

Part 1

A guide to finding the evidence

Section 1: a description of terms

Evidence-based practice and the hierarchy of evidence

Evidence-based practice is often defined as the “conscientious, explicit and judicious use of the current best evidence in making decisions about the care of individual patients”.¹ Evidence-based practice involves the use of skills whereby new evidence is located, examined and integrated into services and for the care of individual patients.²

The traditional hierarchy of evidence is as follows: several systematic reviews of randomised controlled trials (RCTs) or meta-analyses, systematic review of RCTs, RCTs, quasi-experimental trials, case-control and cohort studies, expert consensus opinion and finally individual opinion. It is important to recognise that the evidence that is searched for should not only depend on this hierarchy of evidence but also on the question that you are asking. It may well be the case that there are no systematic reviews in the area that you are searching for and other forms of evidence may be more appropriate.

Clinical Evidence

Clinical Evidence is a compendium of evidence on the effects of common clinical interventions, published every six months in book form and electronically by the BMJ Publishing Group. It summarises the best available evidence and highlights areas where there is little good evidence. Clinical Evidence provides a concise account of the current state of knowledge on a range of clinical conditions based on thorough searches of the literature. It is not a textbook of medicine or a book of guidelines.

Each issue of Clinical Evidence updates and expands its coverage. In each subject area in *Finding the Evidence*, we have indicated the chapter reference in Clinical Evidence if applicable, and in some cases whether it is going to be an area covered in future editions.

See <http://www.evidence.org>.

Systematic reviews

The term ‘systematic review’ implies that a review has been prepared using a systematic approach to minimise bias and random errors. Systematic reviews differ from other reviews in that they adhere to a documented, transparent structure. Rather than reflecting the views of the author or a selection of published literature, they should be

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- 1 Sackett D, Rosenberg W, Gray J A M, *et al* (1996) **Evidence based medicine: What it is and what it isn't.** *British Medical Journal*, **312**, 71–72.
 - 2 Ramchandani P, Joughin C & Zwi M (2001) **Evidence-based child and adolescent mental health services – oxymoron or brave new dawn?** *Child Psychology and Psychiatry Review*, **6**, 59–64.

comprehensive.³ They aim to establish whether scientific findings are consistent and can be generalised across populations and whether the findings differ significantly by particular subsets. Meta-analyses are undertaken in some systematic reviews if the data are considered to be robust and the studies are sufficiently similar in design to allow for the findings to be merged and re-analysed as a single cohort. However, the reader should be aware that not all researchers will have taken a systematic approach to the development of their meta-analysis and this can lead to significant bias.

It is important to note that we have not checked the quality of the systematic reviews or meta-analyses for this edition of *Finding the Evidence*. We hope to have all of these papers critically appraised, which will help to identify systematic reviews and meta-analyses of poor quality. We have, however, provided tools in Appendix ii that will help you to appraise the quality of the research yourself.

For the purposes of this list, we have searched Medline, PsychINFO and the Cochrane Library for systematic reviews and meta-analyses using defined search strategies (see Appendix i). For this edition, we re-searched all Medline and PsychINFO from 1980 to 1999 using a high-precision, low-sensitivity search strategy, and a high-sensitivity, low-precision search strategy for the year 2000. The systematic reviews that have been found on the Cochrane database have been checked by Cochrane to meet the criteria of a high-quality systematic review. Articles containing systematic reviews that have been reviewed in the Database of Abstracts of Reviews of Effectiveness (DARE) are indicated in the references and have met the criteria for a systematic review. The review can be viewed in the Cochrane Database.

More about Cochrane

The Cochrane Collaboration is an international organisation that aims to help people make well-informed decisions about health care by preparing, maintaining and promoting the accessibility of systematic reviews of the effects of health care interventions. The Cochrane Collaboration produces the Cochrane Library, which is a collection of databases, published on-line as well as on disc and CD-ROM, which are updated on a quarterly basis. The Cochrane Library consists of the Cochrane Database of Systematic Reviews (CDSR), the DARE, the Cochrane Controlled Trials Register (CCTR) and the Cochrane Review Methodology Database.

- The CDSR is the main product of the Cochrane Collaboration. It brings together all the currently available Cochrane Reviews and also gives details of protocols for systematic reviews that have been registered with the Cochrane Collaboration. You can be certain that systematic reviews produced under the Cochrane Collaboration will have met the stringent criteria for systematic reviews. Where available, we have included protocols for systematic reviews under the individual conditions and treatment approaches.
- The DARE is a collection of abstracts of quality-assessed systematic reviews, other assessed reviews and bibliographic references. The DARE is produced by the NHS Centre for Reviews and Dissemination at the University of York.
- The CCTR includes references to clinical trials compiled by the Cochrane Review Groups. These trials have been judged as meeting certain quality standards.

See the Cochrane Collaboration at <http://www.cochrane.org> or the Cochrane Library at <http://www.update-software.com/cochrane/cochrane-frame.html>.

3 University of York NHS Centre for Reviews and Dissemination, 1996.

Collaborative Review Groups

Cochrane Collaborative Review Groups consist of individuals who share an interest in a particular area of health care. Their main purpose is to prepare and maintain systematic reviews of relevance to the group. The main collaborative review group of relevance to child and adolescent mental health is the Developmental, Psychosocial and Learning Problems Group. They plan to address a range of medical, social, educational and socio-legal problems that will cover: developmental and psychosocial problems of childhood and adolescence, including juvenile delinquency; learning problems (including, but not restricted to learning disabilities) and personality disorders and adult offending.

Where possible, sections in this resource give the contact name and details for the relevant Cochrane Collaborative Review Group.

Practice parameters

The practice parameters published in the *Journal of the American Academy of Child and Adolescent Psychiatry* are developed through peer review and provide the Academy's guidelines for the generally accepted level of practice, including guidelines for grade school-aged children, pre-school children and adolescents. See <http://www.aacap.org>.

Guidelines

These consist of a series of systematically developed statements to assist patients and practitioners when making decisions about appropriate health care in specified clinical circumstances. They should be based on information from systematic reviews and incorporate the views of clinicians and patients. However, not all clinical guidelines have been developed using a robust approach and readers should therefore use the critical appraisal tool in Appendix ii before using the information to inform their practice.

A list of databases of critically appraised guidelines is available at <http://www.ihs.ox.ac.uk/library/librarylinks.htm#guidelines>.

Classic and cutting edge papers

Cutting edge papers present important new theories and evidence, while classic papers are landmark publications of enduring interest. We relied on the contributors for each section to select what they perceived to be the most relevant papers for these sections. Thus, in cases where there are new contributors for subject areas, the cutting edge and classic papers may vary in each edition.

Medline

Medline is compiled by the National Library of Medicine of the United States and indexes over 4000 journals published in over 70 countries. It lists about 300,000 articles per year and covers all areas of medicine, including nursing, psychiatry,

psychology, biochemistry and health care management. It does not include books or conference abstracts (even if they are printed in journals indexed on Medline). Medline is available in three forms:

- a printed version: the Index Medicus;
- on-line: from 1996 to date – this can be accessed on the Internet by a number of servers; and
- CD-ROM: this may be accessed in libraries on between 10 and 18 CDs. Many trusts have also made it available through the local networks to offices and clinical areas.

See <http://omni.ac.uk/medline>.

PsychINFO (formally known as PsychLIT)

PsychINFO is a computerised CD-ROM database produced by a division of the American Psychological Association. PsychINFO covers the professional and academic field of psychology and related disciplines, including medicine, psychiatry, nursing, sociology, education, pharmacology, physiology and linguistics. The coverage is worldwide and includes references from 1887. PsychoINFO provides access to references and/or abstracts for international journal articles and book chapters. See <http://www.apa.org/psycinfo>.

EMBASE

EMBASE is a bibliographic database, produced by Excerpta Medica, a division of Elsevier Science Publishers B.V. It is a biomedical database that covers around 3500 journals from 110 countries from 1980 onwards. EMBASE's particular strengths are in the fields of drug research, pharmacology and toxicology. EMBASE also contains a thesaurus called Emtree, which is a powerful tool for searching. EMBASE is updated monthly and is accessed via an OVID interface. See <http://www.silverplatter.com/catalog/embx.htm>.

Section 2: a guide to searching

The evidence listed in sections 5–8 provides a starting point of relevant research information for various topics. If you wish to search for more information we would suggest the following approach. Please remember that this is a very basic guide and is not a substitute for a training session with your local librarian!

○ **Step 1. Medline and PsychINFO search**

These are still the best databases to start with. However, for general therapy questions, the Cochrane Library now contains more controlled trials than Medline. For systematic reviews and meta-analyses, use the search strategy given in Appendix i. If you are doing a more extensive search remember to look in EMBASE. This will give you a wider choice of European journals.

○ **Step 2. Cochrane Library**

This is available on CD-ROM and will give you access to systematic reviews, protocols for systematic reviews in development, information from the DARE and primary studies from the CCTR.

○ **Step 3. Clinical practice guidelines**

For clinical practice guidelines, try the National Guideline Clearing House: <http://www.guidelines.gov/index.asp>. Also, check the Scottish Intercollegiate Guidelines Network: <http://www.show.scot.nhs.uk/sign/index.html> or for critically appraised guidelines visit http://www.ihs.ox.ac.uk/library/library_links.htm#guidelines for a list of useful sites.

More about Medline

A number of different companies sell Medline and so slightly different commands are required depending on the supplier. Two of the most common suppliers are Ovid Technologies (OVID) and Silver Platter Information Ltd (WinSPIRS).

Ways of searching

You can search for articles in two ways:

1. By text word: This will give you any word that is listed on the database. It will include the title, abstract and authors' names or institute where the research was performed.
2. By MeSH heading. Medline and PsychINFO use a thesaurus to make searching more effective. A thesaurus is a controlled vocabulary that is used to index information from journals. It groups related concepts using a single preferred term. Medline and the Cochrane Library both use a thesaurus called MeSH. MeSH contains approximately 17,000 terms. Each term represents a single concept appearing in the literature. Using OVID, MeSH headings can be identified using a 'mapping' procedure. When using SilverPlatter, they can be identified by checking the thesaurus or using the

'suggest' option. Sometimes, you will not be able to find a MeSH term to match your subject. If this is the case, you will need to search using textwords. However, do remember that when searching on textwords the database will be searched for exactly the term that you have entered. You will, therefore, need to remember to consider all possible spellings and terms to describe your subject.

Exploding!

MeSH terms are arranged in hierarchical structures called trees. They start with a broad term and divide into branches of more specific terms.

TABLE 1. EXAMPLE OF A MESH TREE

- Eating disorders
 - Anorexia nervosa
 - Hyperphagia
 - Bulimia
 - Pica

Database indexers are instructed to use the most specific term(s) available when indexing papers. During the mapping process, you will first be offered the most general term and then the more specific term (if available). The tree structure allows you to explode your search. Exploding helps you obtain comprehensive coverage of your subject area. You can search for your MeSH term plus all its narrower terms at the same time.

Major headings

As many as 20 MeSH terms are assigned by indexers to any one article. Some headings are designated as major headings; these represent the main concepts of a paper. These major headings are prefaced by an asterisk (*) and help distinguish articles that discuss your subject in detail from those that discuss it briefly.

Boolean operators

Boolean operators can be used to combine keywords in your search strategy. AND allows you to link together different subjects; it focuses your search and allows you to retrieve fewer papers. For example, by searching for sexual abuse AND conduct disorder, you will only identify papers that address both issues together. OR allows you to broaden your search. If you search for sexual abuse OR conduct disorder, you will identify papers that address either sexual abuse or conduct disorder or both issues.

NOT should be used with care but could be used to identify papers that, for example, address hyperkinetic disorder but not conduct disorder (hyperkinetic disorder NOT conduct disorder).

Further refining your search

The abstract may be searched for areas of interest in the text, for example inserting random* will pick up 'randomised', 'randomized', 'randomisation' and 'randomization' if you are looking for an RCT.

Searching for terms in a particular field (e.g. author or title)

If you are trying to track down a paper and you know a few details you can search by using field suffixes such as:

- .ab Word in abstract
- .au Author
- .pt Publication type
- .sh Subject heading (MeSH)
- .tw Word in title or abstract

These are OVID suffixes, but the ones in SilverPlatter are very similar.

EXAMPLE

If you are looking for a paper on child sexual abuse and you know it was published in the *Journal of the American Academy of Child and Adolescent Psychiatry* simply enter:

1. Child sexual abuse.ti
.ti shows that the term is in the title
2. Journal of the American Academy of Child and Adolescent Psychiatry.jn
.jn shows that this is the journal you are looking for
3. Then combine the two instructions #1 AND #2

Sensitivity and specificity

Sensitivity is the likelihood of retrieving 'relevant' items; specificity is the likelihood of excluding 'irrelevant' items. To increase the sensitivity and so increase the records retrieved:

- Broaden your question.
- Try to use more search terms (look at the papers that you already have and see what they have used).
- Use truncation (* or \$) in textword searches.

- Add in and combine terms of related meaning using OR.
- Use the word NEAR to retrieve terms in the same sentence.
- Use the 'explode' feature.
- Select 'all subheadings' with MeSH terms.
- Extend the dates of publication.

To increase the specificity of your search and so reduce the papers retrieved:

- Narrow your question.
- Use more specific terms in a textword search.
- Use MeSH terms rather than a textword search.
- Use more specific MeSH terms.
- Add in terms using AND to represent other areas of your question.
- Limit to a particular language or publication type, e.g. RCT or meta-analysis.

QUICK TIP

The search strategy in Appendix i will allow you to pick up the maximum possible number of RCTs. This can be saved on disc and used again and again for different searches. We have also provided a search strategy for systematic reviews and meta-analyses.

Search terms and truncation

At the end of each section we have added suggested search terms and the number of primary research papers that you will be able to access if you search on the CCTR. Always remember to try alternative spellings for words such as 'behaviour'; using 'behavior' will usually generate many more hits. Other useful tips include using parentheses to link words together and using an asterisk to ensure that all words with the same beginning are included. For example, 'child*' will include child, child's and children.

References and suggested further reading

Greenhalgh T (1997) *How to Read a Paper: The Basics of Evidence-Based Medicine*. London: BMJ Publishing Group.

University of York NHS Centre for Reviews and Dissemination (1996) *Undertaking Systematic Reviews of Research on Effectiveness*. CRD Report No. 4. York: NHS Centre for Reviews and Dissemination.

Section 3: finding the evidence summary

1. Compose a clinical question. This should focus your search and ensure that it is appropriate.

Remember to define: (a) the population or type of patient (age, gender, diagnosis etc.); (b) the intervention or exposure; and (c) the outcome of interest.

EXAMPLE

In girls between the ages of 3 and 9 years with conduct disorder, do parent training programmes improve the child's attendance at school?

2. Identify relevant databases to search.

Consider Medline, Psychlit, the Cochrane Library and also sites such as the Health Technology Assessment site for key reports and the National Guideline Clearing House for clinical guidelines (see Step 3 in previous section).

3. Identify search terms for each component of the question. Always remember possible alternative spellings and terms.

Remember to use textwords and MeSH headings.

EXAMPLE

When searching for conduct disorder, also consider using: behavioural problem*, antisocial behaviour, antisocial behavior and behaviour disorder*.

4. Determine your Boolean operators, such as AND, OR and NOT.

These allow you to define the papers that you are interested in.

EXAMPLE

If you are looking for papers that discuss girls and not boys with hyperkinetic disorder you could put: child* AND girl* NOT boy* AND hyperkinetic disorder.

5. Adjust your search strategy to further limit the search if you have too many citations, or broaden it if you have too few.

Consider limiting to English language or a more specific term for the condition. See the section on sensitivity and specificity.

