

Information Specialists Executive

Peer review of search

FAO Editor-in-Chief, Network Senior Editors, Network Associate Editors

Background

Chapter 4 of the revised *Cochrane Handbook for Systematic Reviews of Interventions* (Lefebvre et al, 2018, section 4.4.8) strongly recommends that search strategies in Cochrane reviews are subject to peer review by a suitably qualified and experienced medical / healthcare librarian or information specialist. It is also a highly desirable criteria that searches undergo peer review by an information specialist for a review to be considered for Cochrane's Fast Track service (Cochrane, 2019) and for systematic reviews of diagnostic accuracy studies it has been mandatory for a long time at both protocol and final review level. The Information Specialists' Executive would like to encourage and foster a culture of peer review of search methods and strategies within Cochrane.

The purpose of this White Paper is to:

- Request the support of Network senior editors in implementing peer review of search in their Networks;
- Present the context and the case for why peer review of search strategies and search methods should be undertaken for Cochrane reviews;
- Report on the pilot project that has been undertaken in this area within Cochrane;
- To set out the recommendations of the Information Specialists' Executive on incorporating peer review of search methods and strategies.

Context

Cochrane protocols, reviews and updates are all subject to peer review, however external peer reviewers are rarely experienced search specialists and they seldom comment on the applicability of the search methods or the quality of the search strategy. The Methodological Expectations of Cochrane Intervention Reviews (MECIR) mandates that at least one proposed search strategy is presented in the protocol and that the search is fully reported in the completed review (Lasserson et al, 2016, standard PR20). The lack of a formal process often means that the only person who checks this search strategy and the search methods section of the review is the information specialist who was responsible for writing the search in the first place.

In the Cochrane groups where there is no information specialist, it may be the case that the search methods are not checked by anyone with search methods expertise.

A study by Sampson et al (2006) found that 90.5% of search strategies in Cochrane reviews had at least one problem and that in 82.5% of cases the issue could have affected recall, meaning that

relevant clinical trials could potentially be missed. A more recent study by Franco et al (2018) found that 73% of Cochrane search strategies had at least one error, with 53% of investigated reviews presenting with major errors. Issues included missed MeSH terms, missed spelling variants, and logical operator errors (Franco, 2018). These two reports, set twelve years apart, suggest the situation is improving, and the number of errors in non-Cochrane systematic reviews has been reported as considerably higher (Salvador-Oliván et al, 2019). However, encouraging a culture of peer review of search by an information specialist seems a necessary action to ensure high-quality reviews, based on robust, MECIR compliant searches.

Investigation of the procedures of other evidence producers suggests that peer review of search is undertaken as a routine process and that Cochrane is lagging behind in this regard. The National Institute of Health and Care Excellence (NICE) (2018) in the UK, the Institute for Quality and Efficiency in Health Care (IQWiG) (2015) in Germany, the Institute of Medicine (2011), and the Agency for Healthcare Research and Quality (AHRQ) (2014) in the US all require search peer review. The Centre for Reviews and Dissemination (2009) in the UK also recommends peer review.

There is already a tool available for peer review of search. The Peer Review of Electronic Search Strategies (PRESS) checklist was originally developed in 2008 (Sampson et al 2008), and was revised in 2015 (McGowan et al 2015). This tool was based on a systematic review, a survey of search experts and a consensus development forum. As a validated tool used by other evidence producers, it could be adopted by Cochrane.

Pilot project

The establishment of Cochrane networks, joining similar review groups together under a network umbrella, offers the opportunity for Cochrane information specialists to harness their knowledge and experience to undertake peer review of one another's work. To this end, a pilot project was undertaken in the Musculoskeletal, Oral, Sensory and Skin Network (MOSS). The pilot was undertaken on an informal basis, with requests for peer reviewers sent via email to all of the information specialists within the network. Only protocols were peer-reviewed, as peer reviewing searches after they have been undertaken and the review written, seemed too late in the process. The information specialists who took part as peer reviewers reviewed both the proposed search strategy and the search methods section.

The PRESS checklist and MECIR standards were used to evaluate the search strategies and search methods. Suggestions and comments were fed back informally via email. Peer review was sought at the same stage as the protocol was sent to other methodological and clinical reviewers, with a two week deadline so that this additional peer review did not hold-up the review process.

Three protocols were part of the pilot, and these were reviewed by two information specialists in the network. Suggestions on improvements to the search methods section were made, and these were incorporated into the standard text used by the group's information specialist to describe the search. Changes were recommended and some integrated in the search strategies, and one potentially critical error in search syntax was identified. All three search strategies were revisited, and judged to be more robust after peer review. In addition, the process was fed back to the authors

of the Cochrane review, who were supportive and appreciative of the fact that the search strategies had undergone peer review.

The peer reviewers estimated that the process took approximately 45 minutes to an hour. It was designed to be a “light touch” process; checking that terms used were appropriate and that the Boolean logic was all correct.

The pilot concluded in September 2018, and it was agreed that it was successful. Lessons learned included the value of a standardised checklist (such as the PRESS checklist) and the value of a search narrative (or commentary) to go alongside the search strategy, to explain why some of the decisions had been taken around the vocabulary used. The information specialists involved reported back on the pilot to the Information Specialists’ Meeting at the Cochrane Colloquium in 2018, and also at a webinar on search peer review, held in February 2019. The support of the development of a process for peer review of search is included in the MOSS Network’s strategic plan (Cochrane Musculoskeletal, Oral, Sensory and Skin Network, 2018).

Since the pilot, two other networks (Cancer and Circulation and Breathing) have also started to explore peer review of search in their Networks.

Recommendations

The Cochrane Information Specialists’ Executive has the following recommendations following the successful pilot:

- Peer review of search strategies in protocols using the PRESS checklist should be encouraged within Cochrane review groups and Networks;
- Peer review of search methods using the MECIR standards should be encouraged for Cochrane intervention review protocols;
- Cochrane Information Specialists within each Network will organise and support the peer review process as suits their working processes, and decide whether/when it is appropriate to peer review a search;
- Cochrane Information Specialists to ask for support and training as needed, use of the mailing lists to ask for help with peer review to be encouraged if there is no-one available to peer review at Network level;
- We acknowledge that the MECIR standards only apply to Cochrane intervention reviews, but we believe that other types of Cochrane review can still undergo search peer review of the primary database search strategy, either by another Cochrane information specialist, or by an expert searcher external to Cochrane;
- We acknowledge that peer review is also desirable at review and update stage, however changes to the search strategy/search methods at this late stage may cause issues for author teams and delays in the review process. We recommend that Cochrane implement search peer review only at protocol stage as a first step.
- Search peer reviewers to be acknowledged in the protocol and the published review;
- The Cochrane Information Specialist Support Team to produce training resources for peer reviewers. This work has already begun with a webinar and a journal club in February 2019.

Standardised forms, including the PRESS checklist, have also been made available by the Support Team. This work also has the support of the Information Retrieval Methods Group.

The Information Specialists' Executive request the support of Network senior editors and Group co-ordinating editors in strongly advocating for search peer review within their networks and fostering implementation, with the aim of search peer review becoming an accepted standard for Cochrane reviews.

References

Agency for Healthcare Research and Quality. Methods Guide for Effectiveness and Comparative Effectiveness Reviews. 2014 AHRQ Publication No. 10(14)-EHC063-EF. Rockville, MD: Available at: www.effectivehealthcare.ahrq.gov, accessed 18 April 2019

Centre for Reviews and Dissemination. Systematic reviews: CRD's guidance for undertaking reviews in healthcare, 2009. Available at: https://www.york.ac.uk/media/crd/Systematic_Reviews.pdf, accessed 18 April 2019

Cochrane. Fast-track acceptance criteria and policies, 2019. Available at: <https://community.cochrane.org/review-production/production-resources/fast-track-service/fast-track-acceptance-criteria-and-policies>, accessed 29 April 2019

Cochrane Musculoskeletal, Oral, Skin and Sensory Network. Strategic Workplan 2018-2020.2018. Available at: <https://moss.cochrane.org/about-us/network-strategic-plan>, accessed 18 April 2019

Franco JV, Garrote VL, Liquitay CM, Vietto V. Identification of problems in search strategies in Cochrane Reviews. Research Synthesis Methods. 2018 May 15, 9(3): 408-416.

Institute for Medicine. Standards for finding and assessing individual studies. In Finding what works in healthcare, 2011. Available at: <https://www.nap.edu/read/13059/chapter/1#ii>, accessed 18 April 2019

Institute for Quality and Efficiency in Health Care. General methods. 2015. Available at: https://www.iqwig.de/download/IQWiG_General_Methods_Version_%204-2.pdf, accessed 18 April 2019

Lasserson T, Churchill R, Chandler J, Tovey D, Higgins JPT. Standards for the reporting of protocols of new Cochrane Intervention reviews. In: Higgins JPT, Lasserson T, Chandler J, Tovey D, Churchill R. Methodological Expectations of Cochrane Intervention Reviews. 2016. Cochrane: London. Available at: <https://community.cochrane.org/mecir-manual/standards-reporting-protocols-new-cochrane-intervention-reviews-pr1-44>, accessed 18 April 2019

Lefebvre C, Glanville J, Briscoe S, Littlewood A, Marshall C, Metzendorf M-I, Noel-Storr A, Rader T, Shokraneh F, Thomas J, Wieland LS. Chapter 4: Searching for and selecting studies. Draft version (29 January 2019) for inclusion in: Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). Cochrane Handbook for Systematic Reviews of Interventions. London: Cochrane, available at:

https://training.cochrane.org/system/files/uploads/protected_file/HB6finaldraft_04_SearchingforStudies.pdf, accessed 18 April 2019

McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V, Lefebvre C. PRESS peer review of electronic search strategies: 2015 guideline statement. *Journal of Clinical Epidemiology*. 2016 Jul 1;75:40-6.

National Institute of Health and Care Excellence. Developing NICE guidelines: the manual. 2018. Available at: <https://www.nice.org.uk/process/pmg20/chapter/introduction-and-overview>, accessed 18 April 2019

Salvador-Oliván JA, Marco-Cuenca G, Arquero-Avilés R. Errors in search strategies used in systematic reviews and their effects on information retrieval. *Journal of Medical Library Association*, 107(2). Available at: <http://jmla.mlanet.org/ojs/jmla/article/view/567/841>, accessed 23 May 2019

Sampson M, McGowan J. Errors in search strategies were identified by type and frequency. *Journal of Clinical Epidemiology*. 2006 Oct 1;59(10):1057-e1.

Sampson M, McGowan J, Lefebvre C, Moher D, Grimshaw JM. PRESS: Peer Review of Electronic Search Strategies. Canadian Agency for Drugs and Technologies in Health, Ottawa. 2008. Available at: <http://cadth.ca/index.php/en/publication/781>, accessed 18 April 2019