The impact of E-resources in the provision of health and medical information services in Kenya

Nancy Kamau[1] and Symphrose Ouma[2]

1. Kenya Medical Research Institute, P.O.Box 54840-00200, Nairobi, Kenya.
   E- mail: kemrilib@Nairobi.mimcom.net
2. Aga Khan University. P.O.Box P.O.Box 39340-00623, Nairobi, Kenya
   E-mail: souma@aku.ac.ke

Abstract

Timely access to accurate and relevant health and medical information is crucial to the development and administration of healthcare services, research and teaching. The advent of Information and Communication Technologies (ICTs) has brought many opportunities and challenges in the provision of library and information services in the health sector worldwide. This is especially the case for libraries in the Sub-Saharan Africa that had experienced massive budget cuts in the 1990's. This adversely affected efficient and effective delivery of information services. Today most health and medical libraries in Kenya have embraced the use of ICTs in the management of their information resources. Currently a lot of relevant publications are available online and they can be accessed conveniently over the Internet by those libraries that have Internet connectivity. The purpose of this paper is to examine the level of usage of e-resources, their effects on the provision of information services and other library functions. The paper further looks at open access resources such as Health InterNetwork Access to Research Initiative (HINARI) and International Network for Accessibility of Scientific Publications (INASP) open source databases, and the impact they have had in the provision of health information in Kenya. The authors carried out a survey to ascertain the impact of e-recourses on information access, retrieval and dissemination. The survey also set out to ascertain the level of ICT literacy among the users and the information providers. The paper recognizes the challenges that Librarians face in their endeavors to satisfy user need in the revolution of e-literature. As a result of the survey, the paper discusses challenges that librarians face as regards to limitations of reliable information infrastructure, which often interferes with connectivity. Lack of marketing and training opportunities is equally addressed. The paper concludes by giving recommendations with emphasis that user satisfaction is a yardstick by which information providers will always rely on to evaluate the efficiency and effectiveness of their services.

Introduction

At almost every level within the health sector, access to timely and relevant health information for making informed decisions is a necessity. The advent of the Information and Communication Technologies (ICTs) has made it possible for researchers, academicians, policy makers and health care providers to access current information in their specialties and areas of interest irrespective of where they are within the country. Accessibility to current information has also affected the way libraries and resource

centers meet the information needs of their clientele. Efficient and effective exploitation of the new technologies to access information depends on the level of the information infrastructure, trained personnel and users, and the marketing of the e-resources within individual institutions. A library may be based in a rural setting, yet it is able to offer Internet based information services as opposed to a library within an urban setting that has no ICTs facilities [1]. This study focuses on the usage of e-resources in health science libraries in Kenya, the nature of clientele served, human resources, level of utilization of e-resources, training in the use of e-resources as well as marketing of the same. Since subscriptions to fee based e-resources is expensive, emphasis was put on access to free based e-resources.

Trends in availability and accessibility of e-resources

Most of the health science libraries in Kenya have access to e-resources through consortia and through free e-resources websites, e-books and e-databases. It has been observed that accessibility to free on-line journals is often controlled. In some cases, access to full text is free for a period of time. This could be six months after publication, three months or one year. Other e-journal databases avail only abstracts and content pages, but not free full text articles. This limits the number of journals that have free full text access to the non-subscribers. A number of databases provide free access to e-resources. These include PubMed, Popline, WHO e-library. However, some of these offers only abstracts. The problem of accessing full text journal articles, therefore, remains.

Consortia and Free- E- Resources

The initiatives taken by libraries in Kenya to form a consortium for the purposes of sharing resources have improved accessibility to a lot of e-resources. Most of the libraries in Kenya have access to e-resources through arrangements such as the Programme for the Availability of Research Information (PERI), a programme of the International Availability of Scientific Publications (INASP). Another initiative is the Health Internet Network (HINARI) an initiative of the World Health Organization in conjuction with major publishers of medical and life science journals from developed countries. This initiative was started due to the realization that scientists and other users based in low-income developing countries were experiencing tremendous difficulties in accessing relevant literature and other resources that are useful for the successful implementation of their work. To date HINARI has assisted many users to access full text information. Access to full text journals and databases has helped in reducing the information and technology gap that existed between the scientists, students and health professionals from the North and those from the South.

Another initiative which is in use is the INASP project dabbed PERI. Like the HINARI database, this was also set up to assist developing countries access e-resources. PERI resources have also been offered free of charge but with time, the beneficiaries have been requested to contribute a token fee for their accessibility. Unlike HINARI that is biased towards health and medical sciences PERI e-resources are beneficial to all programmes especially within a University setup.

Aims and objectives

Against the above background the paper aims at finding out how far the health and medical libraries and resources centers in Kenya are utilizing the opportunities brought about by the new information technologies. The paper also intends to capture the level of usage of the free-based initiatives on e-resources that has been started to help users in the low-income developing countries. The questions that we aimed to answer were –

- Are the e-resources adequately utilized as expected by those who have given free access?
- Are users adequately trained to use the e-resources?
- Are the information providers adequately trained to use the e-resources for information provision and to provide user training?
- Is the information infrastructure available for the effective utilization of the e-resources?
- Are the e-resources effectively marketed to increase accessibility and usage?

Methodology

A questionnaire was sent through e-mail to fifteen (15) libraries/Resource Centers. Three (3) of the e-mails were returned as wrong addresses. One of the questionnaires was sent by post. Nine (9) responses were received through e-mail and one through the post. It should be noted that the method used was not full proof as there are many libraries that are not on e-mail and could not receive the questionnaire through this mode. A few institutions could have been on e-mail but were not on the author's e-mail network. It was not possible to get the correct e-mail address for the e-mails that bounced back. The 15 institutions in the study are engaged in research, training and provision of health care services. The questions were structure to capture both qualitative and quantitative data. This, therefore, called for a high level summary that took care of both the narrative as well as the quantitative aspects of the study. From the responses received a 75% response rate was achieved.

Results

The results are discussed under various headings in accordance with the issues that were being examined.

Information services and human resources
The respondents were asked about the type of services that they offer. Among the services offered are Internet and e-mail services, distribution of materials, selective dissemination of information, current awareness, literature searches, reference services, printing and photocopying services. Training of users was conspicuously not listed as a service, yet all the respondents indicated that they train their clients in the use of e-resources.

Qualified personnel man most of the libraries with qualifications ranging from professional diplomas and first degrees. One respondent has a diploma in Computer

Science. It was noted that very few respondents had a qualification in library sciences at master's degree level or above. It was also noted that most of the personnel that serve health sciences libraries in Kenya are not trained to the required levels as medial librarians since there is no such training within the country.

Categories of Users
Users of the e-resources range from policy makers, researchers, nurses and doctors, nursing and medical students, community health workers and programme managers. The number of clientele served depended on the size of the library and the highest number given was 2000 for a private hospital with a training school. It is, however, noted that some of the respondents did not indicate the number of users served per annum.

Information Infrastructure
The respondents to the questionnaire are university, research, ministry of health, International Non Governmental Organizations (NGO's) and national NGO's. There is a trend observed that almost all the NGO's are manned by sole personnel This may be attributed to the fact that these libraries are small and do not serve many users. The danger in this set up is that services stop and clients suffer when this sole personnel is away.

Almost all the libraries indicated that they have Internet access although the times for Internet access varied from Institution to Institution. Some had access for 24hrs, others for 12hrs and others for a few hours. The most important finding is that people who responded to the questionnaire indicated that they have an e-mail facility at their desk and the number of computers that are for users is also commendable. The highest number of computers is 16 and this was within a university set up. There was tendency among NGO's not to designate a computer for users.

Most of the respondents indicated that their Internet access is through the Post and Telecommunications with a leased line. A few had access to the Internet through direct satellite e.g. VSAT. Impediments in the infrastructure were listed as unreliable connectivity, limited bandwidth and repeated virus infection on the Internet among others as indicated below.

Availability of computers and Internet access
The respondents were asked to indicate the number of computers available in the library both for the staff and the users. The following table shows the responses from 9 out of the 10 respondents.

Library	No of computers	No of computers for staff	No of computers for users	Internet access
Public University medical school	16	6	10	Yes
Local Medical Research Center	2	1	1	Yes
Local Medical Research Institution	10	4	6	Yes
Private Hospital	5	2	3	Yes
International Medical Research Center	22	6	16	Yes
Training Center for HIV/AIDS	2	1	1	Yes
International NGO for reproductive health	3	1	2	Yes
Ministry of Health	0	0	0	No
Private University	15	5	10	Yes

Problems of Internet Access
The respondents were asked about the problems that they experience while accessing the Internet. Below are the responses

- Technical hitches both internal and external
- Lack of IT personnel to readily address troubleshooting
- Restriction of access to some sites due to limited bandwidth
- Power fluctuations
- Unreliable connectivity
- Speed of Internet slow at times
- Viruses
- Pop ups

Asked about what solutions they can give to the above problems, the respondents indicated that consideration should be made for the increase of bandwidth, anti-virus installation and blocking of pop ups. However most of the respondents except for one indicated that the availability of the Internet in their institution is not likely to replace the role of the library/resource centre. This study found it strange that no respondent mentioned lack of set ICT policies as a hindrance in the exploitation of e-resources. Kenya like many other developing countries is still in the struggle to develop such a policy at national level.

Access to E-resources and print resources

E-resources are accessed through the Internet, CD-Rom, DVD and other multimedia services. Internet and CD-ROM are the most popular within the libraries that had responded. The e-resources included journal articles, e- books and e- databases. Most of the libraries indicated that they used the e-resources as part of their information management such as the production of subject bibliographies and outreach services. As indicated earlier, much of the e-resources accessed are through the HINARI and PERI Database. It was also noted that a few libraries take out subscriptions to the Cochrane, Up-to-date and WHO e-libraries and get these on CDs. Asked about the degree of usefulness of the e-resources to the library users, most of the libraries gave a 40%-100% percent usefulness which translates into very high impact ratio.

Most of the respondents indicated that they do not subscribe to any mailing/discussion group and that they learn about any relevant information through surfing the net, and through colleagues. For those that are subscribers to mailing lists, HIF-net was the most popular.

The respondents were asked about the number of current journal subscriptions available in their libraries. The reply to this question was very impressive compared with what has been witnessed within the last ten years. Libraries seem to have overcome the poverty that has characterized them for along time. The average subscription was 40 journal titles. This figure was for print subscription. Asked about subscriptions to the electronic journals, one library indicated that it had 5,000 electronic journals and these are not a free addition to a print subscription. The same library had a print subscription of 40 journals. One of the respondent indicated that the library had 20 current journal subscriptions and 10 of these are a free addition to a print subscription. It was noted that most publishers give access to free on-line versions of any journal taken out on hard copy subscription. The survey also found out that some libraries take out subscription to journals that are available on the free e-databases. The reasons given for this are the impediments to accessibility as touched on earlier.

Access to local e-content

The authors wanted to find out whether the information retrieved from the Internet and through CD-ROMs is both international and local. Asked whether they are able to access local e-content, the respondents indicated that they were able to access local e-content such as abstracts, journal articles and government publications. However the response showed that the level of access was quite low with as little as 5%. The highest level of access was indicated as 40%.

Library website

One of the functions of the library website is to make available the information that is available in the library. Secondly a website becomes a very useful tool in marketing if e-resources must be used effectively. The current trend in the effective use of a library website is the hosting of institutional repositories. The library can create a database of official documents, theses, dissertations, and staff papers. Such information can then be shared with other institutions on-line. One library reported that they are able to share in

their parent institutions repositories and other e-resources through an intranet connection. Out of the responses received on this question, only three libraries had websites on which they can post information. Only one library has its OPAC on-line. For those libraries that indicated that they had a website, the type of information available on the website was a description of the library and its services and resources.

Training and Information Literacy
Asked whether they were adequately trained to handle the use of e-resources in their libraries, most of the respondents indicated that they were adequately trained. This question sought to know the levels of ICT training for the information providers and the information literacy of library users. The study found out that Information providers are well trained to handle e-resources. It was, however noted that a few are not conversant with databases such as HINARI. This, therefore, gave a pointer that more and continuous training should be made available for information providers if they must also pass on that expertise to their users. Results on library training evaluation for electronic and print resources from Swaziland showed that 32.9% of the respondents rated the Internet training as good, 46.4% rated the CD-ROM as good and 88.3% rated the print resources training as good [2] This shows that information providers are more conversant with print resources and will need to improve on their knowledge on e-resources for them to make a good impact on the user.

Asked whether the library patrons are able to use the e-resources without any assistance 50% of the respondents indicated that users are not able to use the e-resources without any assistance. The level of information literacy among users of e–resources did not explicitly come out, but indications from this survey are that categories of users vary with their knowledge on ICT. Training on usage is hampered by availability of computers in these resource centers. The ratio of computers to the users has often not allowed for an effective training. Nevertheless, respondents did indicate that they provide training to enable their users access e-resources. Taking the investigations further, respondents who are based in training institutions felt that Information Literacy for users should be imbedded within the medical curricula so as to give it some seriousness. This however can only be done with the cooperation of the teaching staff. Curriculum based Information literacy programmes is today a very topical issue as seen in Murphy who says that "…educational providers must examine the opportunities and incentives students have to develop knowledge skills and positive attitudes in relation to the information component of their profession." [3]

When asked whether they knew about HINARI, and how access to it had impacted on their library services, most of the respondents indicated that they are aware about the database and effectively used it in the provision of the information services. The authors asked this question to find out if lack of training hinders the effective utilization of HINARI. Majority of the respondents indicated that they have had no training on the use of HINARI and a few indicated that lack of training has not hindered their effective utilization of HINARI. There are some who have had no training, but indicated that this does hinder them from giving effective users services for HINARI.

Asked about the usage of other free e-resources besides HINARI, the respondents indicated usage of the following resources- PubMed, Popline, E-medicine, PERI, Africa digital library, EBSCO, Blackwell Synergy, WHO e-library, Emerald and African Journals Online (AJOL)

Marketing
Making the availability of e-resources widely known by users is the surest way of fully exploiting the e-resources to the maximum. Asked whether libraries market the availability of the e-resources, most of respondents indicated that they do market. Some of the marketing strategies used are the in-house bulletins, brochures, hard copy and e-versions, posters, seminars, conferences. and word of mouth. The e-marketing was, however found limiting because of accessibility to computers and the Internet by some users. It was further ascertained that only 3 libraries had websites on which they can freely post their information.

Evaluation of the use of e-resources
This question was asked with a view to finding out whether libraries do evaluate their information services to assess the level of the usefulness of the service to their users. Asked whether an evaluation on the usefulness of the e-resources to the users had been done, majority of the respondents indicated that they had not done any evaluation. Only one library responded on the affirmative.

Impact of e-resources on information services
Asked about how they would rate the impact of e-resources on their services, most of the respondents, about 90% indicated that the impact of e-resources on their work was very high. This relates to the level of usefulness to their clientele which was rated on average at 80%.

General problems faced by libraries
Asked about the general problems faced in the course of their work, 5 out of 10 libraries responded. The responses cited various problems such as lack of adequate computers for use in the library, frequent computer breakdown, insufficient computer operating skills, lack of funding to subscribe to electronic journals, lack of access to information unless there is a subscription, lack of appreciation of the role of the library and its importance in meeting the goals of the Institution and that availability of locally produced information as e-content is very minimal.

Discussion

Although limited to a few libraries, the results of the survey show high level of usage of the e-resources within the health sciences libraries. A number of issues have come up that needs to be addressed. There has not been any evaluation on the use of the e-resources except in one library. This should be regularly done so that the shortcomings can be arrested and improvements made. Lack of local e-content also came up as a problem. This should be addressed further, perhaps at a national level so that incentives

are created for authors and publishers. This would serve as a challenge to release some of their works for e-contents. The respondents also suggested creation of institutional repositories on the web.

The impact of e-resources on the information services is seen as very high. Similarly, the usefulness of e-resources is rated at 100% by a large percentage of the respondents. Training for both the information provider and the user is very important. Although most libraries indicated that they provide user training, others have indicated, they themselves require some training so as to exploit these resources more effectively for the benefit of their users. Carrying out a similar survey in the UK, Weightman concurs that professionally led library services have an impact on health outcomes for patients and may lead to time saving for health care professionals. [4]

In this study, the most popular type of e-resources is the Internet, followed by CD-ROM. DVD a recent addition is not popular and only one library indicated that it has access to DVD. Most of the e-resources available to the libraries are free and most of the libraries do not take out own subscriptions to e-journals and other e-resources. One library indicated that it subscribes to 40 current journals, which are not donations, and none of these are available as an e-resource. The authors concluded that the library might not have pursued the issue of the password to access the print journals online.

Marketing of the e-resources is very essential if these resources must be utilized and made known to the market. From the response, most of the respondents indicated that access to a facility such as HINARI was through User name and password. If HINARI is accessible through the library facility only, then it is important to let the users know of the access information, otherwise such a facility would be under utilized

Conclusion

The survey's main objective was to find out the level of usage of e-resources in health and medical libraries and resource centers. From the results, it can be concluded that 90% of the health and medical libraries and resource centers utilize e-resources in their information services. The problems faced by these facilities relates to lack of adequate training both for the users and the information providers, unreliable connectivity as most of the information centers rely on the post and telecommunications system that is slow and at times not accessible. Other problems relate to lack of adequate computers and shrinking budgets especially for subscriptions to e-journals. The authors have added to the constraint that relate to policy implications and human resources. It is, however, commendable that most libraries have access to the Internet and are using e-resources. It is also commendable to see that libraries have such high subscriptions to journals compared to the situation faced by libraries some years back. This may also reflect on the improvement of the country's economy and an appreciation on the role of health information within various health sectors. The use of free e-resources available through such initiatives as HINARI is also commendable. There should be aggressive marketing of these e-resources so as to reach a wider cross section of users. Unless aggressive marketing is done most of the potential users may not be aware of such facilities. This

further calls for some intensive campaign for libraries to strive for the creation of their own websites. The survey also showed that print resources are still popular with the health and medical libraries.

Recommendations and Way forward

User training is an important aspect in the efficient exploitation of e-resources and should be intensified. If the information providers were not in a position to conduct the user training, it would be advisable to get assistance from elsewhere, notwithstanding that this is first and foremost the responsibility of the information providers. As discussed earlier, in training institutions, teaching of information literacy should be included within the curricula

Training of information providers should be intensified. From the survey, it is seen that most of the information have basic knowledge on computers and others have no formal qualifications on librarianship and could have learnt on the job. Further training is aimed at giving confidence to the information providers. It is only logical that in order to pass on the expertise to their users, information providers must become experts in information handling.

Health and medical libraries that have access to Internet facilities should undertake outreach services to reach out to health professionals based in the rural areas and may have no Internet services. Libraries should make a contribution to continuous medical education (CME) initiatives through the provision of current literature by repackaging such information and by offering relevant user training.

The current survey looked at the usage of e-resources from the point of view of information providers. The authors recommend that initiatives should be taken to undertake a survey of the users of e-resources. This should be carried with an aim of establishing the level of awareness of e-resources, level of usage and relevance of the resources to the users' information needs

There are many e-resources that are freely available and are relevant to the health and medical libraries. Health and medical information providers should be more vigilant by subscribing to relevant discussion groups and intensifying Internet browsing as a way of getting full awareness of all the available information. It is only then that e-resources especially the open source resources can be effectively utilized.

The creation of own websites is further stressed as a very significant marketing tool. All information providers should take up this initiative.

References
1   Kaduda, J ; Olola, CHO; Oluoch, TO. And Mwazi, DW. A digital library in a rural malaria research centre in Africa; The Kenyan experience. Paper presented at the 23rd African Health Sciences Congress, Addis Ababa, Ethiopia, and October 2003.

2   Muswazi P. The integration of print and electronic sources: A case study of the University of Swaziland Library. Afr.J.Lib.Arch. & Inf.Sc.2005; 15(1): 59-66

3   Murphy, L. The role of health science librarians in preparing tomorrow's doctors to manage information. Health Libraries Review. 2000; 17:.7-13.

4   Wightman, A.L. and Jane Williamson. The value and impact of information provided through Library services for patient care: a systematic review. Health Information and Libraries Journal. 2005; 22:4-25.