Author's response to reviews

Title: Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews

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Dear BMC Medical Research Methodology Editors,

Thank you for the additional external peer reviewer comments for our paper MS: 1390843439111460 entitled: Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. Beverley J Shea, Jeremy M Grimshaw, George A Wells, Maarten Boers, Neil Andersson, Candyce Hamel, Peter Tugwell, Ashley C Porter, David Moher and Lex M Bouter

We have taken these suggestions into account in making some further revisions to the manuscript. In the accompanying document we provide specific responses to these comments and suggestions.

There are a number of new ongoing initiatives comparing existing instruments for assessing the methodological quality of systematic reviews with AMSTAR. A recently completed validation study, which is the subject of another manuscript, suggests AMSTAR is a reliable and valid instrument. The preliminary feedback of new users has been positive. The instrument has recently been selected by the Canadian Optimal Medication Prescribing and Utilization Service (COMPUS) of the Canadian Coordinating Office for Health Technology Assessment
http://www.cadth.ca/media/compus/pdf/COMPUS_Evaluation_Methodology_final_e.pdf
We trust you will take it into account that AMSTAR is promising and is being used on a growing scale when you review the current version of our paper and make your final decision.

Thank you in advance for publishing our paper for BioMedCentral Medical Research Methodology.

Regards, also on behalf of all coauthors,

Beverley Shea

Appendix 1

Reviewer 1 Report


1. Comment: item #10, where it is explicitly stated that "An assessment of publication bias should include a combination of graphical aids (e.g., funnel plot) and/or statistical tests (e.g., Egger regression test)." The problem of the funnel plot to detect publication bias is increasingly recognized, these issues are summarized in my recent article: Lau J, Ioannidis JPA, Terrin N, Schmid CH, Olkin I. The case of the misleading funnel plot. BMJ 2006;333:597-600.
1. **Response:** We acknowledge Dr. Lau's extensive expertise in the field of systematic reviews and publication bias. His comments come from the viewpoint of someone working at the leading edge of research. However, our instrument is an attempt to achieve consensus amongst current mainstream opinions. Inevitably, new evidence will modify current thinking in some areas and at that point the AMSTAR will be updated. This is indeed likely to be the case with techniques to identify and quantify publication bias. Although a number of alternative tests for publication bias exist, none has yet been validated. This issue continues to raise serious questions amongst researchers on how to assess publication bias in the most enlightening way. We are not there yet, and as more methods development work is completed in this area we look forward to the next generation of methodological tools. AMSTAR will remain a living document and advances in empirical methodological research will continue to improve the instrument. We acknowledge that these points should have been made clearer in the manuscript and we have modified the instrument and Discussion section accordingly. (Table 1 and Page 9)

2. **Comment:** My concern is that by simply using old methods/procedures from earlier lists where each one of those items has not been adequately evaluated, we are potentially perpetuating misleading concepts (funnel plot being one problem). As the authors in this report admitted, AMSTAR is not an original evaluation of the factors they included, but a factor analysis of items from old lists plus a few new things added.

2. **Response:** The main point of our exercise was to build on existing work and achieve a degree of consensus. Inevitably this involves working with existing approaches and trying to improve them. The approach is evolutionary, not revolutionary. The implication of the referee's comment is that there are a number of new factors out there waiting to be discovered, which may be true. But this was not the focus of our project. A lot of experts have spent time and energy to take us to where we are now. AMSTAR makes a number of additional contributions (i.e. assessment of protocols, publication status and conflict of interest, along with detailed guidelines for its use). AMSTAR also serves as a checklist or scale. It is our intention that if AMSTAR becomes accepted and more widely used, we will update and revalidate the instrument as new data become available. (Pages 9 and 17)

3. **Comment:** My group recently had the experience of producing an evidence report in which we had to review the quality of over 20 published systematic reviews. We created our own criteria list (compare with AMSTAR it has more than twice the number of items, greater details and requires contents interpretation) to evaluate these systematic reviews. The AMSTAR tool that yields answers of yes or no does not adequately capture the nuances of important issues in judging the quality of these systematic reviews. I found the AMSTAR tool of little help in characterizing the quality of the systematic reviews in this case.

3. **Response:** In the light of these comments we look forward to Dr. Lau and his group publishing details of the performance of their new instrument, including how it compares with AMSTAR. It is encouraging that also other groups take the effort to design new instruments to assess the methodological quality of systematic reviews. But it means little until validation studies are published.