Reviewer's report

Title: Usability Evaluation of a Clinical Decision Support Tool for Osteoporosis Disease Management

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Reviewer: Gillian Hawker

Reviewer's report:

This is a very nicely written manuscript that lays out results of a three-phase study to evaluate the usability of tools to assist patients and physicians with osteoporosis diagnosis and management. The paper that lays out the development and thus content of the tools evaluated in the current paper appears to be under review (ref #19).

Major Compulsory Revisions:

While the focus of the paper is clearly not on the tool development and thus content of the various tool elements (RAQ, COPE, BestPROMPT), some additional brief summary, or perhaps included in an appendix, of these tools would vastly improve the readability of the paper. I found it difficult to interpret the qualitative findings in particular without knowledge of what each of the components of the tool looked like and included. In the same vein, some clarity regarding the administration, and product, of each step would be helpful. For example, if there is sound involved in completion of the tablet RAQ, then presumably this precludes a patient completing the tool in the waiting room? Is the audio necessary or optional? Second, it was unclear to me whether or not there was something being printed after the patient completes the RAQ and, if so, how and where such printing takes place?

One element that may impact the overall user-ability of these tools that is not discussed is the ability to revise the tool to reflect changes in best practices - for example, the 2010 Osteoporosis Canada guidelines for OP diagnosis and management are about to be released, and will look much different from the 2002 guidelines, in particular incorporating a Canadian version of FRAX, a composite fracture prediction tool, and changes to BMD testing recommendations. Can the tools be readily adapted to reflect these changes? This should be included in the discussion.

There are numerous abbreviations used (e.g. SUS, CDSS) - it would make it easier for the reader if these were restricted to perhaps just the abbreviations for the 3 tool components

Page 15, under section 1), it is noted that all participants indicated that they would discuss the information with their physician - however, I wonder if this might be very physician specific in that those with 'responsive' physicians would be more willing to initiate the discussion -- if so, the fact that these patients were
all recruited from the same FP practice might have biased this finding - this should be considered.

Minor Essential Revisions:

Page 9, paragraph 2 - please clarify the meaning of the second sentence "This process....whether the response inputs generated by the decision algorithm...".

Tables - it might be useful to indicate the participant group for each Table - for example, Table 1 is physicians, while the other 2 tables are patients

Table 2 - the footnote indicating the statistical test used for evaluation of significance is missing from the table itself - presumably the symbol is needed in the column heading on the far right?

Table 3 - Are the comparison groups reversed? I believe based on the data that row two should say 'Mouse/Keyboard versus Stylus' and row three should say 'Touch versus Stylus' - please clarify.

Discretionary Revisions:

Perhaps a minor point, but on page 10 it is noted that inter-coder reliability was assessed using Kappa statistics - Kappa controls for agreement by chance, which would be fairly unlikely in the setting of qualitative data analysis, would it not? Further, the next sentence states that where there were disagreements, defined as < 90% agreement (i.e. not corrected for chance), consensus was reached. Thus, I am unclear as to the need or value of the Kappa evaluation. Please clarify.

Page 13, second paragraph - it is noted that the time differences for completion with stylus pen versus touch screen was non-significant, yet it is highly probable that you had insufficient power - might simply note this?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests