

# The Use of the CD-ROM MEDLINE in the Medical Library, University of Malaya

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**Abstrak:** *Pengenalan teknologi CD-ROM ke Perpustakaan Perubatan Universiti Malaya bermula pada tahun 1990 dengan pembelian pangkalan data MEDLINE, POPLINE dan PDQ/Cancerlit dalam bentuk CD-ROM. Pengalaman Perpustakaan dalam pengenalan perkhidmatan CD-ROM ini, juga analisa timbalbalas yang diterima dari pengguna melalui kajian soalselidik yang dijalankan dibentangkan dalam kertas ini. Cadangan yang disyorkan oleh pengguna bagi memperbaiki perkhidmatan ini turut dibincangkan.*

**Abstract:** *CD-ROM technology was introduced to the Medical Library of the University of Malaya with the purchase of the MEDLINE, POPLINE and PDQ/CANCERLIT on CD-ROM in early 1990. The experiences of the Medical Library in the setting up of the CD-ROM service and the feedback obtained from an users' questionnaire are presented in this paper. Suggestions from users to improve the service includes the addition of more work stations and the extension of access time beyond office hours for existing work station.*

## Introduction

The Index Medicus was first published in 1879. It represented the efforts of John Shaw Billings to monitor the growth of medical periodical literature. Since then it has grown to be one of the world's most important medical bibliographies and current disseminating service published by the National Library of Medicine. With the advent of computerisation, its electronic counterpart MEDLINE was launched, revolutionising the method of providing biomedical information. However, major barriers to the use of MEDLINE exist, namely cost, telecommunication, search interfaces, and training.<sup>1</sup> With the invention of compact-disk (CD) technology and its application in the high storage CD-ROM (Compact disk read only memory) for many of the established online databases, many of these barriers can be reduced or eliminated. The advantages of MEDLINE on CD-ROM are specially significant in developing countries where telecommunication infrastructures are still minimal and telecommunication charges high.

This paper provides an insight into the use of the CD-ROM MEDLINE at the University of Malaya Medical Library. The high cost involved in undertaking online searching has made it necessary for researchers and lecturers of the Medical and Dental

Faculties of the University of Malaya to resort to manual searching of the Index Medicus, or rely on the offprint MEDLARS services of the National Library of Australia.<sup>2</sup> Since there is a considerable time lapse between requesting the search and the arrival of the offprints, usually two to three months, the MEDLARS service has little advantage for those with urgent reference needs. In providing up-to-date information, despite not being 'on line,' the CD-ROM MEDLINE provides a cheaper alternative.

The first software for MEDLINE using the new optical disc technology was developed by Cambridge Scientific Abstracts in early 1987. The Medical Library was very interested in acquiring the CD-ROM MEDLINE as early as 1988, but it was facing serious budgetary constraints then. There was just not enough money to buy books, let alone invest a considerable amount of money on an electronic system that it had not tested out for its viability. Convinced, however that the advantages offered by the CD-ROM technology could offset the disadvantages of the initial capital outlay, the Medical Library embarked on a psychological campaign. It convinced the vendor into depositing the system (a CD-ROM drive, the compact disks covering the period 1980-1988) with the Library for a month for a trial run. During this period, the Dean and several of the

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teaching staff were encouraged to have hands-on searching on the CD-ROM. The response was overwhelming. With the full support of the Dean of the Faculty of Medicine, the Medical Library made a formal application to purchase the necessary hardware for one work station as well as the subscription to the 1966-1990 CC MEDLINE CD-ROM software. The application was successful, with the financial support obtained from the China Medical Board (CMB). It took the Medical Library almost two years to acquire the system but the appreciation shown by the users for this new system made the efforts worthwhile. Since then, the Medical Library has also subscribed to another database on CD-ROM -- PDQ/Cancerlit -- as well as obtaining the POPLINE, as a gift from the John Hopkins University's Population Information Program. However to date, the most popular database is still the MEDLINE.

The CD-ROM system was installed in the Technical Processing Room, as it was decided that at the initial stage, its use should be controlled and supervised since many of the users were not familiar with the system. Usage was restricted to the teaching and research staff, postgraduate students of the University and the medical and nursing staff of the University Hospital. Undergraduate students and trainee nurses for the moment still have to plough through the voluminous print copies of the Index Medicus. Acquiring another work station would enable them to gain access to the MEDLINE but this will depend on available funds. Notices publicising the availability of the CD-ROM MEDLINE were mailed to all heads of Departments in the Faculties of Medicine and Dentistry as well as the University Hospital. Even before the service was officially launched on 1st June 1990, several earnest doctors had already used it to undertake bibliographical searches. To date, the service is available only during office hours - from Mondays to Fridays, 8.00 a.m. to 6.00 p.m. and Saturdays, 8.00 a.m. to 12.00 noon.

### User Feedback

At the start of the service, the Medical Library had decided that the end-users should undertake their own searching after the initial training, and that there should be one hourly booking for the use of the CD-ROM MEDLINE. On-site training will be provided by the librarian on duty. The Medical Library was interested in getting feedback from the users as a means of evaluating the service. For this purpose, users were asked to fill in a questionnaire after they had used the

service. Altogether 466 users booked the one-hourly slot between June and December 1990.<sup>3</sup> Unfortunately many of the users did not return the questionnaire, and some submitted incomplete answers. As a result only 169 questionnaires were analysed.

The analysis of the questionnaires showed that the greatest number of users were staff from the Department of Medicine, followed by the Department of Pathology and the Department of Social and Preventive Medicine. Of the 169, 78 searched the last ten years, 60 the last 4 years, 16 the last 15 years and 15 the last 20 years. All required abstracts and preferred articles in the English language. 81 reported that the purpose of the search was for the writing of article/thesis; 77 for clinical work / patient treatment and 37 for presentation at conferences. All but one user said that they used a combination of both MeSH and keywords for their search. Only one stated that he used MeSH alone to search the MEDLINE. Except for 8 users, the other users were satisfied with their search results. The eight users who were not happy with their results felt that this was because of the rarity of the medical condition and the lack of research done on it; the limited coverage of MEDLINE in their specialisation, and one admitted that the inappropriate keywords used could be the cause. All reported that they found the CD-ROM easy to use, and they had no problem following the instructions given by the computer. Except for two users, all reported that they preferred to do the search themselves, rather than by a trained intermediary. Most of the users had never used an online or CD-ROM database before. All agreed that the CD-ROM MEDLINE had helped them to keep abreast of new developments in their field. When asked how often they would use the CD-ROM MEDLINE, 40 said they would use it monthly, 26 biweekly, 17 weekly, 6 daily, 4 three or four times yearly while an external user said he would use it once a year. All agreed that an hourly slot was sufficient.

When asked to provide suggestions for the improvement of the service, a number of users took this opportunity to commend the service. While they valued the existing service, they asked for extension of service hours and more work stations to be set up in the Medical Library. Presently, only one user could search at any one time since there is only one terminal. They also expressed the need to use the CD-ROM MEDLINE beyond the normal office hours. They also noted that the single work station was always busy when they wished to use it. A few also asked for terminals to be set up in the hospital so they could refer

to the database when they are on call and they need to look up references on some immediate patient problems.

### Observation

The Medical Library is very happy with the positive reactions from the users. For the group of users who are already computer-literate, they have adopted the new service with much zest and enthusiasm. Others were initially worried and anxious about touching the computers, but most of them soon learned to use the machines and appreciated them for the time-saving devices they are. They are very happy that they now only need to spend an hour on the computer rather than hours or even days ploughing through the printed Index Medicus. Many expressed their wonder at this new bibliographical tool which seems to be able to come up with the information they need within minutes. The keyword searching facility has also helped them to obtain a higher percentage of success in locating relevant articles. The ability to search using keywords, MeSH (Medical Subject Headings), truncations and connectors (and, and not, or and within) is a great help. Often users ignore the use of MeSH in their search strategy, and this inevitably results in unsatisfactory results. They also find the availability of abstracts in 70% of the records very valuable, especially when the journals are not subscribed to by the Medical Library. Although the number of requests for photocopies did increase with the service, it was a welcome increase. In fact, we were told by some of the users that the abstracts enabled them to decide on the references they needed to read in full since some of the abstracts are sufficient for their work. Occasionally users were irritated over the fact that some of the pertinent articles were not available simply because the journals were not subscribed to by the Library. Similar frustrations were expressed by users of the Medical Library, National University of Singapore (NUSML). The Medical Library concurred with its Medical Librarian that 'it is impossible for the Library to subscribe to all the international journals cited in the Index Medicus as periodical subscriptions are a very costly annual commitment'.<sup>4</sup>

Although one of the library officers is always available to assist users, many of the users are very reluctant to ask for assistance, and if they do, they tend to be very apologetic about having to do so.

There have been a number of occasions when the library officer has had to deliberately interrupt the session to offer her assistance. This reluctance to impose upon the librarian makes it difficult for the Medical Library to assess how effective the training sessions had been. The normal mode of training users is to demonstrate and sit through the first two sessions of a new user. The various menus and commands are explained and demonstrated, and the first search is normally undertaken for the beginner. The various search strategies using keywords, MeSH, truncation, expand function, boolean or combinations of these, are also explained at great length, since the most appropriate strategy will result in the maximum number of relevant articles retrieved.

Since the installation of the CD-ROM MEDLINE, the Medical Library has organised user-orientation sessions for postgraduate students. It is noted that although a number of notices had been circulated to the various departments, many of the lecturers and doctors are still unaware of the service. Many had come because they had been told of its availability by their colleagues. The Medical Library has yet to conduct an aggressive promotion campaign at this juncture because of current shortage of staff and insufficient work stations. The experience of many libraries which had introduced end-user searching on the CD-ROM MEDLINE had shown that a great deal of staff time is taken to teach beginners or re-coach infrequent users.<sup>5</sup> However, it cannot be denied that the amount of time spent with the user is really worthwhile as better rapport is established between librarians and users. Some of the users have in the past viewed the Medical Library as a mere store-house for their books and journals, but their positive response to the CD-ROM MEDLINE has enabled them to see the Library as relevant and capable of playing an active role in their research, teaching and clinical activities. The Medical Library hopes that the positive feedback from the users will convince the funding bodies to provide more funds for the installation of more work stations and the subscriptions of other medical databases.

### Conclusion

The use of the CD-ROM MEDLINE as a current bibliographic and reference tool for SDI has fulfilled quite satisfactorily the expectations of the users and the Medical Library. It is agreed that more than one

work station is needed and that access time to the database should be extended even beyond library hours. An ideal solution will be the installation of an in-house CD-ROM local area network (LAN) within the University Medical Centre complex (i.e. the University Hospital, the Medical and Dental Faculties) with the Medical Library at the centre of the Network. This will involve the installation of a LAN system for multi-user capability, cabling for terminals (IBM or IBM compatible PCs) and a dedicated CD-ROM multiple file server. However the cost involved is high, and it is expected to take a long time before the funding authorities will be persuaded to give the Medical Library the necessary funds. As an interim solution, the Library will suggest the installation of a second work station outside the office area. Service hours will then be extended to 10 p.m. on weekdays and 3.00 p.m. on weekends. Its use will be monitored by the senior staff on duty. Beyond library opening hours, the Medical Library may consider the dialling-in service as practised in the NUS Medical Library where four MEDLINE compact disks in a 4-in-1 player are loaded before closing time to

enable registered users to dial in to have remote access.

The Medical Library is also considering the possibility of subscribing to other databases which are more clinical-orientated. Although the MEDLINE is very useful as a current awareness and SDI resource, its usefulness is limited for actual clinical situations since it is only a bibliographic database. There are now a number of databases offering answers to diagnosis, drug prescriptions and therapy. Such a database offered by Micromedex Incorp. is the Computerised Clinical Information Systems (CCIS). The CCIS comprises Toxicology Information, Drug Information, Disease and Trauma Information for Acute Care and After Care Instructions. CCIS is very valuable for reference and clinical treatment especially so at the Accident & Emergency wards when doctors are hard pressed for time to make quick but accurate decisions as to diagnosis and treatment. The subscription to CCIS is very high, but if used well, the costs can be justified.

## Notes

1. Feinichel, C.H., 'Options for searching MEDLINE: the CD-ROM alternative', in *MEDINFO 89: Proceedings of the Sixth Conference on Medical Informatics, Beijing, China, 16-20 October and Singapore, 11-15 December, 1989* ed. by Barry Barber. Amsterdam : North-Holland, 1989. Part 2, p: 903-905.
2. The National Library of Australia in collaboration with the Australian Department of Health provides free of charge MEDLARS search requests to WHO member countries under an agreement with the WHO. These requests are processed in batches and the offprints sent by mail to requesting libraries.
3. This does not represent the actual number of users. It excludes those who 'drop' in without registering, often between ward rounds to retrieve references for clinical treatment.
4. Wee, J.G., 'New waves, new problems - use of CD-ROM MEDLINE in the Medical Library of the National University of Singapore', *Annals of the Academy of Medicine Singapore*, vol. 19 (5), Sept. 1990, p. 577.
5. Ibid, p. 571-579; Capodagli, James A., Mardikan, Jackie and Uva, Peter A., 'MEDLINE on compact disc: end-user searching on Compact Cambridge', *Bulletin of the Medical Library Association*, vol.76(2), April 1988, p. 181-183; and Earl, Martha F. and Hamberg, Cheryl J., 'Medical students as CD-ROM end-user trainers', *Bulletin of the Medical Library Association*, vol. 79(1), Jan. 1991, p. 65-66.