Chapter 4: Searching for and selecting studies - guidance on selecting studies

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Selecting studies

- This was part of Chapter 7 in the previous edition and has now moved to Chapter 4
- New authors: Chris Marshall, James Thomas, Julie Glanville
- Input from the Handbook editorial team
Studies NOT articles - expanded

4.6.1 Studies (not reports) as the unit of interest
Important to identify duplicates - expanded

4.6.2 Identifying multiple reports from the same study

Identifiers:
- Trial ids
- Author names
- Location/setting
- Number of participants
- Date

Documents that belong to that study
Documents may each provide information about the study - new emphasis

4.6.2 Identifying multiple reports from the same study
Study selection process - reordered

4.6.3 A typical process for selecting studies

- Download into reference management software and remove genuine duplicates
- Examine titles and abstracts to remove obviously irrelevant reports
- Retrieve the full text of the potentially relevant reports
- If queries write to authors
- Examine full-text reports
- Link together multiple reports of the same study
- If studies remain incomplete/unobtainable tag as incomplete and list in table of ‘Studies awaiting assessment’
- Make final decisions on study inclusion and proceed to data collection. Tag ongoing trials and add to the ongoing studies table
Selection process - new clarifications

- Studies should not be omitted from a review solely because measured outcome data are not reported
  - Include studies in the review irrespective of whether measured outcome data are reported in a ‘usable’ way
  - Do not exclude studies solely for reporting of the outcome data, to avoid bias due to selective outcome reporting
  - While such studies cannot be included in meta-analyses, the implications of their omission should be considered

4.6.3 A typical process for selecting studies
How to select studies - clearer direction

**Title and abstract screening**

Ideally two people in duplicate working independently
Also acceptable that initial screening is undertaken by only one person

**Full text screening**

Two people working independently is **essential**
Third person may be required to resolve disagreements

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4.6.4 Implementation of the selection process
Applying the eligibility criteria - minor change

A single failed eligibility criterion is sufficient to exclude a study

- Assess eligibility in order of importance - order will vary from review to review

Consider pilot testing the eligibility criteria on 6-8 reports

- Include ones that are thought to be eligible, definitely not eligible and doubtful
- May be able to refine and clarify the eligibility criteria - maximise consistent application

Document the selection process so that the study selection flow diagram can be completed as well as a table of ‘Characteristics of excluded studies’

- The decision and reasons for exclusion can be tracked using reference software, a simple document or spreadsheet or using specialist systematic review software

4.6.4 Implementation of the selection process
4.6.5 Selecting ‘excluded studies’
Excluded studies - clarification

- **Table of ‘Characteristics of excluded studies’**
  - Provide the specific reason for exclusion for any studies that a reader might plausibly expect to see among the included studies.
  - Should be as brief as possible
  - Should not list studies that obviously do not fulfil the eligibility criteria for the review, such as ‘Types of studies’, ‘Types of participants’, and ‘Types of interventions’.
  - Should not list studies that are obviously not randomized if the review includes only randomized trials.
  - Cochrane reviews: Average number of studies listed in the ‘excluded studies’ table is 30.
Software support - new information

Abstrackr
- free web-based screening tool that can prioritize the screening of records using machine learning techniques

Covidence
- web-based software platform for conducting systematic reviews, which includes support for collaborative title and abstract screening, full-text review etc. Free for authors of Cochrane Reviews.

DistillerSR
- web-based software application for undertaking bibliographic record screening etc. Features to track progress, assess interrater reliability and export data for further analysis. Reduced pricing for Cochrane and Campbell reviews.

EPPI-Reviewer
- web-based software designed to support all stages of the systematic review process, including reference management, and screening. Free for Cochrane and Campbell reviews, otherwise paid subscription.

Rayyan
- web-based application for collaborative citation screening and full-text selection. Free of charge.

4.6.6 Software support for selecting studies
Automating the selection process - new information

Machine Learning Models (or ‘classifiers’). The ‘RCT Classifier’ can identify reports of RCTs to a high degree of accuracy.

Machine learning models can also learn how to apply eligibility criteria for individual reviews - ‘active learning’ can semi-automate study selection by prioritizing records most likely to be relevant.

Cochrane Crowd can help with screening. Cochrane’s citizen science platform.

Streamlining processes

4.6.6 Software support for selecting studies
Automating the selection process - new information

- Natural language processing tools can highlight sentences and key phrases automatically (e.g. PICO elements, trial characteristics, details of randomization)
- To help screen more easily
Measuring agreement - removed

This section has been removed

There is no requirement to measure agreement among screeners statistically

Reviewers should review and discuss disagreements
New resources

- Technical appendix 4 Managing references
  - Information on bibliographic management packages to help with managing and deduplicating search results
  - Information on methods of deduplication
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