Critical Appraisal of Health Care Literature

This guide provides a brief introduction to the critical appraisal (or critical reading) of published healthcare information and websites. Links from the web version of this guide are also provided to a number of checklists designed to assist with the appraisal of this information.

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Appraising journal articles
The best way to find high quality information is to carry out a literature search on one or more databases and to download, copy or request relevant current publications. Once you have obtained the papers most relevant to your question you should consider a number of things before using the results. This applies even when the publications are from peer reviewed journals:

Publication bias
Authorship
Journal ranking and impact factors
Abstract quality

Publication bias
1. Negative results don’t (often) get published – If you want to carry out a detailed or systematic review of a subject area, you might consider trying to get hold of unpublished studies.
2. Reviewers may be biased against unconventional versus conventional techniques (eg orthodox drug versus alternative therapy).

Authorship
Are the authors based at a well-established Centre of Excellence?
Are there any issues of sponsorship or competing interests?

Journal ranking and impact factors
Although the impact factor of a journal is clearly going to be linked to its popularity and accessibility, the journals with higher impact factors in a subject area are generally well-respected for good reason.

Abstract quality
Read the paper carefully and don’t rely on the abstract alone. Around 24%-60% of abstracts in peer reviewed journals have deficiencies. Three common types of inaccuracies are: 1) data inconsistent in abstract and body of the paper, tables, and figures; 2) data or information in the abstract do not appear elsewhere; and 3) conclusions in the abstract not substantiated in the paper itself.

Critical appraisal of an individual journal article describing a piece of research
A number of check-lists are available to assist you with the critical appraisal of a journal article describing a piece of research. The questions vary for different types of research study but all boil down to four main issues:
What is this paper about?
Do I trust it?
What did they find?
Is it relevant to me?

Critical appraisal checklists are available from:
CASP(Critical Appraisal Skills Programme)
http://www.casp-uk.net/
Centre for Health Evidence
http://www.cche.net/
Centre for Reviews and Dissemination
http://www.york.ac.uk/inst/crd/
Health Evidence Bulletins Wales
http://hebw.cf.ac.uk/projectmethod/index.htm
National Institute for Health and Clinical Excellence
http://www.nice.org.uk

and cover:

- Systematic reviews
- Randomised controlled trials
- Trials without randomisation
- Cohort (longitudinal) studies
- Case-control studies
- Cross-sectional studies
- Qualitative research
- Cost-effectiveness studies

Other examples are provided at:
http://www.cardiff.ac.uk/insrv/libraries/sure/sysnet/criticalappraisalchecklist.html

Appraising other types of literature

Links to critical appraisal forms for some other types of literature are also available:
Practice guidelines (using AGREE)
http://www.agreecollaboration.org/

Appraising websites

Although it may not be perfect, at least the peer review system for journal articles provides a degree of quality control.
Anybody can put anything on the web.

Take care! When you are appraising information obtained from a web-site bear the following things in mind:

Content
Consider: intended audience, purpose of site, accuracy – are the sources of information provided?

Source
Consider: author(s), currency – is it up to date?, depth/breadth of coverage, bias – are there any ‘conflicts of interest’ through sponsorship for example?

Structure
Consider: graphics, presentation, ease of use.

Books and other publications of relevance to evidence-based practice and clinical governance, including statistics, can be found in the 362.1072 section of the Cochrane building’s Health library. We recommend:


Definitions

1. Impact factor: A measure of the frequency with which the "average article" in a journal has been cited in a particular year or period.

2. Systematic review: An overview of primary studies that: 1) contains an explicit statement of objectives, materials & methods; and 2) has been conducted according to explicit and reproducible methodology to reduce bias.

3. Randomised controlled trial: A group of patients is randomly allocated into an experimental group and a control group. These groups are followed up for the variables / outcomes of interest.

4. Cohort/longitudinal study: Two or more groups of people selected on the basis of differences in their exposure to a particular agent (such as a vaccine or an environmental toxin) are followed up to see how many develop a particular disease or other outcome. In a single group study, outcome(s) will be studied over time and regression analysis may be used to estimate risk factors for subgroups of the cohort.

5. Case control study: Patients with a particular disease or condition are identified and compared with controls. Data are then collected (for example by searching back through medical records) to identify a possible causal agent.

6. Cross-sectional study: The observation of a defined population at a single point in time or time interval. Exposure and outcome are determined simultaneously

7. Qualitative method: Research to make sense of, or interpret, phenomena in terms of the meanings people bring to them.
8. Cost-effectiveness study: An estimate of the costs for some additional health gain from an intervention (e.g. cost per additional heart attack prevented).


10. Clinical governance: A framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish.

For further information/suggestions for improvements to the guide, please contact the Health library, tel: 02920 688150.
Available in alternative formats on request.