

Learning how to learn

Making use of systematic reviews

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The ever-expanding size of knowledge in different disciplines is a remarkable feature of the world of today. In medicine and health care, the explosion of publishing in the latter half of the 20th century has resulted in over 20,000 journals and around 2 million articles a year ⁽¹⁾.

Given this situation, it is almost impossible for health professionals and researchers to keep up to date with current knowledge.

Good information on the effectiveness of health interventions in preventive and curative spheres is indispensable for health managers and health professionals alike. Thus reviews are needed to provide manageable information that could be used as a base for decisions on health policy and individual treatment.

What is a systematic review?

A systematic review involves the application of scientific strategies, in ways that limits bias, to the assembly, critical appraisal, and synthesis of all relevant studies that address a specific clinical question ⁽²⁾. Thus, systematic reviews aim at a

balanced summary of published and unpublished literature in a specific issue with the benefit of presenting evidence emanating from a large body of knowledge. Systematic reviews rank at the top of the hierarchy of evidence for scientific decision-making.

Reviews are classified as narrative (lack explicit description of systematic methods), qualitative systematic reviews and meta-analyses (use of statistical methods to combine the results of two or more studies) ⁽³⁾. Review articles, integrative publication, practice guidelines, economic evaluations and clinical decision analyses are all variants of systematic reviews.

Sources of systematic reviews

High quality systematic reviews are published in journals and electronic databases. The later include sources such as Cochrane Collaboration, Medline database and the centre for evidence-based medicine at Oxford. The following box shows some of these sources.

Box 1: Useful websites for systematic reviews

- Systematic reviews training unit: <http://www.ich.ucl.ac.uk/srtu>
- Cochrane Collaboration: <http://www.hiru.mcmaster.ca/cochrane/default.htm>
- NHS Centre for Reviews and Dissemination: <http://www.york.ac.uk/inst/crd/welcome.htm>
- Centre for Evidence-Based Medicine at Oxford: <http://cebmr2.ox.ac.uk/>
- Bandolier: <http://www.jr2.ox.ac.uk/bandolier/index.htm>

Appraising a systematic review

Here are some questions to help you identify the rigor of any systematic review paper that you read.

Box 2: Criteria to assess a systemic review

1. Is the topic well defined?
2. Was the search for papers thorough?
3. Were the criteria for inclusion of studies clearly described and fairly applied?
4. Was study quality assessed by blinded or independent reviewers
5. Was missing information sought from the original study investigators
6. Do the included studies seem to indicate similar effects
7. Were the overall findings assessed for their robustness?
8. Was the play of chance assessed?
9. Are the recommendations based firmly on the quality of the evidence presented?

Cochrane Collaboration

The Cochrane Collaboration is an international not for profit and independent organization, dedicated to making up-to-date, accurate information about the effects of healthcare readily available worldwide. It produces and disseminates systematic reviews of healthcare interventions and promotes the search for evidence in the form of clinical trials and other intervention studies. The Cochrane Collaboration was founded in 1993 and named after the British epidemiologist, Archie Cochrane⁽⁴⁾.

The major product of the Collaboration is the **Cochrane Database of Systematic Reviews** which is published quarterly as part of the **Cochrane Library**. The library is accessible at : <http://www.thecochranelibrary.com> .

References and sources

1. Davies H. and Crombie I. *What is a systematic review?* 2001 [online]. Available from: <http://www.evidence-base-medicine.co.uk> [Accessed 20 April 2007]. Also available in this

series a publication named: What is meta-analysis?.

2. Cook D, Mulrow C. and Hayens RB. Systematic reviews: Synthesis of best evidence for clinical decisions. *Annals of Internal Medicine*. 1997; 126(5): 376-380.
3. Greenhalgh T. How to read a paper: papers that summarize other papers (systematic reviews and meta-analyses). *British Medical Journal*. 1997; 315: 672-675.
4. What is the Cochrane Collaboration? [online]. Available from: <http://www.cochrane.org/docs/descrip.htm> [Accessed 25 April 2007].