Steps in conducting a Cochrane review

Motivation to do a review

- To resolve conflicting evidence
- Support practice
  - address questions of clinical uncertainty
  - explore variations in practice
  - confirm practice (or not)
- To highlight a need for further research
- **Summarize evidence to help people make well-informed decisions about healthcare**

Acknowledgements

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Approved by the Cochrane Methods Board

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Cochrane reviews I: Steps in conducting a review from title registration to publishing a review

Chetta Ngamjarus
How to be a Cochrane reviewer
The review team

- review must be undertaken by more than one person
- allows double-checking
  - eligibility of included studies
  - data collection and entry
  - risk of bias assessment
- different areas of expertise
  - clinical (multidisciplinary)
  - systematic review methods (including statistics)
  - user perspective (consumer, professional, settings)

1. Defining your question

- essential first step for your review
- guides many aspects of your methods
  - eligibility criteria
  - search strategy
  - data collection and analysis
- think carefully in advance
  - plan your work
  - avoid bias
A broad or narrow question?

<table>
<thead>
<tr>
<th>Narrow</th>
<th>Broad</th>
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<tbody>
<tr>
<td>Advantages</td>
<td></td>
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<tr>
<td>• easy to write</td>
<td>• comprehensive</td>
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<td>• easy to read</td>
<td>• generalisable</td>
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<tr>
<td>Disadvantages</td>
<td></td>
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<tr>
<td>• need multiple reviews</td>
<td>• complex</td>
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<tr>
<td>• may be selectively defined</td>
<td>• may miss subgroup effects</td>
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<td>• Overview of Reviews may be preferable</td>
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Examples

• Diet or exercise, or both, for preventing excessive weight gain in pregnancy
• Immediate versus delayed postpartum insertion of contraceptive implant for contraception
• Simple versus radical hysterectomy with pelvic lymphadenectomy for women with stage IA2-IB1 cervical cancer
• Behavioural interventions to promote workers’ use of respiratory protective equipment
• Chicken Essence for Cognitive Function Improvement

Components of a question

• describe the following components in detail
• consider variations you may wish to explore in the review

P population
I intervention
C comparison
O outcomes
Example of review questions

• Does yoga program improve back function in adults with chronic low back pain?

• Does paracetamol compared to ibuprofen used for treating fever or discomfort on asthma exacerbation have different adverse effects in children with asthma?

Turning a question into a title

• Cochrane titles have standard formats
  • ‘intervention’ for ‘issue’
    • Antibiotics for acute bronchitis
    • Motivational interviewing for smoking cessation
  • can also include other details:
    • Inhaled nitric oxide for respiratory failure in preterm infants
    • Pool fencing for preventing drowning in children

Example of a review question

• Does yoga program improve back function in adults with chronic low back pain?

  Title: ‘Yoga for improving back function in adults with chronic low back pain’
Example of a review question

Does paracetamol compared to ibuprofen used for treating fever or discomfort on asthma exacerbation have different adverse effects in children with asthma?

Title: Adverse events associated with paracetamol versus ibuprofen in children with asthma

2. Set eligibility criteria and methods

- Rule to decide which study are included in the review; based on
  - PICO components
  - Definition of eligible study designs

2. Set eligibility criteria and methods

- Searching strategies
- Plan for - data collection,
  - risk of bias assessment &
  - analysis
Structure of a Cochrane protocol

See Chapter 4 of the Handbook

Additional information

- acknowledgements
- contributions of authors
- declarations of interest
- sources of support
- any additional tables or appendices
Studies and references

- Studies
  - included or excluded from your review
  - not used for protocol
- Other references
  - all protocol references
e.g. Background, Methods

Steps for doing a Cochrane systematic review

Protocol published in *Cochrane library*
Protocol published in *Cochrane library*

- Reduces the impact of authors’ biases
- Promotes transparency of methods and processes
- Reduces the potential for duplication
- Allows peer review of the planned methods

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Steps for doing a Cochrane systematic review

3. Search for studies

- Systematic search; comprehensive, sources, search strategy
- Contact CRG (the Trials Search Co-ordinator)
- Source; bibliographic databases (CENTRAL, MEDLINE, Embase), unpublished & ongoing studies
- Managing & reporting the search (e.g. EndNote, ProCite)
- Updating the search
4. Apply eligibility criteria and select studies

- Apply pre-specified eligible criteria to the searched results
- Independently process by at least two authors
- Screening titles and abstracts & full text
- Handle of disagreements
- Reporting excluded study

5. Collect data (Data extraction)

- Study information
- Focus on outcomes in pre-specified protocol
  - measure used
  - numerical results
- Data collection forms (pilot)
- Contacting study authors
- Managing data

6. Assess risk of bias (critical appraisal)

- Cochrane risk of bias assessment (7 domains)
- Independent assessment by two assessors
- Risk of bias tables (low risk, high risk, unclear)
- Incorporating findings into review
7. Analyse and present results

- Understand different kinds of data
  - dichotomous outcomes
  - continuous outcomes
- Choosing an effect measure (OR, RR, RD, Mean ± SD)
- ± Meta-analysis (Forest plots)

8. Interpret results & form conclusions

- Discussion section
  - Summary of main results (benefits & harms)
  - Overall completeness and applicability of evidence (Quality of the evidence)
  - Potential biases in the review process
  - Agreements and disagreements with other studies or reviews
- Authors’ conclusions
  - Implications for practice
  - Implications for research
CRG editorial Support

- Standard methods & review text
- Templates (data collection forms)
- Literature searching (and translation)
- Statistical expertise
- Peer review

http://community.cochrane.org/review-production/production-resources

Production resources

From start to finish and all the steps in between - learn about the many resources available to help with producing Cochrane Reviews.

Review production tools

Cochrane has software tools to support every stage of the review production process - find out what's available and how to get access here.
What do you need?

1. Cochrane software (IMS)
   1.1 Review Manager (RevMan) 5
      - Preparing and editing protocol /reviews
      - Template for protocol / review structure
      - Statistical analysis & present data graphically
      - Editorial & publication
      - www.ims.cochrane.org/revman
   1.2 Archie
      central server for managing documents and contact details

What do you need?

2. Related software
   2.1
What do you need?

2. Related software
2.2

http://www.cochrane-handbook.org/

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Version 5.1.0
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Timeline for a Cochrane review:
about 18-24 months
References
