Identifying systematic reviews: key resources

How effective are anticonvulsants in the treatment of bipolar affective disorder? The first choice of resource for the practitioner to answer a clinical effectiveness question such as this one should be a systematic review. By systematically searching for, assessing, and summarising the research evidence using a rigorous methodology, the best systematic reviews present a timesaving distillation of the current state of knowledge. The number of systematic reviews has been growing and continues to grow rapidly. This growth has fortunately been accompanied by efforts to identify, collect, and present reviews in easy to access collections. This note presents a strategy for searching for systematic reviews of effectiveness using (a selection of) the best of these collections.

Cochrane Library

The first stage, and often the only necessary stage, in finding an up to date systematic review of the effects of healthcare interventions should be to search the *Cochrane Library*.¹ The Cochrane Database of Systematic Reviews (CDSR) in the *Cochrane Library* contains a unique, cumulative collection of full text systematic reviews which are valuable not only in terms of their rigorous methodology but also because they are periodically updated as new research evidence is published and in response to valid criticisms. Should searchers not be able to find an up to date Cochrane Review in the CDSR on their topic of interest, the *Cochrane Library* has summaries of other quality assessed reviews (including reviews of diagnostic tests) in the Database of Abstracts of Reviews of Effectiveness (DARE) and abstracts of technology assessments in the Health Technology Assessment (HTA) database. Looking first at the *Cochrane Library* can save searchers much time and effort in searching other resources. Non-subscribers to the full *Cochrane Library* can search abstracts of Cochrane reviews together with DARE and HTA database records free on the NHS Centre for Reviews and Dissemination web site.²

The most effective approach to searching the *Cochrane Library* is to use both text words and Medical Subject Headings (MeSH) to ensure that relevant records are not missed. This approach is required because many records are not MeSH indexed or may not be indexed with the relevant terms. The *Cochrane Library* has the facility to look up MeSH thesaurus terms and to build searches that address structured questions (patient, intervention, comparison, outcome [PICO]).³ Given the size of the full text records on the *Cochrane Library*, it is advisable to use the proximity operators (NEAR and NEXT) to ensure that search terms in the records retrieved are related contextually. For example, the following search would find reviews of the effectiveness of anticonvulsants in bipolar affective disorder:

- #1 BIPOLAR-DISORDER*:ME
- #2 (BIPOLAR next AFFECTIVE)
- #3 #1 or #2
- #4 ANTICONVULSANT*:ME
- #5 CARBAMAZEPINE or CHLORMETHIAZOLE or DON-AZEPAM or DIAZEPAM

- #6 LORAZEPAM or MEPHOBARBITAL or PHENOBARBITAL or PROPOFOL
- #7 THIOPENTAL or VALPROIC or VIGABATRIN
- #8 ANTICONVULSANT*
- #9 #4 or #5 or #6 or #7 or #8
- #10 #3 and #9

In the *Cochrane Library* 2000 issue 1, this strategy found 3 quality assessed reviews in DARE (carbamazepine and valproic acid) and 3 Cochrane reviews in progress that should report in issue 3 (carbamazepine for bipolar affective disorder, and valproate for both maintenance treatment and acute affective episodes). The example search listed above also shows some useful search features: “*” is a truncation symbol used to retrieve words beginning with “anticonvulsant” and “*:ME” “explodes” the MeSH term BIPOLAR-DISORDER to retrieve all of its narrower terms (eg, CYCLOTHYMIC-DISORDER).

Evidence-Based Mental Health, Evidence-Based Medicine, ACP Journal Club, and Best Evidence

If no relevant Cochrane reviews or DARE abstracts are found, the next best step is to use other publications, such as *Evidence-Based Mental Health*, which assess and comment on high quality published reviews, although the reports are not updated like Cochrane Reviews. *Evidence-Based Medicine* and *ACP Journal Club* are 2 similar publications, and they are also available in a cumulative, searchable database, *Best Evidence*.⁴ The print versions of these journals have indexes to aid searching.

Clinical Evidence

Clinical Evidence is a recently launched publication that summarises the results of reviews and other high quality evidence to answer specific clinical questions.⁵ The book is arranged by disease areas and also has an index. There is a note under the depressive disorders section that treatment for bipolar affective disorder will be covered in future issues of *Clinical Evidence*. This seems to reinforce the strategy of searching the *Cochrane Library* first.

US reviews and technology assessments

Internet users have access to an excellent range of full text evidence reports and evidence-based guidelines from US research agencies at the Health Services/Technology Assessment Text (HSTAT) web site.⁶ The site offers a simple form filling search option and searches can be restricted to groups of publications.

Indexes to systematic reviews

Although systematic reviews are at the forefront of high quality evidence and are indisputably valuable, the fact that they are published in a range of print and electronic media can render them difficult to locate. Unfortunately, no single service currently indexes all of the publications listed above. A time lag also exists between publication of reviews and their appearance in any index. Web based services are available, however, which can aid in the retrieval of systematic reviews.

Turning Research into Practice (TRIP) is an internet search service that covers a wide range of UK and US reviews and evidence-based guidelines.⁷ The search interface is simple and offers limited search refinement. Although it only searches the titles of reviews, it is up to date and reasonably comprehensive. It is best to search using various synonyms (eg, search “anticonvulsants” as well as their names; and “bipolar” in addition to “affective disorders”). Searching TRIP using “bipolar” in April 2000 produced 12 documents including the DARE records retrieved earlier, guidelines from the (US) National Guideline Clearinghouse, and a summary of research evidence on the use of anticonvulsants in bipolar affective disorder published in the Health Evidence Bulletins—Wales series.⁸

ScHARR-Lock's Guide to the Evidence is intended to complement TRIP and lists references to reviews and guidelines.⁹ Optimal searching involves choosing the appropriate MeSH terms (“BIPOLAR DISORDER” and “ANTICONVULSANTS”, in this case) and then proceeding to the relevant parts of the alphabetical listing that is retrieved.

Bibliographic databases

When full text databases or collections of detailed summaries (such as the *Cochrane Library* or *Best Evidence*) are not available or do not identify reviews on your topic of interest, you might step back from the distilled literature and search large bibliographic databases. Databases such as Medline, PsycLIT, and EMBASE/Excerpta Medica can be searched for the bibliographic citations and abstracts of reviews, although further steps are then required to assess and obtain the full texts of the reviews. The Ovid Evidence-based Medicine Reviews database offers a unique combination of Cochrane Reviews and DARE abstracts linked to Medline records.¹⁰

Various predesigned systematic review search filters are available for Medline to which the searcher just needs to add specific subject terms. Search filters should ideally be derived by analysing a gold standard of relevant records and testing the resulting search on a further collection of relevant records. The following filter for Medline (OVID version) has been so derived¹¹ and has both mid-range sensitivity (55%) and precision (71%).

- 1.SYSTEMATIC ADJ REVIEW\$.TW.
- 2.DATA ADJ SYNTHESIS.TW.
- 3.PUBLISHED ADJ STUDIES.AB.
- 4.DATA ADJ EXTRACTION.AB.
- 5.META-ANALYSIS/
- 6.META-ANALYSIS.TI.
- 7.COMMENT.PT.
- 8.LETTER.PT.
- 9.EDITORIAL.PT.
- 10.ANIMAL/
- 11.HUMAN/
- 12.10 NOT (10 AND 11)
- 13.(YOUR SUBJECT TERMS)
- 14.13 NOT (7 OR 8 OR 9 OR 12)
- 15.OR/1-6
- 16.14 AND 15

Filters have been produced with different levels of sensitivity and precision according to the requirements of the user as regards the volume of records retrieved.^{11 12} Searchers should be aware that filters can retrieve reviews of varying quality. Most search filters simply focus on themes such as diagnosis or on methodologies such as reviews and cannot screen for quality. Quality assessment remains the task of the reader.

With PsycLIT, publication types are available to limit searches to reviews (use “LITERATURE REVIEW-RESEARCH REVIEW”) and the subset of reviews which are formed by meta-analyses (use “META-ANALYSIS”).

Ongoing reviews

Many reviews are in progress and checking for these may be prudent if an answer is not required immediately. The *Cochrane Library* contains protocols of Cochrane Reviews and technology assessments in progress, and for anticonvulsants with bipolar affective disorder shows 3 highly relevant reviews in progress, as discussed above. The UK National Research Register contains records of ongoing reviews in the UK,¹³ and there are web sites that record ongoing research in the US.¹⁴

Information services

Finally, if you cannot quickly find a recent systematic review on the topic of interest, it would be a good idea to make contact with information specialists or librarians who have expertise in searching the literature. They will be able to help you develop your search strategy and can suggest other resources. In some countries specialist information services, such as the NHS Centre for Reviews and Dissemination in the UK, have been funded to provide access to information about systematic reviews.

Looking forward

The increasing quality and quantity of published research syntheses and the impetus to become more evidence based prompts the observation that practice would be best served if the complete knowledge base were gathered together in 1 place. The exciting prospect of progress towards this happening during the next few years exists in the UK with the development of the National Electronic Library for Health¹⁵ and, in particular, its “knowledge floor” that will provide a single access route to reviews and quality assessed summaries of reviews.

JULIE GLANVILLE, MSC
NHS Centre for Reviews and Dissemination
University of York
York, UK

CAROL LEFEBVRE, MSC
UK Cochrane Centre
NHS R&D Programme
Oxford, UK

- 1 *Cochrane Library* [quarterly CD-ROM and database online]. Oxford: Update Software.
- 2 Database of Abstracts of Reviews of Effectiveness (DARE) including abstracts of Cochrane Reviews, and the Health Technology Assessment (HTA) Database. <http://www.york.ac.uk/inst/crd/welcome.htm>
- 3 Booth A, O'Rourke AJ. Searching for evidence: principles and practice [EBM note]. *Evidence-Based Medicine* 1999 Sep-Oct;4:133–6.
- 4 *Best Evidence 3* [CD-ROM]. Philadelphia: American College of Physicians-American Society of Internal Medicine, 1999.
- 5 *Clinical Evidence*. Issue 3. London: BMJ Publishing Group, 2000.
- 6 National Library of Medicine's Health Services/Technology Assessment Text (HSTAT). <http://text.nlm.nih.gov/>
- 7 Turning Research into Practice database. <http://www.ceres.uwcm.ac.uk/frameset.cfm?section=trip>
- 8 Mental health. Health Evidence Bulletins—Wales. <http://hebw.uwcm.ac.uk/mental/chapter5.html>
- 9 ScHARR-Lock's Guide to the Evidence. <http://www.shef.ac.uk/uni/academic/R-Z/scharr/ir/sceb.html>
- 10 Ovid Evidence-Based Medicine Reviews. <http://www.ovid.com/>
- 11 Boynton J, Glanville J, McDaid D, et al. Identifying systematic reviews in MEDLINE: developing an objective approach to search strategy design. *Journal of Information Science* 1998;24:137–57.
- 12 Search filter collections. <http://www.york.ac.uk/inst/crd/search.htm#MEDLINE> and <http://www.mssm.edu/library/ebm/ebmhedges.htm>
- 13 National Research Register (NRR). <http://www.doh.gov.uk/nrr.htm>
- 14 US ongoing research web sites. <http://www.ahcpr.gov/> and <http://text.nlm.nih.gov/hsrsearch/hsr.html>
- 15 National Electronic Library for Health (NeLH). <http://www.nelh.nhs.uk>