Reviewer’s report

Title: A Survey of Systematic-Review Automation Technologies

Version: 2  Date: 31 March 2014

Reviewer: Toby Lasserson

Reviewer’s report:

Major Compulsory Revisions
None.

Minor Essential Revisions
1. Abstract: Risk of bias is mentioned as one of the processes which could be supported by automation, but this is not really backed up by what they state in the manuscript. I would not agree with this assertion since it should be considered a judgement rather than a decision rule. It might be possible to collect relevant information and perhaps predict a risk of bias judgment, but some of the domains in that assessment are outcome rather than study level, may well vary by review question and not lend themselves that well to auto-generation.

2. Background: I do not really get a sense of what the authors mean by automation. Some of the systems or tools identified are described as decision support, others designed to support the production of systematic reviews, such as RevMan, contain validation checks but are not necessarily automated. Others can compile information automatically based on information supplied (RevMan HAL). Clarification about this would be very helpful.

3. Background: The authors make a good case for why some ‘automation’ should not necessarily be used to replace processes that are best served by human intuition, but they restrict this primarily to protocol development. I think one of the greatest advantages of saving time/sparring mental energy is freeing up authors to focus on rating the quality of the evidence and to write an engaging, considered and intelligent interpretation of the evidence. More could be made of this here.

4. Task 2 > Automation potential. I do not really agree that updating an out of date systematic review to established protocol is preferable to conducting a new one. This assertion should be phrased more neutrally. My own view is that the existence of an out of date systematic review enables researchers to decide on whether to i). Use the existing protocol unchanged, ii). Amend the existing protocol (update Risk of bias assessment or methods for subgroup analysis), iii). Start again if the protocol is too old and the methods too outdated to be useful. These are all reasonable decisions, none of which exclude the re-use of data from the old systematic review.

5. Under Task 12 > Automation potential the authors state that automating data
extraction should reduce the requirement for training in statistics. I do think that familiarity with statistical concepts is very important for anyone conducting a meta-analysis. Whilst I do agree that automation saves labour, I think that there should be some care to avoid the implication that this obviates the need for statistical knowledge. Not everyone who does a meta-analysis has a statistics qualification as it stands, but knowing what the outputs mean is very important for interpretation.

6. Task 13: Update the search. My comment on this section is really an observation about the need to decide when to update a systematic review. Efficiency gains in production will not mean the end of updating reviews for the foreseeable future. The burden of updating means that tools to support the prioritization of reviews for updating are needed. Surveillance systems/decision tools could be explored to assess when to update reviews (one of which the authors have already referenced in the Background: http://www.bmj.com/content/347/bmj.f7191).

7. Conclusions – I agree with the assertions that producing more reviews will be a consequence and on the assumption that the tasks are fulfilled optimally then they will likely be of high quality. Some additional applications could also be mentioned here. Commissioning and producing reviews might be more easily done for guideline development because the gaps are quicker to identify and the process is quicker. I also think that capturing information generated during the production of a review and storing it (references identified and discarded, data collected but not used) will reduce wasted effort for future versions of a review, and would also avoid unwarranted duplication of data collection for network meta-analyses.

Discretionary Revisions

8. Not sure I understand ‘combinatorially.’ (See Task 1 > Future research). What does it mean in this context? Is there another term here?

9. Minor point in relation to Task 2 > Current Systems, Cochrane Database of Systematic Reviews is preferable to the ‘Cochrane Collection’ (See page 5).

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I am a paid employee of The Cochrane Collaboration.