AN ASSESSMENT OF INFORMATION AUDIT WITH SPECIAL REFERENCE TO MEDICAL LIBRARY, UNIVERSITY OF COLOMBO

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Abstract

Libraries need to adopt new methods to manage the large quantity of available literature in an effective manner. The paper describes an information audit conducted at Medical Library of University of Colombo using Henczels' (2001) seven stage information audit model. Sample of the study consisted user groups of the Medical Library. Self- administrated questionnaires and in-house statistics were used as research instruments to collect the data. The study received the response rate of 69.07%. After the assessment of information audit in Medical Library of University of Colombo, It is recommended that the library should focus on the enhancements of collections and equipments to cater the new demands especially on electronic media. Conducting user education programmes using new technology; adding latest reference books; subscribing more e-journals and databases; increasing internet facilities; providing access to e-resources to users from their own desktops; enhancing resource sharing activities; training programmes for staff and strengthening the online information delivery services in library networks were suggested for future library improvements.

Keywords: *Information Audit, Medical Library.*

Introduction

All organizations need information to perform their activities. Failing to effectively manage information in an information-centric world can have dire consequences beyond just loss of revenue. An organization's ability to manage information and knowledge assets is a key to its success, yet companies collectively spend billions trying to manage information. Special libraries and academic libraries play a great role in provision of information for researchers, scholars, students and academics of the institution. As the central repository of recorded knowledge on university, the academic library is an essential resource for scholarly activity, and one measure of the greatness of a university is its library's collections. These libraries seemed to spend an enormous amount of money on the acquisition of resources: printed publications, electronic information sources and other library materials. The medical field has become a very widely used field by number of people belonging to all other existing fields, and also the level of retrieving information is comparatively high. As Dixit (1995:1) emphasises medical literature which ultimately helps human beings to maintain and improve their health standard should be made available to all the echelons of the health team. So the role of information professionals within medical library has become ever so complex especially when one considers the rapid growth of knowledge in the field of medical science. In a nutshell, to keep abreast with ever changing trends in

medical field, all types of medical library users need to be continuously updated on the latest development. So the parent organizations of medical libraries spend a large amount of money on the purchasing of resources, training of manpower and for the provision of library services.

Seneviratne (2004) points out the availability of information sources of medical literature in Sri Lanka is insufficient and the demand for medical information has increased due to the needs of highly qualified and very sophisticated academics in the university system and the increased number of newly established postgraduate programmes. Therefore it should be investigated whether the resources available in the academic medical libraries are properly managed and whether these libraries can rationalize its expenditure matching the information supply and user demand.

In today's developing world new methods and techniques have been derived to organize large quantity of available literature in an efficient manner and in order to fulfill the needs of clientele. A valuable tool in information management review process is 'Information Audit'; it has been extensively used within the corporate world but now increasingly apparent in health information circle (Booth & Haines, 1993:224). Thornton (2001:129) posits that information auditing and mapping allows for the identification of current implementations, responsibility of the maintenance of data, and the discovery of areas in which improvements can be made or duplications eliminated. The main purpose of an Information Audit is to determine what the information requirements of an organization are, and how the information centers can best fulfill these needs. It also evaluates the effectiveness of an existing information system in order to determine effective ways of making their operation and services relevant. Additionally, it provides the opportunity to understand the information requirements of individuals and departments throughout the organization. Also, it provides an 'Information Map' which can be used as the basis for an improved understanding of the information flow. With this understanding the information professional is able to more quickly assist individuals with the retrieval of information from a diverse number of sources. This ultimately leads to the librarian being viewed as a value-added resource for the academic sector.

Medical Library of University of Colombo is the second oldest library in whole Asia and one of the most important library which provides medical information for the students, postgraduates academics and medical researchers in this country. It has a large amount of medical literature collection and depositories including Sri Lankan medical literatures. This research study assumes the Medical Library of UC as the universal representative of the whole academic medical libraries in Sri Lanka. Therefore, it was planed to assess the information environment of the Medical Library of UC, using Information Audit techniques to know how the existing resources and services are used in order to fulfill the needs of the desired clientele and obtained the optimum output of these resources and services with respect of the following objectives;
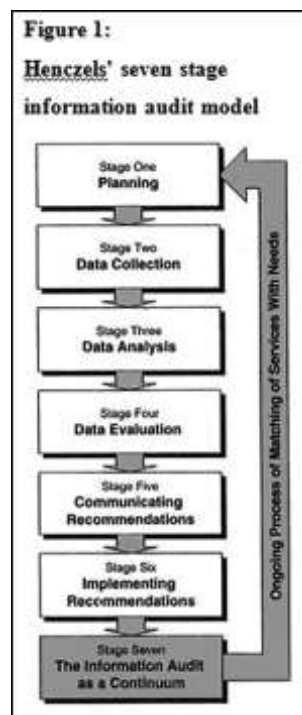
■   To identify the information needs of the users and assign a level of strategic importance to those needs.
■   To identify the resources and services currently provided to meet those needs.

■ To map information flows within the library
■ To analyze gaps and inefficiencies that enables the identification of where changes are necessary.

Information Auditing Method

There is no universally accepted method for the information audit process because of the dramatically varying structures, natures and circumstances of the organizations in which they are conducted. After performing a literature review a suitable model to conduct Information Audit was selected to satisfy the objective of the study.

The model which was selected for this study is one that was developed by the Henczel (2001) as a result of examining the methodologies used by librarians and consultants and extracting the components necessary to achieve the objectives of an information audit. This model (Figure 1) is known as 'seven stage information audit model' which includes the seven stages of information audit process and the order in which they are conducted.

Figure 1:
Henczels' seven stage information audit model

Stage One
Planning

Stage Two
Data Collection

Stage Three
Data Analysis

Stage Four
Data Evaluation

Stage Five
Communicating Recommendations

Stage Six
Implementing Recommendations

Stage Seven:
The Information Audit as a Continuum

Ongoing Process of Matching of Services With Needs

Research Methodology

The research was conducted as user study. Individuals accessing the Medical Library of University of Colombo (UC) were targeted as population for this research. Therefore,

Undergraduate students, Post-graduate students and Academic staff were taken as the element of population. The research sample for the study was determined to consist of 25% (236) of undergraduates(excluding 1st and 2nd year students); 100% (10) of post-graduates and 50% (58) academics (excluding Temporary staff). A representative total sample of 304 individuals selected from the above categories. (Table 1)

The main research instrument was self administrated questionnaire which consisted of structured questions. Most of the closed ended questions were designed to elicit responses on a five-point Likert scale. The data collected from the questionnaire were coded to enter the data in worksheet of SPSS (Statistical Package for Social Science) 14.0 for analysis using a variety of statistical techniques. After basic steps, one way ANOVA was performed to reveal whether responses of different user categories differ significantly. $P < 0.05$ was considered as statistically significant event. At significant event, Turkey's test was used to compare the means of different user categories.

The Response Rate
Out of 304 questionnaires, 210 were returned,i.e, 69.07%. Table 1 reveals the details of the response rate.

Table 1
Response Rate

Study Groups	Sent	Returned	Response rate
Undergraduate students (UGS)	236	154	65.25%
Postgraduate students (PGS)	10	7	70%
Academic staff (AS)	58	49	84.48%
Total	304	210	69.07 %

Though the overall response rate is satisfactory (69.07%), the response rate of undergraduates and post-graduates were low when compared with the rate of academic staff group. Telephone contacts and e-mail reminders were used in collection of questionnaire have increased the response rate of academic staff.

Output of Information Audit
The information audit for the medical library of University of Colombo focused in three different aspects such as;
- Information usage audit: It focuses the clients usage of information and its adequacy for their needs
- Information need analysis audit: The information resources and services which users need to do their tasks were analyzed.
- Information assessment audit: It is a systematic first level fact-finding and analysis process.

Library Usage

The user community is the most important component of a library to improve an effective service. Here library users and non-users were identified and their usage, frequency of visit and purpose of visit were described.
Library users

The major component of the library users are made up of undergraduate students (87%) and academic staff members (12%). The results revealed that among 210 respondents, 205 (97.62%) are library users and 05 (2.38%) are non users. The non- users made up of 02 undergraduate student and 03 academic staff members. Further the results indicated that 98.75% of the students and 93.87% of academic staff are using their medical library. So the usage level of the library is high.

Frequency of Visit

An analysis of the visit to library shows that 78 (37.1%) of the respondents visited library daily while 62 (29.5%) went weekly, 22 (10.5%) fortnightly, 09 (4.3%) monthly, 34 (16.2%) rarely and 5 (2.4%) never visit the library. Moreover the results revealed majority of the Undergraduates (50.6%) visiting the library daily. More number of post-graduate students (57 %) visiting the library weekly because most of the postgraduate degrees conducted on weekends and also busy with their work in week days. Most of the academics (63.3 %) visit the library very rarely. The reason being medical academics are under considerable pressure for their clinical work as well as their lecture time.

The one way ANOVA (P< 0.05) and Turkeys' test clearly revealed that frequency of visit is significantly different between major user categories; students and academics. Further the results revealed, the purpose of visit of fourth and fifth year undergraduate students are significantly different from third year students but there is no significant difference between fourth and fifth year students in their frequency of visit to library.

Purpose of Visit

Multiple responses were allowed to the question on the purpose of visit to the library and the percentages of responses from each user categories were measured. One way ANOVA, (P< 0.05) and the turkey's test indicate the purpose of visit of students and academic staff were significantly different from each other. Majority of the undergraduates (91.8%) expressed that they visit the library to read books. Highest responses showed by the postgraduate students (80%) to obtain reference information. Majority of the academics (90%) are interested in consulting journals. Only academics (16.7%) were interested in Inter Library Loans (ILL).

Usage of Information Sources

The users' opinions were sought on the usage of information sources for their learning and research activities. The information sources in the library were divided according to their available format such as print and electronic. Table 2 depicts the responses obtained regarding the usage of information sources.

Table 2
Degree of Usage of Information sources

Information Sources	Mean	Std. Dev.
Print Media		
Text Books	4.80	0.401
Current contents	3.67	0.760
Hand books / Directories	3.01	0.474
Print Journal articles	3.49	0.860
MEDLINE / IMSEAR	4.06	0.592
Excerpta Medica EMBASE	3.69	0.574
Tropical Diseases Bulletin	3.67	0.843
Nutrition abstracts and reviews	3.96	0.468
Review Articles	3.78	0.693
Medical Reports	3.47	0.903
Electronic Media		
CD-ROMs	2.60	0.165
Audio –Visuals (AV) materials	2.34	0.756
E-journals	2.75	0.436

(Scale; 1= Never Used, 2= Occasionally Used, 3= Average Used, 4= frequently used, 5= Highly used)

The Table 2 clearly reveals usage of text books very much higher when compare to other print resources. The Current contents, Print journals, Medline/IMSER, Excerpta EMBASE, Tropical Diseases bulletins, Review articles and Medical reports were used frequently. Also Hand books / Directories and Medical reports were considered as average use. Among electronic resources the usage of AV materials was very low and users used CD ROMs and E-journals averagely. Further there were no significant differences between the user categories in their information usage (one way ANOVA, P< 0.05).

Information Needs
The users were asked to indicate the adequacy of information sources regarding their quantity and quality in terms of subject coverage available to users in their own discipline. The available resources were categorized into two main formats such as print and electronic. Table 3 depicts the results.

Table 3
Perceived adequacy of Information sources

Information Sources	Rank	Mean	Std. Dev.
Print			
Text Books	1	4.49	0.924
Print Journals	2	3.85	0.798
Magazines	3	3.75	0.810
Reference Books	4	3.25	0.774
Abstracts, Indexes	5	3.10	0.691
Electronic			
E- Journals	6	3.04	0.997
CD ROMs	7	2.70	0.685
AV Materials	8	2.26	0.547
Total	304	210	69.07 %

(Scale: 1= Don't know, 2= Extremely inadequate, 3= Inadequate, 4= Adequate, 5= Extremely adequate)

The results confirmed that the quantity and quality of print sources available in the library were adequate (in terms of their subject coverage) than electronic sources. Quantity and quality of text books were marked as adequate followed by print journals and magazines while reference books and abstracts were marked 4th and 5th respectively. Among electronic sources quantity and quality of AV materials were marked as inadequate than E- journals and CD–ROMs. Moreover there were no significant differences between the major user categories (students and academics) regarding the adequacy of library sources (one way ANOVA test, $p < 0.05$).

User Satisfaction

The users of medical library were requested to give their satisfaction in the 14 topics on services and facilities provided by the medical library of UC. Table 4 depicts the user satisfaction in the given services and facilities. The results clearly shows that the users satisfied on Guidance on library use, Lending facilities, Reference services, Display of new addition and Cooperation of library staff. They are also satisfied to some extent with Computer assisted search service, Current Content service, User Education programmme, Knowledge of library staff and Photo copying facilities.

Table 4
User satisfaction on library services and facilities

Library Services / Facilities	Mean	Std. Dev.
Guidance to users on library use	4.79	0.844
Lending Facilities	4.93	0.729
Reference Services	4.89	0.856
Inter-Library Loan facilities (ILL)	2.24	0.678
Computer assisted search services	3.26	0.923
Literature search services	2.14	1.076
Current Content service	2.60	0.881
Display of new addition	4.50	0.610
Internet Facilities	2.47	0.842
User education programmes	3.19	0.622
Cooperation of Library staff	3.85	0.501
Knowledge of Library staff	3.25	0.834
Photo copying facilities	2.61	0841

(Scale: 1= Not at all satisfied, 2= Less satisfied, 3= Some what satisfied, 4= Satisfied, 5= Very satisfied)

Users expressed their less satisfaction on Inter-Library Loan facilities, Literature search services and Internet Facilities. Moreover one way ANOVA test ($p<0.05$) revealed that there were no significant differences between the major user categories on their satisfaction.

Access to Information

Users were asked to mark their opinion on problems faced by the users in accessing information that need to keep up their knowledge in their field. Table 5 reveals the results.

Table 5
Problems faced in accessing information

Problems	No. of responses	% of responses	Rank
Inadequate library resources	161	76.67%	1
Lack of time	155	73.81%	2
Lack of access to library materials due to library rules	127	60.48%	3
Lack of awareness services provided by the library	106	50.48%	4
Lack of help of library staff	46	21.90%	5
Information scattered in too many place in library	35	16.67%	6

The results shows 'Inadequate library resources' and 'Lack of time' were ranked as the major problem in accessing information. Moreover the 'Lack of access to library materials due to library rules' and 'Lack of awareness services' were ranked 3rd and 4th respectively. There were no significant differences between user categories, which could be seen with regard to ranking (one way ANOVA, $P < 0.05$).

Information Flow

The information gathered from the information audit survey and the internal records of the library were used to show diagrammatic representation of the information flow within the library. Which reveals what are information sources available in the library, how it's accessed by the users and how its flow through the library. (Figure 2)

Figure 2 Information Flow Map

Additional Comments and Suggestions

The open ended questions regarding additional comments or suggestions were received from 156 respondents out of 218. Table 7 shows the responses received as comments and suggestions.

Table 7
Comments and suggestions made by users

	Comments	Frequency (N=156)
1	Library needs to add new books and references in various subject disciplines , increase no. of journals, add more electronic databases and AV materials	61
2	Library needs more computers with speed internet access for students' use	32
3	Develop the library website and provide more online library services	25
4	Need more library staff to assist the users and educate the library staff on medical literature search	16
5	Library needs to enhance its physical environment by providing more ventilation and noise control	11
6	Library needs to improve photocopy service	9

As shown in the Table 7 the most important suggestion was to increase the number of information sources including books, reference sources with current editions and subscription of more print and electronic journals / databases and AV materials.

Conclusion

While Medical libraries are facing financial shortfalls in acquiring highly cost resources and enhancing their services, librarians have a pressing need to know how these resources and services are used in order to maximize their effectiveness of investments on acquisition. The out put of the information audit revealed disparate use patterns among different user groups of the Medical Library of UC. The usage level of library is high. However, compared to other user groups the frequency of use of library by academics is low. As taken the all information sources, print sources were more used than electronic sources of the library. Reason may be the respondents were not aware of the Electronic sources available in the library. As, might be expected that the adequacy level varies widely by different library materials in terms of their subject coverage. The quantity and quality of available print materials was rated by the users adequate than electronic materials. The audit revealed the users are overall satisfied with the library resources, services and facilities. However the study further found that library resources and services are not being fully used by the users because either they are not aware of these resources and services or these are inadequate to meet their needs. Moreover lack of time, inadequate library resources and lack of access to library materials due to library rules are the main problems faced by the users in accessing information. Therefore, the library should take responsibility to enhance the resources and ensure that the library is providing quality service to the users.

Recommendations

The information audit is an effort to fill gap in understanding the information needs of users and their library use. Based on the information audit the following recommendations are made to improve the efficiency and effectiveness of the library.

Resource Enhancement

Instead of providing information and services based on random estimation of the users' needs, the library should provide resources to cater their requirements based on information audit survey findings. As medical professionals continue to rely on printed media up-to-date text books and substantial current journal collections should be made available in the library to cater to the multi-professional needs.

Service Enhancement

Services in the Medical Library of UC ought to be planned and re-designed around the needs of the information users. Enhancement of service is necessary to cater the recurrent changes. Such enhancement should be based on individual user profiles. An SDI service is very important in medical libraries as the users have hardly any time to locate information themselves. The services of Medical Library of UC on Internet Facilities, Inter-Library Loan facilities, should be re-designed to meet the users' need.

Education and Training for Library Staff

The users' knowledge of information sources and their recollection of how to use them may be deficient. Therefore the knowledge on medical literature such as MEDLINE search, Web based medical resources and medical CD reading would enhance the quality of staff. Continuous education programmes on customer care, information delivering methods and medical literature search are essential for library staff to promote the library.
User Education
The research pointed out the use of electronic resources as an information tool is not much popular among the users of the library. Continuous user education programmes to encourage and promote the use of electronic materials to make users to acquire much updated information.

Strengthening Man Power

As medicine is a fast advancing dynamic subject, the medical library of UC should employ alert, qualified and competent staff, to overcome the staff shortage of the library which can provide an effective and time serving service to the medical students and academics of the faculty.

Enhancing Physical Resources

A pleasant atmosphere in the library is essential to motivate readers. As suggested by the users an air-conditioned reading area would be a solution for avoiding dust and reducing disturbance besides providing better ventilation in the library.

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