Method of doing a literature review – exemplified (Raj Khanchandani, 2001)

Background

A literature review is defined as "A systematic survey and interpretation of the research findings (the 'literature') on a particular topic" [1]. There are many strictures on conducting reviews: they should be "as balanced and complete an account of the state of knowledge" [2], and that "systematic" does not mean "completeness" [3]. The Cochrane collaboration has detailed rules for conducting systematic reviews [4].

There are three reasons for conducting reviews [3 5]:

1. Students demonstrating a deep understanding of a topic, usually as part of an examination.
2. Summarising of current knowledge and making recommendations for future research.
3. Introducing best practice into practice and purchasing decision.

A systematic review is a survey of work already carried out. Systematic implies [3]:

1. Methodical search of relevant sources
2. Methodical compilation of information
3. Making inferences from the information

The systematic review should identify relevant studies of appropriate quality, and the review should be replicable so that the same papers and sources of information would be found by other researchers [3 4]. A review can helpfully collate information that may otherwise be difficult to access, and can help form judgements about the usefulness of the information [3]. In the health sector there is considerable emphasis on reviews that confirm the effectiveness or otherwise of interventions, and thus reviews are dominated by RCTs and meta-analyses [4]. This therefore means, "the theory of measurement dominates the review process" [3]. The Cochrane rules are not, however, easily applicable to non-empirical studies [3].

Deciding on the source of material

A hierarchical approach to searching for literature has been recommended, using the following methods in the order listed [6 7]:

1. Searching databases of reviewed high quality literature, such as "Trip" or The Cochrane Library (see appendix)
2. Searching evidence based journals for review articles (such as Evidence Based Medicine)
3. Routine searches of Ovid, PubMed Medline and other search engines
4. Direct contact with colleagues and scanning journals

The use of this hierarchical approach via the net is demonstrated in the attached appendix (it has been produced by David Johnson – it is detachable so that it can be placed next to your computer). The difficulties of using key words and MESH headings are demonstrated in table 1, whch was a search for papers on ethnic monitoring. A huge variation in numbers of papers results if the search is incomplete. It must also be remembered that authors of publications may not use the key words that you may think are logical.

Table 1 Results of search on the Ovid database

Key word or MESH heading	**Number of publications**
Ethnic monitoring	10
Ethnic groups	49116
Ethnic groups *and* Health	8585
Ethnic groups *and* Health *and* Great Britain	158
Ethnic groups *and* Health *and* Great Britain *and* Primary health care	7

Selecting studies

It is best to establish selection criteria before searching for publications. The criteria used to select trials for inclusion in the review should be stated. The following should be clearly stated in the review: types of studies used (e.g. "all randomised controlled comparisons" or "all double blind randomised controlled trials"), types of participants, types of intervention and types of outcome measures.

It helps to know the criteria used to assess the quality of studies (eg CASP criteria to assess meta-analyses or RCTs), and it is important o know the reviewer's views on the quality of the studies he/she has chosen to review. If relatively poor quality studies are reviewed, then the reasons for their inclusion must be stated.

It is always best to review original publications wherever possible, but these can sometimes be difficult to obtain. Major reviews often include references from published books, particularly in sociological reviews. GP registrars are not expected to review every single publication on their chosen topic: this would be impossible for some well researched subjects such as IHD. However, one would expect to see a minimum of 7-10 references, which should be a representative sample of the publications on the topic.

When selecting a sample of studies, it may be advisable to use the following descending hierarchy of sources:

- Well known refereed journals (eg BMJ, BJGP)
- Less well known refereed journals
- Other journals with original articles
- Books
- Abstracts (eg conference reports)
- Personal communications (eg letters from experts in the field)

Compilation of material

A stepped approach is useful here (exemplified by a proposed review on "Corticoid induced osteoporosis):

1. Relevant individual publications are summarised.

2. The summaries were analysed to produce broad categories (eg "physiology of bone", "epidemiology of osteoporosis")

3. Analysis of the broad categories will suggest sub-categories (eg under "epidemiology of osteoporosis": *"overall risk from osteoporosis"* and *"risk from glucocorticoid induced oeteoporosis",*).

4. Sections of the summaries of individual publications are then rewritten to match the sub-headings and broad category headings, and arguments are expanded and connections made between the categories and sub-categories.

5. The initial summaries of individual publications are re-examined for unused sections and relevant parts are incorporated into the review.

The important point is that the literature review in not a series of summaries of individual publications, but an attempt at drawing out relevant themes from those papers. The review must also be a *critique,* and not purely descriptive.

Compilation of references

It goes without saying that a literature review must have a proper and accurate compilation of references, and that statements within the body of the report must be supported by an appropriate reference.

There are many methods of referencing a document, but the two most often used are:

- Vancouver style, as in the BMJ or BJGP, where statements in the text have a number suffixed to them

- Harvard style, where statements are followed by (in brackets) the author's name and year of publication. This is often used in books but also in many journals.

It does not matter which style is chosen, as long as it is used accurately and consisitently throughout the document. Writing out references at the end is very time consuming, but dead-easy using computer software s such as *EndNote* [8].

Useful "how-to-do-it" references

1. Strauss SE, Sackett DL. Using research findings in clinical practice. *British Medical Journal* 1998;317:339-342.
2. Cochrane Collaboration. *The Cochrane Library, Issue 3*. Oxford: Update Software, 1999.
3. Bell,J. *Doing your research project, 2nd edition.* Buckingham: Open University, 1987. ISBN 0335190944.

References

1. Vogt WP. *Dictionary of statistics and methodology*. Thousand Oaks: Sage, 1999.
2. Lowe D. *Planning for medical research*. Congleton: Astraglobe, 1993.
3. Hutton JL, Ashcroft R. What does "systematic" mean for reviews of method? In: Black N, Brazier J, Fitzpatrick R, Reeves B, editors. *Health service research methods: a guide to best practice*. London: BMJ Books, 1998:249-154.

4. Cochrane Collaboration. *The Cochrane Library, Issue 3*. Oxford: Update Software, 1999.
5. Burls A. An evaluation of impact of half-day workshops teaching critical appraisal skills. Oxford: The Institute of Health Sciences, 1997:81.
6 Garner P, Kale R, Dickson R, Dans T, Salinas R. Implementing research findings in developing countries. *British Medical Journal* 1998;317:531-535.
7. Strauss SE, Sackett DL. Using research findings in clinical practice. *British Medical Journal* 1998;317:339-342.
8 EndNote 4.0 [program]. Berkley: ISI ResearchSoft, www. endnote.com, 1999.