

CHAPTER 6

ACCESS TO ELECTRONIC HEALTH INFORMATION RESOURCES

6.1 Introduction

In this study '*access to electronic health information resources*' was identified as one of the major themes. This could be grouped into eight sub themes:

- Role of ICT in access and dissemination of information
- Availability of ICT
- Internet access and use
- Use of health information databases
- Use of mobile phones
- Telemedicine
- ICT skills and competencies
- Opportunities for enhancing access to information

In this chapter each of these eight sub themes is discussed in the subsequent sections.

6.2 Role of ICT in information access and dissemination

Patient care is a collaborative task, wherein medical professionals must work as part of a team. They need to share and exchange knowledge, resources and information pertaining to the care of their patients. In this context, information and communication technologies have a great potential as they have paved the way to unparalleled collaborative activities and shared expertise among the medical professionals. The participants were asked to give their views on the role of ICTs with regard to information access and dissemination in their profession. All the respondents were of the view that the

use of ICTs had revolutionized the ways through which information can be accessed and disseminated.

One respondent said:

It is facilitating communication and exchange of information amongst colleagues through teleconferencing and e-mail services. (Int002)

The respondent further went on to say:

Things are changing; everything is going electronically, and e-publishing is the order of the day. Therefore the profession cannot afford to be left behind. (Int002)

In practice ICTs have a great potential in improving the functioning of healthcare systems by improving the management of information and access to that information, including management of logistics of patient care and patient records. Most of the participants were of the view that '*medical alerts and updates on the conditions and management of patients*' was an area that has been enhanced by the use of ICT.

It is generally recognized by the medical professionals that ICTs and particularly the Internet is bringing changes in the medical practice as observed by one of the respondents:

These days everything is going electronic. We are living in a digital era; ICT is the new way of working. (Int004)

Another respondent said:

With internet you have access to information from a wide variety of sources. It makes communication faster and easy which also makes our work easier. These days it is difficult to work effectively without the new technologies. ...In an electronic environment

you are able to access patient records easily and much faster than it is at the moment. (Int007)

ICTs are potentially useful in improving the delivery of healthcare through better diagnosis and sharing of information and knowledge among medical professionals; and supporting professionals in medical literature search and retrieval, better training and continuing medical education (CME). Two respondents commented:

Increased knowledge and availability of information through improved access to a wide variety of information sources... (Int006)

So much in keeping up-to-date in recent advances in communication of knowledge and Continuing Medical Education as well as e-publishing; the e-mail facilities offer excellent opportunities for communication with colleagues. (Int001)

The participants acknowledged the role of ICTs in the practice of evidence-based medicine. The unveiling of the most current and best modalities of therapy is the basis in the practice of evidence-based medicine. This was exemplified by one respondent who noted that:

Evidence-based medicine would be best practiced along with most current modalities of therapy. (Int020)

Another respondent observed:

With ICTs review of published research findings and changing modalities of treatment can be compared, comparative studies and clinical data comparison in different settings can easily be undertaken for research and other purposes. (Int021)

For medical professionals at work, communication makes up an important part of their daily clinical practice. This communication encompasses different forms of interaction and dissemination of health related information and takes

place in contexts such as patient/healthcare professional relationships, coordination of work between medical professionals, research, medical education and lifelong learning.

Their general understanding of the role that ICT plays were also highlighted with the following explanations:

- Enables faster access to relevant, reliable and latest research information not yet available in the print literature;
- Gives current and worldwide information about the latest developments in the field of medicine;
- Leads to improved knowledge on health and support for evidence-based medicine and therefore improved healthcare services;
- Enhances formal Continuing Medical Education and distance learning and instructions as well as stimulating research;
- Avoids geographical boundaries and brings the world into one's desktop thereby saving time and effort when accessing information.

6.3 Availability of ICT

The study also sought to assess the type of ICT infrastructure, including the availability and utility of ICT tools and services that support and provide clinical functionality, information access and exchange among the medical professionals. According to key informants interviewed, the hospital operated on a local area network infrastructure for the Hospital Information Management System (HIMS) and to support the administrative functions,

financial operations and patients' registration only. Internet connectivity and e-mail facilities are also available.

All the participants interviewed acknowledged the presence of computers, mainly for word processing as well as limited Internet facilities in the hospital, but were quick to point out that the equipments and the Internet facilities were not available to clinicians. A few of the respondents' comments exemplifies the situation:

The administrators use most of the computers available in the hospital. There are no computers in the wards or in the consultation rooms. If I have to get connected here (Doctors' Plaza) I have to pay from my own pocket. (Int002)

Not available in the clinical services departments. Word processing tools are only available in administrative departments and offices." "... there is no Internet facility for clinicians in the hospital. (Int001)

We have no access to any computer as you can see. Most of the computers in this hospital are with the secretaries and administrative staff for their work. (Int007)

The use of CD-ROMs to obtain information and full-text articles appears to be very low. Only two respondents acknowledged the availability of a 'few CD ROMs, a fax machine and some audio/video facilities' and 'a few computers without internet connections' in the Drug Information Unit. One clinician commented:

For us none, the only technology that is available is the telephone. (Int003)

This scenario was confirmed from the key informants when asked the percentage of the medical professionals having sufficient computers connected to the Internet and with capabilities to access and operate electronic information resources. The main reasons highlighted by the respondents for having no computers and Internet facilities were the alleged *'poor attitudes and mentality on the roles of ICTs by the hospital administration, mismanagement of resources/wrong priorities and scarcity of financial resources.'* This was in response to a question asking them about the major constraints or limitations affecting access and use of electronic information resources in the hospital.

However, when one of the key informants was asked to give her opinion on what she thought were the barriers that hindered access and use of electronic information resources among the medical professionals some other factors emerged which included:

Ignorance or lack of interest from medical professionals, as well as resistance to change from staff and the national and sectoral (health) ICT policy which is not fully developed and implemented.
(IntK01)

6.4 Internet access and use

All participants reported using Internet access, but not at their places of work. When they were asked the outlets they used in accessing the internet services, a majority of the respondents said they did so from commercial internet cafés or other locations outside the hospital. However, one respondent reported accessing the Internet at home.

I have to get out of Kenyatta National Hospital to libraries at the university and AMREF or cyber cafes to access the World Wide Web. (Int020)

It is important to note that the majority of the respondents were not confined to a specific outlet, but used multiple points at different occasions depending on the convenience. Respondents also raised their concerns and frustrations with the lack of availability of electronic full text articles, even when a relevant article is located – it is often not possible to access it because the journal is restricted and requires subscription. Table 6.1 below indicates the Internet access outlets as reported by the participants.

Table 6.1: Internet Access outlets (n=39)

Internet Access Outlets	Number of Respondents	Percentage (%)
Commercial Cyber cafes	20	51
University of Nairobi Medical Library	15	38
Post Office	1	2.6
Nairobi Hospital Library	2	5
AMREF Library	2	5
Aga Khan Hospital library	1	2.6
At Home	1	2.6
Africa Air Rescue (AAR)	1	2.6

It was also reported that a resource centre was being established in Rahimtula building, around the hospital compound, through the initiative of Lord's Pharmaceutical Company, with the aim of assisting the clinicians to access electronic resources from the internet. Only two respondents reported the availability of these initiatives during the interviews. As one of them noted:

None, except the recently launched Lord's Healthcare Resource Centre at the Rahimtula Building which I have not been able to use. (Int019)

However, it was established that the majority of the participants were not aware of the services being provided.

When the participants were asked the main reason they used the Internet; communication by e-mail tops the list of the uses of the Internet cited by the respondents as the table 6.2 below indicates.

Table 6.2: Reasons for Internet use (n=39)

Use of the Internet	Number of Respondents	Percentage (%)
E-mail	22	56
Medical searches	12	31
Academic research	9	23
General health information	6	15
Leisure	1	2.6

The participants were asked if they had an e-mail address, and out of the thirty-nine respondents, only one had no e-mail address. Alerting services are highly valued; minimizing the risk of missing critical information was important for the doctors. The most prevalent uses of the e-mail as cited by the respondents were:

- Professional and social communication;
- Receiving journal alert and information on new publications;

- Communication with professional associations and colleagues;
- Personal and social communication;
- E- Medicine alerts and updates;
- E-journals alert services.

6.5 Use of medical information databases

The respondents were asked about the use of Medline/Pub Med, HINARI and Africa Journals Online (AJOL) databases. The level of awareness of these online health information initiatives varied and was generally low. There were mixed responses on their usage.

Of the thirty-nine participants, eighteen respondents indicated the use of Medline/Pub Med. The majority of the respondents were not familiar with both HINARI and AJOL databases: eight respondents said they had used HINARI and only two indicated having used the Africa Journals Online database.

I only know of Medline, which I use most of the time. I am not aware of the others. (Int004)

I have not been successful in the use of Medline. HINARI and AJOL are not familiar to me. (Int003)

Even those who had some awareness of these health information databases did not appear to use them. Some medical professionals described difficulties and frustrations on logging in to some websites and especially those that require passwords.

I don't use Medline; I am not used to it. Most of the time I log on to HINARI, I have once used AJOL, but couldn't get what I wanted; you can't even access the East African Medical Journal. I no longer use it. (Int007)

Some stated that even the passwords did not guarantee opening a website. Consequently, most of the respondents expressed preference for websites that do not require log in to access journals such as the Pub Med.

Some respondents however, were aware of free resources available on the Internet, some of which are meant for communities in developing countries. A few specifically reported accessing the following websites: the '*WHO websites*', '*Free Dermatological Clinics*', '*New England Journal of Medicine*', '*Dermatology Online Journal*', '*Oral Surgery*', '*British Medical Journal*' (BMJ), '*International Journal of Oral / Maxillofacial Surgery*' and one respondent reported accessing the '*Cochrane Library of Systematic Reviews*' occasionally'. The availability of these free information sources may explain why virtually all the participants in this study used the Internet as a source of health information.

6.6 Use of mobile phones

Mobile phones can increase the efficiency of healthcare provision by reducing communication costs and thereby improving the interface between healthcare professionals and patients. They can also provide avenues to access healthcare and health information.

During the interviews, the respondents were asked whether they used their mobile phones to access and seek information for clinical purposes. Sixteen respondents out of the thirty-nine participants said that they used it '*occasionally*' to consult their professional colleagues.

Yes, but not often. Occasionally I can consult a colleague over the phone. (Int014)

Sometimes I call a colleague, but not always. (Int011)

Nineteen respondents talked of using them sparingly or not at all, as one respondent noted:

I use it about once a week to consult seniors or reach a pharmaceutical company for information. (Int020)

The high cost of calling from a mobile phone '*it is simply expensive*' was the main reason highlighted by the respondent for not using the mobile phones for their clinical work.

Due to cost and information via a mobile phone may be short and hence inadequate. (Int021)

6.7 Telemedicine at Kenyatta National Hospital

By interviewing the participants and key informants, it was established that there were no telemedicine projects in place at Kenyatta National hospital. The respondents were asked whether they were familiar with telemedicine technology and if they applied it in practice. The majority of the participants indicated that they were familiar with the concept, but were quick to point out that they were not using the technology at Kenyatta National Hospital because there was '*no infrastructure to support telemedicine.*' Two respondents however, confessed that they were not quite familiar with the concept of telemedicine.

Information available from the audit of the available resources shows that there has been some little activity in telemedicine at the Kenyatta National Hospital. The only known project was initiated by an NGO, HealthNet Kenya,

was started as a National focal point of SatelLife in Kenya in the early 1990s. It was originally located at the KNH where it received free space in exchange for providing connectivity and information services to the hospital staff and students. Up until 1997 HealthNet Kenya, using both low earth orbit satellites and dial-up connections, provided e-mail and health information services (both electronically and on a walk-in basis) to medical professionals. Its operations deteriorated provoking the withdrawal of SatelLife and the hospital from HealthNet Kenya. Currently, there is no active sustainable telemedicine program in operation. Partly for the reason, that the government has been reluctant to embrace ICT for social and economic development for some time. However, the interest for harnessing ICT for development is growing. The government has recently declared ICT as one of the key areas of social and economic development.

6.8 ICT skills and competencies

The amount of information being made available from the internet and other electronic resources, together with the issues arising from appropriateness and reliability of the available information, means that medical professionals require information literacy and sufficient ICT skills. This is to enable them to take up the opportunities offered by the electronic healthcare information resources and to search for information that meets their needs.

During the interviews, thirty-four respondents out of the thirty-nine participants rated themselves as having adequate ICT skills and capabilities to enable them utilize ICT tools and services effectively. Only five reported lacking

sufficient ICT skills and competencies. The participants were asked whether they were able to search for relevant health information from the internet and other electronic databases independently. Twenty-five respondents reported that they could access electronic information independently, while nine indicated that they experienced problems and required assistance to be able to access information from the internet and other electronic sources. One respondent said in response to the question:

Not so well, I usually ask for help whenever I experience a problem from whoever is around.
(Int005)

When the respondents were asked to give their opinion as to why such assistance was needed, the majority of the respondents indicated lack sufficient knowledge on how to utilize various ICT tools and services; and lack of ICT equipments and other related facilities, as exemplified the following three statements:

Some of us also lack knowledge and skills on how to browse and evaluate the internet sites for relevance; we end up wasting time going through so much irrelevant information. (Int007)

Use of the internet is not taught to the students, one has to learn on their own initiative. (Int008)

...the local support system for the internet is poor; and lack of awareness and know-how. (Int022)

Self-taught method was the most commonly used means of acquiring ICT skills. During the interviews the participants were asked how they learned to use computers and the Internet facilities. The majority reported acquiring the

skills on their own ‘*through self initiatives*’ and ‘*hands-on experience.*’ In this regard two respondents said:

I have not had any computer training; I just use trial and error when I am browsing the internet. (Int005)

Self- directed study and hands-on experience. (Int019)

However, seven respondents reported acquiring their ICT skills through formal training, then enhancing them by active usage.

Through formal training- by attending a computer course, e-mail course, and learned how to use four [computer] packages. (Int017)

Yet, another respondent said:

During my high school days, but most of these are learnt and enhanced in active usage. (Int020)

Besides being ICT competent and computer literate, the majority of the participants were not quite familiar with medical information databases and websites. Comments from the participants who took part in the interviews and during informal discussions suggested the need for increased information literacy and ICT competence skills to a point where they feel confident that they can find and use the information they need efficiently and effectively.

...sensitize the medical personnel about the importance of these ICT tools and services. (Int006)

“It would also be important for the management to organize the necessary training for the medical staff to enable them utilize ICTs and electronic health information resources effectively.”(Int007)

Extending and further enhancing e-resources would only be successful if accompanied by targeted programs of training and coaching. During informal discussions, staff that commented on the nature of training indicated a

preference for structured programs of short training sessions. They also stressed that short, sharp opportunities could be more easily fitted in, as one respondent put forward a suggestion for:

...in-house continuous health education workshops on the use of internet and all the different ways of using the World Wide Web (Int008)

Another respondent stressed the need for:

Training to influence attitude change for the older calibre of staff to adopt IT as a competitive tool (Int009)

Desk-side training, group training, and e-learning and training programs-embedded at the point of use would provide the mix of training required to meet individual learning style. As well as increasing personal skills levels, information skills training should also enable medical professionals to know when they need the assistance of staff with professional library and information services skills and should encourage them to make full use of the available resources. In this regard, one respondent urged the hospital management to *“provide support for utilization of electronic resources in terms of qualified information professionals and technical staff.”*(Int011)

These views were also echoed during in-depth interview with one of the key informants who said that in addition to *“providing an enabling environment in terms of computer laboratories, internet and intranet facilities”*, there was also the need for the training and *“enhancing computer literacy and creating awareness about the advantages of ICT usage”* (K01) among the medical staff.

The participants expressed interest in acquiring further a variety of ICT and information skills topics such as:

- How to browse the web effectively;
- Searching online medical information and various internet search strategies;
- How to access electronic medical journals and e-books;
- Communication via internet based e-mail;
- Downloading materials from the internet;
- How to evaluate websites for relevance.

Some respondents pointed out the need for '*simplified ICT training*' and '*skills on computer know-how*'... to be able to utilize the Internet effectively. There is need for continued education to update the medical professionals' knowledge and skills in the use of information and communication technologies.

6.9 Opportunities for enhancing access to health information

The participants offered a number of potential approaches for overcoming the access barriers. They requested that access to information resources be provided in a variety of ways including electronic delivery through the internet, information resources based near or in departmental areas and the establishment of hospital library and information services, such a library should be managed by qualified information professionals. These comments are further discussed below under the following sub headings:

- Management support: strategies and policy
- Information services provision and staffing
- Provision of accessibility to electronic information sources

- E-resources procurement and content expansion
- Fostering partnerships and collaboration

6.9.1 Management support: strategies and policy

Comments were made on the insufficient support given by the hospital management regarding access and use of electronic information resources. During the interviews, participants were asked whether they thought the hospital management supported the use of electronic information resources for guiding their clinical work.

Twenty-eight respondents out of the thirty-nine participants who were interviewed indicated that the management was not doing enough, as exemplified by the three responses:

They [management] have not thought about it clearly or they are not aware of the importance of information, or the role of ICT. If the people up there are serious about it, they would give it a priority. (Int003)

I don't think they care about our work; they are not bothered about our clinical work as long as we are doing it. (Int005)

...their priorities are in financial control and administrative services, and not in improving information services for the doctors. (Int004)

They were further asked to give their opinions as to why they thought the hospital management was not providing sufficient support on the use of electronic information resources. The majority of the respondents were of the view that: the poor attitudes and mentality on the use of ICT; poor priorities and mismanagement of resources; lack of policy framework on ICT; and

limited financial resources as the main reasons for the insufficient support. However, a few respondents felt that the management was '*supportive*' in that it was '*limited by the availability of resources.*'

As regards to the formulation of the institution's policies, it was established that the ICT strategy/policy was not yet available. According to one of the informants, it was "*in the draft form*", which was "*yet to be finalized for approval and implementation.*" The informant could not divulge its content since the document was not in the public domain.

It was also found that the hospital had put up a local area network for the hospital management information system (HMIS) and that an online patient registration was in operation. During interviews the informant noted that among the hospital's top priority ICT need was to '*automate the key departments that relate to patient care*' and were therefore in *the process of automating the medical records.*" Internet connectivity and e-mail facilities were available but limited in a way. The reasons advanced for adopting the use of ICT were '*to reduce redundancies associated with manual systems, to raise revenue and increase efficiency.*'

Kenyatta National Hospital management 5-year Strategic Plan for 2005-2010 outlines the strategic objectives to be pursued to achieve the hospital's vision and mission which are: '*To be a regional centre of excellence in the provision of innovative and specialized healthcare*' and '*To provide specialized quality health care, facilitate medical training, research and participate in national*

planning and policy' respectively (KNH Strategic Plan, 2005-2010). In formulating the strategic plan, the management was conforming to the ongoing government policy on health sector reforms that lay emphasis on performance-based management for effective service delivery (NHSSPII, 2005-2010). However, one informant did indicate that the institution was not able to initiate any of its priority ICT needs

...due to budgetary constraints - the needs are many, resources are few. ...most of the funds come through cost sharing revenues. (K01)

The current trend in the effective use of a website is the hosting of the institutional repositories which can be shared with other institutions on-line through Internet connections. A close scrutiny of the KNH website reveals that the information available is the description of the hospital its services and resources, purpose of which are:

...communication and a public relations tool to improve the corporate image" and "create awareness about KNH and what we do. (K02)

6.9.2 Information services provision and staffing

The most prevalent request was for greater access to library facilities, more up-to-date textbooks and reference works, journal subscriptions and computers with access to online electronic information resources.

They should set up a library and information system with updated books, set up a network in the hospital with internet facilities and provide information at the point of care. (Int003)

An expectation of enhanced access to information with the assistance of expert help being available on demand was expressed. It was strongly

proposed that qualified information professionals should manage the library and information services.

We would like to have a library well stocked library staffed by people well versed in information delivery mechanism. (Int007)

Health information specialists can play a key role in the education of health professionals in two areas – that of training in information literacy and ICT skills, and also in developing and promoting an evidence-based culture.

The enormous of relevant information in diversified format and sources coupled with the *time constraints* of the medical professionals mean that only a few sources will actually be consulted. Most information related problems in clinical practice are therefore left unresolved and only a few are solved by *consulting colleagues*. It is therefore self-evident that the busy clinician will never become accustomed to performing high quality, reliable and extensive search and retrieval in bibliographic databases, journal or on the internet. These tasks are best performed by information professional or a clinical librarian, who is able to meet the physicians on a regular, weekly basis by attending rounds and providing the necessary infrastructure that brings evidence-based medicine into practice.

Winning and Beverley (2003) have provided the definition of clinical librarianship as “the provision of quality filtered case specific information directly to health professionals to support clinical decision making.” Therefore, the clinical librarian, as a member of the health care team, should be readily available to supply information to improve the quality of patient-care or for the

clinician's continued professional development. Participation of a clinical librarian on the health care team can also promote a more academic approach to patient management, whilst providing evidence to support practice, which will improve patient care. Alan Gillies (2000) also is of the view that many of the specific skills that are required by clinicians to make use of information are skills traditionally within the remit of librarians, such as literature searching skills.

There were comments that the information resources needed should be within reach so that they can be used regularly. Medical professionals who are unable to leave their departments during working hours and whose breaks are too short to allow for a visit to the library would all depend on having good quality sources of information within their work environment. In this regard a respondent said:

We would like to see computers for doctors and access to the Internet services at all points of patient care. (Int003)

Another respondent also echoed these views when he said:

Make information available to doctors in their work places. (Int006)

The key point in providing evidence at the point of care is the speed at which information can be delivered. Information needs to be available within seconds if it is to be incorporated into busy clinical rounds; and this is reiterated in primary care where research has found that General Practitioners will spend no longer than two minutes looking for answers to questions that arose in consultations (Ely et al., 1999). Information services and the

availability and accessibility of sources also need to be visible to a large number of non-users within the hospital. Marketing and promoting is a key action. The services will not be used to their full potential unless a hospital-wide marketing strategy is developed. The marketing strategy should embrace not only the sources and services available, but also the library and information services staff should possess adequate information skills to facilitate provision of information services at the hospital.

6.9.3 Provision of accessibility to e-resources

The need for computers, Internet facilities and access to electronic information sources in the hospital was repeatedly raised in the context of other problems, especially those involving finding and effectively using clinical information.

Due to the busy schedule of the doctors and lack of time during working hours, most of the participants agreed that the best time to access and use both the library and the internet services is out of office hours. One respondent noted:

...we would like to see 24 hours internet services in every ward and in consultation rooms. (Int002)

Access to Internet and electronic information resources reflects the medical professionals' need for instant access to the evidence that informs practice. The busy clinicians want to have fast, easy access to resources; from anywhere they want to be, as one respondent noted:

...provide internet facilities in all departments, and subscribe to relevant e-journal for all departments and avail passwords for accessing them. (Int019)

Access to electronic information resources was also seen as a first and last resort for those having difficulties in accessing a physical library either through lack of time or difficulties in gaining access to the site.

Good practice in large health organizations indicates a strong move away from hard copy towards electronic resources. There appear to be no reasons for Kenyatta National Hospital not to take the challenge to embrace access to electronic resources and provide the ICT infrastructure for greater PC and network accessibility for the clinical staff. This would provide clear development opportunities not only with e-journal but also with e-books and reference materials as their availability increases.

6.9.4 E-Resources procurement and content expansion

Increased investment in electronic resources and accessibility to e-journals is essential to meeting the needs of the medical professionals who find the current resources lacking.

Most of the time information is not readily available from the internet, it is restricted and you have to subscribe to access it. (Int005)

The other major problem with journals from the internet is that most of them are restricted; you need to subscribe to gain access. (Int007)

The participants were of the view that ‘*providing internet services and paying subscription to the relevant e-journal*’ would improve access to health information and overcome some of the problems experienced by the medical professionals.

Whilst many users would continue to use a small number of journals in print form – scanning current professional journals to maintain their general current awareness, there is a considerable scope for increase in the use of e-resources. This is the most obvious route to solving the problems of access to physical library. The participants particularly noted problems due to operating hours, time as a result of their work schedule and the physical location of the libraries. Investment in electronic delivery, coupled with promoting awareness of available resources and how to search them could increase overall usage of e-resources substantially, and at the same time address some of the other issues and concerns such as the quality and accessibility. The e-content procurement could lead to cost-effectiveness, whilst the library would continue to provide print services, but increasingly at a reduced level.

6.9.5 Fostering partnerships and collaboration

The findings show that most of the medical professionals at Kenyatta National Hospital were either deliberate or instinctive non-users of their local information services seeing little or no relevance to their needs and making themselves self-sufficient in their information resources. The dependence of library and information services on locations outside their workstation and the wide variations in access to electronic information resources clearly disadvantages the medical staff in all areas. Medical professionals however, identified their organization and other institutions as important resources and saw opportunities for KNH to link with these institutions in order to reduce information gaps.

Infrastructure needs to be put in place in a way that enables KNH staff to gain access to more e-resources at a sensible investment level, which represents value to them, and in a way that enables medical professionals to access the information they need without encountering the barrier of *“they don’t subscribe.”* In this regard, medical professionals particularly see opportunities for increasing access to good practice and to information in *“enhancing collaborations”* and fostering partnership and in particular *“with the University of Nairobi [College of Health Sciences] and other research institutions.”* (Int022)

The findings suggest that streamlining the provision of electronic information resources will enable new models of information service delivery, which could usefully be built around a network of linked national and international initiatives including professional organizations to which most of the medical professionals belong. With some sensible investment levels and through agreements with publishers, it is possible for the medical staff at KNH to obtain access to many journals at no cost. Arrangements for subsidized access can be made through several different programs such as the Programme for the Enhancement of Research Information (PERI), a programme of INASP, and the HINARI programme, an initiative of WHO which allow free access to full text journals in academic and medical institutions, teaching hospitals and government departments in low income countries.

6.10 Summary

The effectiveness of a health care delivery service depends on the quality of research and the ability of the medical staff to translate the results into better health services. This requires access to relevant and up-to-date health information as well as opportunities to communicate and exchange information with other stakeholders. Clinicians will also need access to ICT facilities in their offices and on the wards if conducting reviews of evidence is to be incorporated into their daily clinical practice. This is greatly facilitated and enhanced by the use of information and communication technology.

Some of the areas of ICT application in health care services include enhancing health administration and management through medical information systems and decision support; access to and dissemination of health information for medical education and research; and improving access to skilled diagnosis through telemedicine and mobile telephony. Medical professionals will require sufficient ICT skills which will enable them take up opportunities offered by ICT. During interviews with respondents, some potential approaches for enhancing access and use of electronic information resources were suggested. These include: management support, fostering partnership and collaboration as well as increased investment in ICT infrastructure, electronic resources and subscription to e-journals.

Opportunities for subject based networks were also mentioned, the participants saw online communities as practical and valuable – as sources of information as much for clinical support and problem solving. This type of

structure and arrangement could have the advantages of providing a basis for:

- sufficient capacity to target all occupational groups and provide essential and tailored, value added services;
- an equitable networked and transparent service;
- building on some existing national and international initiatives rather than duplicating effort and investment; and
- delivering new and exciting roles for library and information professionals.