Grateful Med: Getting Started

Barbara Shearer, M.S.L.S., Lee McCann, M.L.S., and William J. Crump, M.D.

Abstract: When a local medical library is not available, it is often necessary for physicians to discover alternate ways to receive medical information. Rural physicians, particularly, can make use of a computer program called Grateful Med that provides access to the same literature available to physicians in large cities. This program permits the user to perform database searches on the National Library of Medicine database (MEDLINE), corresponding to the primary index to medical literature, *Index Medicus*. In this article, we give the procedure for procuring a National Library of Medicine password and for making efficient use of the Grateful Med program. (J Am Bd Fam Pract 1990; 3:35-8.)

Having timely access to medical information is often taken for granted during medical training. The complexities of medical subject classification are surmountable when trained librarians are near at hand and there is adequate time for a thorough search. Once in practice, many physicians feel compelled to give up the luxury of such easy access to a wide range of information and learn current information from review articles or from interaction with consultants. The recent release of Grateful Med software has brought the resources of the National Library of Medicine (NLM) to the fingertips of the busy practitioner. A personal computer system, a basic knowledge of some key words, and a desire for knowledge are all that are necessary to complete a search in a few minutes, any time of the night or day.

Grateful Med is the gateway software to MEDLINE, which is the electronic counterpart to *Index Medicus*. *Index Medicus* is the index to biomedical literature produced by the National Library of Medicine in Bethesda, Maryland. It includes approximately 3500 biomedical journals, is printed monthly, and cumulates each spring for the previous calendar year. The National Library of Medicine sells the use of MEDLINE, as do several other vendors, such as the BRS Information Technologies and Dialog Information Services, Inc.

Libraries sign contracts with the National Library of Medicine, BRS, and Dialog to receive discounts and to have access to literally hundreds of databases covering all subject disciplines. Within the last 3 to 5 years, the National Library of Medicine, BRS, and Dialog have made it possible for end-users (private persons) to perform their own database searches by simplifying the commands used to locate references to articles on specific subjects or by specific authors. This article describes just one of the end-user programs, Grateful Med. Other searching systems have been assessed and evaluated elsewhere.[1-7]

Advantages of Grateful Med
Initial Cost
Grateful Med is used for accessing the National Library of Medicine searching service. It is the least expensive method for accessing MEDLINE, particularly in start-up costs. There is no sign-up fee and no monthly minimum. In addition, the charges for prime time hours (9 a.m. to 4 p.m. Monday through Friday) are competitively priced, and the nonprime time hourly charges are significantly lower than any other service. Holders of new password accounts receive $40 in free searches, and most searches can be conducted for $2 to $4. A special student rate allows medical students and residents to receive a 50 percent discount on all searches (but not $40 in free searches at the initiation of a new account).

The software to run Grateful Med is inexpensive. One can pay $33 to the National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, VA 22161, and receive the software and a manual (order number is PB86-158482/GBB for IBM-compatible computers and PB89-196083/GBB for Apple Macintosh computers). Discounts are available for ordering multiple copies of the program. Another way to receive

From the University of South Alabama Medical Center Library, Mobile; and the School of Primary Medical Care Library and Family Medicine Program, School of Primary Medical Care, University of Alabama in Huntsville. Address reprint requests to Barbara Shearer, M.S.L.S., University of South Alabama Medical Center Library, 2451 Fillingim Street, Mobile, AL 36617.

the software is to download it from a local bulletin board service or to copy it from a local medical librarian, because the software and manual are not copyrighted. When users copy the software, however, it is their responsibility to keep current with new versions of Grateful Med and to copy updates.

Off-Line Ability

Users pay on-line time for computer searching the MEDLINE database. Grateful Med allows for search requests to be pre-entered off-line, saving NLM computer time and, therefore, money. Once a database is selected from the menu screen, a template appears, and users then enter their subject terms to make the search as broad or as narrow as necessary. In addition, part of the Grateful Med software program includes a list of Medical Subject Headings, called *MeSH*, for more precise searching.

Convenience

Grateful Med may be used from any IBM-compatible or Apple Macintosh computer and telephone line. This means one can search day or night from home, the office, or when traveling with a portable computer.

Modest Equipment Requirements

Users must have an IBM-compatible or Apple Macintosh computer. The program requires a Hayes-compatible modem and a telephone line; most users find a printer to be very useful.

NLM Password

To get started, call toll free the NLM service desk (800) 638-8480 and ask for information on the MEDLARS (Medical Literature Analysis and Retrieval System) searching service. Medical students and residents should ask specifically for the educational code discount forms. Within 1 to 2 weeks, you will receive information on NLM MEDLARS searching accounts and forms to sign and return. Two to 3 weeks later, an account number, followed by a slash and a personal password, will be sent. It will look something like this: RES02/john. The RES02 account number may not be altered. However, by using a special command, called "profile," an account holder may change the personal password as often as desired. If the security of a password is of concern, the personal password should be changed

immediately. Account holders are responsible for all bills. If you do not know how to use "profile" (this is not in any commonly distributed literature for end-users), type "explain profile," while logged-in to the expert mode and follow directions, or call the NLM MEDLARS service desk for instructions.

Learning to Search

We recommend several sources of written material on MEDLINE searching: the Grateful Med manual, the 1989 edition of the *Basics of Searching Medline*[8] by the Medlars Management Section (order number is PB89-146179/GBB), and some excellent articles that summarize effective searching techniques.[9-12] Not all of the Grateful Med screens and commands can be discussed in this article. A new tutorial program, "HowTo" for Grateful Med, has been developed recently that provides detailed instruction on use of the Grateful Med program, as well as on efficient techniques for locating appropriate medical subject headings. The program may be obtained free of charge to purchasers of Grateful Med by writing to the National Technical Information Service (order number is PB89-167779). It is also included with all new orders of the Grateful Med program. Users are urged strongly to make use of this excellent tutorial.

Advanced Searching

The key to advanced MEDLINE searching is the medical subject heading structure that is used to describe the content of the articles found in MEDLINE. Three important and relatively inexpensive references on *MeSH* are sold by NTIS. Though additions and deletions are made annually, the end-user could probably get by with purchasing copies of these books every 2 to 3 years. In addition, for a fee, the same information is available online while logged-in to the MEDLARS system. You may ask a medical librarian for old editions of the books, or they may be ordered from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. A local medical librarian will be able to supply an order form for buying materials from NTIS, or you can request an order form by calling the MEDLARS service desk. Order numbers change from year to year, so be sure to verify order num-

bers when ordering the most recent updates of all publications.

The first important reference is *Permuted MeSH*.[13] *Permuted MeSH* is a list of all of the legitimate subject headings that may be used to search the MEDLINE database. There are no annotations or descriptions of how each is used. However, use of *Permuted MeSH* is a start when deciding what subject heading to use in searching. *Permuted MeSH* is provided with Grateful Med and is incorporated into the program. While filling in the subject blanks on the template provided by the Grateful Med program, you can press the F10 key and view the *MeSH* terms that are similar to the terms you entered. Selections can be made from the *MeSH* list and entered into the template. The disadvantage of this approach is that often the headings chosen are broader or narrower than needed. To solve this problem, the following two books are useful.

The *Annotated Alphabetic List* (commonly referred to as *Annotated MeSH*) provides information on the use of each term.[14] It is used by the indexers at NLM while actually indexing an article. That is why it is useful to searchers as an inside track to the rationale behind the indexing of specific articles. Notes indicate subheadings that may be used to qualify the indexing, i.e., "drug therapy" of heart disease or "chemically induced" lung disease. *Annotated MeSH* also provides reference points (called tree numbers) to the third searching manual.

While the *Annotated MeSH* is an alphabetical listing of medical subject headings, the *Tree Structures* book lists the headings categorically.[15] This allows one to view the very core of the indexing terms found in the database. The *Tree Structures* list all searchable medical subject headings as they appear within the subject scheme of the database, with like terms listed together. By going to the tree number for a *MeSH* term, you can see the terms that are broader, narrower, and related to the one originally sought. The Grateful Med software allows for narrower terms to be searched simultaneously, saving hours of time compared with manual searches done in the printed *Index Medicus* volumes.

Search Results

Grateful Med actually performs the template-generated search by translating terms into a language understandable to MEDLARS software. When the template is completed by the user, the program goes on-line, enters the search, and waits for the search to run. (In addition, users who are familiar with MEDLARS commands may search in the same way librarians do for more comprehensive searches.)

Once a search has been run, the results are downloaded (or written silently to computer memory on a floppy disk or hard disk), and the program goes off-line again. The user can then view the article references and abstracts one by one after the Grateful Med program has logged-off the NLM computer. Computer enthusiasts may make a copy of this temporary file before it is erased when the next search is run. The file of information may then be used in wordprocessors or even downloaded again (sometimes called "capturing") into a database management program. If the user does not want to save the references in the temporary file, the Grateful Med program may be used to print relevant references only. After the user has reviewed the references and selected those of interest, the program will suggest additional medical subject headings for future refinements of the search.

One advantage of Grateful Med is the capability for reviewing the abstract of a potentially useful article, which is not available in the printed *Index Medicus* volumes. Approximately 60 percent of the articles found through Grateful Med have abstracts (since 1975). This can save countless hours in locating articles that may not be as relevant as the titles seem to indicate. Another clue for determining true relevance is found in the medical subject headings themselves. If there is no abstract for the article, the user may want to view the medical subject heading field. Grateful Med displays this field for the purpose of describing content of articles and for assisting the user in refining or altering the search strategy.

Once the appropriate references are selected, full copies of the articles can be requested from a local medical library, from a designated Regional Medical Resource Library, or through the AAFP Foundation's Herb Huffington Library, if the abstracts do not provide the answer to the user's question. The Huffington Library provides a variety of searching and photocopying services, depending upon the needs of the requester. If a local medical library is available, of course, we recom-

mend using that service. However, many physicians do not have access to a local medical library. AAFP members are encouraged to call the Huffington Library at 800-274-2237, extension 4400, for information on this valuable service.

Conclusion

Grateful Med is an inexpensive, convenient, and relatively simple way to access the National Library of Medicine searching service. A few minutes spent in understanding the use of this software makes the practitioner an effective searcher. Training courses, a few easy-to-read manuals, and a new tutorial are available to develop skills in advanced searching using the full medical subject headings structure for those who wish to perform more comprehensive searches.

References

1. Bonham MD, Nelson LL. An evaluation of four end-user systems for searching MEDLINE. Bull Med Libr Assoc 1988; 76:171-80.
2. Haynes RB, McKibbon KA, Walker CJ, et al. Computer searching of the medical literature. An evaluation of MEDLINE searching systems. Ann Intern Med 1985; 103:812-6.
3. Haynes RB, McKibbon KA, Fitzgerald D, Guyatt GH, Walker CJ, Sackett DL. How to keep up with the medical literature: V. Access by personal computer to the medical literature. Ann Intern Med 1986; 105:810-6.
4. Hewitt P, Chalmers TC. Perusing the literature. Methods of accessing MEDLINE and related databases. Controlled Clin Trials 1985; 6:168-77.
5. Schwartz DG. Techniques for accessing the medical literature. J Allergy Clin Immunol 1988; 82:544-50.
6. Shearer B, McCann L, Crump WJ. A primer for users of medical bibliographic databases. J Am Board Fam Pract 1989; 2:191-5.
7. Simon FA. A comparison of two computer programs for searching the medical literature. J Med Educ 1988; 63:331-3.
8. The basics of searching Medline. Bethesda, MD: National Library of Medicine, 1989.
9. DeNeef P. The comprehensiveness of computer-assisted searches of the medical literature. J Fam Pract 1988; 27:404-8.
10. Feinglos SJ. MEDLINE: a basic guide to searching. Chicago: Medical Library Association, 1985.
11. Herin NJ. Dial M for MEDLINE: a how-to guide for the clinician. South Med J 1987; 80:1024-30.
12. Hewitt P, Chalmers TC. Using MEDLINE to peruse the literature. Controlled Clin Trials 1985; 6:75-83.
13. Permuted MeSH, 1990, PB90-100025/GBB. Bethesda, MD: National Library of Medicine.
14. Medical Subject Headings, Annotated Alphabetic List, 1990, PB90-100009/GBB. Bethesda, MD: National Library of Medicine.
15. Medical Subject Headings, Tree Structures, 1990, PB90-100017/GBB. Bethesda, MD: National Library of Medicine.