Reviewer's report

Title: How are researchers handling missing data in RCTs? A review of the top medical journals

Version: 2 Date: 29 August 2014

Reviewer: Matthew Powney

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I found this to be an informative piece of work, and an enjoyable read, which is very useful for those wishing to observe the change in use of missing data methods over time. In order to further strengthen the review, I have the following suggestions/revisions:

Major Compulsory Revisions

1. Description of the papers: The files that were available to me did not include the references for the 77 studies themselves. For the sake of completion it would be beneficial for the authors to provide a list of the eligible studies included in this review. An advantage of this would be to assess the range of medical areas which were included in the published papers for this study. It would also be of interest to observe which missing data handling methods were used in each medical area. If some summary measures to this effect could be included in the resubmission, then this would further strengthen this review.

2. In Table 1 the general characteristics of the trial are presented, whereas Table 2 focuses on the missing data handling. In order to present a more intricate level of detail, and for the sake of clarity, it would be useful to combine some of the information in these tables with regard to the methods used. I would suggest that perhaps the general trial characteristics should be listed vertically, with a column for each type of missing data handling method. This would allow the authors to show how often each method was used for each given characteristic. It would also be clearer if the simple imputation methods used were listed in the table, in the same way that model based methods have been separated into GEE and Mixed model/hierarchical/multilevel.

3. On line 69 it is implied that the method of Last Observation Carried Forward is not a valid method of Simple Imputation, however in cases where longitudinal data is present, LOCF may be a sensible option if patients are in a steady state at drop-out. It would be interesting to see how many of the repeated measures studies used LOCF, and how many of those may have had an outcome which was at a steady state at drop-out.

4. At line 152, the inter-rater agreements are quoted, however not enough context is provided as to what these numbers mean, and if there are any implications to these numbers. In a further revision I feel that this needs
Discretionary Revisions

1. On line 204, some details are given about the missing data methods for trials that are reporting less than 10% missing data. It would be informative if more information could be provided here, in addition to the percentage that employed a sensitivity analysis.

2. I think it may be beneficial to the reader if the reasons for the exclusion of papers with primary survival outcomes as well as cluster randomised trials were given in the methods section.

3. It would be useful for the authors to provide details of how they carried out the search for such papers, in order to ensure that all randomised control trials that met the inclusion criteria were used in the study.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests