

# Systematic reviews of evidence



World Health  
Organization

**Professional good intentions and plausible theories are insufficient for selecting policies and practices for protecting, promoting, and restoring health.**

Iain Chalmers, Cochrane Library



# Systematic reviews: what are they?

- A means of subjecting the huge volumes of medical literature to a scientific rather than subjective summary for rational decision making
- A method of analysis based on pooled data from as many sources as possible, preferably, but not necessarily, using exactly comparable research studies
  - Attempts to minimize bias and errors compared with traditional narrative reviews



# Systematic reviews: the approach

- Define the problem
- Search for the evidence
  - Inclusion/exclusion criteria for selecting evidence
  - Search strategy
  - Sources of evidence
- Appraisal of the evidence
- Summary of the evidence
  - Analysis using summary measures, when appropriate
- Assessment of bias
  - Sensitivity analysis



# Systematic reviews: advantages

- Efficient synthesis of the body of evidence on a given topic, using a scientific methodology
- Risk of bias in selecting studies and interpreting their results is reduced
- Possibility of conclusions being influenced by random error (or chance) is reduced
- Quality of the evidence critically appraised



# Systematic reviews: disadvantages

- Selection bias – has the review captured all relevant studies?
  - Comprehensiveness of search strategy
  - Validity and reliability of search methods (i.e., databases)
- Language bias
- Information bias
- Publication bias
  - Studies sponsored by the pharmaceutical industry



# Conclusion

- Systematic reviews provide the foundation for developing evidence-based guidance
- Systematic reviews are essential for WHO to issue recommendations for best practices given the current evidence, so that WHO can fulfill its mandate to set, validate, monitor and pursue the proper implementation of norms and standards (Article II, WHO Constitution)

