Author’s response to reviews

Title: Development of a Modelling and Simulation Method Comparison and Selection Framework for Health Services Management

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Version: 3 Date: 25 January 2011

Author’s response to reviews: see over
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Title: Development of a method comparison and selection tool for health services management: from problem structuring methods to modelling and simulation methods

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Version: 2
Date: 03 Jan 2011

Author's response to reviews: see over
Dear section editor and reviewers

We have submitted a revised draft of our manuscript entitled ‘Development of a method comparison and selection tool for health services management: from problem structuring methods to modelling and simulation methods’ (note minor revision to title) through BMC’s online submission system. We thank the editor and the reviewers for thoughtful feedback in assisting us to getting this important work to great improvement. The notes below set out how we have addressed the comments. Please note: New changes within the article are highlighted in yellow, whilst reviewers comments are given in bold.

TITLE

(Kathy Kotiadis, Major compulsory revision) The title is a little unattractive for this audience and should be changed. It could be changed to: Development of a method selection tool for health service management.

The title has been revised as suggested. Development of modelling method selection tool for health services management: from problem structuring methods to modelling and simulation methods

ABSTRACT

(Additional editorial requirements) Please include the aims of your study in the abstract.

Included and highlighted in the manuscript.

(Kathy Kotiadis, abstract correction) The abstract needs to be more focus with key messages coming through without repetition. More specifically the second sentence needs to be rephrased and the motivation needs to come through stronger (why do health care managers or health analysts need the framework? To commission work? To help them consider the method options at the start of the project?)

The aim has been rephrased and clarified (it also comes early in the abstract to stress the message from the beginning) as follows: The aim of this study is to provide a mechanism for people in health service planning and management to compare a broad range of modelling
and simulation methods so that they can better select and use them or better commission relevant modelling and simulation work.

BACKGROUND
(Kathy Kotiadis, abstract correction) The section on the background should be rewritten so that the following key messages (story) come through with ease:
The management and evaluations of health services can be achieved through OR OR can deal with problems such as .... And examples of benefits of OR used in health care However OR has many methods, techniques and tools and selecting the most appropriate would be difficult even for an OR expert. Because...
Then put forward your contribution....which can be found in part in the paper’s conclusions.

The whole background section is rewritten and has been shortened (690 words ➔ 445 words) and restructured as suggested.

METHODS SECTION
(Section editor) could focus less on the literature review (only reporting the main findings would be sufficient since the results of this review have been published elsewhere) and experts' input (given that the experts are the research team members, it seems that they validate and complement available data in a non-structured way, which does not correspond to a "research method") and more on the validation of the framework, providing more details on the validation process with potential users.

The method section has been shortened (1506 words ➔ 894 words) and restructured as suggested. Figure 1 has been added to clarify the whole development process and research methods.

(Martin Pitt, discretionary revision) A clear weakness in the paper is the lack of a systematic approach to user testing and evaluation. Although user workshops are reported, the outputs from these seem very vague and indistinct and it is not clear how the feedback has been integrated into the development of the framework itself. Although by its nature such feedback is qualitative in nature there is no reason why this cannot be presented systematically.
We acknowledged the limitation (lack of systematic user testing) of this study. More systematic user testing and evaluation of the tool is an important part of the further research plan as mentioned in the discussion section.

(Kathy Kotiadis, abstract correction) The methods and results do not fit together or do not briefly explain the research described later in the paper.

Figure 1 has been added to clarify tool development process and research methods. The subheadings of the result section have been rephrased.

(Kathy Kotiadis, abstract correction) This section is far too long with too much detail and written in some sections for an OR person. I also believe that a diagram of the development process would help considerably and could be used to structure the conversation.

The literature review section was shortened (1506 words → 894 words). Figure 1 describing the tool development process was additionally included.

**RESULTS SECTION**

(Editor) the section is too lengthy and repetitive. Concrete examples of potential applications of this framework (or tool) should be provided (perhaps by adding a Box that presents a specific case for which a health care manager wants to conduct a simulation?).

The section has been shortened by removing repetitions (2012 words → 1638 words). A concrete example of potential application has been added in a box on page 13.

(Martin Pitt, discretionary revision) The results section of the paper is over long and wordy. This section needs to be simplified and reduced in size. This would make it more readable. Effective use of bulleted lists and tables could go a long way to achieve this.
The section has been shortened (2012 words ➔ 1638 words). An additional bullet list on page 10 has replaced some text to make it more readable.

(Martin Pitt, discretionary revision) There is no clear impression or direct evidence given from the paper of the value and benefits to be gained from using the framework in practice, rather its value is outlined in terms of potential. Some examples of scenarios of use would be useful. More also could have been said about the potential methods of implementation of the framework using paper and internet media.

An example of scenario of use has been added in a box on page 13 as suggested.

(Kathy Kotiadis, abstract correction) The first sentence of the results brings to mind the question of 28 methods of what? I also think this part of the methods. The product set out (to some extent) in the conclusions should be set out in the results. Your findings are the product (framework). Is the framework a tool? Why not call it that as it would make it more appealing.

A framework has been rephrased to a tool as suggested.

DISCUSSION SECTION

(Section editor) A discussion on how implementing this framework in real life decision-making situations should be included.'

A box describing an example scenario has been added on page 13 to. The workbook, which was produced for the practical application of this tool, has been referred several times in the manuscript.

(Martin Pitt, discretionary revision) It is surprising that a broader user base is not defined since one might expect the tool to be useful to clinicians and commercial consultants working in healthcare as well as other researchers.
A broader user base has been explicitly defined including healthcare professionals and managers as well as modelling consultants and researcher working in health care in the first paragraph of the discussion section.

(Kathy Kotiadis, abstract correction) In this section of the paper again it is not considering the audience (health care and probably non-OR). I think some subheadings of ‘limitations’ and ‘extensions to the research’ would help structure the section. Also has anyone used the framework to commission any study or work? How can one have access to this tool? it is not clear if the framework is easy for a non-OR person to use in practice?

I would recommend also putting in this section the feedback section found in the methods. The contribution of the paper should be supported by HSR literature (e.g. difficulties in evidence based management).

Subheadings (contributions and extensions) have been added to make it more readable. The workbook, which was referred several times in the manuscript, was produced for non-OR healthcare professionals to apply this tool in their practice. The workbook is available for purchase and more than seventy copies of the workbook have been sold so far.

The contribution of this research has been linked with HSR literature [22] in the discussion section.

CONCLUSION

(Kathy Kotiadis, abstract correction) The conclusion should reflect the contribution on policy and practice, which it sort of does but not enough (perhaps consider the ideas you put forward in your discussion section).

What and who the tool is for have been clarified in the conclusion.

ETC.

(Kathy Kotiadis, Major compulsory revision) The story being told is confused with a lot of redundant information (or too much detail) detracting from the contribution and as a result the reader remains confused. I also believe it lacks a consistent central message
that would be appealing to this HSR audience. This central message could be ‘a comparison and selection framework of health care operational needs has been developed through a process of …..’ . This seems to be the one put forward at the bottom of page 4. However you are selling the simulation angle but the tool appears to provide much more than simulation.

Many parts of the manuscript have been removed and revised to make it more consistent and appealing to the HRS audience.

(Additional editorial requirements) Experimental research that is reported in the manuscript must have been performed with the approval of an appropriate ethics committee. Research carried out on humans must be in compliance with the Helsinki Declaration (http://www.wma.net/e/policy/b3.htm), and any experimental research on animals must follow internationally recognized guidelines. A statement to this effect must appear in the Methods section of the manuscript, including the name of the body which gave approval, with a reference number where appropriate.

This study is not experimental research.

(Additional editorial requirements) We recommend that you copyedit the paper to improve the style of written English. If this is not possible, you may need to use a professional copyediting service. Examples are those provided by the Manuscript Presentation Service (www.biomedes.co.uk), International Science Editing (http://www.internationalscienceediting.com/) and English Manager Science Editing (http://www.sciencemanager.com/). BioMed Central has no first-hand experience of these companies and can take no responsibility for the quality of their service.

The manuscript has been proofread by a native English speaker.