Updating reviews: we discussed best practice at the EAHIL 2022 Conference

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Abstract
We conducted a workshop at the EAHIL 2022 Conference which aimed to identify best practice when updating literature searches for systematic reviews. We prepared a presentation and questions which were discussed in small groups. The potential solutions were evaluated using the "rose, thorn, bud" method, and the results of the workshop are summarised here. The importance of transparently reporting the search strategies, platforms, and changes compared to previous searches were emphasised. Workshop participants preferred to change (and improve) previous strategies rather than repeating faulty searches. They also preferred to re-run searches over the whole time period instead of searching from a time point on, suggesting deduplication methods to manage the records. We hope this discussion will continue at future conferences.

Key words: *systematic literature review; update; best practice; role of librarians.*

Introduction

Overview of current practice

We start by considering the question: when are systematic reviews updated? The seminal paper by Garner *et al.* (1) provides the definition of "an update of a systematic review as a new edition of a published systematic review with changes that can include new data, new methods, or new analyses to the previous edition". Cumpston and Chandler (2) state in Chapter IV of the Cochrane Handbook for Systematic Reviews of Interventions (updated 2022), based on Garner *et al.,* that systematic reviews should be updated when new research, new studies, are available which will affect the conclusions and therefore the decisions made on the basis of the review by policy-makers or clinicians.

Update review vs update search

There are many papers about why reviews should be updated (1-5). But why do we, as librarians or information specialists, get involved? We need to update (re-run) the search methods for updated reviews, reviews with a different or amended focus (changed in line with new evidence) (2), or before submitting an article for publication (5, 6). We may also collaborate with researchers on living systematic reviews, a type of systematic review which involves an ongoing process and considerable resource (7).

The problem is that we find, as librarians or information specialists, that there is little guidance as to how to update them. We need the technical details about how to update and how to report those updates to systematic reviews. Yes, a 2008 paper by Moher *et al.* provided a helpful start towards this (4), a challenge taken up in the paper by Garner *et al.* eight years later (1), and then answered in Chapters IV and 22 of the latest version of the Cochrane Handbook (2, 7) as reported below from Thomas *et al.* (2022) (7):

"Information about the availability of new (or newly identified) evidence may come from a variety of sources and use a diverse range of approaches (Garner et al. 2016), including:

- *re-running the full search strategies in the original review;*
- *using an abbreviated search strategy;*
- *using literature notification services;*
- *developing machine-learning algorithms based on study reports identified for the original review;*

- *tracking studies in clinical trials (and other) registries;*
- *checking studies included in related systematic reviews; and*
- *other formal surveillance methods".*

And as for reporting the search methods, the new PRISMA flow diagram includes results from previous reviews (8).

Unfortunately, this guidance still does not answer our specific, technical questions about how to update reviews. We therefore took the opportunity to attend the in-person EAHIL 2022 Conference in Rotterdam to ask colleagues to answer our questions and make recommendations for best practice for us to then communicate back to the community in this article, thus contributing to and building on the literature.

Methods

We formulated six questions (and one open question) and handed one question out per group of 4-6 participants (*Figure 1*). The questions and possible solutions were then discussed for 30 min and the solutions evaluated according to the method of "rose" (rose colour, what you like about it) (*Figure 2*), "thorn" (orange colour, what may not work or be effective), and "bud" (green colour, how it can be improved) (9). The results were presented and discussed by the group and were summarised by the authors.

Results and discussion

How do you proceed when updating your own search vs someone else's?

Whether a search is being updated using the same search string or changes are introduced depends on the quality of the original search and if the topic is still ex-

actly the same, rather than who did the original search. It is more likely, however, that the search will be overhauled when it is done by someone else.

Rose: collecting accession numbers (PMID, doi) makes deduplication easier when running an update. Further deduplication options are to use Bramer's method (10) or the new tool Deduklick (11).

Thorn: previous searches may be poorly reported. Indexing terms in databases as well as published search filters change over time. Indexing of older references may lead to finding older papers (that were not found previously) with the new search. These things are difficult to explain to the researchers. It is not clear how to report this in the PRISMA flow chart.

Bud: artificial intelligence may make living updates easier in the future.

What would you do differently if you decided to introduce changes compared to your previous search strategy (than if you re-ran an unchanged strategy)?
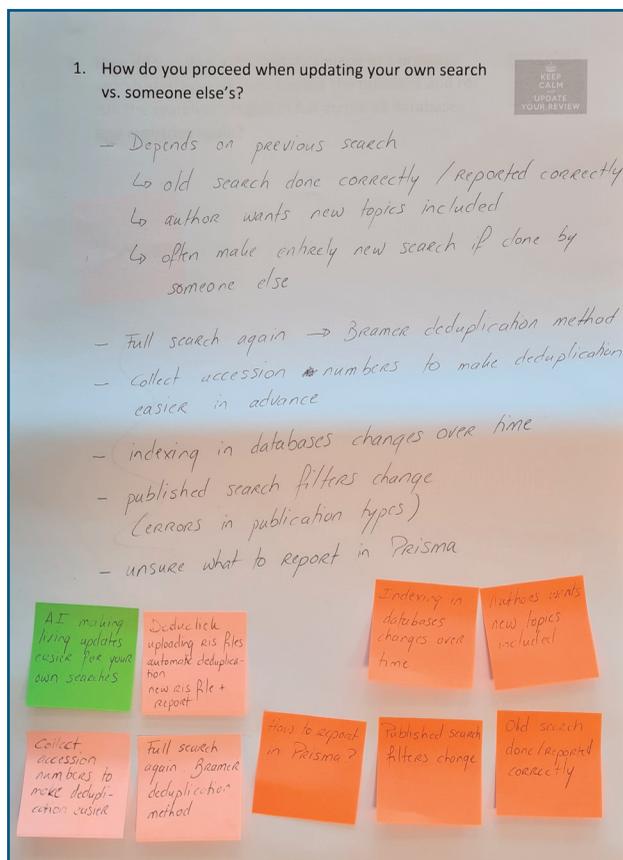

Fig. 1. *Group discussions during the workshop.*

Fig. 2. *Example of question 1, answers evaluated according to the "rose, thorn, bud" method.*

It is important to make changes to the search strategy when it is poor and/or there are mistakes. This is an opportunity to teach the researchers and to show our value. If the researches reject our proposals, we may not perform the search for them or we will not want to be a co-author or acknowledged.

Rose: report changes in the methods section, add a protocol amendment.

Thorn: researchers may want to update reviews with poor searches unchanged.

How do you deal with mistakes made in a previous search strategy – do you correct the mistakes and re-run the search strategies in full across all databases and registries again?

The workshop participants recommended that the mistake(s) must be corrected and the whole search must be re-run. It was suggested we must check if the corrections had any impact on the search results.

How do you deal with changes in platforms? What should you do if the previous search e.g. was in Embase.com and you have access to Ovid Embase instead?

The search must be translated to the new platform. Alternatively, someone else with access to the previous platform could be asked to run the search (although it has been pointed out in mailing lists that this may not be legal). When reporting, do not only describe the platform, but also from which institution you had access, since they might have different date ranges (copy the information that Medline or the Web of Science Core Collections show).

Thorn: it may be difficult to know exactly what the differences are, and it costs (too much) time to find out.

Bud: be transparent about the changes and explain why they were necessary.

Would you follow the same procedure if you updated a search after a few months (before submission of the manuscript) compared to after a few years? How do you report the 2nd search in the first case? How do you deal with inconsistencies?

It was suggested that we should follow the same procedure regardless of how long ago the search took place:
- check subject headings and terminology to see if anything has changed (add new ones if necessary);
- check for retracted articles;
- use accession numbers (PMID, doi) to deduplicate: enter them with OR, then use NOT to exclude from updated results.

Do you prefer to search from a certain date on or to re-run the search over the full time period? If from a date on, do you use date published / entered in database / last edited, and how do you deal with overlap?

Rose: the search should be run over the full time period and deduplicated against the original search.

Thorn: deduplication is difficult with no access to EndNote. Entry dates in databases may not be available. Publication dates should not be used. There are often discrepancies when searching from a date on.

Bud: explore other options for deduplication if you have no access to EndNote (e.g. Deduklick, R tools).

CONCLUSION

There were no major disagreements among the participants of this workshop about how to proceed when updating searches. The main takeaway lessons were to re-run searches over the full time period, correct search strategies when necessary, be transparent about the procedure, and to report what was done. Knowing that this was only one workshop and not a Delphi study, we hope that our findings can still provide a good starting point for future clarifications and refinements about updating searches for systematic reviews.

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