How to Conduct a Systematic Literature Review and Meta-Analysis

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Why systematic reviews?

- efficient way to access the body of research
  - saves time required for searching
  - critical appraisal
  - interpretation of results
- explore differences between studies
- reliable basis for decision making
  - unbiased selection of relevant information
  - useful for health care, policy, future research
Key features of a systematic review

• clearly stated objectives
• pre-defined eligibility criteria
• explicit, reproducible methodology
• systematic search
• assessment of validity of included studies
• systematic synthesis and presentation of findings
Steps of a Cochrane systematic review

1. define the question
2. plan eligibility criteria
3. plan methods
4. search for studies
5. apply eligibility criteria
6. collect data
7. assess studies for risk of bias
8. analyse and present results
9. interpret results and draw conclusions
10. improve and update review
How The Library Can Help

• We recommend an initial consultation
• Average time 1-2 hours
• We focus on Steps 1-4, but our primary contribution is creating comprehensive search strategies
• We are here to help!
Define The Question

- Is your topic researchable?
- Too narrow?
  - Is there a sufficient pool of literature
- Too broad?
  - Are there too many papers
Plan Eligibility Criteria

• Inclusion / Exclusion
• Common Elements
  – Gender
  – Ages
  – Publication Type (RCT)
• Less Common Elements
  – Publication Dates
  – Languages
Plan Methods

• PRISMA-P
• Choosing Databases
  – At least three unique sources:
    • PubMed
    • Web of Science / SCOPUS
    • Embase
• Choosing Search Terms
• Search Process
  – Saving strategies
  – Documenting screening process (PRISMA)
Plan Methods

• Storing and Sharing Citations
  – EndNote / Mendeley / Zotero
  – Excel

• Review Software
  – Covidence
  – DistillerSR
  – Rayyan
Search For Studies
Sample Strategy

- We conducted a systematic search using Web of Knowledge and MEDLINE to identify all relevant studies published from 2000 to 2012. The MESH search terms used were ‘*phone*' OR ‘electromagnetic' AND ‘semen’ or ‘sperm*' OR ‘*fertil*'