

Commentary:

Not Enough I say! Expand the Remit of Living Systematic Reviews to Inform Future Research

Alex, J. Sutton

This issue of the Journal of Clinical Epidemiology includes a collection of 4 papers [1-4] considering the idea of Living Systematic Reviews (LSRs) and the methodology they should employ.

Consideration of methodology for updating systematic reviews is not new and has received attention previously [5] but the current initiative suggests this can be taken a step further by continual surveillance of the literature; keeping reviews as up-to-date as possible. This sounds like it can only be a good thing, in that evidence is going to be as up-to-date and relevant as possible for users. Of course, the price to pay for this is in the extra resources required for the continual upkeep of such reviews, although exciting new digital technologies, such as online platforms, linked data, and machine learning, are anticipated to facilitate the task. [1-4] The first reviews of this kind have been published [6] and The Cochrane Collaboration will have started pilots by the time this is published. [7]

The uptake of systematic review in medicine, was a reaction to the failing that there was no structured account of the thousands of trials in existence. [8] As we know, that movement gained momentum and today thousands of meta-analyses are published yearly and, to a large degree, organized systematically produced summaries of health interventions do now exist in the Cochrane Database of Systematic Reviews and scattered through the medical journals. In this context it makes sense to start looking to the present, we have – to some degree - stopped playing “catch-up” and it seems plausible that better updating of reviews in fast-moving areas can make an important impact towards better healthcare decisions.

Only time will tell whether this methodology will gain widespread adoption, or, due to the resources required, only be adopted in the topic areas likely to benefit the most from such intensive attention (however this may be decided). A related question I am keen to know the answer to, is when the extra resources required to keep a review uber up-to-date would be better spent collecting and analysing the individual participant data from the existing trials in a review in an attempt to disentangle heterogeneity between trials? [9] However, undeniably, these are interesting times for those involved in the timely delivery of systematically produced evidence on healthcare interventions.

But, especially given the effort and resources going into such initiatives, I want to question whether the scope of LSRs could, and should, be more ambitious? As described, it appears that LSRs are (still) passive pieces of research in which ever-modest reviewers eagerly await whatever evidence is fired their way in a hope to catch it cleanly and process it in a blink of an eye. And to what reward? I suspect they will often be resigned to the fact that they will have to conclude, “yet more underpowered and inadequately designed studies have been conducted that add as much confusion as knowledge to the overall evidence base”.

Enough I say! Having conquered the past, let's not be content with taming the present, let's start focusing on, and then even influencing, the future! I believe LSRs should stand as flagships of knowledge, not only for those who use the evidence, but also for those who produce it; the research

community. As a proponent of evidence based research, [10] I was disappointed that not more was said about recommendations for further research from LSRs. It has been known for some time that recommendations for further research sections of systematic reviews, although useful, could be more explicit, [11] which is at least partly due to deficits in methodology for designing trials to impact an existing meta-analysis. [12] But I believe reviewers attached to LSRs, with a continued investment in the topic area, will be in an ideal position to advise those considering carrying out new trials on the topic having identified, quality assessed and synthesised all the relevant pre-existing evidence. They should also be aware of any relevant trials that are underway. In this way pitfalls of previous trials can be avoided, un-necessary trials can be identified and abandoned, and underpowered trials can either be abandoned or amended. I would like to think that this could contribute meaningfully to the reduction of research waste going forward. [13] Just like individual participant data meta-analyses have been identified as facilitating collaboration between research groups working in the same area, [14] I would also hope that LSRs could reduce what I perceive as often a rift between those who carry out primary studies (trialists) and those who synthesise them (reviewers) [15] and create important dialogues between these groups that should improve the coherence of the cycle of evidence generation and consolidation [10].

References:

- 1) NB 1- 4 Are the original 4 papers in the series
- 2)
- 3)
- 4)
- 5) Garner et al. BMJ 2016; 354:i4853 doi: <https://doi.org/10.1136/bmj.i4853> (Published 06 September 2016)
- 6) Steven Q. Simpson, Melissa Gaines, Youness Hussein, Robert G. Badgett. Early goal-directed therapy for severe sepsis and septic shock: A living systematic review. Journal of Critical Care 36: 43–48. doi.org/10.1016/j.jcrc.2016.06.017
- 7) Cochrane Living Systematic Reviews: Interim guidance for pilots (Version 0.3, 21 April 2017) (Available at: http://community.cochrane.org/sites/default/files/uploads/inline-files/Transform/LSR%20Interim%20guidance_v0.3_20170703.pdf last accessed 4th August 2017)
- 8) Cochrane AL (1979). 1931-1971: a critical review, with particular reference to the medical profession. In: Teeling-Smith G, ed. Medicines for the Year 2000. London: Office of Health Economics, pp 1-11.
- 9) Riley RD, Lambert PC, Abo-Zaid G. Meta-analysis of individual participant data: rationale, conduct, and reporting. BMJ 2010; 340:c221 doi: <https://doi.org/10.1136/bmj.c221> (Published 05 February 2010)

- 10) Lund H, Brunnhuber K et al. Towards evidence based research BMJ 2016; 355:i5440 doi: <https://doi.org/10.1136/bmj.i5440> (Published 21 October 2016)
- 11) Clarke L, Clarke M, Clarke T: How useful are Cochrane reviews in identifying research needs?. J Health Serv Res Policy. 2007, 12: 101-103. 10.1258/135581907780279648.
- 12) Sutton, A. J., Cooper, N. J., Jones, D. R., Lambert, P. C., Thompson, J. R. and Abrams, K. R. (2007), Evidence-based sample size calculations based upon updated meta-analysis. Statist. Med., 26: 2479–2500. doi:10.1002/sim.2704.
- 13) Chalmers, I and Glasziou, P. Avoidable waste in the production and reporting of research evidence. Lancet. 2009; 374: 86–89.
- 14) Polanin, J. R., and Williams, R. T. (2016) Overcoming obstacles in obtaining individual participant data for meta-analysis. Res. Syn. Meth., 7: 333–341. doi: 10.1002/jrsm.1208.
- 15) Cooper, N.J., Jones, D.R., Sutton, A.J., The use of systematic reviews when designing new studies. Clinical Trials. 2005;2:260-264.