. We have changed the title to “Staffs’ and managers’ perceptions of how and when discrete event simulation modeling can be used as a decision support in quality improvement: a focus group discussion study”.

2. The abstract and paper should be careful not to overstate the outcome measures. For example, on page 2, Main Outcome Measures section, consider adding the phrase, "participant perceptions of" in front of 'how and when simulation modeling could be used...' You may find the addition of clarifying phrases in the abstract and throughout the manuscript.

3. Also, I might suggest clarifying the term, "simulation modeling" by adding the word "computerized" in front for those of us who aren't as familiar with the term 'in silico' or 'simulation modeling'. We have clarified the term simulation modeling on pages 4 and 5.

4. Also, in the Abstract, please spell out FGDs as this is the first place in the manuscript where this term is used. We have spelled out FGDs in the strengths and limitations section. The acronym FGD is used on further reference.

5. Introduction - suggest defining the term "in silico" and adding 'computerized' in front of 'simulation' in paragraph 2, line 3 The term “in silico” has been removed from the title, and we have clarified the simulation type used in the study.

6. Methods - clearly described; were the researchers who conducted the FGDs trained to facilitate these discussions? I worry that some participants may not have felt comfortable speaking up or saying anything negative, since the facilitators were clearly invested in the outcome and seeking positive feedback. This is always a limitation and concern using this data collection method. However, the researchers were trained in how to facilitate FGDs. We had met and connected with the participants in the respective improvement project before the FGDs, and we have knowledge that the participants were all comfortable sharing openly.

7. Findings - quotes from participants should ascribed to the author (could simply say, "One participant commented, "...." We have incorporated participant comments into the Findings section of

the manuscript. Though we attributed each quote to a participant, they remain anonymous.

8. Limitations - again, I worry whether participants all felt free and open to share their perceptions. Also, in any group there are those who speak up and those who hang back. Sometimes it can be helpful to allow participants to share their thoughts via written, anonymous questionnaire as well.
Since we wanted to investigate experiences, attitudes and emerging ideas from the respective FGDs and we also wanted to use the group interaction to produce data and insights that would be less accessible without the interaction found in the FGD, we decided not to use a mixed method research design that included other data collection methods.
See also the answer under point 6 above.

9. Manuscript should be reviewed for syntax. An editor who is a native English speaker has proofread the manuscript.

VERSION 2 – REVIEW

REVIEWER	Anastasia Anagnostou Brunel University London, UK
REVIEW RETURNED	25-Nov-2016

GENERAL COMMENTS	The authors have addressed the main concerns from the previous review.