Reviewer's report

Title: Quantitative summaries of treatment effect estimates obtained with network meta-analysis of survival curves to inform decision-making

Version: 1 Date: 30 August 2013

Reviewer: Jason Madan

Reviewer's report:

I found this paper to be generally well-written and interesting. I have some suggestions that I believe necessary to clarify the methods presented and strengthen the discussion and interpretation of results.

Major compulsory revisions

1) The authors use an approach to the network meta-analysis of survival data that they developed and presented in previous work. I believe the approach involves a Weibull survival model in which there are two jointly distributed treatment effects acting on the shape and scale of the Weibull distribution. However I cannot be sure, because the underlying model for the network meta-analysis is not presented in this paper, and it should be available without the need for readers to refer back to the authors' previous work.

2) I would have found it informative to see mean and credible interval estimates for all three of the univariate outcome measures (median survival, mean survival up to 22 months, extrapolated mean survival). The authors only present mean estimates (and no credible intervals) for median survival.

I had a general view that the presentation and interpretation of results on pages 7-13 could be improved and organised better. This is, I accept, a vague criticism, and I give a few thoughts on how this might be achieved below.

3) There should be a clear separation between a section on results, in which findings are presented objectively, and a separate section with discussion/interpretation of those results.

4) I would like to see a more nuanced discussion of the merits of the different approaches presented in the paper. To me, it seems that the authors have a clear opinion on how ranking information should be presented, and their discussion is a little one-sided, not presenting counter-arguments in sufficient detail. For example, they have a clear preference against univariate measures, which they argue 'do not provide the wealth of information captured by rank probabilities over time'. It isn't clear to me what figures 5 and 7 add that I can't get more easily from figures 3 and 4. This may depend what the reader is trying to get out of the figures, which brings me to a final point:

5) Present a clearer discussion of what the purpose of all these graphs is, and
how they help achieve that purpose. The 'best' way to present the information produced in these analysis depends on the user, and it would be useful to discuss who might find the various figures useful, how they should interpret them, and what they could use them for.

Discretionary Revisions

For the univariate outcome measures, it should be possible to fit a network meta-analysis directly, without making any assumptions about survival time distributions. It would be interesting to compare rankings derived using this method to the more complex approach taken by the authors, although it is not an essential addition.

Level of interest: An article whose findings are important to those with closely related research interests

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.