Clinical department use of three CD-ROM databases: a case study*

By Leslie Goodale Adebonjo, M.L.S.
Medical Editor
Department of Obstetrics and Gynecology

Martha Earl, M.S.L.S.
Head, Reference Department
Medical Library, Learning Resources Center

Quillen College of Medicine
East Tennessee State University
P.O. Box 70693
Johnson City, Tennessee 37614-0569

INTRODUCTION

After using MEDLINE on CD-ROM in libraries, computer-literate health professionals are beginning to purchase CD-ROM MEDLINE subscriptions for their office or home computers. In support of this trend, medical journals such as MD Computing and the Journal of the American Medical Association carry articles describing the set-up and uses of CD-ROM MEDLINE equipment [1-2].

Patterns of use also have changed. For instance, the chair of the Department of Obstetrics and Gynecology (OB/GYN) at East Tennessee State University completed a master's degree in medical informatics and continues to research data manipulation and comparative information sources in addition to topics related to women's health. It is not unusual for him to search MEDLINE for an hour or more each day. Other OB/GYN researchers also often require extensive MEDLINE searches.

OB/GYN's need for research support challenged information providers. At East Tennessee State University, the Medical Library provides two copies of MEDLINE on CD-ROM workstations to serve the needs of the university and community. Busy health care professionals must schedule time at the library, request mediated searches, or find alternative means of access.

OB/GYN faculty tried using GRATEFUL MED software to access MEDLINE online but preferred the CD-ROM version, which does not depend on communications technology to access the database. CD-ROM software provides a user-friendly interface that accesses the database directly, provides on-screen instructions, and provides the flexibility for searching keywords or thesaurus terms in any or all fields.

Browsing is facilitated because the user can review hundreds of references without incurring online costs. OB/GYN estimated the number of searches it needed to conduct per day and determined that MEDLINE on CD-ROM would be more cost-effective than direct online searching. The department's medical editor had experience as a professional health sciences librarian, so she agreed to perform searches, train end users, and evaluate the system. The department purchased the necessary CD-ROM drives and subscribed to MEDLINE on CD-ROM.

Based on previous experience showing that MEDLINE did not meet all of their information requirements, OB/GYN faculty requested additional CD-ROM databases. They wanted access to Excerpta Medica–OB/GYN (for citations in the foreign journals not covered in MEDLINE) and AGRICOLA (for additional citations on basic animal research). Although several corporations have developed CD-ROM products, SilverPlatter was the only vendor that could supply all three databases and maintain consistency in the software interfaces. Aware that the databases would overlap to some degree, the department chair and the authors decided to compare the results of sample searches to determine the extent of overlap among the three CD-ROM databases. An important concern was that OB/GYN might be subscribing to a database that could be searched more economically online and that actual use might justify the cost of the CD-ROM subscription for only one or two of the three databases. This was not meant to be a statistically rigorous nor scientific study, just a quick look at how the databases answered some typical questions.

A review of the literature revealed previous studies comparing MEDLINE and Excerpta Medica (EMBASE) coverage. Yonker et al., in their comparative study of EMBASE and MEDLINE search retrieval on forensic medicine topics, found EMBASE more useful [3]. However, Snow and Ifshin found EMBASE and MEDLINE comparable for forensic medicine [4]. Corbett and Ifshin found EMBASE superior in retrieval for environmental and occupational health coverage [5]. Biarez et al. found EMBASE to be the superior database for drug information in a comparison of EMBASE and eight other databases [6]. In nursing, Fried et al. found, not surprisingly, a need for both MEDLINE and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) for comprehensive searches [7].

The authors expected that the OB/GYN faculty would need all three databases, due to the number of unique articles offered by each database. In addition, the authors anticipated that CD-ROM subscriptions would prove more economical than online searching for AGRICOLA, EMBASE, and MEDLINE, due to the high volume of searching.

* Presented in part at the Forty-Second Annual Meeting of the Southern Chapter of the Medical Library Association, October 4-7, 1992, Columbia, South Carolina.
METHODS

The information needs of the department can be grouped into three categories: research—generally any basic science information without a patient care component; clinical gynecology—any gynecology topics related to patient care; and (3) clinical obstetrics—any obstetrics topics related to patient care. Three questions were chosen at random for each category from a list of requested searches. The questions covered a spectrum of topics in obstetrics and gynecology.

An OB/GYN clinician and a basic science researcher agreed to evaluate the retrieval. They were given three printouts of retrievals (one from each database) for each question. Investigators did not identify which printout came from which database, in order to eliminate any bias based on the professors' previous use of a specific database. Professors marked the citations they considered relevant.

The authors chose text-word searching to compare the three databases, principally because that method is used by the faculty. Also, text-word searching provides consistency across the databases.

RESULTS

The total number of relevant articles retrieved for all nine questions and the percentage of unique hits are shown in Table 1. The overall AGRICOLA retrieval rate was small—only twenty-eight articles across all questions, seven of which (25%) were unique hits. Forty-five percent of 736 relevant articles were unique to MEDLINE. Thirty-five percent of the 451 hits found in EMBASE were unique. Thus, the overlap rate among the databases was substantial—only 40% of the articles retrieved were unique to one database.

DISCUSSION

As expected, clinical OB/GYN questions, whether related to research or patient care, are better covered by EMBASE-OB/GYN and MEDLINE than by AGRICOLA. It should be emphasized that the EMBASE percentages relate to searches performed on the highly relevant OB/GYN subset of EMBASE records, so the probability of relevant retrievals was increased. In addition, because the strength of MEDLINE is in its indexing, not using MeSH terms for searching may have reduced the retrieval rates. AGRICOLA, from the investigators' previous experience with OB/GYN's animal research information needs, covers basic science questions better than the other two databases. However, in this study, the retrieval rate was so low that the investigators could not draw any such conclusion.

OB/GYN focused on examining the ongoing expense rather than the combined start-up costs. The system software and subscription fees for all three databases cost a total of $3,900.00. Within the first six months, the department staff had used the databases for a total of 100 hours. (Unfortunately, the log-in software used by OB/GYN does not allow for differentiation between databases in recording use statistics.) If they continue to search at this rate, the databases will be used a minimum of 200 hours per year and the cost will average $18.50 per hour. This rate constitutes a real savings, considering the high cost of online searching. On DIALOG, EMBASE costs $102.00 per connect hour, AGRICOLA costs $45.00, and MEDLINE costs $36.00. On BRS, EMBASE costs $90.00 per connect hour, AGRICOLA costs $37.00, and MEDLINE costs $33.00. On MEDLARS, MEDLINE costs $35.00 per connect hour. Despite the low cost of searching MEDLINE online (the per-hour charge is lower than for the other databases, and the CD-ROM hardware and software costs would be avoided),
OB/GYN faculty still prefer the convenience of the CD-ROM system.

As noted earlier, the retrieval from AGRICOLA does not represent a major portion of total articles retrieved or unique hits. Moreover, the AGRICOLA CD-ROM subscription rate constitutes approximately one third of annual subscription fees. Further detailed comparison of the databases may lead to cancellation of this subscription. As Halperin and Renfro stated, high-volume searchers must consider both online and CD-ROM alternatives to achieve their goals [8].

CONCLUSION

The expense of CD-ROM versions of EMBASE and MEDLINE appears to be justified by the daily need for extended access to the information databases. The frequency of use of each database is being manually monitored to substantiate this finding. However, the cost of AGRICOLA, coupled with the low retrieval on topics related to OB/GYN’s information needs, makes it doubtful that the department will continue to subscribe to it.

It should be noted that researchers waste a considerable amount of time reviewing duplicate citations across the databases. This study found an overlap rate of up to two thirds among the retrievals. Information management software programs, such as ProCite, Bibliolinks, and Reference Manager, allow users to eliminate duplicates. Dialog, a major online database vendor, offers the highly useful capability to identify and eliminate duplicate citations while searching several databases simultaneously. CD Plus’s PLUSNET system allows elimination of duplicates between MEDLINE and either CANCERLINE or HEALTHLINE. As more and more databases are produced on CD-ROM, the ability to eliminate duplicates across databases will be an essential feature attracting researchers to CD-ROM products.

REFERENCES

2. ROOTENBERG JD. Computers for medicine in remote areas. JAMA 1991 May 1;265(17):2275.

Received November 1992; accepted October 1993

Maslow’s hierarchy and the sad case of the hospital librarian

By Mary Edith Walker, M.L.S., AHIP
Director, Biomedical Library
St. Jude Children’s Research Hospital
332 North Lauderdale
Memphis, Tennessee 38105

Hospital librarians have been a focus of concern in recent years because of hospital closings and downsizing and a general lack of support from hospital administrators [1].

Hospital librarians can and should look to the Medical Library Association and the National Library of Medicine for support in difficult times. However, every librarian must be prepared to act in ways that increase respect and support for both libraries and librarians. Libraries are too important for us to give up easily and be content to shrink in the shadows of organizational politics. We can adopt a lofty moral tone and refuse to “play the game,” but that will not win support for libraries. Indeed, in the long run, it will destroy them.

Education for librarians rarely includes guidance on political maneuvering within an organization, and many librarians find that such behavior does not come naturally. We must educate ourselves in techniques for advancing the cause of libraries and librarians within our institutions. A helpful perspective on the problem is that of motivational psychology. Most motivational theory deals with motivating those who work under us. It is even more important to motivate our supervisors, who control our budgets, our space, and our spheres of influence. The relationship of motivational theory and good management is discussed at some length in The Operating Manager, by Richard Henderson and Waino Suojanen [2].

Abraham Maslow postulated a pyramid of needs, beginning with the most basic on the bottom and