Reviewer's report

Title: Wasted research when systematic reviews fail to provide a complete and up-to-date evidence synthesis: the example of lung cancer

Version: 0 Date: 02 Oct 2015

Reviewer: Per Vandvik

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I enjoyed reading this innovative study assessing to what extent the whole set of systematic reviews and conventional meta-analyses provide a comprehensive, up-to-date synthesis of evidence for all treatments in the case of lung cancer. The finding of substantially incomplete randomized evidence covered by systematic reviews demonstrates a disturbing waste in research and health care. The paper advocates well for "live cumulative network meta-analyses as a paradigmatic shift and potential solution within the context of "increasing value and reducing waste in research" being a hot topic these days.

Indeed I find the results and conclusion from this study quite compelling as available pairwise treatment comparisons do not allow for meeting clinicians' and patients' needs in decision making, as stated by the authors. Nor do they meet the needs of other target audiences such as developers of clinical practice guideline decision aids, funders and decision-makers in health care systems. The latter audiences could be included in the discussion of the paper to highlight the value of proposed solutions by the authors.

The paper is well written, the methodology is sound and results are well presented. I find the discussion to be balanced and would think it would be of great interest to readers of BMC Medicine. I have no major comments but would like to raise some issues that the authors should consider in a revised version of the paper:

1. The resource-demands for doing systematic reviews are substantial and there are many unresolved questions about how to succeed with living systematic reviews both on the processes, methods and technology side, for authoring, publishing and updating. I would think this becomes even more challenging when moving to live cumulative network meta-analyses. The paper would be strengthened if authors address these challenges and also provide some examples of how this can be achieved, ideally how this has already been achieved within certain topics.

2. The quality of evidence assessment and presentation/ranking of results in network meta-analyses represent key areas of development that will be crucial to make these analyses useful for clinical decision-making for example in the context of guidelines. Authors could
refer to recent papers outlining advances also in these fields (e.g. GRADE paper in BMJ 2014) to demonstrate feasibility of their proposed solutions.

3. Also, the manuscript is a bit sparse on emphasizing the importance of including all patient-important outcomes in the systematic reviews and network meta-analyses and I would suggest they make this even more clear, with relevant references (e.g. GRADE papers on systematic reviews and network meta-analysis).

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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