MEDLINE. A GUIDE TO EFFECTIVE SEARCHING.
By Brian S. Katcher.

What can one expect to learn from a guide to effective MEDLINE searching? The author states that his intention is to promote ‘better searches and, hence, better application of what is known . . . to help you search with an understanding

of what is possible and not be disappointed.’ He does not, however, identify his target audience and so, as librarians with differing amounts of experience in both searching and teaching MEDLINE, we set out to decide whether the book had achieved this objective.

Chapter 1 (‘Origins’) provides a stimulating account of the origins of MEDLINE from J. Shaw Billings via Hollerith’s punch cards to web-based, full-text access. A detailed and clear explanation of Boolean logic is also provided along with key points that any end-user should be aware of such as the density of the indexing, the use of a controlled vocabulary and grammar (Medical Subject Headings, MeSH) and the requirement for practice and for active thought when using MEDLINE.

Whilst the history of the database is likely to include something of interest for most readers, the extended explanation of the principles of Boolean logic is probably unnecessary. The chapter is well written, however, and the author’s readable style is well illustrated in the following quotation which provides excellent justification for the book: ‘Using MEDLINE is a bit like driving a powerful racing car that has been modified for street use. It can transport you with astonishing speed to places you don’t want to go.’

Chapter 2 (on searching) notes the size of database, explaining that 4200 journals are indexed and some 33 000 new citations are added each month. Although these may arguably be the ‘best’ journals, it is not made clear to readers that this selection constitutes only 35–40% of all biomedical journals and that non-journal publications such as books and conference proceedings are not included.

Dr Katcher (a public health pharmacist with an interest in evidence-based health policy and practice) illustrates the structure of MEDLINE by describing the simplest command interface. As this is rarely used these days, it would have been more appropriate to use a popular interface such as PubMed, where searches per day are measured in the hundreds of thousands. Despite this, the author then explains a large number of different interfaces so this section is of value to both the novice and the expert searcher.

This chapter also contains a valuable overview of the methods used in the indexing of MEDLINE and the different approaches to searching. The fields are explained together with subheadings and their uses. Explanatory searches are clear and readable, and there are helpful annotated references at the end of each chapter. One major problem is the failure to explain the importance of the Explode function when searching, given that indexers assign the most specific MeSH to papers and that broader terms need to be exploded in order to pick up other relevant papers. It is necessary to read to Chapter 3 before this vital aspect of MEDLINE searching is discussed. Indeed, we felt that it would have been more helpful to combine these two chapters, thus avoiding unnecessary duplication.

The use of MeSH and its subheadings are well described. Using the example in the book, the MeSH terms hypertension (plus subheading ‘chemically induced’) AND contraceptives,
oral (plus subheading ‘adverse effects’) can be combined to get five useful papers. A note of caution could have been introduced regarding the dangers of being too narrow in the use of subheadings. We tried this search combining the given MeSH terms with all their subheadings, and found several relevant papers that were not picked up by the narrower search described above.

The extended section on text and keyword searching may be difficult for the novice user to follow but the illustrations are excellent. For example, Katcher explains how an author may use the word ‘tobacco’ when describing the health effects of smoking. ‘Tobacco’ used as a text word, however, would pick up papers assigned the MeSH term tobacco whilst the appropriate MeSH to find papers on the effect on health are smoking and smoking cessation. A reference to the value of MeSH scope notes would also have been useful. If a user is searching in a hurry for a few relevant papers, MeSH are more than adequate. Nevertheless, whilst the indexers on the MEDLINE database do an excellent job within a highly complex structure, our experience has shown us that use of MeSH terms alone cannot be guaranteed to pick up all relevant papers. For a detailed or systematic review of a subject area, where a high degree of sensitivity is required, it is necessary to perform an encompassing search which incorporates both MeSH and text words.

This chapter includes some interesting items of information. For example, none of us knew that as many as 70 non-English languages are indexed. There are also pertinent sections on developing a search strategy, displaying results, the use of journal subsets such as the Abridged Index Medicus (AIM) and the value of setting up personalized journals lists and/or limiting to journals held in the local library. The use of publication type, date of publication and journal names, including use of their abbreviations, are also helpfully covered.

Chapter 3 (‘MeSH’) contains a more focused look at the MeSH. It includes a helpful section on the organization of MeSH and takes a closer look at subheadings (or qualifiers, as they are sometimes known) and how to use them in relation to MeSH. The distinction between categories of MeSH and MeSH subheadings is clear but we found the claim that there are more than 60 broad categories to be inaccurate, as there are more than 100. It was also felt that the helpful description of MeSH and the Unified Medical Language System (UMLS) Metathesaurus® may have been more useful at the beginning of this chapter in order that the novice searcher, using a graphical interface, could understand what is happening.

There is a valuable explanation of MeSH versus Major MeSH and it is interesting to learn that ‘the Major MeSH index entries for each article are the same as those that appear in the printed Index Medicus’. Katcher warns against relying too much on Major MeSH, and that Premedline (the database of new papers awaiting indexing) cannot be searched by using MeSH. The term ‘Major’ may now be outdated, as some interfaces (e.g. OVID) use the term ‘restrict to focus’ while others (e.g. PubMed) do not make any obvious distinctions.

A helpful hint in the text words section and one which we often suggest to our MEDLINE users, is to perform a text word search if a MeSH search proves unsatisfactory, to look at the subject headings used by the indexers in a few of the relevant papers and then to run a second search using these MeSH terms. An examination of the indexing of a prominent author can also be a helpful way of ‘making sure you haven’t missed a particularly helpful Medical Subject Heading that describes a concept you may not have thought existed.’ Age groups, check tags and geographics are then introduced and there is mention of the use of artificial intelligence such as UMLS and the ‘see related’ links that are available on some interfaces.

Chapter 4 is a useful and readable section on the use of publication types and other limiting strategies to refine a search. Rather than limiting by journal, as the author suggests, we would probably suggest to our readers that they limit by publication date, unless they have access to a very small journal collection or are aware that one journal in the subject area stands head and shoulders above the others.

Extremely helpful guidance is given on distinguishing between publication type and MeSH headings. For example, using ‘practice guideline.pt’ will retrieve actual practice guidelines, whereas use of the MeSH ‘practice guidelines.sh’ will retrieve papers that are about practice guidelines. Another useful hint is the suggestion to use ‘multicenter study.pt’ to pick up large, high-quality trials. The use of ‘review’ as a publication type is discussed, but Katcher fails to mention that the National Library of Medicine has not yet included ‘systematic review’ as a publication type because of the problems with defining this term. A detailed description of ‘meta-analysis’ as a subject heading is also lacking: inclusion of the pitfalls of this technique would have been useful.

Chapter 5 covers framing questions and the recording of search results. Minor shortfalls are the limited explanation of the pros and cons of getting information from books and databases and, while valuable advice is given on storing search strategies, there is no mention of the capacity for storing and retrieving searches as available on some interfaces.

It is noted that the useful information in Appendix A (Interfaces and related information) will go out of date very quickly and, for this reason, a web version is available (http://www.ashburypress.com/resources.html). When checked by one of the reviewers on February 6, 2000 the site, which had been recently updated, was found to be well written and contained many useful links. The use of a website offering updated and additional information was such a good idea that we wondered why the author and the publishers had not used it more extensively. For example, the list of AIM journals in Appendix B and the ‘Glossary of MeSH’ (which takes up 24 pages) did not appear to add greatly to the value of the book and could have been omitted or linked from the accompanying web page.

In conclusion, we all learnt something from the book and
would recommend it to our library and information colleagues as well as to MEDLINE users with some experience and enthusiasm. Throughout the text, the searcher is encouraged to adopt a flexible way of thinking: to experiment, use intuition, examine the indexing and to read or learn to read critically.

A leaner volume would have been preferable, however, given the repetition in Chapters 2 and 3 and the questionable value of Appendix B and the MeSH glossary. If there is a second edition, a slimmer book, a more imaginative cover than the current uninspiring black and white one and a slightly more modest price than the $29 quoted could go a long way towards encouraging MEDLINE users to purchase a copy.

To be of more use to novice users of MEDLINE, we feel the book should have included a ‘quick start’ guide covering the most important points like the value of MeSH, the Explode function, a quick explanation of the field terms and so on. More emphasis could also have been given to the type of information that MEDLINE does not include, as well as merely celebrating its coverage and searching power.

Despite these reservations, Dr Katcher should be congratulated for producing a well-written, readable and practical book that demonstrates his admiration for an impressive database.

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