Unit Eleven: Writing the Systematic Review

Learning Objectives

- *To understand the requirements to publish a systematic review*
- *To be familiar with the criteria that will be used to judged the quality of a systematic review*

When others read your review they will be assessing it for the systematic manner in which bias was reduced. A useful tool to assess the quality of a systematic review is produced by the Critical Appraisal Skills Programme (CASP) and can be found at http://www.phru.nhs.uk/~casp/appraisa.htm (provided overleaf). It is useful to keep this tool in mind when writing the final review.

Reviewers may consider submitting their review to:

1) The Cochrane Collaboration – must go through the Cochrane editorial process
2) The Database of Abstracts of Reviews of Effects (DARE) – this database is held by the University of York - http://www.york.ac.uk/inst/crd/crddatabases.htm
3) The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) to be included in The Database of Promoting Health Effectiveness Reviews (DoPHER) - http://eppi.ioe.ac.uk
4) A published journal relevant to the topic of the review.

Two sets of guidelines are available for reviewers wishing to submit the review to a published journal. Reviewers should read the guidelines relevant to the study designs included in the review:

1) Systematic reviews of RCTs:

Moher D, Cook DJ, Eastwood S, Olkin I, Rennie D, Stroup DF. Improving the quality of reports of meta-analyses of randomised controlled trials: the QUOROM statement. Quality of Reporting of Meta-analyses. Lancet. 1999 Nov 27;354(9193):1896-900.

2) Systematic reviews of observational studies:

Stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D, Moher D, Becker BJ, Sipe TA, Thacker SB. Meta-analysis of observational studies in epidemiology: a proposal for reporting. Meta-analysis Of Observational Studies in Epidemiology (MOOSE) group. JAMA. 2000 Apr 19;283(15):2008-12.

ADDITIONAL READING

Oxman AD, Cook DJ, Guyatt GH for the Evidence-Based Medicine Working Group. Users' guide to the medical literature. VI. How to use an overview. Evidence-based Medicine Working Group. JAMA 1994;272:1367-71.

EXERCISE

1. Critically appraise in small groups "DiCenso A, Guyatt G, Willan A, Griffith L. Interventions to reduce unintended pregnancies among adolescents: systematic review of randomised controlled trials. BMJ 2002;324:1426-34", using the 10-question CASP checklist.

Critical Appraisal Skills Programme (CASP)
making sense of evidence

10 questions to help you make sense of reviews

How to use this appraisal tool
Three broad issues need to be considered when appraising the report of a systematic review:

Is the study valid?
What are the results?
Will the results help locally?

The 10 questions on the following pages are designed to help you think about these issues systematically.
The first two questions are screening questions and can be answered quickly. If the answer to both is "yes", it is worth proceeding with the remaining questions.
You are asked to record a "yes", "no" or "can't tell" to most of the questions. A number of italicised prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

The 10 questions are adapted from Oxman AD, Cook DJ, Guyatt GH, Users' guides to the medical literature. VI. How to use an overview. JAMA 1994; 272 (17): 1367-1371

Screening Questions

1 Did the review ask a clearly-focused question? ❑ Yes ❑ Can't tell ❑ No

Consider if the question is 'focused' in terms of:

- *the population studied*
- *the intervention given or exposure*
- *the outcomes considered*

2 Did the review include the right type of study? ❑ Yes ❑ Can't tell ❑ No

Consider if the included studies:

– address the review's question

– have an appropriate study design

Is it worth continuing?

Detailed questions

……

3 Did the reviewers try to identify all the relevant studies? ❑ Yes ❑ Can't tell ❑ No

Consider:

- *which bibliographic databases were used*
- *if there was follow-up from reference lists*
- *if there was personal contact with experts*
- *if the reviewers searched for unpublished studies*
- *if the reviewers searched for non-English language studies*

……

4 Did the reviewers assess the quality of the included studies? ❑ Yes ❑ Can't tell ❑ No

Consider:

– if a clear, pre-determined strategy was used to determine which studies were included. Look for:

– a scoring system

– more than one assessor

……

5 If the results of the studies have been combined, was it reasonable to do so? ❑ Yes ❑ Can't tell ❑ No

Consider whether:

– the results of each study are clearly displayed

– the results were similar from study to study (look for tests of heterogeneity)

– the reasons for any variations in results are discussed

……

……

6 How are the results presented and what is the main result? ❑ Yes ❑ Can't tell ❑ No

Consider:

- *how the results are expressed (eg. odds ratio, relative risk, etc.)*
- *how large this size of result is and how meaningful it is*
- *how you would sum up the bottom-line result of the review in one sentence*

……

7 How precise are these results? ❑ Yes ❑ Can't tell ❑ No

Consider:

- *if a confidence interval were reported. Would your decision about whether or not to use this intervention be the same at the upper confidence limit as at the lower confidence limit?*
- *if a p-value is reported where confidence intervals are unavailable*

……

8 Can the results be applied to the local population? ❑ Yes ❑ Can't tell ❑ No

Consider whether:

- *the population sample covered by the review could be different from your population in ways that would produce different results*
- *your local setting differs much from that of the review*
- *you can provide the same intervention in your setting*

……

9 Were all important outcomes considered? ❑ Yes ❑ Can't tell ❑ No

Consider outcomes from the point of view of the:

- *individual*
- *policy makers and professionals*
- *family/carers*
- *wider community*

……

10 Should policy or practice change as a result of the evidence contained in this review? ❑ Yes ❑ Can't tell ❑ No

Consider:

- *whether any benefit reported outweighs any harm and/or cost. If this information is not reported can it be filled in from elsewhere?*

……

Writing the systematic review

Writing your systematic review

Useful review manuals and guidelines for publication

- Cochrane Reviewers' Handbook
- Cochrane Open-Learning materials
  http://www.cochrane.org/resources/revpro.htm
- NHS CRD Report
  http://www.york.ac.uk/inst/crd/report4.htm
- QUORUM statement
  (Lancet 1999;354(9193):1896-900)
- MOOSE guidelines
  (JAMA 2000;283:2008-2012)

Appraisal of a systematic review

- 10 questions
  1. Clearly-focused question
  2. The right type of study included
  3. Identifying all relevant studies
  4. Assessment of quality of studies
  5. Reasonable to combine studies
  6. What were the results
  7. Preciseness of results
  8. Application of results to local population
  9. Consideration of all outcomes
  10. Policy or practice change as a result of evidence