Brief Communications

MEDLINE on Compact Disc: End-User Searching on Compact Cambridge®

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AS IS THE CASE with other disciplines, the field of medicine has an interest in optical disc technology. Several compact disc read-only memory (CD-ROM) products, targeted for the specialized information user, have been created for use with personal computers. A series of recent articles describes available CD-ROM databases in the life sciences [1–3].

The first software for MEDLINE using optical disc technology was developed by Cambridge Scientific Abstracts. The system runs on an IBM-PC, XT, AT, Personal System/2, or IBM-compatible computer with a recommended 512K memory. The compact disc reader can be leased from Cambridge Scientific. A Compact Cambridge (CC) subscription contains the MEDLINE file on compact disc, search software on floppy disk, and an instructional manual for searching. A controller board, furnished by Cambridge Scientific has to be installed in the system unit of the microcomputer. A breakdown of costs and hardware requirements appears in Table 1. The annual subscription includes three quarterly cumulative updates and one annual disc. The contents are identical to the MEDLINE files from 1982 to date. This library holds 1984 to date.

INSTALLATION AND MAJOR FEATURES OF THE SYSTEM

This paper reports experiences with CC/MEDLINE by the SUNY Health Science Center (HSC) Library at Syracuse, New York. Because there was much interest in obtaining an inhouse database of MEDLINE, the reference staff investi-gated options for providing on-site access to MEDLINE: MEDLINE subsets, Paperchase, and mini-MEDLINE. In considering these possibilities, it became apparent that we had neither the finances nor the time to spend on such systems. The Compact Cambridge package seemed to be a viable, inexpensive product that would serve our immediate needs. The thirty-day free trial was an additional attraction.

CC/MEDLINE was installed in the reference/public services area, which made it immediately accessible to library patrons and reference staff. Notices of free MEDLINE availability were mailed to all students, staff, and faculty of the health science center. The user response to the thirty-day free trial was so overwhelming that a subscription became a virtual necessity.

The software's key features are menu-driven and command-driven languages. The menu-drive system displays all possible search fields. Searching may be performed in the following ways:
1. Medical Subject Headings and subheadings;
2. Single words or phrases in the title, abstract, journal title, or author;
3. Boolean or proximity operators;
4. Expand feature for displaying the dictionary file;
5. Truncated terms.

Display features include the highlighting of searched terms. The ability to download results to floppy disk and tailor print formats are other useful options.

OBSERVATIONS

CC/MEDLINE was accessible during all library operating hours, including evenings and weekends. Figure 1 indicates use for nine months of operation, from November 1986 through July 1987. The number of users range from over 300 in a normally slow month of the academic year (December) to almost 600 in a peak month (March). These statistics reflect the number of patrons who searched, rather than the number of searches each patron performed.

Based on nine months of experience, we have compiled the following comments. The high usage indicates that the system is fulfilling a basic need in the medical library for a few good recent articles.

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TABLE 1

COST AND HARDWARE REQUIREMENTS FOR
CC/MEDLINE*

Item	Costs
MEDLINE 1988 Subscription (up-dated quarterly)	$1250.00
1982–87 (one disc per year)	$ 750.00
Annual lease of compact disc reader or	$ 500.00
purchase of reader	$ 700.00
IBM-PC, XT, AT, Personal System/2, or compatibles (512K minimum)	varies

*Ordering information: Cambridge Scientific Ab-stracts, 5161 River Road, Bethesda, Maryland 20816; 800-638-8076, in Maryland, 301-951-1400.

This was expressed by all user groups—students, residents, staff, and faculty.

Although the system is user-friendly, instruction of some kind is necessary. These instructions are usually informal and one-on-one, although we have given small group demonstrations. This informal approach is possible because the method of select-ing fields from the menu is easy to understand. In the display mode the highlighted search terms provide the user with a visual lesson of MeSH indexing and weighting of terms.

Compared to the resistance to using MeSH vocabulary encountered when teaching end-user searching in the course "The Basics of Searching MEDLINE," learning the concept of MeSH head-ings with displayed fields was easier. Trained searchers from the "Basics" course use CC/MED-LINE as a means of finding MeSH headings before going online for a more comprehensive search. We identified three interesting end-user search behav-iors worth noting. First, users search the system similarly to manual searching of *Index Medicus*. They retrieve results from a single term and review

FIG 1.—Number of users who searched CC/MED-LINE; November 1986–July 1987.

them as if scanning citations from a single subject heading. In other words, the system is used as a complement to *Index Medicus*. Second, even though they are aware of this complementary nature, end users prefer online searching to the published *Index Medicus*. Third, some users find the answers to their queries from information in the abstract, especially clinicians who are hard pressed for time. Also, when a journal is either in a foreign language or not in our collection, abstracts become a quick substitution for the entire text of the article.

While fees for online searching are a reality in most libraries, searchers of CC/MEDLINE at the SUNY Health Science Center enjoy free access to medical information. High usage and personal comments demonstrate that, all things being equal, users prefer free database searching. The users also prefer the control and immediacy of do-it-yourself searching, using their own terminology and without relying on an intermediary. Although our mediated searches are performed within the same day, even this brief turnaround time is unsatisfactory for some. CC/MEDLINE provides one solution to the user's critical need and constraints of time and the library's information resources.

Use and Concerns of Reference Staff

Reference librarians use CC/MEDLINE to answer the same types of questions that can be answered by the online version. Examples are ready reference questions, author and subject searches, verifying interlibrary loan requests, and finding the appropriate MeSH headings before going online. There are two connections with mediated online searching: requests which begin as mediated searches are often referred to CC/MEDLINE and mediated online searching is recommended for requests which are not fulfilled on CC/MED-LINE. Demonstrations of the system have become an integral part of our library orientation tours.

From the reference staff perspective, the enor-mous amount of time invested on individual instruction presents the biggest problem. Despite the fact that usually only ten to fifteen minutes are spent per user, when multiplied by the entire user community, this represents a massive training effort. Library staff time is also used to show patrons how to change a new disc in the proper sequence. Present limitations in compact disc tech-nology cause further concerns. First, constant reminder by the staff that only one year is being searched has had little effect on user behavior. The end users often overestimate the completeness of
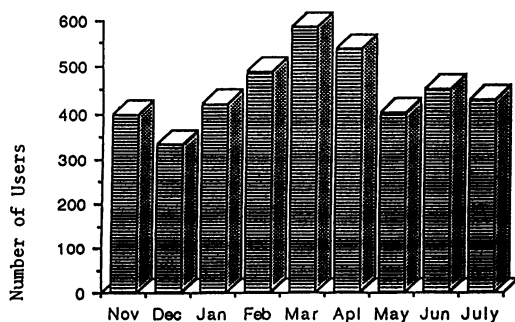
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the system and assume they have performed an exhaustive search. Second, because CC/MED-LINE is updated quarterly, it is not as current as the online version or the hard copy of *Index Medicus*. Third, it is not a multi-user system—some patrons must wait.

CONCLUSIONS

If success is measured by consistently high usage, then CC/MEDLINE has been an overwhelming success at SUNY HSC Library at Syracuse. Success can also be demonstrated by an increased user understanding of MEDLINE and an awareness of MeSH indexing. Requests for more CD-ROM readers and other databases on compact disc further indicate popularity. When the cost is measured against the high use of the system, the cost per search ratio reflects a good investment. CC/MEDLINE is a source which complements the printed *Index Medicus,* the online version of MEDLINE, and which has provided improved public relations in our library.

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Computer-assisted Instruction: Subject, Audience, and Program Descriptors for an Academic Medical Center

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THE marketing of nonprint collections tends to be a problem, and a common solution is the creation of a master subject list of media library materials, in which audio, video, sound-slide, and computer-based materials are grouped together. We present an alternative solution, a separate listing of computer-assisted instruction (CAI) which classifies programs by one or more descriptors and reduces the time needed to help patrons select programs. This goes beyond the card catalog in facilitating the comparison of CAI offerings by target audience and by program design.

CAI will likely receive increased attention as a consequence of the National Board of Medical Examiners' plan to computerize the Part III examination in 1989, recently postponed from 1988 [1]. The new examination will contain a set of uncued diagnostic and management simulations. Anticipation of this change in examination methods has already aroused faculty and student curiosity about clinical CAI and its similarities to or differences from patient problems that will be included in the National Board's Part III [2].

CREATING A CAI SUBJECT INDEX

The scope of the CAI collection, its size, and the patron mix will determine whether separate listings for medicine, nursing, and allied health materials should be generated. Our list includes courseware available on floppy disks as well as the contents of the Massachusetts General Hospital and Ohio State University systems.

Having determined the scope of one's list and the major subject headings (which may or may not follow the MeSH standard), it remains to consider what program descriptors will be most informative. Four possible descriptors are a hardware designator, a continuing medical education credit indicator, specification of target audience, and a classification as to program design.

Initially the program design is determined by running the program and examining its format. Some programs are complex, incorporating several design elements (e.g., programmed text, patient simulations, and multiple choice questions), so an accurate classification may require more than examining the main menu or the initial sequence of the learning experience. Patrons who make more than casual use of CAI will soon develop an appreciation for the inclusion of a design descriptor because it will alert them to the kind of learning experience to expect.

If the information supplied by the vendor is not specific as to target audience, a faculty member should be invited to preview the program. This may require working through an entire computerized patient problem before getting to the scoring system or the teaching comments, elements which are crucial in deciding level of difficulty or target audience.

THE CONCEPT ILLUSTRATED

Winthrop-University Hospital is a major affiliate of the SUNY at Stony Brook Health Sciences