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Carol Tenopir
University of Tennessee - Knoxville

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MEDLINE on the Web: databases for free

Author: Carol Tenopir

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Abstract:

The National Library of Medicine is offering free access to its MEDLINE bibliographic database through two search systems on the Internet, Grateful Med and PubMed. Information on the various versions of MEDLINE is available on 'Dr. Felix's Free MEDLINE Page.'

Full Text:

LIBRARIANS SEEM to spend a great deal of time these days explaining to funders and patrons that "No, contrary to what you've heard, not everything is available free on the Internet" and justifying why book collections, serials budgets, and online search costs remain a necessity. In the August 1, 1997 issue of the Chronicle of Higher Education, William Miller, president of the Association of College and Research Libraries, advocates a "realistic perspective: All information is not yet electronic and probably never will be; electronic information will not be less expensive than current printed information; and libraries--both physical and virtual--will continue to be needed, along with the professionals who run them."

For research materials in particular, we still expect to pay for the quality and comprehensiveness we demand. Sometimes we get an unexpected surprise. The most significant yet came this summer when Vice President Al Gore announced the National Library of Medicine's (NLM) introduction of free access to MEDLINE, its huge bibliographic database. From the NLM web site <www.nlm.nih.gov> anyone can click the "Free MEDLINE" button to access MEDLINE and other NLM databases. (Full-text delivery of documents will still carry a fee.)

MEDLINE--the first database

MEDLINE, the online combination of Index Medicus and parts of International Nursing Index and Index to Dental Literature, holds the distinction of being the first online database. As early as the 1960s, NLM began offering limited access to an electronic version of its bibliographic information. MEDLINE's importance today cannot be overestimated. Even for a fee, it consistently ranks among the most-used databases in every type of library and is an indispensable bibliographic tool whenever medical research information is needed. The complete MEDLINE file includes almost nine million citations to articles in 3800 biomedical journals, stretching back to 1966.

As a noncopyrighted government product, MEDLINE for years has been the most widely available database. Dozens of CD-ROM, online, and web vendors sell access to MEDLINE (or parts of it). Some services (such as Ovid, PaperChase, and HealthWorks) have built their franchise around the search features they add to MEDLINE content. Free versions of parts of MEDLINE have been offered previously by companies such as Physician's Online, BioMedNet, and HealthGate. These systems are supported by advertising or other products and don't offer full MEDLINE backfiles or complete searching power.

Grateful Med--one system

NLM's free web access to MEDLINE is available through two search systems, Grateful Med and PubMed. Internet Grateful Med is the web version of NLM's popular end user software that is targeted to physicians, nurses, and other health professionals who are not online experts. For years, medical librarians have run training programs (some funded by NLM) to train end users in online searching using Grateful Med, first as a front-end software product to the NLM online system and now on the web. Until this summer, Internet Grateful Med required an access ID and fee.

When users select the Internet Grateful Med option from the NLM web page, they are taken to an introductory screen that briefly describes the databases available. Clicking on "proceed" brings up the first search screen, which uses a template (fill in the blanks) interface with spaces for multiple search terms (searched with a Boolean AND). The default is a subject search of MEDLINE from 1994 to the present.

Users who know that a Boolean OR is used to add synonyms must click on an "Add OR" button at the end of each search term space

before adding terms. Even so, Internet Grateful Med's strongest feature (and sometimes its most problematic) is that the system will add some synonyms automatically. Subject searches are run through the NLM Medical Subject Headings (MeSH) Meta Thesaurus, which adds correctly formatted or spelled controlled vocabulary terms to the user's initial search. When I searched for "sleep apnea and arrhythmia," for example, Grateful Med added "sleep apnea syndromes" and "arrhythmia" as descriptors, while searching my input as free-text words in titles or abstracts. In addition, the system "exploded" the MeSH terms, searching for all narrower terms and ORing them to the search. This feature sometimes also results in false drops--the term "circulation" was added to my search as a synonym for arrhythmia.

Users can choose to go directly to the thesaurus to develop their own strategies or they can limit their search to journal titles they specify. After searching the default MEDLINE file, they can run the search in MEDLINE backfiles. They can order full texts online only if they have an access ID from Loansome Doc, NLM's document delivery service for medical libraries and health professionals.

In addition to MEDLINE, Internet Grateful Med includes free access to other NLM databases, including AIDS-LINE, HealthSTAR, AIDSDRUGS, AIDSTRIALS, DIRLINE (a directory database), HISTLINE (history of medicine), and HSRPROJ ("Health Services Research Projects in Progress").

PubMed--another system

PubMed is an experimental system developed by NLM's National Center for Biotechnology Information (NCBI) in conjunction with biomedical publishers. PubMed combines several levels of bibliographic searching with links to many full-text articles.

Publishers supply formatted citations to their articles to NCBI prior to or at the time of publication, and PubMed adds links to web sites where publishers have full-text articles. Although much of the PubMed database is the same as MEDLINE and PreMEDLINE (the file of current records before they are completely indexed), PubMed includes citations to all articles in each of the journals included, whereas MEDLINE may index selectively from these journals.

Users who select the PubMed search option immediately encounter a search box. When I input the same search in PubMed for "sleep apnea and arrhythmia," I got zero hits. I had to enter correct spelling ("arrhythmia") to get any results. (As a result I retrieved 291 hits instead of eight, because searches default to the complete PubMed file without date restrictions.) Each record includes a "related articles" button that will display those articles that most closely match words most frequently used in the article selected. Since Pre-MEDLINE is part of the default search, records to very recent articles were included in my results.

Results are first displayed in text format, with detailed records displayed in HTML. Results can be saved in either text or HTML form. Links are available to full texts from about 75 biomedical journals, although none of the records I viewed had corresponding full texts. Even though PubMed bibliographic searching is free of charge and password free, most publishers charge when a link is made to their full-text web journals.

PubMed offers an advanced search option that gives full searching power. Boolean AND, OR, NOT with nesting; truncation; exploding; and field delimiting can be input in an advanced search statement. Pull-down menus make it easy to specify fields, locate journal names or ISSN numbers, and restrict dates.

PubMed also offers access to nonbibliographic molecular biology databases from NCBI's Entrez retrieval system, such as GenBank DNA Sequences, GenBank Protein Sequences, Biomolecule 3D Structures, and Complete Genomes.

More ways to MEDLINE

Although the free versions from NLM are bound to get the most use, there are many web sites that offer MEDLINE searching for free or as part of a subscription service. This confusing array of offerings is monitored by Helga Perry, a medical librarian in Great Britain. Her web site, "Dr. Felix's Free MEDLINE Page" (available at <www.docnet.org.uk/dfelix/> or at an American mirror site <www.beaker.iupui.edu/dfelix/>), compares search features and databases offered by each version.

Some sites offer full MEDLINE all the way back to the 1960s, others merely include the last few years, while still others offer only subject-specific subsets. Anyone new to MEDLINE searching on the web should check out "Dr. Felix." The site also links to research projects that compare search results from the MEDLINE versions.

Some still pay for it

Why continue paying for CD-ROM or commercial online services to access MEDLINE and other NLM databases when anyone can get web versions for free? Medlib-L, a listserv for medical librarians, has been debating the virtues and defects of various versions and prices of MEDLINE. Several experienced medical librarians say the answer is not as easy as it might seem at first glance.

Martha F. Earl, librarian at the University of Tennessee Medical Center, has taught end users to use a variety of interfaces to MEDLINE. She tells me she did not use Internet Grateful Med or PubMed very much for mediated online searching before NLM made them free. Now she uses them mainly "to update CD-ROM searches since they encompass PreMEDLINE."

Tennessee's Earl likes Internet Grateful Med's interface but says "PubMed is very popular, but clunky" compared to CD-ROM. There are limitations to printing and searching options, and she notes that web versions often are slow, especially on older computers.

Virginia (Ginny) Tanji, librarian at the School of Public Health, University of Hawaii, says, "If I needed to do a comprehensive search, I probably would use a CD-ROM product or search NLM directly via the command mode. I'm just not sure I'd trust [the free web systems] for finding all the articles." She does use PubMed "a fair amount these days for quick-and-dirty searching" and likes it

"better than Internet Grateful Med, although with Internet Grateful Med you have access to other databases. The searching is still much too menu driven in IGM."

Jana Allcock and Susan Carter, librarians at the University of Arkansas for Medical Sciences, felt they should explain to their patrons their reasons for sticking with the OVID system. According to the librarians' web page <www.library.uams.edu/aboutlib/nlm.htm>, OVID offers more databases than the NLM web versions, the "OVID databases are maintained and supported locally," and the system is "extremely easy to use."

Also, they foresee potential problems. With PubMed, "publishers may charge document delivery fees much higher than those now paid for articles obtained by interlibrary loan...saving and printing search results can be a problem...and access to help when searching is limited." While they believe IGM is a good product, they note that by using the Unified Medical Language System in conjunction with the MeSH controlled vocabulary, the combination "can, on occasion, hinder retrieval and result in false drops." Still, Allcock says the new services are much better than other free web versions of MEDLINE.

Because NLM's web versions are free, accessible from home, and offer access to PreMEDLINE, they are becoming quite popular. Donald A.B. Lindberg, NLM director, explains that "it is vital that [citizens], and the health professionals who serve them, have access to the most current and credible medical information." Indeed, free access to MEDLINE is a good start; inexpensive and easy access to the full texts is the next step.

Right now, each version of MEDLINE seems to offer some unique value, and most medical librarians agree it is too soon to toss out their old favorite versions. Tennessee's Earl advises all of us to "keep trying new things. Stay on top of it. Your patrons will."

Carol Tenopir is Professor at the School of Library and Information Science, University of Tennessee at Knoxville. Her E-mail address is tenopir@utkux.utk.edu

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