CHAPTER 4

INFORMATION NEEDS AND INFORMATION SEEKING BEHAVIOUR

4.1   Introduction

Interview, observational and audit data yielded information about the availability and use of ICT for accessing health information by medical professionals. This chapter is the first of the three that describe and interpret study findings. The chapter starts with a description of the characteristics of the study participants and their work environment. Detailed discussion of their information needs and information seeking behaviours are also presented.

4.2   Participants characteristics and work environment

Thirty-nine medical professionals were interviewed and the breakdown of their professional specialization is indicated in Table 4.1.

Table 4.1*: Sample distribution by medical speciality (n = 39)*

Area of Specialization	Number of Respondents	Percentage (%)
Anaesthesia	2	5.1
Dentistry	4	10.3
Dermatology	2	5.1
Diagnostic Radiology	3	7.7
General Practice	5	12.8
Internal Medicine	6	15.4
Obstetrics and Gynaecology	5	12.8
Ophthalmology	2	5.1
Paediatrics	4	10.3
Pharmacy	2	5.1
Surgery	4	10.3
Total	**39**	**100**

Different terms for medical professionals are used. In Kenya the common terms used are Medical Officers (General Practitioners), Dental specialists, Pharmacists and Consultants. The specialized physicians are designated as Medical Specialists or Consultants. Among the thirty-nine respondents; sixteen were medical specialists in different medical fields, twelve registrars, five general practitioners, four dentists, and two pharmacists. The table 4.2 below indicates the respondents' distribution by professional status at place of work.

Table 4.2: Sample distribution by professional status (n=39)

Professional Status	Number of Respondents	Percentage (%)
Medical Specialists	16	41.0
Registrars	12	30.8
General Practitioners	5	12.8
Dental Specialists	4	10.3
Pharmacists	2	5.1
Total	**39**	**100**

Medical professionals at KNH have a wide variety of needs for information and varied significantly in their level of skills in accessing it. KNH medical doctors who were interviewed had no computers capable of access to the Internet. The computers that were available and being used in the clinical departments were reserved for the secretarial staff and were used for administrative functions. The majority of these computers do not provide access to online resources. There are no cybercafés or Internet laboratory within the hospital buildings where doctors can access online information resources except at the nearby Post Office and the University of Nairobi Medical library. The Internet facilities available at KNH are limited to the

management and administrative offices. Most of the clinical services departments are ill equipped to accommodate ICT. The small 'library' located in the Rahimtulla building has about 2000 publications, majority of which are outdated reports and textbooks. There are no information professionals at KNH; and a clerical staff manages the 'library'.

Kenyatta National Hospital also hosts a website, but a close evaluation shows that the website is not capable of providing a link and access to electronic information resources or even access to the hospital documents. However, the use of the internet and health information databases also differed widely due to variation in both needs and skills of the respondents.

Regarding the nature of their work, medical professionals at KNH undertake several duties and responsibilities: clinical duties, patient care and management including diagnosis and treatment, teaching, lecturing and research, ward rounds, surgery, theatre and intensive care services, radiological diagnosis, oral hygiene instructions and prescriptions and drugs management. According to the Legal Notice No. 109 of 1978, the hospital is mandated to:

- To receive patients on referral from other hospitals or institutions within or outside Kenya for specialized care;
- Provide facilities for education and training of students at the University of Nairobi Medical School and Kenya Medical Training College (KMTC);
- Carry out clinical research either directly or through cooperation with other health institutions;

- Participate as a national referral hospital in national health planning.

KNH is also involved in working with other external coalitions to develop national wide collaborative prevention and control plans for diseases. It is therefore evident that a wide range of medical professional is employed at Kenyatta National Hospital whose majority of their time is spent in their roles of direct services to the patients.

Table 4.3: Number of years of work at KNH (n=39)

Years of work At KNH	Number of Respondents	Percentage (%)
Up to 5 Years	15	38
6 to 10 Years	19	48
11 Years and over	5	14
Total	**39**	**100**

Average time in practice at Kenyatta National Hospital was 7.3 years (range between 6 months and 21 years, median 7 years). On average majority of the participants had worked for over five years in their areas of specialization.

Three key informants were also interviewed. They included the planning manager, Senior Systems Analyst and senior library assistant. The planning manager was responsible for corporate policy and planning, performance management and projects/programme developments and had been working for the hospital for over 3 years. The systems analyst was in-charge of ICTs

and systems support. Other responsibilities included acting as intermediary by helping departments to solve their computer problems in terms of software and hardware requirements. The library assistant was in-charge of a small training library, which is under the personnel department.

4.3   Information needs and information seeking behaviour

Information seeking denotes experiences or situations in which content is accessed, used and synthesized into personal knowledge. It has therefore been viewed as a cognitive exercise, as discrete strategies applied when confronting uncertainty. Wakeham *et al.* (1992) define information need as 'what is perceived to be required for the competent performance of professional tasks'. An understanding of information needs therefore focuses on why information is required, and the sources from which it is obtained.

When the participants were asked to describe some situations they had encountered, where they needed information/or help to be able to continue with their clinical work, they were all very emphatic. The respondents interviewed indicated that they all encountered difficult disease conditions on several occasions, and at times face dilemmas of treatments and diagnosis when they needed and sought help in one time or another. Some respondents could remember specific situations. One respondent, a cardiothoracic surgeon talked of "*a specialized surgical case of a lady he had undertaken*". (Int002)

In another instance, the respondent from the department of obstetrics and gynaecology recalled a case he had encountered that required*: "the management of HIV//Aids in pregnancy and gynaecological cancer".* (Int012)

In another interview the respondent narrated his encounter with some *"cases of massive tumour of the face."* (Int001)

In all these instances, the respondents reported that they used various means to pursue their information needs and to address clinical dilemmas. However, for most of the respondents it was not possible to remember a single situation right away, but acknowledged the dilemmas they faced in the course of their clinical practice, as illustrated by the following two quotes:

> *We normally come across many cases in the course of our clinical work that we need to refer in one way or another".* (Int007)

> *Sometimes cases arise of multidisciplinary nature and you are faced with dilemmas of how to manage them* (Int019)

This question was used at the beginning of the interview to create a relaxed interview environment and focus participants' thought processes on the subject of information needs and information access.

4.3.1 Types of information needed

Medical professionals have several roles and related tasks from which their information needs arise. Moreover, the participants need information for their practices, even if they don't acknowledge this; they don't really seek information, they talk more of 'being constantly informed'.

When the participants were asked the kinds of information they needed to support their clinical practice, the following types of information emerged from their statements:

"The latest from journals for professional development, for the purpose of research and also as an aid for treatment and diagnosis"

"Information that will keep them abreast with the new developments"

"Information in clinical medicine for treatment and management of patients and for drug prescriptions and dosage"

"recent advancements in treatments from medical journals and papers"

"information about new drugs, information on various disease conditions, their manifestations, treatments and therapy as well as continuing medical education (CME)"

"information on diseases, treatments and new ways on management of patients"

"information that will assist in diagnosis, better treatment and quality management of patients"

"information on disease conditions and drug information to aid treatment and management of patients"

"drug information, updates of management of conditions, continuing medical education (CME), and medical legal information"

"latest information on current practices in medicine for keeping up-to-date"

"new knowledge in drugs, treatment options and recent approaches to treatment modalities"

"clinical trials and case reports, new ways of treatment as well as new advances in technology"

From the above statements, seven distinct categories of information can be discerned from the participants' statements about the kinds of information they required for their clinical work:

Table 4.4: Kinds of information required by medical professionals

• Patient-care information
• Pharmacological (drug) information
• Recent advances in medicine
• Latest approaches to treatment modalities
• Medical-legal information
• Latest information on current practices in medicine
• Clinical trials and case reports.

Needs for information arise continuously during the course of clinical practice, especially for the physicians in training; for example during patient examination, when participating in ward rounds or attending conferences. In order to give their patients a better and more accurate diagnosis, they need not just information, but also continuous medical education and lifelong learning. Clinical information was viewed as a high priority to ensure clinical interventions were evidence based. Some participants felt that there was 'a dearth of information out there about diagnosis, about management, about effective forms of treatment for various ailments, or changing forms of treatment – even basic things, administering medication and monitoring side-effects.' Others needed to get information for their field of specialization or to prepare some lifelong learning events for their role in teaching and research.

4.3.2 Information sources consulted

Whether or not a person meets his or her information needs depends on a range of factors such as: lack of time, poor access to information sources and systems, the cost of resources, and information overload (Nicholas, 2000). He goes on to say that psychological factors, such as motivation may have the greatest influence on information seeking.

Interviews with respondents confirmed that they had established their own personal information domains – their own routes to information using a cluster of resources – *professional networks, professional societies, and e-resources, specific journals and reference materials*. For the junior doctors and registrars, study and training stimulated much of their information needs, satisfied through *printed textbooks* and *journals*, the *Internet*, *Google searches* and *medical databases* such as the *Medline*. Most professionals acknowledged approaching work colleagues in the office or in the team for information. They also made use of colleagues on professional courses to remain up to date. Frustrations in getting access to up to date textbooks and journal articles were noted. The potential of full text e-resources and reference materials were confirmed. They needed rapid access to reliable and relevant information when encountering new and/ or difficult conditions. Journals and the Internet were essential for general updating; specific reference sources were used for clinical support. Access to libraries was particularly difficult and electronic access would appear to offer a way for them to be able to access and use a wider range of resources. Medical professionals at KNH had no access to computers and did not use them in their places of work.

In response to the question on the mechanisms they use to address situations when faced with dilemmas of diagnosis and treatment, the respondents identified the sources of information they used most frequently as presented in table 4.5 below:

Table 4.5: Information sources used (n=39)

Information sources	Number of Respondents	Percentage (%)
Professional colleagues	39	100
Textbooks and journals	39	100
Internet and e-journals	38	97
Pharmaceutical representatives	4	10
Medical records	1	2.5
Personal Digital Assistant (PDA)	1	2.5

Professional colleagues

All the participants interviewed indicated regular use of colleagues and other medical specialists as their preferred first information source choice alongside textbooks and journals.

> *With multidisciplinary cases such as this we consult among colleagues.* (Int001)

One respondent stated in reference to a surgical case: *"I had to consult the professor and other professional colleagues."* (Int002)   Another respondent talked of "*consultation with senior doctors and specialists' in-charge of the departments."* (Int021)

All medical professionals interviewed communicated with colleagues probably because this method (source) could provide an immediate, accurate, and

reliable answer to a patient care question, while the patient was still with the doctor in the consultation or examination room. Most of the medical professionals preferred to talk informally to the colleagues with whom they were working with in the same unit as one respondent said:

> *Because we are usually more than one here in the Casualty [department], I (we) normally consult among ourselves.* (Int007)

For formal referrals, medical professionals referred patients with formidable medical problems to medical specialists in specialized clinics within the hospital. In this respect, some respondents had this to say:

> *If you think that the case is more complicated, it is normal to refer it to a consultant in a specialized clinic.* (Int007)

> *If you feel you have not consulted enough (still uncertain), you send the patient to the concerned clinic.* (Int003)

This happens most frequently in the Casualty department, which is normally the first point of call for most of the patients coming to seek medical services at Kenyatta National Hospital. The transfer of patient care information occurs through discussion of the patient's medical problems and the receiving specialist's review of the referral report. Colleagues thus serve as an easily accessible source of information, usually saving the time and effort required to consult books and journals, even for those with personal collections.

Pharmaceutical representatives

Information from the pharmaceutical companies and their representatives was also valued and seen as readily available by some respondents, possibly due to their highly proactive and personalized approaches targeting doctors with

drug information. The general preference for informal sources, and in particular, the importance of personal contacts as a channel of information would demand that the hospital planners promote greater interaction among the health professionals through regular seminars, conferences and workshops, as well as professional bodies. In addition, the policy planners should also embrace the internet-based Interactive Health Communication (IHC). This would contribute effectively to dissemination of knowledge and afford opportunity for interactions among the medical professionals. It would also enhance increased access to health information and support for the healthcare providers.

<u>Textbooks and journals</u>

Textbooks and journals also served as important sources of information for the medical professionals. All the participants used either of these two as one of their major sources of information. Handbooks are especially common in the pockets of registrars and interns as one respondent noted:

> *I use books (pocket handbooks) for clinical purposes.*
> (Int003)

The most frequently used handbooks commonly found in the pockets of medical practitioners were the British National Formulary (BNF) and Monthly Index of Medical Specialities (MIMS), revealing the importance of pharmacological (drug) related issues of uncertainty. Interestingly drug related enquiry was the only context in which information seeking occurred in the presence of the patient. This may be due to the reason that clinicians anticipated finding answers to their questions about medications quickly and easily, probably because of their familiarity with the format of the BNF and

MIMS from the earliest stages of their medical training, and their well-established use in practice.

All respondents used journals as a source of information. It was established however, that none of the respondents interviewed had individual journal subscription, although one respondent reported sharing *"cardiothoracic journals with colleagues"*. (Int002)

The majority of the respondents reported that they accessed these resources from the libraries outside Kenyatta National Hospital, and specifically from the University of Nairobi Medical library and the Nairobi Hospital library. Kenyatta National Hospital being a teaching and referral hospital, the respondents in this study were therefore more oriented towards teaching and research; hence their preference for textbooks and medical journals as sources of information. Three respondents reported having personal collections that they used.

Internet and e-journals

Internet and e-journals also serve as important sources of information for the medical doctors. Almost all the respondents interviewed described using the Internet and using google for searching health information from the World Wide Web. When asked whether they had access to the Internet facilities in their institution, the answer was in the negative.

When the medical professionals were asked where they go for the internet services, the majority said that they used the cyber cafes in the town and at the Post Office, as well as the internet facilities at the University of Nairobi, Medical library, Nairobi Hospital and Aga Khan Hospital libraries, and AMREF Information and Resource Center. One respondent reported having access to the Internet services at home. Another one respondent accessed the Internet from Africa Air Rescue (AAR) where he does his locum. The key informants interviewed confirmed lack of the Internet facilities at KNH.

> *The proper facilities are not available currently [due to], ignorance or lack of interest from medical professionals.* (K01)

Internet access and use is further discussed in chapter 5 (section 6.4).

Personal Digital Assistant (PDA)

A PDA refers to any small hand-held wireless device that provides computing and data storage abilities. The term 'hand-held' is a synonym. Hand-held technology is emerging as an effective clinical tool to aid evidence-based practice and support the educational needs of the clinical staff. Through the use of hand-held computers, it is now possible to search for information at the bedside – '*the point of care'*, enabling information to be checked before decisions are taken with a resulting benefit to patient safety.

The findings of this study revealed that Personal Digital Assistant (PDA), the newest electronic means of downloading healthcare information had little use as a medical information source. Only one respondent among the study

participants had access to a PDA, which he used, as a source of clinical information.

4.3.3 Use of clinical guidelines and protocols

The findings of this study revealed the importance of the medical doctors' personal experience as a knowledge source for practice. Much of the clinical information used by the medical doctors comes from peers, personal notes on patients or diagnostic tests. Doctors prefer to seek opinion of experts rather than consult guidelines or manuals.

During the interviews, some of the participants indicated awareness of only a few specific guidelines from the Ministry of Health. These were mainly in form of charts and posters. They particularly mentioned the guidelines on the 'management of rape cases'; and 'management of HIV/AIDS patients', some of which were conspicuously displayed on the walls in most of the consultation rooms in the hospital.

> *There are some standard operating procedures and protocols, but where do you get them?* (Int005)

> *The few that I see on posters are issued from the Ministry of Health; otherwise most of us use the principles we acquire in our professional training.* (Int002)

Generally, the guidelines and protocols were viewed as neither useful nor accessible for resolving uncertainty arising from clinical work. Majority of the participants interviewed believed guidelines described routine practices that were already familiar; rather than providing direction when unforeseen need for information arose.   They were also quick to acknowledge that it usually

was quicker and easier to consult a professional colleague when the need arose.

Moreover, doctors indicated that often protocols were not based on up-to-date evidence, and this claim was validated by findings from secondary sources. Audit of the available sources of information also revealed that written clinical guidelines and treatment protocols at Kenyatta National Hospital were not well developed.

4.3.4 Reasons for seeking information

Articulated by all the respondents, the clinical care of patients was the primary reason for seeking information. The majority of doctors interviewed were able to cite recent examples of their quest for clinical research evidence. This search for information appeared to vary in methods and motivation. Some considered consulting a senior colleague, a medical consultant or informed peer for their opinion as search for evidence, whilst others engaged in printed text and journals for information. A number of medical professionals in the sample were registrars whose information seeking behaviours may have been motivated more by professional examinations than by the desire to search for information to inform their immediate clinical practice.

Information need was therefore perceived as problem-oriented. However, for the majority of doctors gaps in knowledge identified during the doctor-patient consultation and the need to enhance the quality of services they offer to their patients motivate the medical professionals to make effort to seek information.

> *The major reasons for seeking information are to aid treatment and management of patients.* (Int007)

> *To give [provide] better patient care service and also*
> *to keep up-to-date and well informed on the current*
> *developments*. (Int026)

In radiology, information on how radiological equipments and machines work is very crucial for effective interpretation of MRIs. In this regard one respondent specializing in diagnostic radiology said that:

> [One of] *the major reason for my seeking information*
> *is to be able to interpret medical images (MRIs) for*
> *effective diagnosis and treatment of patients.* (Int004)

Information seeking occurred almost exclusively in relation to the 'structured' clinical uncertainty-surrounding medications, that is to say, to check dosage of currently introduced drugs, frequency of administration or their side effects and interactions. In addition, to back up prescribing decision was also cited as a factor that prompts information seeking as frequently as specific gaps in knowledge on 'new' modes of treatment and diagnosis motivate medical professionals to pursue information. As this respondent pointed out:

> *For confirmation of drugs and dosage: just to make*
> *sure that you are doing it right to guide treatment of*
> *patient*. (Int004)

Sources accessed for these purposes included the *British National Formulary* (BNF) and *Monthly Index of Medical Specialities – Africa* (MIMS-Africa).

Kenyatta National Hospital is a referral hospital, medical professionals are likely to encounter many rare disease conditions and which are likely to be multidisciplinary in nature, and this may prompt them to seek information as one respondent noted:

> *Some conditions in patients at KNH require a further consultation as this is a national referral hospital; also treatments of various [disease] conditions are continually changing, hence the need for information.* (Int021)

The need to update, keep abreast of developments was expressed by more than three quarters of the respondents. Due to the dynamic nature and the need to provide quality patient care service, medical professionals need to be well informed of the current and best practices in medicine. For example, one of the respondents said:

> *My friend, medical field is very dynamic, things are changing everyday; you need to up-date yourself, and also one needs to be aware of the current advances. Continuous Medical Education is essential…* (Int001)

For the medical professionals, CME programmes and lifelong learning is an important aspect. They need to continually apply skills and knowledge, which require a process of continuous learning and improvement. After the university, lifelong learning can be local medical associations' meetings, congresses or postgraduate courses. Most of the respondents interviewed attended local and international meetings to exchange ideas with colleagues, to take educational courses to stay up-to-date on current medical practices. Although not a primary source of answers to the specific patient care questions, medical meetings serve as a valuable source of general medical information. This is important to ensure that they can deliver high quality levels of healthcare.

All the participants indicated that in medicine things change fast, hence the need to keep current by updating one's knowledge. Besides, new drugs, rare

and complex disease conditions arise every now and then; and these prompt the need to seek information. In this respect one respondent had this to say:

> *In medicine things change very fast, you need to keep current by updating your knowledge, new drugs are coming up every now and then and you need to know about them for better and effective management of patients.* (Int015)

Evidently, majority of participants were more oriented towards teaching and research, Kenyatta National Hospital being a teaching and referral hospital. This therefore created the need for information to support the roles and tasks related to their teaching and research activities. Maintaining competence throughout a career during which new and challenging professional responsibilities will be encountered is a fundamental ethical requirement for all medical professionals.

4.4   Summary

This chapter is the beginning of the empirical investigation of the problem under study. In this chapter, the characteristics of the study participants and their work environment were presented. The findings related to the information needs and information seeking behaviour of the medical professionals is then presented.

The study shows medical professionals to be a particularly information-conscious set of practitioners needing a wide variety of information, but is less well served in information terms. Particular issues, which emerged, include: the kinds of information medical professionals require for their clinical work. These are: - patient care information, pharmacological/drug information,

advances in medicine, latest approaches to treatment modalities/current practices in medicine, clinical trials and case reports, and medical-legal information.

The search for information also appeared to vary in methods and motivation. Majority of medical professionals considered consulting colleagues for their opinion, whilst others engaged in printed text and journals for information. Medical professionals believed clinical guidelines and protocols described routine practices that were already familiar, rather than providing directions when unforeseen need for information arose.