Reviewer’s report

Title: Optimizing Search Strategies to Identify Randomized Controlled Trials in Medline

Version: 1 Date: 10 June 2005

Reviewer: R Brian Haynes

Reviewer’s report:

Major Compulsory Revisions

(The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.)

1. Although the authors provide a detailed description we can’t quite follow what they did. Specifically, it would be helpful to have a figure of what was pooled from which source, including the size of the pool. This is opaque in the Abstract and something seems to be missing in the Methods section of the manuscript in the section on Sensitivity and Precision. Without understanding this, we can’t assess the findings. Clarification is required.

2. The definition of precision doesn’t seem to make sense (perhaps because we don’t understand the contents of the “pool”). A search strategy in MEDLINE would not just retrieve trials unless it was perfectly specific, which is not possible for high sensitivity searches. We also don’t see how there could be over 500K articles retrieved (Table 3 All 3 Phases), if the database included only trials, so assume that the search strategies were run in MEDLINE itself (and so would have retrieved more than just trials). But no matter which database is used, one would not expect to retrieve so many studies if content terms were ‘and’ed into the strategy. Assuming that they weren’t for the precision calculations, they aren’t “real”. We are obviously confused about what was done, and would ask the authors to clarify this.

3. Assuming that the methods are actually fine, and the results valid, the authors provide a valuable empirical test of a previously hypothetical approach to reducing reviewer burden. However, there is still perhaps a problem with the interpretation: the authors indicate that the “versus” strategy provides a desirable tradeoff because it misses 3 less articles than the other proposed strategies, but this finding is likely within the realm of chance and is unlikely to compensate for missing 56 articles. Why not just leave the conclusion that 3 of the proposed strategies don’t work at all, and versus is barely better?

4. Again assuming that the methods are actually fine, and the results valid, it would be interesting to see the results for the phase 1 only search.

5. The authors should conduct some statistical comparisons for data presented in Tables 1 and 2.

6. The absolute numbers in terms of retrieval appears to more clearly show how researcher burden will be reduced than the actual precision figures. The authors should elaborate on this in the Discussion section of their paper.

Minor Essential Revisions

(The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.)
1. The Abstract is somewhat confusing. For instance, acronyms should be defined (e.g., RCTs). The fourth sentence of the Background section of the Abstract is difficult to interpret, “Some studies argue that the precision of the third phase (what is the third phase?) is too low to warrant its precision (what does this mean?)”. At the point of reading the abstract, most readers will not know what the “third phase” is, what the “top two phases are” and why “CROSS-OVER STUDIES” is in caps. Additionally, readers may not know what a known item search is.

2. The authors should be consistent in terms of number presentation in the paper (the authors switch between spelling out numbers and just putting the number).

3. There is a missing space between “research” and “[2]” in the third sentence of the Background section of the paper. There is a missing space between “precision” and “[4]” in the Background section of the paper. And another between “trials” and “[5]”. And many other instances of this in the paper.

4. References 2 and 6 have an inconsistent format for the citation. Additionally, reference 2 does not have the abbreviation for the journal name.

5. The third sentence of the Background section of the paper is somewhat inaccurate. Reviewers base their reviews on RCTs likely because they are evaluating a treatment question. RCTs are the most rigorous study design for answering this type of question.

6. RCT is defined twice in the Background section of the paper, third and fourth sentences.

7. In the Background section of the paper the authors should indicate why an ideal search has high sensitivity and high precision. Sensitivity and precision should also be defined.

8. The ninth sentence of the Background section of the paper should be revised to something like, “This means that when using a highly sensitive search strategy many irrelevant studies will be retrieved, thus increasing the workload for the researcher conducting the systematic research.” Many irrelevant STUDIES will be retrieved not just many irrelevant RCTs as the authors indicate.

9. Tenth sentence of the Background section of the paper, Jadad indicated that the reviewer should identify the maximum number of eligible trials. I think there is a slight distinction between “maximum” and “optimum”, the latter used by the authors.

10. Second paragraph, first sentence of the Background section of the paper should be changed to “The Medline…”.

11. Was the HSSS designed by Cochrane Collaboration or by Dickersin and colleagues and is recommended for use by reviewers conducting systematic reviews for Cochrane? (2nd paragraph of the Background section of the paper). We ask because the authors reference Dickersin’s paper.

12. Second paragraph, final sentence of the Background section of the paper, the authors indicate “…may be worth combining the top two phases with some of the terms in phase three, such as the free-text terms “volunteer”, “crossover” and “versus” …” However, 2 of these terms are not shown in Phase 3 of Appendix 1. Additionally, the one term that is shown in the appendix is truncated but the authors are not considering a truncated form of “volunteer”.

13. The word “the” should always appear before “highly sensitive search strategy” and “hsss”.

14. Final sentence of the section titled “Selection of Systematic Reviews” a word is missing, “must indicate IF primary studies…”
15. Second paragraph of the Results section of the paper, in the 1st sentence the authors state 94 reviews and in the 4th they state 96 reviews. Additionally, in Table 2, 5th column of the table, the authors state “across 96 reviews.” However, in the text of the article they indicate that they were only able to calculate the sensitivity for 94 reviews.

16. The authors should ensure consistent use of subscripts in the Results section and Discussion section of the paper.

17. Second paragraph of the Discussion section, final sentence, this statement should be qualified, that is, their methods and results have practical significance for those conducting systematic reviews.

18. Third paragraph of the Discussion section, there is an error in the 2nd to last sentence.

Discretionary Revisions

(These are recommendations for improvement which the author can choose to ignore. For example clarifications, data that would be useful but not essential.)

The Cochrane HSSS is not the most sensitive search strategy for detecting RCTs in MEDLINE. For completeness, the authors might want to note the following study in their Discussion: Haynes RB, McKibbon KA, Wilczynski NL, Walter SD, Werre S, for the Hedges Team. Optimal search strategies for retrieving scientifically strong studies of treatment from MEDLINE. BMJ 2005 May 21;330(7501):1179-82.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

We declare that we have no competing interests.