EFFECTIVENESS OF MEDICAL RECORDS IN THE PROVISION OF HEALTHCARE SERVICES AT KENYATTA NATIONAL HOSPITAL

BY

MARGARET NJOKI MBUGUA

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ELDORET

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DECLARATION

STUDENT DECLARATION

I declare that this is my original work and has not previously being submitted to any University for an award.

Margaret Njoki Mbugua
IS/MPHIL 025/08

21. 11. 2013
Date

DECLARATION BY SUPERVISORS

This Thesis has been submitted for examination with our approval as University supervisors.

Professor Justus Wamukoya
Department of Library, Records Management
and Information Studies MOI University, Eldoret, Kenya

21 - 11 - 2013
Date

Dr. Andrew Chege
Department of Library, Records Management
and Information Studies MOI University, Eldoret, Kenya

21.11.13
Date

ABSTRACT

Health is a fundamental human right in the development of a country and the delivery of quality healthcare services is largely supported by medical records. The aim of the study was to investigate the effectiveness of medical records in the provision of healthcare services at KNH with a view to proposing a model for managing medical records. The specific objectives of the study were; establishing the business activities that generate medical records at KNH, determining the types and formats of medical records generated as part of KNH healthcare system, determining the contribution of medical records in the provision of healthcare services at KNH, analyzing the status and effectiveness of the present medical records management practices in supporting healthcare services at KNH and analyzing the medical records management challenges faced in the provision of healthcare services at KNH. Qualitative research method was used in the study. The data was gathered through in-depth interviews administered to 58 employees of KNH using purposive sampling complimented by observation and analysis of documentary sources. Data was analyzed based on the grounded theory approach. The results of the study were that medical records played a critical role in patient care, healthcare planning, medical research and health policy development. It was established that the quality of medical records was inadequate which impacted negatively on healthcare delivery. Research findings also revealed that the medical records management practices were not fully effective hampering access to medical records critical in the provision of healthcare services. In addition, there were numerous challenges facing the management of medical records which had undermined provision of quality healthcare services at KNH. The study recommends measures towards improvement of the medical records management situation at KNH. The key recommendations were; establishment of clinical documentation standards to enhance integrity of medical records. Development of policies focused on medical records management, disaster management and medical records retention and disposal. Further, the recommendations address the need to strengthen top management support for medical records management. In addition, the recommendations focus on the need to integrate ICT into medical records processes. The study finally proposes a framework for managing medical records based on the recommendations to adequately support provision of healthcare services at KNH.

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ABBREVIATIONS AND ACRONYMS

AIDS	-	Acquired Immune Deficiency Syndrome
ACARM	-	Association of Commonwealth Archivists and Records Managers
ARMA	-	Association of Records Managers and Administrators
AS	-	Australian Standard
BC	-	Before Christ
CEO	-	Chief Executive Officer
CCTV	-	Closed Circuit Television
DIRKS	-	Design and Implementation of Recordkeeping System
EHR	-	Electronic Health Record
EHRS	-	Electronic Health Record System
EMR	-	Electronic Medical Record
GPD	-	Gross Domestic Product
HIV/AIDS	-	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
H1N1	-	Hemagglutinin 1 Neurominidase 1
HMIS	-	Health Management Information Systems
ICA	-	International Council on Archives
ICD	-	International Classification of Diseases
ICT	-	Information and Communication Technology
IRMT	-	International Records Management Trust
ISO	-	International Standard Organization
KNH	-	Kenyatta National Hospital
KMTC	-	Kenya Medical Training College
MDGS	-	Millennium Development Goals

MOMS	-	Ministry of Medical Services
MTRH	-	Moi Teaching and Referral Hospital
MRM	-	Medical Records Management
KNADS	-	Kenya National Archives and Documentation Service
NARA	-	National Archives and Records Administration
NEPAD	-	New Partnership for Africa's Development
RTA	-	Road Traffic Accident
SMDP	-	Safe Motherhood Demonstration Project
SOP	-	Standard Operating Procedure
TB	-	Tuberculosis
UK	-	United Kingdom
UON	-	University of Nairobi
USA	-	United States of America
VCT	-	Voluntary Counseling and Testing
WHO	-	World Health Organization

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CHAPTER ONE

INTRODUCTION AND BACKGROUND INFORMATION

1.0 Introduction

This Chapter discusses the background to the study where a global, regional, national and institutional overview of the area of research is provided. It explains why health issues attract global attention and then focuses on why and how medical records in both paper and electronic formats form an integral part of clinical practice in hospitals. In addition, medical records as key sources of information in healthcare planning, policy formulation and medical research is also pointed out. The chapter further discusses the statement of the problem, research objectives, research questions, aim and significance of the study, assumptions as well as scope and limitation.

Today, hospitals all over the world are faced with the global vulnerability to pandemics such as the H1N1 influenza and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) which makes health a global concern. The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. Health is a fundamental human right and is considered critical in the political, social and economic development of a country. The ever increasing burden of disease puts health in top agenda in many international forums. One such forum is the Millennium declaration that was adopted by 189 nations and signed by 147 heads of state and government during the United Nations summit in September 2000. The millennium

declaration spelled out eight millennium development goals (MDGS) to be achieved by 2015.Three of the eight MDGS which include reducing child mortality, improving maternal healthcare and combating HIV/AIDS, malaria and other diseases focus on healthcare which is an indicator of the disease burden that public hospitals particularly have to deal with. To lower the burden of disease, hospitals require adequate and well trained health personnel, good quality equipment and facilities. In addition, they also need reliable and comprehensive health information most of which is held in the form of medical records to support patient healthcare and inform decision-making in the provision of healthcare services.

Provision of healthcare in hospitals today is multidisciplinary process where doctors, nurses, pharmacists and other healthcare givers including physiotherapists, occupational therapists, radiographers and laboratory personnel among others are all involved in patient care. Good communication among them is therefore important to keep each other informed about the needs of each patient, the care provided and the outcome of that care. Communication is facilitated through creation of medical records by the various healthcare professionals documenting the care and services provided to patients. The Medical Dictionary defines a medical record as a chronological written account of patient’s examination and treatment that includes the patient's medical history, complaints, physical findings by physician, the results of diagnostic tests and procedures, medications and therapeutic procedures. The primary purpose therefore of creating medical records is to provide documentary evidence of patient care aimed at facilitating present and future diagnosis and treatment. Medical records like all other

records act as tools of accountability on the quality of care provided by hospitals and should therefore poses key attributes of a record which include authenticity, completeness and reliability. Several scholars have put emphasis on the importance of creating and maintaining accurate, complete and authentic medical records. WHO (2006), for example, points out that medical records should contain sufficient information to identify the patient, support the diagnosis or reason for attendance at the health facility, justify the treatment and accurately document the results of the treatment. Medical records in addition to being vital in patient care they have become valuable sources of information in planning for healthcare services, health policy formulation, and conducting medical research in hospitals. Medical records serve as key sources of vital clinical data and information mainly in the form of hospital workload health statistics, morbidity and mortality statistics and disease surveillance reports among other forms of clinical data and information. This information, for example, is used to assess the level of utilization of health facilities; monitor disease trends and enable hospitals identify and plan for the areas or facilities that require additional resources. Besides, improvement in health outcomes can be enhanced through medical research and medical records are the starting point for determining research needs and sources for medical research studies.

The necessity to create and maintain medical records has been recognized since ancient times. Hospitals all over the world have over the years created and maintained some form of medical records as essential elements in the provision of healthcare services. For a long time these records have been largely generated in the traditional narrative or

free-text paper format with no standardized structure, content or form. Locating needed information from such records can be challenge particularly for public hospitals maintaining large volumes of medical records due to the continued rise in patients' population. In an effort to standardize medical records hospitals, for example, in the United Kingdom introduced pre-designed medical records forms for use in documenting patient healthcare. The benefits of using pre-designed medical records forms is that patient care is recorded accurately, consistently, comprehensively and is duly authenticated. A study carried out by the United Kingdom Audit Commission (1999) on the state of hospital records concluded that standardized medical records improved documentation, clinical outcomes, and minimized clinical errors including reducing the cost of patient care. The use standardized medical records forms became widely accepted and are still in use in many hospitals today.

With the continued rise in the number of patients especially in public hospitals, the need to put in place effective medical records management systems to facilitate classification, systematic organization and access to medical records becomes more pronounced. Medical records are created by different healthcare professionals in the same hospital at different times and places. This means that proper coordination of the information flow, linkage and accessibility through effective management of medical records is critical in patient care. The International Standard Organization (ISO) (2001) defines records management as the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records including the processes for capturing and maintaining evidence of information about business

activities and transactions in the form of records. In recognition of the need to manage medical records systematically hospitals in the United States of America (USA), for example, Pennsylvania formerly Philadelphia hospital founded in 1752 adopted a system of creating files for each patient to keep their medical records (Azar et al: 2005), The system evolved to become what is today referred to as the unit filing system which is widely used in many public hospitals maintaining huge volumes of medical records. The system enables a hospital to uniquely identity each patient and maintain a complete medical history of the patient which healthcare professionals heavily rely upon to make future clinical decisions. Maintaining a single unit file for each patient provides improved access, retrieval and use of medical records, in addition, it demonstrates the ability of a hospital to create and maintain adequate medical records that provide authoritative evidence of the healthcare provided. Records management systems in most hospitals like in many other organizations had originally being designed for the management of paper-based records. With time the use of purely manual (paper-based) systems has proved unsuitable for managing the huge volumes of medical records resulting from the rising number of patients. The solution to this problem surfaced with the emergence of information communication technology (ICT). A lot has been achieved in developed countries towards the implementation of electronic health solutions but also many attempts by governments and donors have been reported in most developing countries.

In an effort to strengthen records management, governments' worldwide enacted records and archival legislation composed of both primary legislation such as Acts of

parliament and secondary legislation such as rules, regulations, statutory instruments and policies among others. Such legislation provide the legal framework for the management and preservation of government information most of which is held in the form of records. Unlike developed countries where records management is more developed, records management in developing countries is yet to attain the level of attention and support that it receives in developed countries. The challenges facing developing countries relating to records and archives management according to Setareki et al (2005) are similar ranging from lack of adequate resources, space constraints, adhoc approaches to records and archives management and inadequate trained personnel. This situation is compounded by the slow adoption of information technology in the operations of most institutions. As a result many hospitals just like other institutions depend largely on manual medical records management systems which have proved incapable of coping with the growing mass of medical records. In addition, most records and archives legislations existing in developing countries particularly Africa have been viewed as weak focusing largely on issues involving preservation of archives and not the broader issues affecting creation, management and disposal of government records. Most institutions pay little or no attention to the proper management of records undermining service delivery including healthcare services.

Besides records management related challenges in most developing countries, the health sector particularly in Africa faces numerous healthcare challenges in the provision of essential health services to the people. The major challenges according to Gawanas (2006) include:

- **Disease burden-** Africa bears the heaviest burden of disease mainly due to communicable diseases especially HIV/AIDS, malaria and tuberculosis as well as high child and maternal mortality some of which are preventable if proper and accessible healthcare systems are in place. The burden of disease has led to increased workload for public hospitals causing a big strain on the physical, financial and human resources.
- **Limited financing for health**- Meeting the basic health needs of the people and having the resources to do that has always been one of the greatest challenges faced by countries in Africa. Financial resources have been inadequate for most African countries resulting in weak health systems and making it difficult to effectively deal with the disease burden.
- **Human resource crisis in the health sector**- the workforce crisis in the health sector has become a major constraint to improvement of health status of most communities in Africa. Most health professionals leave the country each year to pursue better prospects in other countries often driven by low pay and poor working conditions. This has resulted in a decline in the quality of healthcare provided especially in public hospitals.

Efforts to address these challenges have been witnessed in renewed commitment by African leaders towards improvement of healthcare. For example, the heads of state and government of the African Union committed themselves in the Abuja declaration of 2001 to allocate 15 percent of their national budget to the improvement of the health systems and to address obstacles impeding resource utilization (Gawanas:2006). The

human resource crisis has also been addressed in many forums among them the New Partnership for Africa's Development (NEPAD) strategy (2003) that has identified human resource development in the health sector as one of its priorities. In addition, the need for intensified research has been recognized as one way of dealing with the disease burden compounded by the emerging diseases such as HIV/AIDS. In addressing all these challenges the use health information most of which is held in the form of medical records has been considered as one of the ways of strengthening health systems in Africa. NEPAD (2003) observe that efforts should be made to improve on health information management to support decision making process in the health sector. In spite of the great need for clinical information to support health planning, policy formulation and medical research, lack of reliable information and inadequate use of available information has been cited as hampering effective healthcare service delivery in most African countries. Efforts to strengthen health information management resulted in the establishment of national health management information systems (HMIS) in most African countries. These systems are aimed at coordinating data collection functions in health facilities, analyzing and disseminating vital clinical data and information to support decision making process in planning, monitoring and evaluation of health services and programs as well as health policy formulation. However, a lot needs to be done to strengthen the HMIS in African countries since sustaining the systems remains a challenge due to lack of adequate funds and inadequate skilled manpower.

As in many African countries, the health sector in Kenya faces many challenges in the provision of healthcare services in the country. Healthcare services in Kenya are provided through a network of about 6194 health facilities countrywide with the public health sector accounting for about 51% of the facilities. The healthcare systems consist of six levels which include; community, dispensaries, health centers, district hospitals, provincial hospitals and national referral hospitals. Community level is concerned with promoting preventive healthcare by empowering communities with information, knowledge and other essential resources. The dispensaries mainly deal with simple medical problems while the health centers provide basic curative and preventive services for adults and children. They refer severe and complicated conditions to the appropriate level such as the district hospitals. District hospitals deal with curative and preventive care as well as promotion of health of the people in a district. They have more skilled and competent staff than the dispensaries and health centers and refer complicated cases to the provincial hospitals. The provincial hospitals are the next level of healthcare providers offering specialized care involving skills not available at the district hospitals and attend to referral cases from the district hospitals. MOI Teaching and Referral Hospital (MTRH) and Kenyatta National Hospital (KNH) are the two referral hospitals in the country at the sixth level of the public healthcare system. They provide healthcare services that require more complex and highly skilled personnel.

The situational analysis of the burden of disease in Kenya indicates that a lot needs to be done towards the attainment the MDGs health indicators by 2015. According to the Ministry of Medical Services (MOMS) Vision 2030 First Medium-term health plan

(2008- 2012) majority of Kenyans do not have access to affordable healthcare and mortality rates remain high particularly among women and children. The health plan further reports that available health statistics indicate that the under-five mortality rate increased from 105-115 per a thousand live births by 2003 while the maternal mortality rate stood at 414 maternal deaths per 100,000 live births by the same year which is still high. In addition, malaria remains the leading cause of out-patient morbidity accounting for 30 per cent of the total disease burden in the country. Further, an estimated 1.2 million people are currently infected by HIV/AIDS with approximately 85,000 people dying annually due to acquired immunodeficiency syndrome (AIDS) related complications. It is noted that the quality of healthcare services in Kenya are low particularly in government-run health facilities due to inadequate funds, human and material resources. The health sector's expenditure accounts to 8 per cent of the total government expenditure constituting 1.7 per cent of the gross domestic product (GDP) or United States dollar (USD) 10.9 per capita which is inadequate compared to the WHO recommendation that developing countries spend an average of USD 34 per capita on healthcare (MOMS:2008). According to Kenya's Vision 2030 the health sector further suffers from insufficient health personnel with approximately 17 doctors per 100,000 people and 120 nurses per 100,000 of the population.

As the health sector strives to provide equitable and affordable healthcare services to all Kenyans, strengthening of the health systems including medical records and health information management is considered critical. MOMS (2009) points out that in general, the country’s medical records and information management system is weak and

does not provide timely and comprehensive data to support informed decision making by managers and health workers in planning and managing of healthcare services. This is supported, for example, by a pilot study carried out by Mwakyusa et al (2006) based on a survey conducted to assess the performance of districts hospitals in Kenya. The results of this pilot study indicated that available data was of poor quality and potentially misleading and healthcare outcomes were difficult to assess due to unavailability of medical records. The need to pay greater attention to the management of health information, mostly in the form of medical records is therefore more apparent given their important role in the overall healthcare delivery system in Kenya.

1.1 Background Information on Kenyatta National Hospital

Kenyatta National Hospital (KNH) is the oldest national referral and teaching Hospital in Kenya. The hospital was established in 1901 as a Native Civil Hospital with a two-ward 40 bed capacity. The hospital expanded its services to cater for Africans and Asians between 1922 and 1937. In 1952 it was renamed King George VI Hospital and following Kenya's independence in 1963 the Hospital took its present name in honour of the founding President of the Republic of Kenya, Mzee Jomo Kenyatta. Since its inception KNH operated as a department of the Ministry of Health until 1987, when it changed its status into a state corporation through a legal notice No. 109 of 6th April 1987. The legal notice spells out its mandate as follows:-

- To receive patients for referral from other hospitals or institutions within and outside Kenya for specialized healthcare.

- Provide facilities for medical education for the University of Nairobi -Medical school and for research either directly or through other co-operating institutions.
- Provide facilities for education and training in nursing and other health and allied professions.
- Participate as a national referral hospital in national health planning and policy formulation.

Currently the Hospital has 50 wards, 20 outpatient clinics and 24 theatres with a total bed capacity of 1800 out of which 225 beds are for the Private Wing. On average, the Hospital attends to over 500,000 outpatients annually and caters for over 80,000 inpatients annually. The hospital has 60 suites at the doctors' plaza for hire by hospital consultants for their part-time private practice. KNH is a public hospital largely funded by the government and offers services at highly subsidized fees.

The hospital is guided in its planning, development and provision of healthcare services by the government policies and is governed by a Board of Management that consists of eleven members including a non-executive Chairperson and the Chief Executive Officer (CEO). The Board acts as an advisor to the hospital management on corporate strategies, goals and objectives as well as evaluating hospital performance. For the day to day management, the hospital is headed by a CEO who is responsible to the Board of Management for planning and day to-day activities. The hospital is organized into clinical and administrative departments headed by two Deputy Directors, one for clinical services and the other for administration and finance. The clinical departments

include; medicine, nursing, surgery, radiology, obstetrics and gynaecology, dermatology, respiratory and infectious diseases, accident and emergency, dentistry, paediatrics, ophthalmology, anaesthesia, laboratory medicine, pharmacy and radiotherapy while the specialized units include; renal, bums, interventional cardiology, critical care and the heart units. The clinical support departments include; medical records, medical social work, occupational therapy, physiotherapy, public health, nutrition, laundry and catering. The administrative departments include; administration, public relations, internal audit, human resource, finance, planning, legal, supplies and procurement, engineering and transport services.

KNH being the oldest national teaching and referral hospital in the country is expected to play a key role towards attainment of MDGS and Kenya's vision 2030 health sector goal of providing equitable and affordable healthcare to all Kenyans. According to the KNH strategic plan (2008- 2012) the hospital has the following major capabilities:

- Facilities for specialized healthcare including cardiothoracic surgery, neurosurgery, orthopaedic surgery, plastic and reconstructive surgery, bums management, radiotherapy, critical care services, new born services and renal services including kidney transplants besides other services.
- Highly skilled manpower in various healthcare specialties and remains the public hospital of choice in Kenya and beyond.
- The hospital is major training facility for healthcare personnel in various disciplines both at diploma, under-graduate and post-graduate levels and is the

main teaching hospital for the University of Nairobi, College of Health Sciences and the Kenya Medical Training College.

- Facilities for research on health and other related issues.

Kenya's disease burden continues to impact heavily on KNH and as a result the hospital faces a number of challenges in carrying its role in the national health agenda. These challenges include among others the emerging and re-emerging diseases such as HIV/AIDS, tuberculosis and cancer, including increased demand for specialized healthcare. This has resulted into heavy workload and subsequent pressure on the physical, financial and human resources. The problem is further compounded by the fact that services provided at KNH are subsidized to the tune of 80 per cent of the actual costs while the government funding for the hospital has been below its projected budgetary requirements. The hospital further suffers from inadequate health personnel in critical areas such as medical personnel and nursing among others. For example, the KNH nurse to patient ratio is currently 1:30 in inpatient wards and 1:50 in outpatient clinics which is way below the WHO recommended ratio of 1:6 (KNH: 2008).

1.2 State of Medical Records at KNH

The provision of healthcare services at KNH is a multidisciplinary process where different healthcare professionals including doctors, nurses, radiographers, laboratory personnel, pharmacists and rehabilitative service personnel are involved in patient care. KNH recognizes that medical records form an integral part of its healthcare delivery system. As a result, it is the practice in the hospital to create and maintain medical records to facilitate communication among the healthcare professionals and meet the

patients' present and future healthcare needs. The medical records generated in the hospital are largely paper-based in the form of patients' files (which holds most information on a patient's medical history), general outpatient cards, x-ray films, registers and reports of various procedures. Some types of medical records including diagnostic reports and procedures are generated electronically and hard copies of the same maintained in patients' files. A few clinical statistical reports are also generated electronically and managed by medical records personnel. To facilitate effective and efficient service delivery in a multi-disciplinary environment the management all medical records generated from the various clinical departments is vested on the Medical Records department which is charged with the following responsibilities:

- To maintain an up to date master patient register of all out-patient and in- patient to facilitate proper identification of patients.
- To provide proper and adequate medical records storage facilities and conditions that ensure safety and security of the records.
- To produce medical records for patient care and other authorized use in accordance with the hospital policy
- To maintain effective records control systems.

- To collect, analyze and compile health statistics and disseminate to authorized users.
- To index and code disease conditions to facilitate teaching and research.

- To facilitate and regulate access to medical records and health statistics to authorized users for purposes of planning, medico-legal matters, training and research.
- To identify and retain or dispose of non-current medical records in accordance with the medical records retention and disposal procedures.

In executing its mandate the Medical Records Department faces a number of challenges which include: lack of adequate and well trained medical records personnel to manage medical records, inadequate infrastructure for medical records and lack of effective strategies to champion the business value of medical records in the provision of healthcare services at the hospital. A survey carried out in the hospital in 2006 by a board of survey committee appointed by the hospital management to assess the state hospital records keeping revealed that inadequate attention had been given to the management of the hospital records particularly medical records which form the bulk of the records. The survey cited lack of proper infrastructure for the records, inadequate records preservation strategies and lack of effective records retention and disposition procedures. It recommended that urgent measures needed to be taken to address these challenges.

In addition, the hospital largely depends on manual records systems that are slow and prone to errors affecting proper management and utilization of medical records in healthcare delivery. In realization of the potential benefits of adopting electronic information management systems in patient care, the hospital embarked on planning,

design and implementation of ICT in 2004. The project is being implemented in phases and started by computerizing patient registration and billing process. Since its inception the project has suffered serious setbacks among them; lack of proper planning, inadequate involvement of user departments and lack of personnel with adequate technical knowledge on ICT to provide necessary guidance. This has greatly slowed down the implementation process though efforts are being made to overcome these challenges.

1.3 Statement of the Problem

The provision of healthcare services at KNH largely depend on well organized, legible, accurate and comprehensive medical records to support decision making process in patient care, healthcare planning, policy formulation and facilitate medical research. Despite the recognition that medical records are crucial in effective healthcare delivery, proper mechanisms of ensuring that accurate, complete and reliable medical records have been created by the various health professionals are lacking in the KNH healthcare delivery system. This situation was highlighted in a circular by the Deputy Director Clinical Services dated 30th January, 2009 addressed to all heads of clinical departments. The circular cited cases of incomplete clinical documentation that was hampering better management of patients and urged clinicians and other health professionals to ensure accuracy and completeness of the information. In addition, forums for creating awareness on the importance of medical records in healthcare provision are not well incorporated in the hospital's training programmes.

Medical records once created need to be effectively managed to facilitate access and safe custody. The system of managing medical records at the hospital is based on the unit filing system aimed at ensuring that every patient is uniquely identified and all clinical information on each patient is centralized and filed in a single file. This will facilitate maintenance of a complete medical history of the patient which is heavily relied upon by health professionals in making clinical decisions. However, this system is not uniformly adopted for managing medical records generated by all the clinical departments. Majority of the clinical departments create and maintain their own medical records except those departments running consultant clinics whose records are managed from a central place. It is therefore common to come across the same patient's medical records scattered in different clinical departments particularly for patients presenting with multiple medical conditions. This situation not only causes fragmentation of medical records across departments but also duplication of patient information. It hampers proper access to a complete medical history of each patient which forms the basis for present and future patient care management. Concerns have being raised regarding the effectiveness of the medical records management system in the hospital. An audit conducted in July 2009 in the hospital to assess the quality of healthcare services provided to children revealed that the medical records retrieval systems were slow and frustrating. This was attributed to the prevalent fragmentation of medical records across departments which were a hindrance to timely availability of required information on patient care.

Effective management and use of medical records is also severely affected by inadequate support for medical records management. A survey carried out in 2006 by a board of survey committee appointed by the hospital management to assess the state of the hospital records keeping established that there was lack of adequate storage facilities and environmental control measures for the hospital records and in particular medical records. The survey recommended among others that urgent measures needed to be taken to improve on infrastructure for medical records, establishment of a hospital archives and revision of the medical records disposal schedule. The full implementation of these recommendations is yet to be realized. The situation is aggravated by low utilization of ICT whereby the processes are largely manual characterized by delays in the capture, processing and dissemination of information especially information on medical care. The study therefore, sought to investigate the effectiveness of medical records in the provision of healthcare services at KNH.

1.4 Aim of the Study

The aim of the study was to investigate the effectiveness of medical records in the provision of healthcare services at the Kenyatta National Hospital with a view to proposing a framework for managing medical records in support of healthcare delivery.

1.5 Objectives of the Study

The objectives of the study were:

- Establishing the business activities that generate medical records at KNH.

- Determining the types and formats of medical records generated as part of KNH healthcare system.
- Determining the contribution of medical records in the provision of healthcare services at KNH.
- Analyzing the present status and effectiveness of medical records management practices in supporting healthcare services at KNH.
- Analyzing the medical records management challenges faced in supporting provision of healthcare services at KNH.
- Proposing a Model for managing medical records in support of healthcare provision at KNH.

1.6 Research Questions

To address the above objectives the study sought to answer the following questions:

- What are the business activities that generate medical records at KNH?
- What types and formats of medical records are generated at KNH?
- How are medical records used in the provision of healthcare services at KNH?
- How do the present medical records management practices affect provision of healthcare services at KNH?
- What are medical records management challenges are faced in the provision of healthcare services at KNH?
- What strategies can be adopted to improve medical records management to adequately support provision of healthcare services at KNH?

1.7 Assumptions

- KNH faces many challenges in the management of medical records most of which have contributed to unsatisfactory healthcare delivery.
- The potential of medical records in the provision of healthcare services has not being fully explained thus undermining the effectiveness of healthcare delivery system at KNH.

1.8 Scope and Limitation of the Study

1.8.1 Scope of the Study

KNH generates both administrative and clinical records in the course of providing healthcare services. The study however focused on medical records which form the bulk of hospital records and were considered critical in the healthcare system of the hospital. Specifically, the study focused on staff working in clinical departments and who were directly involved in the creation, use, handling and management of medical records in the discharge of their duties.

1.8.2 Limitation of the Study

The limitation in the study included:

The medical doctors, the nurses and other health personnel deployed to clinical departments work on 24 hour shift coverage and were either on or off duty during the period of the study. In addition, their nature of work consisted of very busy schedules and on many occasions they could be called upon to attend to patients at any time. As a result, they did not have adequate time to participate in the interview and sometimes they were not able to honour appointments for the interview. In order to minimize the

effect of the limitation face to face interviews were planned well in advance followed by constant reminders. Sometimes the interviews had to be re-scheduled in case of cancellation due to unforeseen circumstances. The face to face interviews were also complimented by telephone interviews.

1.9 Significance of the Study

1.9.1 Theoretical significance

The study will add more knowledge regarding the role of medical records in the provision of healthcare services by providing empirical data that will show the link between medical records and provision of healthcare services.

1.9.2 Practical significance

The study will address the challenges faced in the creation, use and management of medical records and provide practical solutions which would impact positively on healthcare delivery at the hospital.

1.9.3 Policy-related significance

The findings of this study may act as a guide towards the development of policies aimed at improvement of the management medical records at institutional and national level thus enhancing provision of healthcare services.

1.10 Conclusion

At the beginning this Chapter presented the background information to the study. It discussed health as critical in the national development of a country and the challenges hospitals faced worldwide in the provision of healthcare services. The Chapter further

discussed the contribution of medical records in both paper and electronic formats towards patient care, healthcare planning, policy formulation and medical research. The need to give attention to the creation of quality medical records including their management to adequately support provision of healthcare services was also discussed. The statement of the problem, aim and objectives of the study, research questions, assumptions, significance of the study and scope and limitations have also being discussed focusing on the area under investigation.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This Chapter discusses the theoretical framework and the literature review. It begins by explaining the purpose of a theoretical framework in research as well as describing the theoretical framework suitable for this study. The chapter further provides a definition of literature review and its importance in research. It then focuses on a review of literature relevant to the study focusing on key themes which included; types and formats of medical records, contribution of medical records in healthcare delivery, medical records management practices in support of healthcare delivery, medical records management challenges faced in the provision of healthcare services and the role of ICT in enhancing provision of healthcare services.

2.1 Theoretical Framework

A theoretical framework mainly guides a research by determining what things to measure and what statistical relationships to look for. Kombo and Tromp (2006) points out that a theoretical framework plays a major role in research as it enables the researcher to understand the total realm of the research problem from a wider perspective rather from a narrow personalized self approach. It seeks to make clear why things are the way they are using theories. Theories can also be explained in the form of Models. A Model is a simplified representation of a real situation in graphic form. It seeks to show the main features of a structure or process and the relationship between

these features making it easier to understand a situation that would otherwise be complicated. There are various Models that have been developed, for example, by national archival institutions and international professional records and archives management organizations that relate to recordkeeping systems as well as records management in either paper or electronic formats. Some of these Models include; the Records Life-cycle Concept/Model, the Design and Implementation of Recordkeeping Systems (DIRKS) Model and the Records Continuum Model.

2.1.1 The Life-cycle Model

Effective records management consists of controlling records from their creation or receipt through to their final disposition. This movement from creation to final disposition is known as the records life cycle also referred to as the life cycle concept which draws an analogy between the life of a biological organism which is born, lives and dies. In the same way, a record is created, is used for as long as it has continuing value and is then disposed by destruction or by transfer to an archival institution. This concept of records life cycle views records as passing through three 'ages' or stages. These stages according to Records Management Society, United Kingdom (2000) include; current stage, when they are referred to frequently during the regular course of business; semi-current stage, when they are not frequently retrieved or accessed for business and non-current stage when they are no longer required for business.

However, with the emergence of ICT records in electronic formats have come into existence calling for modern approaches to records management. This situation has led to criticism of the records life cycle concept approach of managing records. Critics of

this concept argue that the life cycle concept maintains that records can only live once at each stage in their life but some records do not die and are retained indefinitely because of their continuing value. Shepherd & Yeo (2003) explains that critics of the life cycle concept further argue that division between the stages of the life cycle is artificial since some non-current records may have a renewed period of currency if the activity that gave rise to them is revived. In addition, the concept is more focused on records as physical entities and is not suitable for management of electronic records that rely on a logical rather than physical structure.

Based on the above argument this Model was considered not suitable for the study mainly became in healthcare provision new and old diseases keep on emerging and re-emerging and the creation, use and management of medical records at KNH was not segmented in stages but was a continuous process supporting patient care. Further, inactive medical records could also be revived several years after patient's discharge if a patient presents with a similar or different condition to facilitate continuity of treatment. In addition, some medical records such as diagnostic investigations and other procedures were generated electronically and the Model was therefore not appropriate for the management of electronic records.

2.1.2 DIRKS Model

The DIRKS Model sets out a methodology which can be used for reviewing existing recordkeeping systems or building new ones based on eight stages (Kemoni: 2008).This Model was considered not appropriate since the study was not focused on the design

and implementation of medical recordkeeping systems but on the use, management and contribution of medical records in provision of healthcare services.

2.1.3 The Records Continuum Model

The Model considered relevant to the study was the Records Continuum formulated by Frank Upward in the 1990s as shown on figure 1 below. The Model borrowed from earlier views of the continuum concept, for example; by Ian Mclean 1950's and Jay Atherton in 1985. Ian Mclean was of the view that records managers are the true archivists and that archival science should be directed towards studying the characteristics of recorded information, recordkeeping and classification systems (Xiomi:2001), The Model as formulated by Upward consists of four dimensions which include; create, capture, organize and pluralize. According to Shepherd and Yeo (2003) the first dimension encompasses the actors who create records resulting from the business activities; the second dimension encompasses the capture of records as evidence of business transactions or activities; the third dimension focuses on the recordkeeping systems to manage records in an organization and the fourth dimension views records as being useful in meeting the needs of the society and other forms of collective memory. In contrast with the life cycle concept Upward (2000) cited by Ngoepe (2008) argues that in the records continuum, recordkeeping is a continuing process that does not separate the life of records in time and space. The author further describes the records continuum as the new roadmap to managing electronic records. With the emergence of electronic records there was concern that lack of a strategy for active and early intervention by the archivists and records managers in the records

management process, electronic records documenting vital transactions may never be created or survive (Bantin:2001) .

The Australian records management standard AS 15489 previously AS 4390 which adopted the Records Continuum Model defines the integrated nature of the records continuum in the following terms: It refers to consistent and coherent regime of management processes from the time of records and before creation in the design of recordkeeping systems through to the preservation and use of records as archives. The Records Continuum Model therefore relates to a recordkeeping regime which is continuous, dynamic and ongoing without any distinct parts or phases. According to Mckemmesh (1997) a continuum is something continuous of which no separate parts are discernible, a continuous series of elements passing into each other. The Model further advances the view that the work of an archivist and a records manager are interrelated. Specifically, in an electronic environment there are no strict boundaries between archives and records management responsibilities since current records can become archives right from creation. The Records Continuum Model is therefore viewed as a better approach to modern records management.

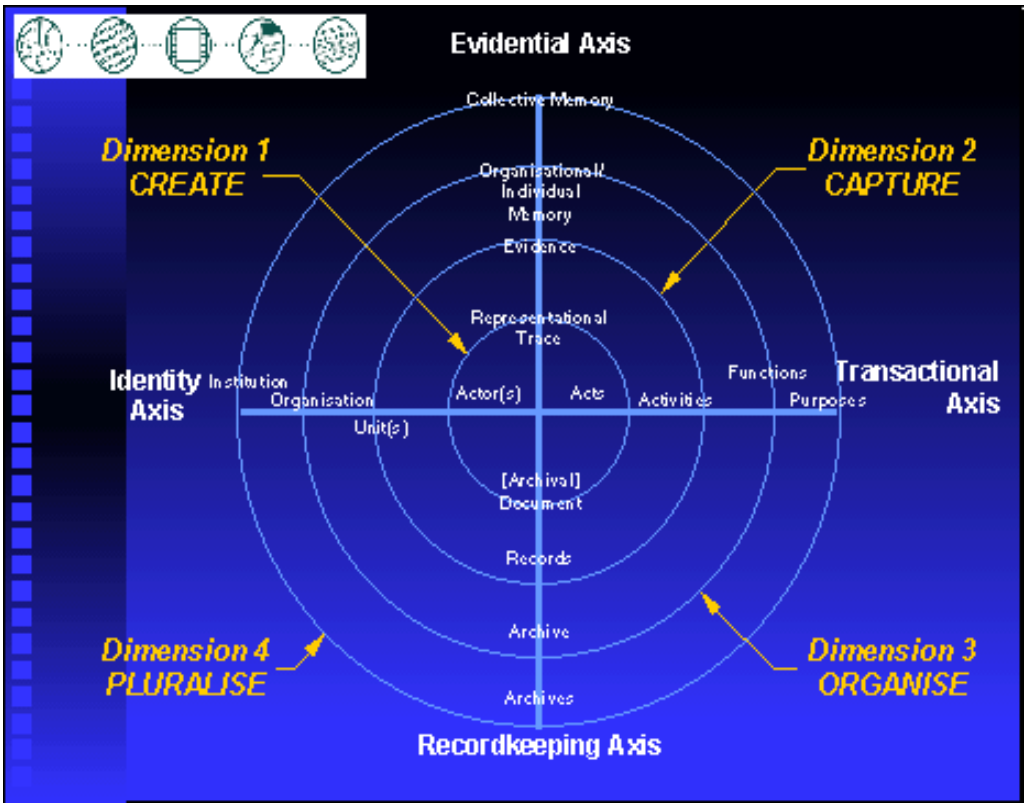

Figure 1: Records Continuum (Frank Upward 1998)

2.1.4 Relevance of the Records Continuum Model to the Study

Documenting patient care in the form of medical records is an integral part of the code of best practice and ethics for health professionals. This Model was therefore relevant in its first dimension in that the `actors' in this case represented the different health professionals all involved in the creation of medical records to meet the immediate and future needs of patients' healthcare. In the second dimension `capture' represented the creation of medical records to capture the facts about the care and services provided to patients and served as evidence of how business activities were carried out at KNH. The

Model describes a continuum as something continuous and dynamic. Similarly the process of providing healthcare could also be viewed as a continuum of care of interrelated processes including patient identification, diagnosis & treatment, medication administration, progress monitoring and follow up. This process could take several years until such a time that treatment was no longer required and could even be repeated once the patient presented with a similar or a different condition. The different types of medical records created therefore could not be managed as separate entities or in stages but collectively as inseparable parts of the medical history of a patient.

In its third dimension the Model was also therefore relevant since it puts emphasis on need for an organization to define its recordkeeping regime. Medical records needed to be made easily accessible to health professionals, hospital managers and researchers. This meant that these records had to be managed within a recordkeeping system which determined how they were arranged, categorized, accessed and stored. The Model in its fourth dimension calls for an integrated approach in the management of records and archives to satisfy business requirements, society needs and other forms of collective memory. KNH needed to integrate both medical records management and archival processes into its healthcare delivery system to effectively meet present and future needs of patients, healthcare providers, health policy makers and researchers.

The Model is also recommended as appropriate in managing electronic records. Although the medical records processes at KNH were largely manual, computerization of the healthcare processes was ongoing and some electronic records already existed in

the form of diagnostic reports and other procedures. These records needed to be properly managed and the Model was relevant as it advocates for early involvement of records managers and archivists in the design and implementation of an electronic information system. The ICT specialists at KNH needed to work together with the medical records staff to provide professional advice on the design and implementation of an electronic medical records system at KNH. Their involvement could ensure that electronic medical records were created and captured into an appropriate recordkeeping system and property managed from creation through use, maintenance to eventual disposition.

2.2 Review of Related Literature

Literature review is a systematic, explicit and reproducible method of identifying, evaluating and synthesizing the existing body of completed and recorded work produced by researchers, scholars and practitioners (Blaxter:2001). A review of literature demonstrates that the researcher is conversant with previous studies and may help in avoiding a repeat of previous errors or duplicating studies which have already being done. It leads to a better understanding of the research problem giving insights into areas that are worth detailed investigation. It also enables the researcher to defend the area of study and how it contributes to the existing body of knowledge. The review of literature related to the study was as discussed below:

2.2.1 Defining Records

The International Council on Archives (ICA) (1996) defines a record as recorded information produced or received in the initiation, conduct or completion of an

institutional or individual activity and that comprises content, context and structure sufficient to provide evidence of an activity. Records therefore capture the activities of an organization and are kept as evidence of what an organization does, for example, they provide evidence of policy, decisions, transactions and compliance with rules and regulations. According to the ISO 15489:1 (2001) a record is defined as information created, received and maintained as evidence and information by an organization or person in the pursuance of legal obligations or in the transaction of business. Arden (1998) cited by Makhura (2005) observes that records exist within an organization on a variety of media which may include books, documents, maps, drawings, photographs, letters and any other form on which information is recorded or stored by any means graphic, electronic, mechanical or otherwise.

From the above definitions emphasis is placed on the role of records in providing evidence of an organization's activities. To effectively serve the purposes for which they are created, records need to be adequate and posses the following characteristics as stated by the ISO 15489:1(2001). These characteristics include:

- **Authenticity**- an authentic record is one that can be proven to be what it purports to be, to have been created by the person purported to have created and sent it, and have been created or sent at the time purported.
- **Reliability**- a reliable record is one whose contents can be trusted as a full and accurate representation of the transactions, activities or facts to which they attest and can be depended upon in the course of subsequent transactions or activities.
- **Integrity**- integrity of a record refers to it being complete and unaltered.

- **Usability**- a useable record is one that can be located, retrieved, presented and interpreted. It should be capable of subsequent presentation as directly connected to the business activity or transaction that produced it

The ISO 15489:1(2001) further states that records enable organizations to:

- deliver services in a consistent and equitable manner
- conduct business in an orderly, efficient and accountable manner
- support and document policy information and managerial decision making
- provide consistency, continuity and productivity in management and administration
- facilitate the effective performance of activities throughout an organization
- meet legislative and regulatory requirements including archival, audit and oversight activities
- provide protection and support in litigation including the management of risks associated with the existence of, or lack of evidence of organizational activity,
- protect the interests of the organization and the rights of employees and clients

The Australian Council of Archives (1996) views records as serving the following purposes in organizations:

Business purpose- records are principally kept by an organization or individual to support their business activities. Decision makers need records to provide precedent for subsequent decisions and to provide details of actions undertaken in case of challenge or need to prove that the action actually took place. Service providers need records for

dealing with customers while individuals need records to ensure that their entitlements and obligations are taken into account by the organizations.

Legal and accountability purpose- records are an indispensible ingredient in organizational accountability both internal and external. Records show whether an organization or individual in it have met defined legal, organizational, social and moral obligations. In all legal and accountability forums records are consulted as proof of the activities.

Cultural purpose- when used for any purpose beyond the support of business activities, legal or accountability, records become part of resources available to society to account for their collective behaviour. They form a valuable resource as the corporate memory of an organization and a nation as a whole.

2.2.2 Records Management

According to Kemoni and Ngulube (2007) there is no universally accepted definition of the term records management and various scholars have provided varying definitions. For example, according to National Archives and Records Administration (NARA) (2004) cited by Kemoni and Ngulube (2007) records management is a process of planning, organizing, staffing, directing and controlling all steps involved in the life of a record from creation until final disposal. The Australian Standard (AS) 15489 (2002) formerly AS4390 (1996) defines records management as the discipline and organizational function of managing records to meet operational needs, accountability requirements and community expectations. Langemo (1999) cited by Makhura (2005) defines records management as the professional management of information in the

physical form of records from the time records are received or created through their processing, distribution and placement in a storage and retrieval system until either eventual elimination or identification for permanent retention in the archives. The ISO 15489:1(2001) defines records management as the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records including processes for capturing and maintaining evidence of information about business activities and transactions in the form of records. Records management is the systematic control of an organization's records throughout their life cycle, in order to meet operational business needs, statutory, financial requirements and community expectations (National Archives of Scotland: 2009).

The purpose of records management according to Makhura (2005) is to ensure that; information is available as and when required, information is quickly retrievable, records are protected from unauthorized access, disclosure and alteration, deterioration and loss and that records are not destroyed or removed from the organization's premises without authorized approval. Records management according to National Archives of Scotland (2009) offers tangible benefits to organizations, some of which include; reduced volume of records kept by destroying records which have reached the end of their retention; improved storage and retrieval systems through files management, increased efficiency of office operations through better retrieval systems; reduced costs for equipment, supplies, space, and personnel; identification and protection of vital records; improved accountability of public funds and reduced liability risks by keeping

records according to retention schedules. Systematic management of records allows organizations to:

- know what records they have, and locate them easily
- increase efficiency and effectiveness
- make savings in administration costs, both in staff time and storage
- support decision making
- be accountable
- achieve business objectives and targets
- provide continuity in the event of a disaster
- meet legislative and regulatory requirements
- protect the interests of employees, clients and stakeholders

In organizations where adequate attention is not given to records management serious problems will be experienced which according to Shepherd and Yeo (2003) may include;

- The organization may be unable to prove that it did what was required of it, or the policies and procedures were correctly followed.
- It may be unable to defend itself if liability claims are made against its products or services or actions of its employees.
- It may be unable to prove its rights or protect its assets.
- Business operations may be compromised if critical information is unavailable when required.

- The rights of customers, citizens and the wider community may also be impaired.

Emphasizing on the importance of records management the National Archives of Scotland (2009) maintains that unmanaged records systems make the performance of duties more difficult, costs organizations time, money and resources. It also makes organizations vulnerable to security breaches, prosecution and embarrassment and in an unmanaged records environment up to 10% of staff time is spent on looking for information.

2.2.3 Defining Medical Records

The necessity to create medical records has been recognized since ancient times but Hippocrates the famous Greek doctor and philosopher of the 5th century before Christ (B.C.) is known to be the first doctor to scientifically record individual patients' problems laying the foundation of medicine as a branch of science. According to Grammaticos *et al* (2008) Hippocrates is reputed as the father *of modern medicine* and in his writings he declared that medicine should stand on detailed observation, reason and experience in order to establish diagnosis, prognosis and treatment. He wrote: *sickness is not sent by gods and taken away by them. It has a natural basis. If we can find the cause we find the care.* Grammaticos *et al* (2008) further point out that Hippocrates writings introduced patients' confidentiality which clinicians uphold today and recommended that physicians should record their findings and their medicinal methods so that these records may be passed down and employed by other physicians. The best known of Hippocrates writings is the *Hippocratic oath* which details the rights

of the patient under a physician's care and the responsibilities of the physician to the patient. The oath has become a standard in the medical field and is sworn by all newly qualified doctors of modern medical schools.

Since the days of Hippocrates medical records have continued to play a critical role in the care and treatment of patients and in the practice of medicine. Lukan (1997) defines a medical record as a written account of the patient's medical care that describes the medical care provided from the time the patient is attended as an outpatient or admitted as an in-patient to a medical facility to the moment he or she is discharged from that facility. The Medical Dictionary defines a medical record as a chronological written account of a patient's examination and treatment that includes the patient's medical history, complaints, the physician's physical findings, the results of diagnostic tests and procedures, medications and therapeutic procedures. A medical record is a confidential record that is kept for each patient by a health professional or organization that contains the patient's personal details, medical history and documentation of each event including symptoms, diagnosis, treatment and outcome (Voelker:2003). Medical records according to Lukan (1997) provide information that authenticates the care given to a patient and reason for providing that care. Without creating and maintaining medical records it would be impossible in future to proof that care and services were given to a patient and that is why in clinical practice there is a common saying that, *"what is not documented it was not done "*. This supports the need not only to create medical records but also ensuring that they are accurate, complete and authentic and as WHO (2006) observes the medical record should contain adequate information as to

identity the patient, support the diagnosis, justify the treatment provided as well as document accurately the outcome of the treatment. The purpose of creating medical records according to WHO (2007) is to; enable healthcare professionals to use current and consistent data to facilitate continuity of care; to provide a reliable and accurate permanent record of the history of the patient's healthcare; to demonstrate the clinicians accountability and record their professional practice and record the outcome of that care as a continuous and contemporary record.

The term medical record is sometimes used to refer to the physical file folder of each individual patient and for the body of information stored in the folder about each patient's healthcare. The content of a medical record therefore consists of pieces of information mostly recorded in pre-designed medical records forms by the different health professionals and filed in a single file folder. This acts as evidence of the unique and important contribution of each of the health professionals involved in the care of the patient .According to Lukan (1997) the content of a medical record can be said to consist of the following pieces of information:

Patient Identification data- this information is gathered at the time of admission or the first time the patient is seen by each health service provider. Examples of such data include name, age, date of birth, sex, occupation and next of kin among other relevant information. More useful information is gathered throughout the time the patient is receiving medical care.

Diagnosis- the clinician identifies the patient's medical problems by interviewing the patient and by reviewing investigation results including other data collected by other

disciplines. The clinician determines the diagnosis and documents it as part of the medical record.

The treatment plan- the problem list is used to plan the patient's medical treatment. Appropriate strategies for solving or minimizing the problems are outlined and documented by the various disciplines involved.

Record of administration of the treatment- this takes the form of progress notes written on a daily basis. The progress notes consist of recordings of the treatment provided for each of the problems, progress towards the goals or outcomes and any changes in the patient's condition.

Treatment effectiveness -This content area contains an interpretation of the patient's response to the treatment. The healthcare provider documents whether or not the goals were met and the effectiveness of the treatment plan. This is considered to be the most important content of a medical record as the information demonstrates the quality of medical care provided to each patient.

Accurate, complete and well managed medical records according to Voelker (2003) should:

- enable healthcare professionals to review previous care events and reach timely and appropriate clinical decisions. Medical records also help them to develop treatment plans that minimize the risks and maximize the potential benefits to the patient.
- enable clinical staff to audit the care provided to an individual patient.

- provide valuable sources of information to decision makers and researchers.
- act as a source of information which enables the various administrative functions of the healthcare services be carried effectively.
- **e**nsure patient privacy is adequately protected and that the risk of disclosure to unauthorized persons is minimized.

2.2.4 Types and Formats of Medical Records

Medical records like all other records are generated as a result of the business processes and activities emanating from a wide range of services provided by hospitals. The key services offered by hospitals whether public or private include; curative, preventive, health promotion, rehabilitative and palliative services. Curative services focus on diagnosis and treatment preventive and health promotion services are mainly directed towards disease prevention and control while palliative services relate to various forms of support given to terminally ill patients. The range of services provided may vary widely from one hospital to another. Some hospitals may be dealing with simple curative services of general nature while others may be providing highly specialized healthcare services. Depending type on the services provided medical records of various types and formats are generated to document the processes and activities undertaken. The key types of medical records created by hospitals in either manual or electronic formats include patient case notes, radiology (x-ray) films and reports, pathological reports, drug prescription and administration records and out-patient and in-patients registers.

According to the IRMT (1999) patient case notes include patient's histories, diagnostic test results, temperature and blood pressure charts, nurse cardexes and operation notes among other forms of treatment. The type of medical records created for each patient will vary depending on the medical condition or illness. The key types of medical records include:

Patients' case notes- McGuire (2000) views patients case notes particularly for inpatients as consisting of the following types of medical records:

- Patient demographic information which identifies the patient.
- Clinical records which include information on the history and physical examination which consists of the patient's initial medical examination, assessment data, provisional diagnosis, proposed investigations and the plan of care written by the doctor. Doctor's progress notes on observations, the patient's progress and treatment data including follow up visit documentation which provide a chronological record of the patient's progress throughout the duration of care also form part of the clinical records.
- Nursing records consist of details of special notes and observations made by the nursing personnel. These may include recording of patient's temperature, blood pressure among other interventions and patient's response to treatment.
- Operation records if an operation or operations are performed. This consists of record of premedication prior to the operation, anesthesia and details of the surgical procedure and post operative nursing notes.
- Healthcare team records which contain notes from other departments such as physiotherapy, occupational therapy and nutrition among others.

- Correspondence from other healthcare facilities for example referral letters.
- Medication administration record which is a record of each medication the patient receives including name of the drug, dosage, date and time of administration.

General outpatient records-Some patients may visit the hospital for treatment of minor ailments which are usually treated and discharged after one or two attendances. Such attendances may not warrant the creation of a medical record file. In such cases many hospital create and maintain general outpatient cards to document these episodes of illness.

Radiology (x-ray) films and reports - According to IRMT (1999) x-ray films consist of large-size of photographic records produced for diagnostic purposes in response to a request from a clinician. An x-ray report is generated after examination of the x-ray film and they aid in proper diagnosis of the patient's condition and retained as part of the medical record. Although they form part of the patient's medical record they are stored separately due their large size and identified by a unique number linked to the patient.

Pathological reports - For purposes of proper diagnosis clinicians may also request for laboratory and other forms of investigations which are an essential part of the medical record. An investigation report is generated and sent back to the clinician to help in the determination of the appropriate form of treatment for each patient.

Drug prescription and administration records- the prescription and supply of drugs generates a variety of records including pharmacy stocks, ordering and dispensing

records, requests for drugs, drug administration records and prescriptions for individual patients. The receipt and issue of drugs requires comprehensive recording to provide an audit trail in the event of error in the prescription, dispensing or administration of drugs or in case of theft or misuse of drug supplies.

Registers-The summaries of outpatient attendances, admissions, discharges and deaths are entered in both outpatient and inpatient registers. Registers serve as quick reference tools whenever enquiries arise.

2.2.5 Elements of Medical Records Management in support of Healthcare Provision

Medical records management systems lay the foundation for proper classification of medical records, systematic organization of information contained in these records, control, use and disposition of the records. These systems are founded on key elements of medical records management consisting of policies, filing systems, control procedures, security measures and staff competency considered critical in enhancing delivery of quality healthcare services. These elements are discussed below:

2.2.5.1 Medical Records Management Policy Framework

A policy can be defined as a plan of action which guide decisions and actions. The Longman's dictionary of contemporary English defines a policy as a plan or course of action in directing affairs as chosen by a political party, government or business company. Policies are crucial since they define and provide guidance on how to achieve organizations goals, strategies and objectives. The ISO 15489:1(2001) states that organizations should define and document a policy for records management with the

objective of creation and management of authentic, reliable and usable records capable of supporting business functions and activities. In a hospital setting these business functions and activities would mainly consist of diagnosis and treatment procedures whose success largely dependent on availability of medical records. This statement is reinforced by the Association of commonwealth archivists and records managers (ACARM) (2007) by stating that a records management policy serves as a mandate for managing records in an organization. In addition, it gives authority to the recordkeeping programme, outlines management commitment and staff responsibilities and ensures that records management function is given priority.

Having a records management policy according to Surrey Community Health (2010) brings huge benefits to agencies such as hospitals which include; it communicates to all staff the agency's commitment to records management and staff recordkeeping responsibilities; it provides direction to ensure the evidential, accountability and regulatory requirements of the agency are met, it promotes a culture of good record keeping practices, it decreases the level of risk associated with recordkeeping practices, encourages ethical behaviour and enhances efficiency of business processes, practices and service delivery. The State Library and archives of Florida (2009) views a records management policy as the best way to ensure that records management requirements are met in a consistent, effective and efficient manner. Fulfilling these requirements is important in ensuring medical records adequately support healthcare delivery besides minimizing a hospital’s vulnerability to potential public records litigation.

2.2.5.2 Medical Records Filing System

A medical records filing system is a necessary records management requirement. According to the (ACARM) (2007) a business filing system serves the following purposes:-

- provides links between records that originate from the same activities or from related activities.
- determines where a record should be placed in a larger aggregation of records.
- assists users in retrieving and interpreting records.
- assigns and controls retention periods.
- assigns and controls access rights and security markings.

Shepherd & Yeo (2003) concurs by stating that it is important that records created in an organization are systematically organized to provide users with the structural and contextual information that is needed to reveal their meaning. According to ISO 15489:1(2001) a classification system provides an organization with a tool to; organize, describe and link its records, link and share interdisciplinary records either internally or externally and provide improved access, retrieval, use including dissemination of its records as appropriate. Shepherd & Yeo (2003) points out that classification schemes are based on an analysis of functions, processes/activities and document the structure of a records management system as well as the relationships between records and activities that generate them. In the absence of an effective file classification system a lot of time is wasted searching for records consequently delaying the decision making process. Where records cannot be retrieved due to a defective file classification system managers

would be forced to take decision on an ad hoc basis without the benefit of precedence or historical memory (Kemoni and Ngulube: 2007). This would further hamper the process of accountability since organizations are required to account to others for their actions (Northern Territory Archives service: 2003).

The creation of a medical record begins with the patients' first attendance as an outpatient or on admission as an inpatient into the hospital. The responsibility of direct patients care and documentation of health care services provided is delegated to the clinicians, nurses and other health professionals concerned with the care of patients. In most hospitals maintaining huge volumes of medical records designed medical forms are used to document the type of care or service provided to each patient. According to IRMT (1999) the use of pre-printed forms in hospitals saves staff time and helps to sure that necessary information is recorded consistently and accurately. Forms also make it easier for users of the medical file to locate the information they are seeking. To ensure proper management of the forms all completed forms for each patient are filed together in one file based on the unit filing system. The unit filing system requires the allocation of a permanent number to a patient on first attendance to the hospital and centralizing all medical records of the same patient to a single unit file commonly referred to as the patient medical record. According to IRMT (1999) it is recommendable for hospitals to maintain a single file for each patient in which a complete history is recorded enabling treatment to be coordinated and ensuring that vital information is always accessible. This is emphasized by WHO (2006) who state that a medical record must contain sufficient data to identify the patient, support the diagnosis or reason for attendance at

the healthcare facility, justify the treatment and accurately document the results of that treatment. IRMT (1999) further points out that the practice of keeping multiple files for each patient cannot be recommended as it makes it difficult for doctors' and nurses to gain access to the patient's complete medical history. The Singapore Medical Association (2000) also points out that incomplete medical history could lead to tests being unnecessarily repeated, time and money wastage including symptoms being overlooked causing inaccurate diagnosis. Centralizing medical records for each patient based on the unit filing system enables clinicians to work from more complete information speeding up the pace of diagnosis and treatment resulting in safer, more effective and efficient care.

2.2.5.3 Medical Records Control Procedures

Record tracking is a key component of a records management system as it ensures that records can be located quickly and efficiently whenever required to facilitate treatment. According to Halliday (2005) one of the main causes of lost records is that the next destination is not recorded anywhere which can only be achieved through accurate and up to date recording of the whereabouts of all records. The Public Record Office (undated) states that tracking of records is required to enable retrieval, monitor usage and maintain an auditable trail of the records. The system adopted should maintain control on the issue of records, the transfer of records between persons and operational areas and return of the records to their home location for storage (Public Record Office: undated). Driscoll (2010) agrees with this view by stating that where clinical records are removed from a filing system or location a robust tracer system either paper or electronic must be in place recording as a minimum the patient unique identifier, the

person or department holding the records, the date of transfer, date of expected return and a printed name of the individual returning the record. The movement and return of records must be tracked effectively so that they can be found whenever they are required by healthcare providers. According to Shepherd &Yeo (2003) where records are removed from storage it is good practice to obtain the signature of the person who will take responsibility for their safekeeping to enable effective tracking of these records.

2.2.5.4 Security of Medical Records

According to Shepherd & Yeo (2003) a fundamental element of records management is ensuring that records remain secure, intact and intelligible as long as they are needed. Where paper records are concerned the main emphasis is on storing the physical media and protecting them from loss and damage. World Bank et al (2000) states that adequate and appropriate equipment as well as materials should be provided for handling, storage and preservation of records throughout their life-cycle. According to World Bank et al (2000) there are three types of accommodation required for records which include; records registries for the storage of current records, intermediate storage for semi-current records and archival repositories for the preservation of records of enduring value. In support of this argument the State Records Authority of New South Wales (2000) adds that equipment for records storage should be suitable for the type of records stored, clean, strong enough to carry potential loads and lockable if holding sensitive records, The World Bank et al (2000) cautions that if records are not physically protected throughout their life-cycle they may not survive long enough to serve their administrative and cultural purposes by providing evidence of present and past

activities. According to ISO 15489:1 (2001) the building structure for storage of records should provide the suitable range and stability of temperature and humidity levels, fire protection, protection against water damage, protection from against water damage protection from contaminants, safety measures, controlled access to storage areas, detection systems for unauthorized entry and appropriate protection against damage caused by insects or vermin. This is important mainly because paper records fall victim of slow delay due to the physical and chemical composition of paper. The deterioration of paper is aggravated by unsuitable storage building and equipment, poor handling, unfavourable temperature and relative humidity, dust and disasters such as fire and floods and therefore preservation strategies need to be adopted to ensure adequate protection. According to Ngulube (2003) quoting Conway (1990) preservation activities include measures that seek to reduce the risks of damage and the rate of deterioration by selecting durable materials, providing appropriate storage environment and safe handling procedures, maintenance and examination. However, providing adequate infrastructure records remains a challenge for most organizations including hospitals. Setareki et al (2005) observes that inadequate resources and space constraints for records and archives are a major challenge facing most developing countries. Similar revelations are highlighted in a study carried out by Kemoni (1999) to examine the policies and practices for managing medical records at Moi Referral and Teaching Hospital in Eldoret. One of the findings of the study was that inadequate and unsuitable storage facilities for medical records had hampered their effective management.

To mitigate the risk of loss or damage to medical records a disaster management plan ought to be in place. According to the State Records of South Australia (2008) a disaster is defined as an event that creates an inability on an organization's part to provide critical business functions for some pre-determined period of time. Medical records like all other records face of threat of loss or damage in the event of a disaster. Disasters that may affect records include:-

- natural events such as earthquakes, floods and fire
- structural or building failure such as malfunctioning sprinklers, air conditioning systems, leaking roof or poor wiring.
- criminal behaviours such as theft, arson, vandalism, terrorism and war.
- technological disasters such as viruses and computer equipment failures.
- accidental loss through human error

A formal written disaster plan enables an organization to respond efficiently and effectively to a disaster and minimize the damage. The disaster plan addresses the issues of preparedness response and recovery. According to Grau (2000) a disaster plan should address the following:

- **Preparedness** - this involves actions like development of a written plan, keeping the plan up to date, in-house training of the disaster response team, preparation and distribution of relevant documentation/procedures for notifying appropriate people.

- **Response** - this covers instructions for the immediate actions after disaster. It covers among others what is to be repaired, gathering the disaster team, alerting the emergency services and me organizing for recovery.
- **Recovery** - this is the phase during which everything is getting back to normal. The disaster team has to carry out restoration of both the disaster site and the damaged materials, determine priorities for restoration work, analyze the disaster and improve on the plan based on the experience.

The importance of disaster management plans is given emphasis in the findings of a study conducted by Ngulube in 2003 focusing on the preservation and access to public records and archives in South Africa. The study concluded that a disaster preparedness plan is critical as it enables an organization to plan and make decisions about emergency response and recovery in regard to records and archives. Loss or damage of medical records through disasters is a matter of great concern with serious repercussions on service delivery since the medical records are unique and once damaged or lost cannot be replaced. In addition, loss or damage to medical records may also put at hospital at risk in legal suits due inability to produce required medical records.

2.2.5.5 Medical Records Disposition

An effective records management system is one that sets out procedures not only on how records should be managed but also on their retention and disposal. According to University of Birmingham-UK (undated) a records retention and disposal schedule is a control document that sets out the periods for which an organization's business records should be retained to meet its operational needs and to comply with legal and other

requirements. The Northern Territory Archives Service-Australia (2003) states that a records retention and disposal schedule refers to an authorized formal policy that defines the temporary or permanent status, retention periods and subsequent disposal actions authorized for classes of records described in it. Similarly, the IRMT (1999) views a records disposal schedule as a control document recording appraisal decisions and prescribing disposal actions that applies to all records in whatever medium. The Records Management Society-UK (2000) defines records scheduling as the process of determining the life of a record in each stage of the information life cycle from creation to disposition. According to National Archives & Records Administration (NARA) (2005) a records retention and disposal schedule provides mandatory instructions for the disposition of the records including the transfer of permanent records and disposal of temporarily records when they are no longer needed by the agency. A disposal schedule is therefore an essential component of an efficient and effective records management system. The University of Birmingham (undated) maintains that properly developed and consistently implemented records disposal schedules protect the interest of the organization and its stakeholders by ensuring that records are kept for as long as they are required and are disposed of securely. According to Bristol University (2001) the function of a disposal schedule is to; prevent records from being discarded prematurely, ensure that information is not kept unnecessarily, provide a consistent, controlled system to the disposal of records and helps in saving space, time and money.

This view is supported by Wickham (2008) who argues that a records disposal schedule; promotes control over an organization's records, enables staff to confidently dispose of records which are no longer needed and ensures the retention of the minimum volume of records consistent with economy and efficiency. Records retention and disposal schedules are of great benefit to hospitals particularly public hospitals that produce increasingly large volumes of medical records. Without systematic disposition of medical records hospitals are likely to expose themselves to numerous risks such as poor service delivery resulting from non availability of medical records, non compliance with regulatory requirements and legal risks. According to Laurie (2006) developing and implementing records retention and disposal schedules provide very visible benefits to organizations which include:

- helps in ensuring that an organization meets all administrative, legal and fiscal retention requirements for all records regardless of media.
- identify records requiring enhanced protection or control.
- reduce floor space dedicated to the storage of active records by allowing the disposal of inactive, duplicate or obsolete records.
- establish timeframes in which records are to be transferred on a scheduled basis from active to inactive storage areas.
- provide the go-ahead to purge unnecessary records from inactive records storage areas.

Graham (2004) adds that a records disposal schedule promotes consistency by ensuring that we keep the same type of records for the same amount of time no matter where the records are held. Further records disposal schedules enable us to dispose of records we no longer need in a systematic manner.

2.2.5.6 Personnel Managing Medical Records

According to IRMT (1999) personnel managing records need to be trained to enable them understand the need to handle records and archives carefully particularly materials with enduring value. IRMT (1999) cautions that lack of adequate training may be responsible for poor filing and retrieval practices, damage to records and deliberate acts of vandalism including rough handling of paper. This is confirmed by a study carried out Kemoni (1999) to examine the policies and practices for managing medical records at Moi Referral and Teaching Hospital in Eldoret. The study established that not all staffs involved in the management of medical records were trained. It concluded that such a situation was likely to result in poor handling of medical records, poor filing and retrieval practices, deliberate acts of vandalism and damage to medical records. This is likely to affect healthcare delivery since access to medical records may be hampered by inefficiency in the management of these records caused by deployment of incompetent personnel. The World Bank Group (2000) holds a similar view by stating that in many countries around the world recordkeeping systems are unable to cope with the growing mass of unmanaged records and this is particularly true in countries where records and archives managers lack training or professional development opportunities. Training of medical records personnel is even more urgent with the advent of ICT which calls for adapting to the ever changing world of technology demanding new and innovative skills

aimed at enhancing speedy delivery of healthcare services. Wamukoya and Mutula (2005) recommend that such skills should include; records and information management skills, ICT skills, project management as well as skills to create , capture, classify , index, store, retrieve, track, appraise, preserve, archive and disposal of records in an electronic environment. For hospitals such skills would enable the staff to effectively manage medical records and enhance availability and accessibility of the records in the provision of healthcare services.

2.2.6 Contribution of Medical Records in the Provision of Healthcare Services

Medical records contribute significantly in healthcare delivery in a number of ways which include; patient care, health planning and medical research as discussed below:

2.2.6.1 Medical Records and Patient Care

Over the years knowledge and technology in clinical practice has been expanding leading to the evolvement of various specialties in healthcare each contributing to patients' care in their area of expertise. These specialties include among others doctors, nurses, radiographers, laboratory personnel, pharmacists, and rehabilitative service personnel among them physiotherapists, occupational therapists and nutritionists forming a multidisciplinary team responsible for direct patient care. Communication among them is therefore essential for effective healthcare and this is facilitated through the creation of medical records. The process of creating medical records involves documentation by the different healthcare professionals of the care and services provided to the patients. According to Lukan (1997) the medical record is the avenue through which the medical team communicates regarding; identification of the patient's

problems, solutions, plans for the patient's discharge and coordination of the continuum of care. This communication process helps to ensure quality of care. The responsibility of direct patient care and creation of medical records is delegated to the clinicians, nurses and other health professionals providing the services. Emphasizing on the role of medical records in patient care the College of registered Nurses of British Columbia (2003) identities three reasons why it is important to create medical records which include:

- **To facilitate communication**- through medical records healthcare givers communicate to each other on their assessments about the state of the patient, interventions carried out and the results of those interventions. This increases the likelihood of the patient receiving consistent and informed care or service.
- **To promote good patient care-** by creating medical records healthcare professionals are prompted to assess the patient's progress and determine which interventions are effective or ineffective and document changes to the plan of care provided.
- **To meet professional and legal requirements**- medical records are valuable tools for demonstrating that the healthcare providers applied knowledge, skills and judgment according to professional standards in providing healthcare services.

Since health professionals rely on medical records to arrive at proper diagnosis and determine the appropriate form of treatment given to the patient it is important that medical records are accurate, complete and authentic. According to the Royal College

of Physicians (2008) in providing good clinical care doctors must keep clear, accurate and legible records reporting the relevant clinical findings, the decisions made, the information given to the patients and any drugs prescribed .The WHO (2007) notes that clinical staff have a professional obligation to maintain patient documentation in the form of medical records that is clear, concise and comprehensive as an accurate and a true record of care. WHO (2007) further points out that creating and maintaining proper medical records brings huge benefits which include; a high standard of clinical care, continuity of treatment, improved communication and dissemination of information between and across healthcare providers, an accurate account of treatment, intervention and care planning, improved goal setting and evaluation of care outcomes, improved early detection of problems and evidence of patient care.

Failure to create and maintain accurate, complete and authentic medical records may have serious implications on patient healthcare. According to IRMT (1999) without accurate, comprehensive up-to-date and accessible patient case notes medical personnel may not offer the best treatment or may in fact misdiagnose a condition which can have serious consequences. Medical records assure the delivery of appropriate and timely medical care to patients and if they are illegible, incomplete, inaccurate or untimely they may represent substandard patient care (University of Tennessee: 2007). This is emphasized by Mogli (1996) who notes that failure to maintain accurate, timely and complete medical records results in negligence in the institutional responsibility to the patients and the community as a whole. It may also constitute professional misconduct which according to the Australian Nursing and Midwifery Council (2008) may be

manifested in practices such as; failure to document records as required, falsification of clinical records by documenting care that never occurred, signing a document that is known to contain false or misleading information and omitting to record relevant information. Since medical records are essentially used for the present and continuing care of the patient it is important that they must be properly managed to ensure that they are available when the patient returns to the health facility. According to the IRMT (1999) if case notes are not maintained or if they are incomplete, lost or difficult to retrieve, patient care may be compromised, tests may need to be repeated and the hospital may have inadequate protection against negligence claims. WHO (2006) observes that if a medical record cannot be traced the patient may suffer because information which could be vital for their continuing care is not available and if the medical records system is not working properly the overall healthcare service is affected. IRMT (1999) argues that patient care will be adversely affected if correct records are not maintained or if records are inadequately managed.

As part of patient care, hospitals have put in place mechanisms of auditing the effectiveness of the care they provide to patients. Such mechanisms enable hospitals to determine whether the standard of care conforms to best practice and also identify areas of weakness for further improvement. These mechanisms have taken various forms but clinical audits are considered as one of the most effective methods of auditing healthcare services. Clinical audit is essentially a quality improvement process that aims to improve patient care and outcomes through a systematic review of care against explicit criteria and the implementation of change (East Kent Clinical Audit Service:

2002). Put more simply, clinical audit is all about measuring the quality of care and services against agreed standards and making improvements where necessary (National Institute for Clinical Excellence: 2002). Clinical audits serve as accountability mechanism through which a hospital can demonstrate that the quality of patient care it provides is consistently optimal. According to National Institute of Clinical Excellence (2002) the benefits of clinical audits include; promotes and enables good practice, provides opportunities for education and training, builds relationships between clinicians, managers and patients and leads to improvement in service delivery and patients' outcomes. Traditionally clinical audits have been taken to refer to a procedure carried out by doctors on their own professional activities with the ultimate aim of upgrading the standard of healthcare. However, with advancement in clinical practice where different health professionals are involved in patient care, clinical audits have adopted a multi-disciplinary approach and are now a common feature in modem healthcare provision in hospitals.

A number of sources among them National Institute of Clinical Excellence (2002) and Healthcare Quality Improvement Partnership (2008) describe a clinical audit process as a cycle that consists of six stages. These stages include; identifying the aspect of care to be audited, defining the criteria for measurement, collecting data that is meaningful and relevant, analysis of data to compare performance against defined criteria, drawing recommendations for change and plan of action and sustaining improvements through re-audits. One of the key stages in carrying out clinical audits is the systematic collection of relevant data and patients medical records are evaluated as the only means

by which evidence of performance can be collected (Healthcare Quality Improvement Parmership:2008). Medical records enable hospitals to identify specific disease conditions to be audited and determine the areas that require improvement.

2.2.6.2 Medical Records and Healthcare Planning

Planning is considered to be an integral part of the management process of an organization. According to Booyens (2008) planning involves deciding in advance what to do, how to do it, when to do it and who is to do it and focuses on goals, minimizing risks and ensuring effective use of resources and facilities control. Among the benefits of planning as cited by Booyens (2008) include;

- It establishes direction in management and helps prevent wastage of time and resources.
- It helps to measure performance as it sets out action plans, persons responsible for execution of those plans and completion time.
- It guides the efficient use of resources resulting in improved productivity.

With the increase of the burden of disease worldwide, the cost of providing healthcare has been rising over the years and as a result health planning has become increasingly important in an attempt to enable limited resources to be used more efficiently and effectively. This is can be possible only if hospital managers have access to reliable health information most of which is held in the form of medical records to guide decision making in the healthcare planning process. While the need for such information exits worldwide, it is more critical in developing countries where available resources are substantially less than needs and evidence-based decision making in

resource allocation is quite critical. According to WHO (2003) health information refers to organized data about individual or groups of patients collected during the patient's attendance as an outpatient or on admission to the Hospital. WHO (2003) further observes that, access to timely, complete and reliable health data/information plays a vital role in planning, monitoring and evaluation of healthcare services and programs. The types of healthcare data/information collected and maintained vary from hospital to hospital. According to the Ministry of Medical Services (MOMS) (1999) most public hospitals in Kenya maintain healthcare data/ information under the following major categories:

Workload healthcare data/information- This data consists of the total number of outpatient attendances, total number of admissions, discharges, deaths, occupancy rates and average length of stay among other health indicators. Health statistics generated from such data are used to assess the level of utilization of health facilities both at institutional and national level and drawing workload comparison among health facilities. This guides decision making in identifying which facilities need additional personnel, medical supplies and other requirements.

Morbidity and mortality healthcare data- this is concerned with the disease conditions attended to by hospitals as well as mortality. Vital health statistics on births and deaths give indication of the national birth and death rates and are considered important to the overall national health planning.

Surveillance data- this type of data is used to prioritize infection control activities and to identity epidemics and/or communicable diseases as well as trends, infection rates and outcomes of acquired infections. This type of data provide valuable information used to inform decision and policy making aimed at minimizing the impact of communicable diseases in a given community.

MOMS (1999) further points out that healthcare data/information have numerous uses in the healthcare planning process some of which include;

- At the hospital level the managers can use the data on patients' daily attendances to examine the average pattern of diseases during any given month or year. This can be used to identify major health problems in its catchment area and determine the annual pattern of those diseases. It therefore enables the hospital to project its needs for drugs and other supplies, health education and other appropriate activities.
- At the national level the data/information could be used to compare workload among facilities, monitor disease trends and enable the government to identify areas where certain diseases are most prevalent and make decisions on the appropriate strategies.

WHO (2003) states that healthcare data/ information should be capable of; describing the categories of patients seeking services and the type of services provided, measuring efficiency of the healthcare system, helping in coordination of care between healthcare providers, providing meaningful statistics for determining the health status of a

community, meeting accountability requirements and promoting excellent healthcare. Despite the important role healthcare data/information plays in healthcare planning, most hospitals in developing countries face serious challenges in maintaining comprehensive and reliable healthcare data/ information. WHO (2003) identifies some of the causes of poor data collection in developing countries to include; poorly designed forms, lack of adequate trained personnel to record data appropriately, lack of appreciation on the need for accurate data by healthcare providers and delays in recording data at the point of contact with patients. Barasa et al (2004) maintain that many health facilities operate under difficult circumstances and keeping detailed records and reporting monthly is not always at the top of the priority list. The authors further argue that as a result data from many of the health facilities is missing and consequently data on the overall national health picture is inevitably incomplete. This is likely to seriously affect the decision making process in health planning which is guided by access to timely, complete and accurate health information.

Paucity and inadequate use of available evidence and information to guide decision making is cited by New Partnership for Africa's Development (NEPAD) (2003) as one of the causes of weak health systems operations in Africa. Powell-Jackson (2007) emphasizes that without accurate health information, resources are unlikely to be allocated in a way that reflects a country’s priority health needs and this greatly hampers efforts to deliver health services that improve the population’s health status and standards of living. African leaders however recognize the need to improve on the quality of healthcare data/information as the basis for informed decision making in

healthcare planning. For example, NEPAD (2003) whose focus is on adoption of an integrated approach in addressing the disease burden in Africa states that health information systems should be strengthened to support the decision making process and provide information to managers. The Strategy further indicates that efforts should be concentrated on the improvement of the vital health statistics, patients' registration systems, epidemiological surveillance, morbidity and mortality registration and resource management information systems.

It is widely recognized that governments alone cannot assure the health of its population and partnerships with other development partners are essential. Such partnerships have seen significant increase in resources for health particularly to developing countries being mobilized in the recent years; for example, through the Global fund for HIV/AIDS, tuberculosis (TB) and malaria, WHO and World Bank among others. Accountability for these resources is therefore required and the demand for good quality health information is growing to assist in monitoring of health program outputs and assess progress towards addressing the disease burden. The WHO whose role is to provide leadership on global health matters requires healthcare statistics from member states in order to obtain a picture of the incidence of specific diseases within each region and globally. Lack of reliable health care information may affect global assessment of the burden of diseases and decision making on the appropriate healthcare strategies for individual countries.

2.2.6.3 Medical Records and Medical Research

Research on health has been recognized as a major contributor to knowledge and information critical for policy development and identification of priority interventions in healthcare. This is echoed by the 58th World Health Assembly held in 2005 that noted that research is an essential component of strong health systems for informed and knowledgeable action to improve people's health and accelerate the rate of global, regional and national development In recognition of the importance of health related research in the improvement of healthcare delivery, the 58th World Health assembly held in 2005 resolved that governments should promote activities that strengthen national health research systems. This is more critical to developing countries particularly Africa where majority of the people continue to seek treatment for ailments that can be prevented through education on preventive measures. According to United Kingdom Medical Research Council (2007) knowledge gained through research, for example, on disease patterns is used to educate the public on certain aspects of medical care enhancing preventive measures and contributing to the overall improvement of healthcare services. The need to strengthen health research in Africa is expressed in the Africa Health Strategy (2007-2015) that states that research is a necessity for improving health system performance and countries should build research capacity and allocate at least 2% of national health expenditure to research.

Watt (2006) points out that medical research is an important part of healthcare and patients records are the starting point for research studies involving either the general population or patients with particular conditions. In recognition of the importance of

medical records in research WHO introduced the International Classification of Diseases (ICD) in 1946 aimed at integrating proper diagnosis systems and keeping actual data on disease conditions based on the medical records of individual patients. The ICD is an internationally accepted system of coding and indexing of diseases and procedures. This system facilitates speedy and systematic retrieval of medical records and processing of clinical data not only for clinical decisions, health planning but also for research and health policy development. On the importance of medical research in healthcare provision the United Kingdom Medical Research Council (2007) points out that the development of better drugs, better equipment and better techniques are all seen as emanating directly from medical research. There is also the prospect of cure of diseases being found through medical research. The United Kingdom Medical Research Council (2007) further argues that long-term medical research is seen as adding to the body of knowledge of a society, for example, cancer was once regarded to as a taboo in some societies but research has helped to educate the public to the extent that it no longer carries such stigma and the same can be said of HIV/AIDS.

2.2.7 Medical Records Management Challenges faced in the Provision of Healthcare Services in Kenya

Governments' worldwide records recognize the need to protect public records owing to their importance and value in the conduct of business, meeting legal and accountability requirements and for historical reasons. This has led to the enactment records and archival legislation by countries worldwide to ensure that its records and archives are properly managed and preserved over time. Such legislation provides the legal framework for the management and preservation of public records which include

medical records. According to ACARM (2003) the aim of most records and archival legislation is to;

- establish a single records and archival authority to be concerned with the management of public records and archives
- empower archival authorities to transfer records of enduring value to an archival institution for their care and preservation
- prohibit the destruction of public records without prior authority
- to confer the right of access to records and archives

In Kenya, for example, Kenya Public Archives and Documentation Service Act govern the management and preservation of public records. The Act among other powers and responsibilities empowers the Director on the care, preservation, custody and control of any public records. However, the Act does not clearly define role of the Director of the Kenya National Archives & Documentation Service (KNADS) and that of records creating agencies in respect to the management of public records. As a result KNADS is more concerned with the preservation of archives while records creators assume that the responsibility of KNADS covers all aspects of public records management except current records (Mnjama: 2003). For this reason most government institutions and state corporations as Kemoni (2007) cited by Kemoni & Ngulube (2007) observes do not implement the recommendations and advise given by the KNADS personnel regarding proper management of public records. This has resulted to poor state of public sector recordkeeping in Kenya which Kemoni (2007) cited by Kemoni & Ngulube (2007) attributes to factors including lack of top management support, few opportunities for

training of records personnel, inadequate storage space and general neglect of the records management function. Efforts by the government to enhance the management of public records is seen through initiatives which included; the amendment of me Public Archives & Documentation Service Act in 1990, issuing of records management circulars through the initiatives of KNADS, Office of the President and Directorate of Personnel Management and introduction of computerized information management systems in public institutions.

The challenges of managing medical records especially in public hospitals in Kenya are not any different from those facing government ministries and departments in the country. These challenges are highlighted in a study carried out by Kemoni (1999) to examine the policies and practices for managing medical records at Moi Teaching and Referral Hospital in Eldoret. The study established there were inadequate and unsuitable storage facilities for medical records, lack of formal training in records management for staff managing medical records, limited computerization of the medical records processes and lack of an appraisal and disposition policy. These challenges lead to inefficiency in the way medical records are managed and consequently affect the delivery of healthcare services in hospitals. In addition, it is important to note medical records serve as key sources of data used by hospital managers and planners to make decisions on healthcare delivery. However, numerous challenges have been witnessed in the health data collection, analysis and reporting in many developing countries including hospitals in Kenya. Powell-Jackson (2007) observes that in developing countries the greatest gaps in data on health exists and the data reporting systems are

ineffective. As a result, the content and quality of what is reported is inconsistent with what is expected since the reports merely summarize activities which cannot be usefully applied for planning purposes or to make comparisons (Kimaro et al: 2007). Barasa et al (2004) maintains that without reliable and relevant health information, health managers and providers cannot make decisions to allocate resources effectively, improve the quality of health services or address epidemics such as HIV/AIDS. In order to allocate human and material resources such as doctors, nurses, hospital beds and drugs hospital managers need to know when and where in their country people are getting sick and which diseases are more prevalent than others making healthcare data/information very critical in overall healthcare delivery system of a country including Kenya.

To address the challenge of inadequate medical records management and problems related to clinical data gathering a number of hospitals including public hospitals in Kenya have introduced computerized medical records management systems. This aimed at minimizing the challenges posed by paper-based medical records. The manual medical records systems prevalent in many public hospitals present serious challenges to the efficient and effective service delivery. According to Voelker (2003) some of the shortcomings of medical paper-based records include;

- **Record fragmentation**- the growing need to share information on the care of patients between healthcare providers e.g. between one clinic and another is often poorly served by the paper-based medical records. The records can only be in one place at a time and logistical issues make it difficult to move it around as fast as is needed. In many large public hospitals each clinical department

maintains separate medical records for each individual patient thereby creating a serious problem of record fragmentation. This can lead to potential serious problems of continuity of care of the patient as healthcare professionals have no access to a complete medical history on which to base their clinical decisions.

- **Content finding**- specific information in paper-based medical records is not easily located by the different users who need different kinds and levels of information since important information may be hidden amongst masses of information, in addition, information may simply not have been recorded, or may have been misplaced making the cost of abstracting data from paper-based medical records very high.

Due to the above challenges the interest to computerize the health record is generally high in most public hospitals. This interest according to WHO (2006) is driven by the need to:

- improve the accuracy and quality of data recorded in a health record.
- enhance healthcare practitioners' access to patients' healthcare information enabling it to be shared by all for the present and continuing care of the patient.
- improve the quality of care as a result of having health information readily available at all times for patient care.
- improving the efficiency of the health records service and to contain healthcare costs.

In clinical practice the term electronic medical record system (EMRS) and electronic health record system (EHRS) have been used interchangeably to describe automated health systems developed by healthcare facilities. According to WHO (2006) these systems focus on automated patient identification details .medications and prescription, laboratory results and in some cases all healthcare information recorded by the doctor during each visit by the patient. Robert (2000) points out that there is no universally accepted definition of the term electronic health record or electronic medical record and varying definitions have been provided. According to Texas Medical Association (2009) electronic medical record (EMR) relates to information on an individual that is created, gathered, managed and consulted by licensed clinicians and staff from a single organization involved in the individual's health and care. The author further points out that electronic health record (HER) is an electronic record of health-related information on an individual that is created and gathered cumulatively across more than one healthcare organization and is managed and consulted by licensed clinicians and staff involved in the individual's health and care. Numerous aspect of healthcare can be automated to enhance efficiency in the provision of these services. The key aspects to be considered for automation include:

Patient casenotes- medical records created by multiple providers in different locations and units can be automated and linked to create a single record for an individual patient. The problem of medical records fragmentation will therefore cease and more than one healthcare provider can have access and share the same records at the same time. The main result is faster healthcare decisions and implementation as healthcare providers

have access to the complete medical history of a patient. According to Roberts (2008) electronic health record systems also allow improved legibility of clinical notes and enhance accuracy of patient information.

Diagnostic investigations reports- in an electronic health record system, clinicians can easily order and retrieve the reports electronically. A lot of time is therefore saved in making the correct diagnosis and appropriate form of treatment as opposed to manual systems where investigations may be delayed or missing and may have to be repeated. X-rays and other types of images can be scanned and easily incorporated into the EHRS which makes them more easily accessible by clinicians.

Medications- EHRS can include an application for prescribing and ordering medication. Robert (2008) points out that a list of medications given to a patient as well as reactions to those medications can be stored in the system to ensure that proper medications are dispensed. From this list healthcare professionals will know what drugs a patient is allergic to and this reduce the chances of any medical errors.

Emphasizing on the benefits of adopting electronic medical records systems WHO (2006) points out that the system enables hospitals to improve on accuracy and quality of medical record documentation, enhance access and sharing of information between and among healthcare professionals, improves on the quality of care provided and enhances efficiency of medical records services, in addition to enhancing efficiency and effectiveness in patient healthcare EHRS brings other benefits among them cost saving since they take less storage space as opposed to paper records. EHRS also have the

capability of being interfaced with other programs such as billing which submits patients' bills and claims electronically enhancing revenue collection and accountability. Hospital administrators can also have access to automatic audit reports prepared for services provided to patients, length of stay and cost of care among others. This facilitates prompt evidence- based decision making in the provision of healthcare services.

However, a number of challenges have been experienced in the implementation of EHRS in both developed and developing countries including Kenya. These challenges are greatest in countries where resources are scarce, records management systems are weak and the level of technology is still low. Inadequate manual records management systems particularly, will continue to hamper implementation of electronic health records systems as they provide the source data for the required system. Until the deficiencies of manual medical records management are adequately addressed the risk of importing the problems of paper-based records to electronic health records system will remain a challenge. Patients and physicians also have concerns about electronic medical records. According to Pinaire (2009) advocates of patients' rights are concerned about insecurity of electronic records which may expose patients' information to the public through accidental release or breaches of privacy. As a result, physicians are concerned that patients may not provide comprehensive information which may diminish treatment efficacy (Twight: 2002) cited by Pinaire (2009). WHO (2006) further cautions that the move to an electronic health record system will not be

successful if healthcare professionals are not educated on the importance of creating proper medical records.

Despite these barriers, the need to adopt EHRS has been widely recognized as essential in improving health data collection, processing and dissemination to support patient care, health planning and decision making including overall healthcare delivery in Kenya. Attempts by government and donors have been reported concerning the design, development and implementation of computer-based health information systems in a number of public hospitals. The adoption of these systems faces serious challenges including; lack of adequate funds to sustain the systems which were donor funded, ineffective system design, inadequate skills and human capacity.

2.2.8 Review of Empirical Studies

Menke *et al* (2001) carried out a study to determine the potential benefits of computerized clinical documentation system in the paediatric intensive care unit at the children's hospital, Columbus. Throughout the study the team documented important incidental findings related to the implementation of the system and made several observations which were thought to be important to the study. The findings of this study were that documentation provided by the computerized system was more complete and always legible. This led to improvement in clinical decision making and less time was spent on documentation making it possible to spend more time on patient care. Further, automatic ordering and timely delivery of medications led to improvement on the quality of care and the information was more accurate and readily accessible to clinicians' and nurses.

Wamwana *et al* (2007). This was a retrospective comparative study carried out at Kakamega Provincial General Hospital in Kenya to assess the quality of recording of critical events during the initial implementation of the safe motherhood demonstration project (SMDP). One of the objectives of this project included on job training of health personnel on collection and utilization of maternal health services data in the healthcare provision. The study also involved a study of patients' medical records which included patients' case notes, delivery books and operating theatre registers of mothers attended before and after the implementation of SMDP to assess the comprehensiveness of recording of bio-data, history taking, examination and outcome. The study revealed that there was significant improvement in recording of diagnosis and plan of management during the implementation of SMDP since the health personnel had been trained on the importance of documentation. Recordkeeping improved with the retrieval rate of patient's notes rising from 86.9% to 89.6% before and after the implementation of SMDP respectively and the quality of care greatly improved resulting from improved recordkeeping.

Mwakyusa *et al* (2006). This was a pilot study on the implementation of a structured paediatric admission record at Naivasha District Hospital in Kenya. The need for this pilot study arose from a survey conducted in 2002 to assess the performance of district hospitals in Kenya. The survey had revealed that there were significant shortcomings in the care of admitted children due to number of problems among them being that data required for even crude health systems indicators was of poor quality and potentially misleading. The survey further reported that such data was likely to prevent effective

healthcare planning for the hospital, region and the nation. The pilot study focused on the introduction of structured paediatric admission record and training of health personnel involved in the children's admission process. The findings of this study were that the content of the admission record greatly improved as the information was more complete and concise and all the important general clinical features were well recorded resulting in improved performance of the healthcare providers.

Wong & Bradley (2009). This was a pre-post intervention study carried out in a rural hospital in Ethiopia between 2006 and 2007 to evaluate the impact of an inexpensive process re-engineering project on accessibility and completeness of patient information and on physician satisfaction. The team implemented a hospital-wide patient registration and medical records re-engineering process which included a simple custom-made computer database to manage patient information, standardized medical records forms, processes and enhanced human resource management. They measured medical records accessibility and completeness and the physician satisfaction. The study established that the success rate of retrieving medical records for returning patients improved from 14 to 87%, the time to locate medical records decreased from 31.2 second per record to 15.7 second per record, the percentage of complete medical records increased from 6.5% to 45.7% and the physician satisfaction with the medical records system was significantly higher after the intervention. Their findings concluded that a well organized medical records management system can be effective in improving patient information accessibility and completeness in hospitals in low-income countries despite lack of resources.

Kemoni (1999) carried out a study to examine the policies and practices of managing medical records at Moi Teaching and Referral Hospital in Eldoret, Kenya. The study established that the storage facilities for medical records were inadequate and unsuitable; some of the staff involved in the management of medical records had no formal training in records management; computerization was limited to only a few of the medical records processes and the hospital lacked an appraisal and disposition policy. The study recommended measures aimed at improving medical records management at the hospital which included; the need to improve on medical records infrastructure, training of medical records personnel, the need to extend computerization to other key medical records processes and strengthening hospital management support towards medical records management activities.

Sharma et al (2006). This was a retrospective study of randomly picked case notes of 96 patients visiting the Eye Care Centre of Leighton Hospital between 1st of January 2005 to 30th June 2005. The purpose of the study was to assess the quality of note keeping and the quality of documentation of doctors' notes. The study found out that maintaining good standards of clinical documentation was a challenge as evidenced by cases of incomplete documentation and illegible handwriting in the notes. It also established that improvement was required in the doctors' signing of entries, printing their names and writing date and time of consultation since the information was missing in 56.3% of the cases. The study concluded that it was important for hospitals to carry out regular audits on the contents of medical notes and implement changes recommended in the findings.

2.2.9 Conclusion

This Chapter described and explained the records continuum model which was considered relevant to the study. The Model addresses issues of creation and capture of records as evidence of transactions, establishment of recordkeeping systems and the use of records to meet business needs and other purposes. In addition, the Chapter discussed the literature related to the study which focused on defining and explaining of key concepts including records, medical records and records management. The contribution of medical records in the provision of healthcare services which included; patient care, healthcare planning and medical research was also discussed as part of the literature review. The literature also highlighted the medical records management challenges faced in the provision of healthcare services in Kenya which included weak legislation, inadequate competent staff to manage medical records, poor infrastructure for medical records management, poor clinical data management and low utilization of information and communication technology (ICT). Finally, empirical studies relevant to the study were discussed focusing mainly on medical records keeping practices and the role of ICT in enhancing medical records management.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This Chapter discusses the research methodology for the study. It begins by describing the qualitative research approach including why it was preferred for the study. The Chapter further presents the study population, sampling procedure and the data collection instruments with justification on the use of the chosen procedure and instruments. Last but not the least, the Chapter describes how the pilot study was conducted and finally presents the ethical considerations relating to the study.

3.1 Research Method

The research was largely based on the qualitative research method. Kothari (2004) points out that qualitative research method is concerned with subjective assessment of attitudes, opinions and behavior and provides descriptions that contribute to the understanding of social life in a natural setting. This method was preferred because the aim of the study was to gather comprehensive information from the respondents on their views, experiences and opinions regarding the effectiveness of medical records in healthcare provision at KNH. It was important for the researcher to gain in-depth understanding on the subject and the qualitative approach was quite appropriate as it allowed probing particularly on unanticipated issues which brought out new insights into the problem thus enriching the study. For example, probing on the extent to which the respondents considered medical records critical in the discharge of their duties enabled the researcher to deeply understand the value of attached to medical records in

the healthcare delivery system. This approach was also quite suitable since the researcher was at liberty to seek clarifications on some of the respondents' responses. In the circumstances, the respondents were able to qualify their answers and emphasize on their strong views and opinions, for example, on the challenges they experienced in the use and management of medical records. Despite the research being largely qualitative some form of quantitative data was gathered, for example, on the types of medical records, hospital workload and medical records staffing levels including competency. The data was used to compliment the qualitative data and enrich the research findings.

3.2 Study Population

The study population comprised of a total of 873 KNH staff working in the clinical departments of the hospital. According to Kombo and Tromp (2006) a population is a group of individuals, objects or events that have common characteristics from which a sample is taken for measurement. The population comprised of clinical service staff composed of medical doctors, nursing officers, rehabilitative service staff and pharmacists; diagnostic service staff composed of radiographers and laboratory technologists. The reason for sampling the above staff was because of their great responsibility in diagnosis, treatment and care of patients. In the discharge of their duties they created medical records in the form of patients' case notes, reports on diagnostic investigations, nursing procedures records and drug administration records. In addition, they heavily used medical records in the course of their work and therefore they were conversant with the role and value of medical records in the provision of healthcare services. Besides the clinical and diagnostic service staff mentioned above, medical records staff composed of medical records officers and assistants were also

selected to participate in the study. This was mainly because of their involvement in the management of medical records in the hospital and their wealth of knowledge and experience on the importance of medical records in effective healthcare delivery.

3.3 Sampling Procedure

Sekaran (2006) defines sampling as the process of selecting a sufficient number of elements from the population so that a study of the sample and an understanding of its characteristic would make it possible to generalize such characteristics to study the entire population. Stratified random sampling and purposive sampling technique were used in the research. This ensured that the different cadre of staff involved in the creation, use and management of medical records were included in the sample. The population was stratified/grouped in terms of cadre/profession comprising of 253 medical doctors, 98 senior nursing officers, 52 radiographers, 147 laboratory technologists, 61 pharmacists, 142 rehabilitative service officers and 120 medical records officers/assistants. A sample of 10% was drawn from each cadre totaling 87 staff which constituted the study population. Mugenda and Mugenda (2003) recommends that a sample size of more than 30 respondents or at least 10% of the target population is usually adequate for social sciences. Purposive sampling technique was then used to select information-rich cases from each cadre of staff to provide relevant information on the subject. Purposive sampling technique according to Neuman (2000) cited by Saunder et al (2003) is often used when working with small numbers such as in case study research and when the researcher wishes to select cases that are particularly informative. The sampling procedure is summarized in **Table 1.**

Table 1: Study Population and Sample Size

Clinical service staff		
Cadre of staff	**Population size**	**Sample size**
Medical doctors	253	25
Senior nursing officers	98	10
Rehabilitative service officers	142	14
Pharmacists	61	6
Diagnostic service staff		
Radiographers	52	5
Laboratory Technologists	147	15
Medical records staff		
Medical records officers/ Assistants	120	12
Total	**873**	**87**

3.4 Data Collection Methods

The data collection methods and instruments used in this research included interviews, observation and a review of documentary sources as follows:

3.4.1 Interviews

The study mainly used face-to-face interviews supplemented by telephone interviews. Kasomo (2007) points out that interviews can either be structured, semi-structured or unstructured. The author further points out that in structured interviews the responses are limited, while in semi-structured interviews the responses are open and in

unstructured the questions are largely broad. Semi-structured interview guides were used which enabled flexibility and further probing on views and opinions of the respondents on all aspects covered by the study. After every interview all the responses to the questions were summarized and presented to the respondents to ensure clarity on what was said.

3.4.2 Observation

According to Mcburney et al (2007) observation method involves recording behavior without attempting to influence it. Observation was also used with the aim of gathering additional information on the management and use of medical records in healthcare delivery. An observation checklist as shown on Appendix 12 was used which focused on the creation, control, access, security and disposition of medical records. It enabled uniformity in the manner the data was gathered focusing on the areas been observed. The observation notes were comprehensively written in a note book soon after each observation and the information was used to enhance interpretation of the findings obtained from the interviews and review of documentary sources.

3.4.3 Documentary Sources

Data was also collected by reviewing various documentary sources based on the objectives of the study aimed at gathering additional information to enrich the study. The key documents reviewed included:

- **Hospital policies**- aimed at establishing the legal framework for managing medical records.

- **Medical records management guidelines and procedures**- to gain better understanding on the creation, control, security, access and disposition of medical records.
- **KNH strategic plan and annual operation plans**- for clarity on the planning process and execution of medical records management requirements in terms of budgetary allocations on infrastructure, environmental control and staffing.
- **KNH annual reports**- to establish achievements and challenges in the management of medical records.
- **Survey reports**- to gain deeper understanding on the current medical records management practices, challenges and previous recommendations.
- **Departmental files**- to understand KNH organizational structure, functions and their relationship to the types and formats of medical records generated by the various departments.
- **Patients' records**- for clarity on the nature of services offered by KNH and their relationship to creation, maintenance and use of medical records.

3.5 Pilot Study

A pilot study was conducted through face-to-face interviews with twenty (20) staff purposively drawn from each cadre. Participation in the pilot study was voluntary and the participants were assured of confidentiality. The purpose of the pilot study was to identify problems that would occur when using the proposed instruments and solicit suggestions for improvement. A pretest checklist was also used to determine adequacy of the interview guides in respect to clarity of the questions, language used and the

sequence of the questions including seeking for suggestions for improvement. The results of the piloting and pretesting were as follows:

- **Language used**- All respondents were in agreement that the language and terminologies used in the interview guides was clear and no typographic errors were noted.
- **Nature of questions-** The questions enabled the interviewees to respond from their own perspective and in their own words. A few questions which seemed to solicit leading answers were rephrased.
- **Clarity of the questions**- Majority of the respondents commented that the questions were easily understood but a few amendments were done based on some of the respondents suggestions.
- **Sequence of questions-** Majority of the respondents pointed out that the sequence of questions was systematic and logical. However, a few changes were proposed which prompted inter-change of some of the questions.
- **Diversity of questions**- All the respondents were in agreement that the interview guides contained a variety of questions which could enlist probing and allow for unexpected ideas to emerge.
- **Respondents' knowledge on the subject-** the pilot demonstrated that all the respondents were knowledgeable on the subject.

The results highlighted above were used to revise and improve on the interview guides shown on Appendix 5-10. However, the results of the pilot study were not included as part of the study findings in chapter 4.

3.6 Data Analysis

The researcher applied the Grounded Theory approach to analyze qualitative data. According to Charmaz (2006) the basic idea of the grounded theory approach is to read and re-read text and observations of behavior to discover categories, concepts and their relationship. This approach mainly focuses on coding of qualitative data based on three methods which include; open coding, axial coding and selective coding. Kasomo (2007) explains that open coding is the process of naming and categorizing of phenomena through case examination of data while axial coding involves relating codes or categories to each other. The author further explains that selective coding involves choosing one category as the core category and relating to it all the other categories. Using this approach the researcher prepared a list of pretest categories which were determined in advance to provide direction on the kind of information to look for in the mass of collected data. Guided by the pretest categories and with the research objectives in mind open coding was done by studying each question to gain understanding on what was being said. As reading and re-reading of the text continued it became apparent that some text was relevant to the research objectives and the other text was not relevant. For example, when an event, behavior or process involved an element of accessing medical records in the provision of healthcare services at KNH the text that was considered relevant was assigned a provisional category name. As data analysis continued, axial coding was done by comparing each new category with the previous category so that similar relevant text was assigned the same category. Some of the already preset categories were modified while emerging categories were added as they became apparent and from some of the categories sub-categories also emerged. For

example, access to medical records category produced the following sub-categories; availability of medical records for patient care, limitations to utilization of medical records and role of medical records in training, medical research and healthcare planning. A memo was attached to each category which according to Charmaz (2006) aims at highlighting why the text was considered important to the research objectives. The use of memos helped in stimulating ideas and deeper thinking about emerging concepts which aided in refining the categories.

During data analysis data gathered from observation and documentary sources was also cross-examined and compared with the data gathered from interviews. The data tended to agree in most of the aspects. The researcher also engaged an independent person conversant with qualitative research methods to verify the consistency of the data categorization. For this purpose a sample of relevant text from the interviews was provided and the results helped in further refining the categories. After all the data was categorized, selective coding was done by grouping the categories by similarity and themes identified based on each grouping. The major themes identified included the following:

- Business activities that generate medical records at KNH
- Types and formats of medical records
- Use of medical records in healthcare provision
- Medical records management practices in support of healthcare provision
- Medical records management challenges affecting provision healthcare services
- Strategies for improving medical records management in support of healthcare provision

3.7 Ethical Considerations

Authority to conduct the research was sought from the National Council for Science and Technology. In addition, authority was also sought from the KNH/UON Ethics and Research Committee in line with the requirements for conducting research in the hospital. The interviews were planned in advance and the objectives of the research and expected benefits explained to the respondents. Informed consent was also sought from the respondents and all of them remained anonymous being identified by a unique code number, thus assuring their confidentiality.

3.8 Conclusion

This Chapter has discussed the research methodology used for the study. The study applied qualitative research method due to its suitability to the area of study. The study population consisted of KNH staff involvement in the creation, use and management of medical records. The stratified random sampling and purposive sampling techniques were used which enabled representation of the different cadres and selection of knowledgeable staff on the area being investigated. A pilot study was conducted and the results used to revise and improve on the data collection tools. Data was collected using face-to-face interviews supplemented by telephone interviews. Data was also collected through observation and a review of documentary sources which was used to compliment data gathered through interviews. In accordance with research ethics authority to conduct the research was sought from relevant authorities. In addition, informed consent from the respondents and their confidentiality was assured.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This Chapter is devoted to the presentation, analysis and interpretation of the data obtained from the respondents. The aim is to make meaning from the raw data and draw conclusions in relation to the objectives of the study. The findings are organized in relation to the study objectives and the format of presentation is descriptive complimented by relevant quotes from the respondents and tables where applicable for ease of understanding.

4.1 Response Rate

A total of 58 respondents were interviewed out of the targeted 87 respondents. This translated to 67% response rate which was slightly lower than the targeted 87 respondents. The interviews were mainly face-to-face supplemented by telephone interviews. The researcher was not able to attain the targeted 100% response rate due the fact that the respondents worked on a 24 hour shift coverage characterized by very busy schedules including attending to emergencies. They did not have adequate time to participate in either face to face or telephone interviews despite several attempts which were made to re-schedule the date and time of the interview. The response rate for each of the cadre of staff was as shown in **Table 1** below:

Table 1: Response rate on interviews done

Clinical service staff			
Cadre of staff	**Sample size**	**No interviewed**	**Response rate %**
Medical doctors	25	15	60
Senior nursing officers	10	8	90
Rehabilitative service officers	14	7	50
Pharmacists	6	6	100
Diagnostic service staff			
Radiographers	5	5	100
Laboratory Technologists	15	7	47
Medical records staff			
Medical records officers/ Assistants	12	10	83
Total	**87**	**58**	**67**

4.2 Respondents Characteristics

The interviews conducted with the various cadres of staff indicated that most respondents had served in the hospital for a period ranging between 5 and 15 years. This showed that majority of the respondents had a wealth of experience and knowledge on the types of medical records generated as a result of the services provided by KNH.

They were also conversant with the role and value of medical records in the provision of healthcares services including the challenges encountered in the use and management of these records.

4.3 Effectiveness of Medical Records in the Provision of Healthcare Services

The study investigated the effectiveness of medical records in the provision of healthcare services at KNH. The data was analyzed thematically based on the objectives of the study. The analysis and interpretation of data is presented below:

4.4 Business activities that generate medical records at KNH

The objective addressed by the above theme entailed establishing the business activities carried out at KNH leading to creation of medical records in support of the hospital's healthcare system. This was information was considered important in understanding the relationship between the functions/business activities carried out at KNH and generation of medical records. The information was also critical in exploring the need to create and maintain medical records as evidence of the activities carried out at the hospital. The data is presented, analyzed and interpreted below:

4.4.1 Data from clinical service staff

All the 36 (100%) respondents held a similar view that the main activity which they were involved leading to the creation medical records was specialized diagnosis and treatment. This consideration was important to satisfy the primary function of KNH which was *to receive patients on referral from other hospitals or institutions within and outside Kenya for specialized healthcare.* A total of 31(86%) respondents were in

agreement that specialized treatment was demonstrated by the activities they undertook which included among others; cardiothoracic surgery, neurosurgery, reconstructive surgery, radiotherapy and kidney transplants. All the 36 (100%) respondents expressed the need to create and keep medical records to demonstrate the manner in which they discharged their duties. One respondent stated; *"I think that we discharge our duties in line with what we are mandated by law to do, which is first and foremost provision of specialized treatment……. it is my believe that what we do can only be proven through the information we generate while performing our work"(Int/07).* They stated that it was necessary to generate medical records to provide what they termed as *proof of care*. A total of 27 (75%) respondents also indicated that in deciding which records should be created they also took into account the statutory requirements and they cited the birth and death registration as one of the requirements. In addition, they pointed out that as healthcare professionals they had legal obligation to protect the rights of patients especially in case of injuries. One respondent said; *you see where body injuries are concerned say like when a patient is treated for having been involved in an accident or was assaulted, such a patient, deserves justice and compensation and we have a responsibility to prove that we treated the patient for the injuries…….(Int/03)*.

All the 36 (100%) respondents stated that to show proof of specialized healthcare they created and kept their own medical records in the respective departments except for a few specialized clinical where the records were kept in a central place. A total of 29 (81%) respondents pointed out that it was common to find an individual patient's medical records scattered across the departments especially for patients been treated for multiple conditions. They expressed the difficulties they experienced with the present

arrangement such as inability to access a complete record of care for each patient during follow-ups including challenges in preparation of patients reports. One respondent stated; "*good patient care is about having a full account of all previous diagnosis and treatment, only then is one able to make informed decisions……but where records are scattered definitely there is a problem……."(Int/13).* They were of the view that centralizing patients records in one medical record file could bring uniformity and guarantee maintenance of a complete medical history of an individual patient.

A total of 13 (36%) respondents also indicated that healthcare was not all about caring for the sick but was also concerned with health promotion through disease prevention and control. They indicated that they were obligated to provide health education services to patients, families and communities at large on causes and prevention of various diseases. The aim was to encourage what they termed as a healthy behavior and prevent people from falling sick from diseases which could be prevented. In addition, a total of 33 (93%) respondents stated the overwhelming threat of communicable diseases such human immunodefiency virus/acquired immunodefiency syndrome (HIV/AIDS) and tuberculosis (TB) as well as non-communicable diseases such cancer, diabetes, heart and renal conditions demanded that intensified research activities be undertaken as part of disease prevention. They pointed out that research could provide solutions to these challenges by generating knowledge to steer evidence-based policy formulation and health promotion programmes. The respondents indicated that health promotion was an important aspect of healthcare delivery and therefore it was also a guiding factor alongside business needs, statutory and regulatory requirements in deciding which records should be generated.

4.4.2 Data from Diagnostic Service Staff

All the 12 (100%) respondents were in agreement that the key activities they undertook involved processing and reporting on diagnostic and imaging requests received from clinicians. These activities formed the basis for creation of medical records in form of laboratory and imaging reports generated and kept by their departments. They described prompt availability of diagnostic and imaging reports as very important in clinical decision making to facilitate proper diagnosis and treatment. A total of 5 (42%) respondents also mentioned that the need to demonstrate openness and transparency also formed the basis for creation of medical records since KNH was a public hospital accountable to the Kenyans. A total of 9 (75%) respondents concurred with the clinical service staff by stating that diagnostic records particularly laboratory reports were also scattered and duplicated across clinical departments except for a few specialized clinics where the reports were filed in the patient file. They felt that ways of reducing fragmentation and duplication of the diagnostic records needed to be sought to enhance consistency and efficiency in healthcare delivery.

4.4.3 Data from Medical Records Staff

All the 12 (100%) respondents were of the view that access to medical records was critical factor in the overall healthcare system of KNH. One respondent said; *"we provide clinical support services mainly, safe custody of patients' records and availing records needed for treatment and follow-up of patients……..I think these are important services without which clinical services can be grounded……..''(Int/58).* They cited the benefits of medical records management to enhance availability and access as including; well organized medical records, easy location of needed records, safe

custody and confidentiality of medical records. All the 12 (100%) respondents were in agreement that although their key responsibility was to manage medical records the decentralization of patients records in various clinical departments made them walk severally from one clinic to another in search of the required records. One respondent said; ``…….*I find that a patient may have a card opened at casualty and another in eye clinic or dental etc and filed separately in those areas; at the same time the same patient may have a file opened for treatment and follow-up in a consultant clinic and at no time are they all put together….." (Int/49).* In their view, individual patient information was scattered and duplicated in several service points as opposed to being centralized into a single unit file for ease of reference. They were of the opinion that a more standardized approach in the opening and maintenance of patients' files and cards was needed with the aim of consolidating each patient's clinical information into a single unit file. A total of 10 (83%) respondents further stated that besides availing medical records for patient care, they were also involved in the collection of clinical data mainly on patients' attendances, admissions, morbidity and mortality. They viewed such data as very important in planning, management decision making, research, training and policy formulation with significant contribution on the overall healthcare delivery at the hospital and nationally.

Observations done in selected clinics revealed that except for the few specialized clinics in the rest of the clinics and procedure areas medical records were created and stored separately in the respective departments. Similarly x-ray records were stored at different locations, while duplicate copies of laboratory reports were available in the respective

laboratories. This confirmed the view held by majority the respondents that medical records for individual patients were scattered across departments making it difficult for healthcare providers to access a complete record of care for each patient.

4.4.4 Data Interpretation on Business Activities that Generate Medical Records

The findings above could be interpreted to mean that KNH business needs, accountability and transparency concerns, research, statutory and regulatory requirements were the key determinants of the types of medical records created in the hospital. It can also be stated that medical records management function was well integrated in the KNH healthcare system to ensure the creation, maintenance and of medical records. The aim was to ascertain that medical records were kept to provide evidence of the decisions and actions of the healthcare providers including compliance with statutory and regulatory requirements. The findings could further be interpreted to imply that lack of a standardized system in the creation of medical records was responsible for fragmentation and duplication of patients' records across clinical departments. The situation could impact negatively on the efficiency of healthcare delivery due to difficulties experienced in accessing a complete medical history of each patient.

4.5 Types and Formats of Medical Records

This objective sought to determine the types and formats of medical records generated at KNH as part of healthcare delivery system. The information was useful in understanding the considerations made in deciding on which types and formats of

medical records to be created to satisfy the business needs and other requirements of KNH. The key types of medical records created at KNH were either in manual or electronic formats which included; patients' case notes, nursing care notes, radiology (x-ray) films and reports, laboratory reports, drug administration records and clinical statistical reports. The information was mainly recorded on pre-designed medical record forms most of which were filed in what was referred to as the medical record file bearing a unique identification number for each patient. The data collected in regard to this theme is presented and discussed below:

4.5.1 Data from Clinical Service Staff

The common view held by all the 36 (100%) respondents was that the main medical record which they created was what they called the *patient medical record file* in which most information relating to an individual patient's medical care was centralized bearing a unique identification number. All the 36 (100%) respondents were also in agreement that the medical record file of a patient was a very important record in the provision of healthcare services at KNH. Their reasons for holding this view were that the patient file enabled them to maintain contact with each other on the treatment plan for each patient in which they were all involved, besides providing proof that treatment was given in accordance with standards of clinical practice. One respondent said; *``patients' records and clinical practice have always walked hand in hand. I say this because the record serves as a memory to those who will treat the patient in future. I think it is difficult to draw a line separating the patient from his or her medical record" (Int/11)*. The respondents further indicated that a medical record file consisted of various pre-designed medical record forms which were used by every healthcare

provider to document the type of service they gave to each patient. In addition, to the patient medical file some respondents stated that they were also involved in generating medical records in the form of general outpatient cards mainly used in the treatment of patients with minor ailments.

All the 36 (100%) respondents further held a similar view that they had a greater responsibility in ensuring that the records created were reliable in the management of patients. The respondents described reliable medical records by terms such as comprehensive, legible, complete, and accurate besides clearly bearing the names and signatures of the authors as well as the dates of service provision. This was made possible by ensuring that events or services offered were recorded immediately they took place and the names and signatures of the authors including dates were clearly indicated. A total of 15 (42%) respondents admitted that it was not possible in all cases to comprehensively document patient care due to a number of reasons which included; the rising number of patients putting a lot of pressure on already inadequate health personnel and poor attitude to work among some healthcare workers. They pointed out that it was common to come across scanty information on the patient medical history, treatment plan and its execution as well as incomplete names and missing signatures of authors. A total of 30 (83%) respondents pointed out that there no mechanisms in place for auditing the quality of clinical information documented in a medical record which they felt contributed to inadequacy of clinical information. They felt that this was a contributing factor to some the difficulties they experienced in the follow up of patients, compilation of medical reports and responding to medico-legal enquiries. They were of

the view that standards or guidelines needed to be set to address issues of legibility, comprehensiveness and completeness of medical records. In addition, they were of the opinion that assessing the quality of medical records needed to be part of the hospital guidelines. A total of 13 (36%) respondents also indicated that the quality of medical records was also determined by the quality of medical stationery in the form of file folders, cards and medical forms. They expressed concern that the quality of some of the medical stationery had deteriorated over the years. One respondent remarked; *"…….I don't know what went wrong along the way, let me tell you that you cannot compare the files of today to those of 10 or 15 years ago, today the paper is weak and falls apart too soon" (Int/24).* They were of the view that the causes of low quality paper needed to be investigated and a lasting solution found.

4.5.2 Data from Diagnostic Service Staff

All the 12 (100%) respondents indicated that they were involved in processing and reporting on diagnostic and imaging requests received from clinicians and these reports formed part of medical records. They argued that diagnostic services were critical in the whole process of patient care because they aided in the diagnosis and determination of the appropriate treatment for each patient. One respondent remarked; *"the basis of any form of treatment given to a patient is not only examination but also diagnostic investigations which help to either confirm or disapprove the findings of medical examination" (Int/34).* They stated that they use specialized equipment for processing most of the investigations. A total 7 (58%) respondents mentioned that the reporting of some of the investigations was done electronically, thus enhancing accuracy and legibility. The respondents mentioned that the results of the investigations were usually

recorded in the patient's medical record file by the concerned clinician. Copies of the reports were also filed in the patient file while x-rays were filed separately due to their large size. A total of 6 (50%) respondents also pointed out that to produce quality diagnostic and imaging reports was depended on the clinical summary of each patient's medical condition written by the clinician on the request form. They expressed concern that sometimes the information was scanty calling for consultations with the requesting clinicians. They felt that sensitization of staff on the need for accurate and complete patient documentation should be carried out for all disciplines.

4.5.3 Data from Medical Records Staff

All the 10 (100%) respondents indicated that one of their key roles was to register every patient on first attendance either as an outpatient or inpatient by assigning a unique hospital number and capturing the patient's personal details. The information was recorded in what they called pre-designed medical forms. The respondents further stated that besides the personal details most clinical information on an individual patient was also recorded in the pre-designed medical forms. It was their responsibility to ensure that these forms were filed together. They concurred with the clinical and diagnostic service staff that some critical information was sometimes incomplete or missing from some of the clinical records. A total of 5 (50%) respondents described such records as unreliable and attributed it to some of the difficulties they encountered when responding to enquiries. They were of the view that the problem could be sorted by putting in place standards in respect to medical forms design, content and format of clinical documentation including responsibilities of every healthcare provider regarding creation of medical records. A total of 8 (80%) respondents also indicated that they generated

both outpatient and inpatient registers. The registers formed part of medical records and contained what they described as summarized information on the patients' daily attendances and admissions, including diagnostic and surgical procedures as well as information on morbidity and mortality. A total of 4 (40%) respondents pointed out that the registers acted as quick reference tools to patient information whenever enquiries relating a patient occurred.

All the 10 (100) respondents concurred with the clinical service staff that most of the medical stationery in use in the hospital was of low quality. A total of 6 (60%) respondents attributed this to what they called lowest bidder criteria used in the procurement of goods and services in the hospital. A total of 7 (70%) respondents disagreed with this view and attributed it to what they described as lack of technical knowhow among medical records staff responsible for providing specifications for medical stationery. They felt that there was need to consult with paper manufacturers on the different types of paper, their description and grammage which could guide in selecting good quality paper for medical stationery.

Observations done in selected clinics, wards and procedure areas revealed that the main tools used to document patient care were medical forms. It was also observed that the outpatient cards were generally in good condition while most of the patients' file folders were noted to be tattered. This confirmed the findings by a majority of the respondents relating to the poor quality of some of the medical stationery. A review of sampled outpatient cards and patients' files from selected clinics and wards revealed that cards

used in Accident & Emergency department were structured into sections specifying the kind of information to be recorded in each section. The cards used in the rest of the hospital were designed for free text recording except the section for capturing patient's personal details which was structured to capture relevant information. In the circumstances it was not possible to determine the adequacy or inadequacy of the recorded information. As far as the patients' files were concerned it was noted that clinical notes were written in free-text format ranging from very comprehensive in some cases to relatively scanty in others, while the rest of the information was recorded in structured medical forms. It was also noted that some relevant information such as full names, designations and signatures of authors as well as time were missing in some of the files.

4.5.4 Data Interpretation on the Types and Formats of Medical Records

The above findings could be interpreted to imply that KNH consisted of a wide range on interrelated processes resulting in the creation of various types of medical records. The findings could also be interpreted to mean that there no standards in respect to the structure, content and context of medical records and therefore their authenticity and reliability was not fully guaranteed. It could be said that there was no proper mechanism in place for auditing the quality of medical records generated at KNH as evidenced by cases of scanty and incomplete medical records. The implication of such a situation was that clinical decisions were likely to be delayed or based on inadequate clinical information which is critical in facilitating continuity of treatment. This was likely to put the hospital into potential medico-legal related risks besides undermining treatment, training and research. The findings could further imply that effective use of medical

records was hampered by the poor quality of medical stationery which was a contributing factor to frequent wear and tear of patient files affecting proper utilization of these records.

4.6 Use of Medical Records in the Provision of Healthcare Services

This theme addresses the objective which sought to determine the contribution of medical records in the provision of healthcare services at KNH. The information was considered necessary gaining insight into the role medical records play in the provision of healthcare services at the hospital. The data collected in respect to the theme is presented and discussed below:

4.6.1 Data from Clinical Service Staff

All the 36 (100%) respondents held a similar view that the primary purpose/ use of medical records was to facilitate patient care in terms of communication among healthcare providers on the management of each patient. One respondent said; *"we work in a multi-disciplinary set up and our avenue of disseminating information regarding patient treatment is through the patient record. I find the patient record comparable to a land title deed which people treasure for the rest of their lives……. in the same way patients records should be treasured in this hospital and kept till the conclusion of treatment."(Int/29).* In addition, to patient care a total of 15 (42%) respondents pointed out that medical records contained information useful in the day to day administration of their departments. They indicated that they used information derived from medical records mainly on attendances, admissions and morbidity to determine the budgetary requirements for drugs, medical equipment and other supplies

including identifying where staff shortages existed based on the workload. They stated that this information was critical in planning for healthcare services in terms of manpower and material requirements. A total of 12 (33%) respondents also indicated that medical records were also used to assess the hospital performance with regard to the quality of services provided and conformity to best practices. They cited clinical audits and mortality meetings as key areas where medical records were heavily used. They elaborated that clinical audits were based on actual data on patients' management which was analyzed to measure the quality of service against set standards of clinical practice. The results of the clinical audits provided what the respondents referred to as opportunities for improvement and continual improvement in service delivery. Similarly the mortality meetings were guided by mortality data used to determine the causes of death and such data helped in putting in place measures aimed at reducing mortality rates in the hospital.

A total of 28 (78%) respondents were also in agreement that medical records were useful in supporting what they termed as medico-legal matters/cases. A total of 18 (50%) respondents indicated that medical records were used to compile medical records needed to support patients' claims including; workmen compensation, insurance claims and injury/assault related cases. One respondent summarized the role of medical records in medico-legal cases by stating that; *"this hospital attends to very many RTA (road traffic accidents) cases, gunshots and assault related injuries and in most cases they end up in court. I had the opportunity one time of representing the hospital in court regarding an assault case and let me tell you I was very proud of myself and the*

hospital because all necessary documentation to support the patient's claim was available…."(Int/14). It came out clearly from these respondents that KNH being a public hospital had a responsibility to protect the rights of the clients where medico-legal cases were concerned. The successful conclusion of these cases depended on the availability of documentary evidence in the form of patients' records.

All the 36 (100%) respondents were further in agreement that medical training was a key area where medical records were used considering that the hospital was a major training centre for healthcare personnel in various disciplines. They stated that at scheduled times every year students were sent to the hospital mainly from University of Nairobi, College of health sciences and Kenya Medical Training College (KMTC) for their practical attachment. They trained them on various aspects of healthcare in their areas of specialization using training tools such as medical equipment, patients' records, clinical protocols and manuals. A total of 32 (80%) respondents stated using medical records for training medical personnel enabled the students to relate theory with the practice of medicine as documented in medical records. They argued that training formed a solid foundation in producing skilled manpower to meet the growing demand for health personnel required to provide healthcare services in various hospitals in the country.

A total of 29 (81%) respondents further pointed out that, medical records provided useful information while conducting medical research which they considered to be a core element of clinical practice. They mentioned that clinical practice was a dynamic

field and techniques in patient management keep on changing calling for review of existing clinical protocols/guidelines or the development of new ones on the management of various disease conditions. They indicated that their engagement in medical research had led to the development of new clinical protocols/guidelines including review of the ones in existence such as the Nursing Council of Kenya Clinical Procedure Manual and the Clinical Management & Referral Guidelines for level 4-5 public hospitals in Kenya. They pointed out that medical records were heavily used in the preparation of these documents which demonstrated the value of medical records in all research undertakings. They argued that the use of these of documents in the management of patients had led to significant improvement in the standards of medical care in the hospital. A total of 17 (47%) respondents also indicated that they were involved in conducting medical research and consolidating their findings in the form of medical research papers. These papers were usually presented in the annual scientific conferences organized by KNH in collaboration with other development partners. They emphasized that medical records served as key sources of data for the research whose results formed the basis for exchange of professional ideas and expertise in clinical medicine during the conferences. The respondents attributed some of the innovative ways witnessed in the management of multi-drug resistance tuberculosis (MDRTB) and HIV/AIDS as emanating from some of the resolutions made during some of the conferences.

All the 36 (100%) respondents held a similar view that the timely availability of medical records enabled them perform their duties effectively and in the timely manner. However, a total of 30 (83%) respondents pointed out that medical records were not always easily availed each time they required them. They cited situations where some records were missing, lost or availed several hours after they were requested. They attributed it to unsatisfactory recordkeeping methods and lack of commitment to duty by some staff. They described such situations as frustrating and contributors to delayed treatment, repetition of procedures and re-scheduling of patients' appointments besides undermining clinical audits, training and research undertakings. They felt that training of staff on attitude change and a review of the medical recordkeeping methods could be a solution to the problem.

4.6.2 Data from Diagnostic Service Staff

A total of 5 (42%) respondents held a similar view that of the clinical service staff by stating that medical records were useful in planning for healthcare services. They pointed out that clinical statistics derived from medical records were used to determine requirements for diagnostic equipment, reagents and other materials including manpower requirements. This enabled them to prepare their annual budgets based on workload as demonstrated by the clinical statistics which provided a valid justification for their budgetary requirements. They argued that linking clinical statistics to budgets made it easier for them to convince the hospital management to allocate adequate resources to their departments which contributed significantly to efficiency in healthcare delivery. A total of 10 (83%) respondents further pointed out that medical records served as useful training materials for health personnel. They stated that training

of health personnel was aimed at producing what they termed as professionals in the medical field to address manpower requirements at the hospital and to the rest of the country. In addition, a total of 8 (67%) respondents stated that they found medical records to be very useful whenever they were involved in research activities. However, all the 12 (100%) respondents were in agreement that delays in the dispatch of diagnostic reports had been reported, while in some occasions they had been forced to produce copies of diagnostic reports or repeat investigations because the original copies could not be traced. A total of 10 (83%) respondents were of the view that the process of dispatching diagnostic reports needed to be strengthened and movement of the reports closely monitored.

4.6.3 Data from Medical Records Staff

All the 10 (100%) respondents held a similar view that the key users of medical records consisted of the medical team, hospital management, Ministry of Medical Services (MOMS), students and other authorized users/researchers such as journalists and charitable organizations. They were also in agreement that medical records were treated as confidential and access to patient information was by approval by either the Chief Executive Officer (CEO), the Deputy Director Clinical Services (DDCS), by a written consent by a patient, guardian/relative or by the Hospital's Ethics and Research Committee for research proposals. A total of 7 (70%) respondents pointed that data generated from medical records was used to prepare clinical statistical reports required daily by the hospital management to assess the hospital performance and guide decision making in identifying which units needed additional personnel, medical supplies and other requirements. A total of 5 (50%) respondents further indicated that clinical

statistical reports, for example, on births and deaths which contained information on the national birth and death rates were submitted to MOMS for overall national health planning. A total of 3 (30%) respondents stated that without medical records it would be difficult to generate clinical data, for example, on disease surveillance which was used at both the hospital and national level to monitor disease trends so that areas where certain diseases were most prevalent could be identified and appropriate strategies put in place. A total of 8 (80%) respondents admitted that collection of clinical data was sometimes a challenge attributed to cases of missing, lost or incomplete medical records which contributed to delays in data processing and submission of statistical reports.

A review of hospital documents revealed that clinical data on patient attendances, morbidity and mortality was generated on a daily basis, processed and reports produced and submitted to hospital managers and other authorized users. This confirmed what the respondents said that clinical information was used by different users on various aspects of healthcare delivery.

4.6.4 Data Interpretation on the Use of Medical Records

From the analysis above it could be said that medical records played a critical role in patient management. In addition, the findings could also be interpreted to imply that medical records contained useful clinical data/information used in planning, training, research, assessment of hospital performance, handling medico-legal cases and formulation of clinical protocols/guidelines including national health policy. The findings could further be interpreted to imply that cases of missing, lost or incomplete medical records greatly hampered effective utilization of these records by authorized users.

4.7 Medical Records Management Practices in Support of Healthcare Provision

The objective addressed by this theme involved establishing the status and effectiveness of medical records management practices in supporting provision of healthcare services at KNH. The aim was to gain understanding into the existence and effectiveness of filing, retrieval and control of medical records to facilitate their availability and accessibility for purposes of healthcare delivery. The data collected is presented and discussed below:

4.7.1 Data from Clinical Service Staff

All the 36% (100%) respondents were in agreement that creators, users and managers of medical records had a role to play in ensuring that these records were well handled and protected to guard against loss, misplacement or damage which could severely affect patient care. This been the case, they expressed concern that forums to discuss better ways of managing medical records were very rare which had contributed to prevalent cases of mishandling of these records. A total of 18 (50%) respondents mentioned that pressure of work and lack of team work made them concentrate on their daily routines and they paid little attention to the way medical records were managed. They argued that lapses in collective responsibility in the management of medical records had in some situations negatively affected healthcare delivery as the records were not be available when required. A total of 33 (92%) respondents further pointed out that they lacked adequate knowledge on medical records management best practices which could contribute to poor handling of these records. One respondent remarked that; ``*practicing what you are not sure of cannot bear good results……I may be handling records*

*incorrectly yet am not aware of it….''(Int/11).*A total of 28 (78%) respondents were of the opinion that awareness forums on management of medical records needed to be incorporated in the staff training programmes including ways of strengthening teamwork among healthcare workers.

4.7.2 Data from Medical Records Staff

All the 10 (100%) respondents were in agreement that to enhance efficiency in healthcare delivery standard operating procedures (SOPS) were used as guidelines in the management medical records. A total of 8 (80%) respondents stated that the SOPS were not fully adhered to because effective enforcement mechanisms were lacking and there were no other policy guidelines to compliment these procedures. They further pointed out that this challenge had led to medical records retrieval and tracking problems making it difficult to locate needed records leading to delays in patient care and in some cases re-scheduling of patients' appointments. One respondent stated; ``*I am one of the section heads but I can testify that it is not easy to enforce the use of SOPS because they are silent on the means of holding staff accountable for non-compliance……..and I don't think that SOPS alone without any other policy can serve as adequate guidelines for proper management of medical records.''(Int/45).* A review of the SOPs revealed that they described step by step the procedure for filing, retrieval and tracking of medical records but they were silent on how adherence was to be effectively enforced. An audit report compiled in 2009 by a team of internal quality auditors targeting the effectiveness of one of the SOPS titled; *Creation, maintenance and control of medical records* revealed that some of the steps outlined in the procedure were not followed. The report also contained a list patient files which had been reported

as missing and two of the patients had their surgeries re-scheduled due to unavailability of their records. Besides the SOPS there were no other written policies or guidelines available in the hospital to govern the management of medical records.

In addition, to the SOPS all the 10 (100%) respondents were in agreement that medical records movement control tools which included the tracer cards and dispatch registers were available and used to dispatch and track the records to and from the various locations. A total of 8 (80%) respondents indicated that the tracer cards and dispatch registers made it easier for them to exercise control over the movement of medical records aimed at ensuring that these records were available whenever needed particularly by the medical team. A total of 4 (40%) respondents however, admitted that the tracer cards especially lacked important details such as the name of the borrower of the record usually substituted by the name of the office, clinic or ward where the record was required. They argued lack of the name of the borrower sometimes made it difficult to track records and as a result some patients' records could not be traced to facilitate treatment. An examination of selected used tracer cards revealed that the information captured consisted of; patient name, patient's hospital number, date and the name of the borrower indicated either as the ward, clinic or office confirming the information gathered from the respondents. A review of customer feedback registers available in some selected clinics reported complaints from patients regarding delayed treatment due to their missing records especially files and laboratory reports. Observations made in the medical records central filing area revealed that filing of patients' records was done guided by each patient number and it was very easy to retrieve the records using the

same number. Observations further revealed that there were no strict controls on the use of tracer cards as any medical records staff not necessarily deployed to the central filing area or students on attachment could retrieve, trace or fail to trace a patient's file. This confirmed the information obtained from the respondents and hospital documents that there was lack of strict adherence to SOPS which had caused problems in tracking of needed records thus, delaying patient care.

4.7.3 Data Interpretation on Medical Records Management Practices

From the above findings it could be said that except for the standard operating procedures the hospital had not in place a medical records management policy to spell out commitment, responsibility and guidelines on the management of these records. This was likely to impact negatively on the management of medical records since stewardship and accountability could not be fully guaranteed. The implication was that the situation could probably undermine accountability efforts in case of loss or misplacement of medical records. This could mean that availability of medical records meant to facilitate patient care and other healthcare services could be hampered due to inefficiency in the medical records management practices.

4.8 Medical Records Management Challenges Faced in the Provision of Healthcare Services

To analyze the challenges associated with the management of medical records information was sought focusing on the problems/challenges encountered in managing medical records. The problems/challenges identified by the respondents related to; staffing levels and competency, security for medical records and disposition of medical

records and ICT utilization. These challenges were analyzed in relation to their impact on the provision of healthcare services. The data is presented and discussed below:

4.8.1 Staffing levels and competency

Staffing levels and competency was cited as one of the key medical records management challenge affecting healthcare delivery at KNH.

4.8.1.1 Data from Medical Records Staff

A total of 7 (70%) the respondents were of the view that staff shortage remained a challenge in the management of medical records. The respondents attributed this challenge to number of factors which included; *rising number of patients leading to increased workload, introduction of new services requiring additional staff and the reducing number of medical records staff as they leave service on various grounds*. They indicated that this challenge contributed significantly to overworked staff and low morale which resulted in mistakes witnessed in work performance, for example, inaccuracy in clinical data collection leading to delays in processing and submission of clinical statistical reports used by the hospital managers in the daily administration of their departments. One respondent said; ``*……errors in data gathering are common since in most cases the staff are overstretched and tired, so they fail to concentrate in the process……sometimes the data has to be collected afresh to ensure accuracy and of course this delays submission….."(Int/55).* A total of 5 (50%) respondents pointed out that staff shortage contributed to delays in accomplishment of tasks such as timely retrieval of records of patients with scheduled appointments which led to increased turn-around time for such patients on the day of their appointment. A total of 9 (90%)

respondents were of the view that the hospital management needed to recruit additional medical records personnel to fill in the gap.

A review of the staff establishment records revealed that the current staff compliment for medical records personnel was as shown in **Table 2.**

Table 2: Medical records personnel establishment

Cadre of staff	**No of staff**
Medical records officers	63
Medical records assistants	57
Clerical officers	98
Total	**218**

The records also revealed that in the last 5 years the number of medical records staff had reduced from 233 in 2005 to the current staff compliment of 218. While the number of staff had been reducing available clinical statistics showed that workload in the hospital in terms of total attendances and admissions had been rising in the last 5 years as follows;

Table 3: KNH workload statistics 2005 – 2010

Year	Outpatient attendances	Admissions
2005	432092	69938
2006	475129	75072
2007	511057	75512
2008	499416	72686
2009	502517	70167
2010	527636	69648
Total	**2947847**	**433023**

The figures above illustrate that there was an increase in the number of attendances to KNH, particularly, outpatient attendances which translated into growth in the volume of medical record. Despite the growth in the volume of medical records, the number of personal to manage these records had decreased over the same period. This confirmed the views held by some respondents regarding staff shortage to effectively manage the records.

In addition to staffing levels, all the 10 (100%) respondents were in agreement that lack of opportunities for training had hindered effective medical records management. Majority of the staff were either holders of a diploma or certificate in health records & information. A few of the records personnel had training at degree level while quite a number were clerical officers with no formal training in records management. Opportunities for training to equip the staff with necessary skills and knowledge in

medical records management were few due to what a total of 4 (40%) respondents attributed to insufficient funding. They were of the view that hospital management should increase the training budget and distribute the funds in a manner that all the disciplines would benefit. A total of 5 (50%) respondents also pointed out opportunities to equip the staff with modern methods of records management such as application of information technology were lacking. A review of departmental training records revealed that the level of training of medical records was as follows;

Table 4: Medical records staff professional qualifications

Staff of professional qualifications		
Type of professional qualification	**No of staff**	**Percent**
Masters in computer based information systems	2	0.9
Masters in Epidemiology/public health	1	0.5
Postgraduate diploma in records & archives management	1	0.5
Degree in information sciences	3	1.4
Diploma in health records & information	42	20
Diploma in information studies	10	4.6
Diploma in records & archives management	4	1.8
Certificate in health records & information	55	25
Certificate in records & archives management	2	0.9
Total	**120**	**55**
Staff without professional qualifications		
Cadre of staff	**No of staff**	**percent**
Clerical officers	98	45
Total	218	

The information above showed that the trained medical records staff consisted of 55% (120) while the untrained staff mainly clerical officers were composed of 45% (98). This meant that there was no significant difference between the trained and untrained medical records personnel. The staff training records also confirmed that the hospital's training policy did not provide for undergraduate training. Some of the staff had therefore been forced to enroll on private sponsorship for degree programs in health records and information management currently being offered at Kenyatta University and Mount Kenya University. The records further revealed that funding for training was controlled by the Human Resource Department and sponsorship was dependent on availability of funds and priority areas as defined by hospital. It was also noted that much of the finding was channeled towards training of medical doctors and nurses.

4.8.1.2 Data Interpretation on Medical Records Staff Competency

The above findings could be interpreted to imply that deployment of adequate and skilled medical records personnel critical in ensuring proper management of medical records had not been satisfactorily addressed by the KNH management. The situation was likely to impact negatively on healthcare delivery which is largely dependent on adequate and competent personnel to provide quality medical record services to the clients. The findings could also be interpreted to imply that inadequate training of staff on modern methods of managing medical records such as ICT could severely affect their capabilities to adapt to the ever changing world of technology demanding new and innovative skills. There is no doubt that effective management of medical records could only be improved by integrating training on best practices in the management of these

records and ICT which would greatly enhance efficiency in the provision of healthcare services.

4.8.2 Security of Medical Records

Security of medical records described by the respondents in terms of infrastructure, environmental concerns and disaster mitigation measures was cited as another challenge affecting proper management of medical records at KNH, thus undermining healthcare delivery.

4.8.2.1 Data from medical records staff

All the 10 (100%) respondents held a similar view that the volume of medical records including patients files, cards, laboratory reports, x-rays and registers had greatly increased over the years and yet the storage space and equipment had remained the same. One of the respondents remarked; ``*I would expect to see a situation whereby the expansion of storage space goes hand in hand with the increase in the volume of records. I am sorry to say that this is not the case, like in our section we have run out of storage space".(int/51).* A total of 7 (70%) respondents stated that they experienced difficulties in filing and retrieval of patients' records due to congestion in the filing area. They pointed out that complaints from users and clients were common due to delays in availing required records occasioned by filing and retrieval challenges**.** A total of 5 (50%) respondents further pointed out that the hospital was yet to establish a hospital archives for safe custody of vital medical records and at the moment these records were scattered in various clinical departments. The situation according to the respondents had made it an arduous task to search for medical records needed by

researchers. They argued that failure to retrieval medical records for research purposes could greatly undermine research undertakings which had significantly contributed to improvements in clinical practice at the hospital.

A total of 9 (90%) respondents further indicated that medical records were sensitive and their security in terms of protection against unauthorized access, damage or loss was paramount. They stated that environmental control was an area of concern characterized by poor housekeeping such as poor ventilation, insufficient lighting and dust accumulation in some of the medical records storage areas. A total of 4 (40%) respondents pointed out that inadequate environmental control measures could in the long run lead to the emergence of agents of destruction such pest infestation and pollutants which could eventually damage these records. They argued that any damage to medical records meant that the information could not be accessed and could therefore severely affect continuity of treatment of the patients. A total of 8 (80%) respondents further pointed out proper protection for medical records was lacking because the hospital had not put in place what they referred to as a disaster management plan for medical records. They cited incidences where some patients' records had been damaged due to flooding caused by leaking pipes which led to delays in the care and management of affected patients. They were of the view that such incidences could have been prevented if there was a written disaster management plan to clearly address aspects of disaster preparedness, response and recovery.

4.8.2.2 Data from clinical service staff

A total of 32 (89%) respondents were in agreement that medical records were not fully free from risks of theft, mutilation and loss considering the frequency of use by multiple users. A total of 7 (19%) respondents indicated that they had witnessed incidences where clients produced original patients' records in litigation matters raising a lot of concern on the security of medical records at the hospital. They were of the view that CCTV surveillance should be introduced in the hospital to enhance security. A total of 18 (50%) respondents stated that on number of occasions they had been forced to write statements regarding missing patients' files particularly in the wards. They attributed the situation to what they referred to as unsecure storage facilities for medical records. A total of 9 (25%) respondents concurred with the medical records staff by stating that disaster management was not adequately addressed by the hospital. They pointed out that although a disaster management plan existed at the hospital, it focused mainly on saving lives in the event of external mass tragedies. They were of the view that the plan should also include the management of internal disasters which could affect equipment, buildings, records, documents and human beings.

Observation done covering selected medical records storage areas revealed that some of the area which included; central filing area, ENT and dental records storage areas were relatively clean and well ventilated. However, storage areas holding semi-current medical records were very dusty, poorly ventilated and congested. It was also observed that access to medical records storage areas was restricted and they remained closed when not in use. It was also observed that installation of additional fire extinguishers in

strategic areas including replacement of nonfunctional ones was ongoing in the entire hospital. A review of hospital administrative files revealed that housekeeping activities including cleaning and dusting of offices and records storage areas was included in the work schedules of the support staff. However, strict monitoring of the cleaning schedules was lacking as on most of the days the schedules were not updated as evidence that supervision had taken place. It was also confirmed from records that the hospital had appointed a multi-disciplinary disaster management committee which met regularly and had developed a disaster management plan for the hospital. An examination of the disaster management plan confirmed the views of some of the respondents that it focused on external disasters and had no provision for management of internal disasters.

4.8.2.3 Data Interpretation on Security of Medical Records

The findings could be interpreted to imply that security of medical records was greatly undermined by inadequate environmental control measures which could lead to damage to these records resulting from pest infestation and pollutants. The findings could further be interpreted to imply that there was no disaster management plan at the hospital to mitigate the risk of damage or loss to medical records in the event of a disaster. Loss or damage to medical records either due to poor environmental controls or disasters could have serious repercussions on healthcare delivery since medical records were unique and once damaged could not be replaced. This could mean that patients could have their treatment delayed due to unavailability of their records. In addition, loss or damage to medical records could also put the hospital at great risk in

legal suits due to inability to produce required medical records besides hampering teaching and research activities in the hospital.

4.8.3 Retention and Disposal of medical records

The inadequacy of the existing medical records retention and disposal policy was also mentioned as a challenge in the management of medical records which had led to unsystematic disposal of medical records. This had contributed to destruction of some vital records needed for the management especially of patients with chronic or terminal illnesses. The data is presented and discussed below:

4.8.3.1 Data from medical records staff

A total of 4 (40%) respondents indicated that the implementation of the medical records disposal policy had been a challenge describing it as *too old* and *too general*. One respondent stated; `` *it is almost 20 years since the disposal schedule was developed. A lot of changes have occurred in the hospital over the years, we have seen the introduction of new services such as voluntary counseling & testing, MDRTB, gender violence & recovery services and many others meaning that new records have been generated as a result of these services but these records are nowhere in the disposal schedule.'' (Int/51).* They felt that the policy was no longer useful and that was why huge volumes of medical records were still lying in stores awaiting a decision regarding their continued retention. A total of 5 (50%) respondents were of the view that retention and disposal of medical records had not been taken seriously considering that the review of the schedule had not been given priority over the years. A total of 8 (80%) respondents further pointed out that although disposal of obsolete medical records took

place after long intervals, identification of the largest number of such records was based on personal judgment as opposed to been guided by the policy. They argued that using personal judgment was detrimental because there were situations that it had led to destruction of some important medical records later needed for managing patients with long term illnesses. All the 10 (100%) respondents were of the view that the review of the medical records retention and disposal policy needed to be given priority to facilitate systematic disposition of these records.

Observations done revealed that appraisal and listing of records earmarked either for retention or destruction was in progress. A review of departmental files showed that a medical records retention and disposal policy approved in 1992 was in existence but consisted of very broad categories of medical records. Departmental files further revealed that in the last 10 years disposal of obsolete medical records had been carried out twice only in 2000 and 2007 and retention of vital records not specified in the policy began 3 years ago.

4.8.3.2 Data interpretation on Retention and Disposal of Medical Records

From the above findings it can be said that the respondents had inadequate knowledge on the importance and benefits of a records retention and disposal policy leading to poor implementation of the policy. The implication was that consistent and controlled identification/preservation of vital medical records as well as disposal of obsolete ones was curtailed. This had resulted in uneconomical use of storage equipment and space resulting into congestion witnessed at the hospital. The inconsistency in disposition of medical records could put the hospital at great risk where medical records needed to be

kept for many years could be destroyed affecting long term management of patients with terminal illnesses. Research on chronic disease conditions could also be undermined in a situation where medical records are indiscriminately destroyed.

4.9 ICT utilization

The other challenge cited by the respondents was low utilization of ICT in the hospital processes resulting in long waiting time by clients caused by inability to fast access to needed clinical information. The data is presented and discussed below:

4.9.1 Data from clinical service staff

All the 36 (100%) respondents held a similar view that effective patient management was been undermined by the use of manual systems which they described as slow and frustrating. A total of 18 (50%) respondents indicated that with the rise of emerging and re-emerging diseases constant consultation among healthcare providers was critical but the same had been hampered by the low utilization of ICT. One respondent remarked; ``*I feel frustrated whenever I need to consult my colleague regarding some cases and I have to either wait until we meet or use my personal cell phone simply because e-mail facilities in this hospital are limited to very few people''(Int/33).* They also pointed out that they did a lot of writing sometimes duplicating the same information from one document to another which was time wasting and frustrating. A total of 20 (56% respondents also indicated that sharing of clinical information among healthcare providers was important in ensuring proper management of patients. They were of the view that the use of manual systems was a hindrance to information sharing since a patient record could only be at one place at a time being used by only one user at a time.

A total of 33 (92%) respondents pointed out that inadequate ICT facility at the hospital was a major contributing factor to long queues and increased turn-around time for patients. They were of the view that full adoption of ICT could led to fast delivery of healthcare services.

A total 0f 19 (53%) respondents pointed out that the increasing demand for quality services by clients and the rising competition in the health sector demanded quick access to information to facilitate fast diagnosis and treatment. They cited the slow manual processes of ordering for investigations and receiving the results including processing of prescriptions as a set back to the provision of fast service. In their view automation of these processes could greatly reduce patient waiting time and enhance overall efficiency in the provision of healthcare services.

4.9.2 Data from Diagnostic service staff

All the 12 (100%) respondents expressed their appreciation for the benefits they derived from the use of ICT in the capture of diagnostic images and processing of investigations. The benefits they cited included; fast processing of investigation requests, accuracy and legibility of the information and quick access to the information when need arose. However, a total of 10 (83%) respondents expressed concern that despite the fast processing of investigations dispatch of the results to the clinicians was slow attributed to the manual processes. In their view a lot of time was wasted in the delivery of the results and sometimes these results never got to the requesting clinician. A total of 5 (42%) respondents cited incidences whereby they were called upon to re-print copies of previous results which could not be traced and in some cases the

investigations had to be repeated. They felt that manual systems were a major cause to delayed treatment and complaints from the affected patients. A total of 8 (67%) respondents were of the view that with an elaborate ICT infrastructure in the hospital the process of ordering, processing and transmitting results to the clinicians could be efficient and greatly enhance customer satisfaction.

4.9.3 Data from medical records staff

All the 10 (100%) respondents were in agreement that the medical records systems were largely manual but acknowledged that some electronic records existed covering limited aspects of medical care including; patient registration, diagnostic procedures and clinical data capture, processing and reporting. They indicated that the high rate of interaction of clinical processes required speedy capture, processing and dissemination of patient information and could not be achieved in such a low ICT environment. A total of 4 (40%) respondents narrated embarrassing situations when they could not easily answer simple enquiries from clients either on patient attendance, admission or discharge status simply because the information could not be accessed easily. A total of 7 (70%) respondents further indicated that the prevalent use of manual systems forced them to repeat data collection due to errors as well as duplicate same information several times. One respondent said; ``*I have been working in the wards for 7 years now and I find the process of capturing inpatient data very tedious and time consuming. On a daily basis I have to transfer the same patient information from a nursing cardex to a daily patient census register, the admission and discharge register, mortality register and finally the daily bed return forms….duplication over and over…..''(Int/54).* They felt that such lengthy processes in clinical data collection led to delays in data

processing and dissemination sometimes causing frustration among hospital managers who rely on the information to make decisions and plan for healthcare services.

A total of 4 (40%) respondents further pointed out that the current software in use at the hospital was a health management information system (HMIS) with very limited features. They indicated that although the system had the capability of capturing patient personal details at the point of registration it did not have the capability to produce periodic reports on admissions and discharges among others. They mentioned that because of the limitations of the software they had been forced to develop their own internal databases to facilitate clinical data entry, analysis and reporting. They expressed their fears that the HMIS could not adequately guarantee authenticity and integrity of medical records. They were of the view that given the sensitivity of medical records an electronic system bearing medical recordkeeping functionalities could be more suitable.

Observations revealed that a local area network was in place and online patient registration and cash collection was in operation while internet connectivity and e-mail facilities were available though limited to a few areas. Availability of computers was limited to a few sections of the medical records department, cash points and a few offices. A review of documentary sources revealed that the establishment of an ICT infrastructure at the hospital was incorporated in the hospital's strategic plan 2008-2012. The aim was to enable the hospital cope with the challenges of a dynamic environment in terms of information management and communication considered

essential in effective planning, management and delivery of healthcare services. The implementation of the project was spearheaded by the ICT unit assisted by external consultants. There was no adequate information to show the level of involvement of medical records personnel in the planning and implementation of the project. In addition, available hospital reports revealed that the implementation of the project had been slow attributed to over reliance on consultancy services, management continuity problems, conflict of interest and low involvement of users.

4.9.4 Data Interpretation on ICT Utilization

The above findings could be interpreted to mean that KNH had not demonstrated full commitment in putting in place an elaborated ICT infrastructure at the hospital. This implied that with the continued use of manual systems the hospital was likely to lose its competitive advantage which was dependent not only on delivery of quality services but also on reduction of patient turn-around time. It can also be said that consideration had not been given towards the procurement of software with adequate medical recordkeeping functionalities to enable the capture of authentic and reliable medical records. The findings could also be interpreted to imply that failure to involve the medical records personnel in the project could deny the hospital access to professional advice on the requirements of medical records in an electronic environment. This implication could be that the integrity of medical records could be lost in the process and they could no longer provide credible evidence of the business activities and transactions carried out at KNH.

4.10 Advocacy for medical records management to enhance Healthcare Provision

The respondents also cited poor advocacy for medical records management as challenge which had led to inadequate support by KNH top management, thus affecting effective delivery of healthcare services. The data is presented and discussed below:

4.10.1 Data from clinical service staff

A total of 29 (81%) respondents indicated that despite medical records having a direct link to the quality of medical care provided at KNH the medical records management function was not well appreciated in the hospital. They attributed the situation to inadequate knowledge among KNH staff on the importance of medical records in relation to the core business of the hospital. They pointed out that the medical records professionals had not been very active in staff sensitization/awareness raising on the role medical records played in healthcare delivery. A total of 15 (42% respondent pointed out sensitization sessions could enhance understanding and enable staff to contribute positively to the management of medical records. A total of 16 (44%) respondents further indicated that the medical records professionals had all the opportunities to improve the medical records management situation at the hospital if only they *came out of the box* as one respondent put it. They argued that the medical records professionals were pre-occupied with what they described as routine/daily activities and ignored a core activity of demonstrating the worth of medical records services to the entire hospital. One respondent remarked; ``*we are in a cost-cutting era and demonstrating our worth in the hospital guarantees support and our survival.''(Int/17).*

4.10.2 Data from medical records staff

All the 10 (100%) respondents were in agreement that the profile of medical records management was still low in the hospital. A total of 5 (50%) respondents attributed the situation to inadequate support by the hospital management in providing sufficient funds towards medical records management programmes. They felt that this had affected the acquisition of adequate supplies and equipment for medical records leading to storage problems and delays in retrieval of records needed in the management of patients. However, a total of 4 (40%) respondents disagreed with this view and stated that the hospital management was not to blame for the problems affecting medical records management. They attributed it to what they referred to as failure by the medical records personnel to articulate their requirements in a manner that the expected benefits derived from investing in these requirements were well understood by the hospital management. One respondent said; ``*…….what I see as a problem is that we as the people responsible for managing medical records do not actively market the value of our services to the rest of the hospital and so no one sees the need of investing heavily in medical records management programmes.''(Int/50).* They felt that the medical records personnel needed to come up with an advocacy strategy targeting the value of medical records in healthcare delivery and the expected benefits to be accrued in investing in medical records management programmes. The advocacy strategy should target the hospital management, all KNH staff, well wishers and external stakeholders. A total of 5 (50%) respondents argued that such initiatives could go a long way in attracting support, for example, donor funds from external stakeholders towards improvement of medical records management, thus raising its profile at the hospital.

4.10.3 Data Interpretation on Advocacy for Medical Records Management

The above findings could be interpreted to imply that strategies for advancing the business value of medical records management and translating it into cost benefits in terms of savings in space, equipment, time and manpower including contribution in quality service delivery were weak. The implication of such a situation was that the strong selling point of winning the hospital management support towards medical records management programmes was lost. It can also be said that majority of the respondents did not fully understand the importance of medical records in supporting provision of healthcare services. The implication was low appreciation and inadequate support for medical records management resulting in inefficiency in supporting delivery of healthcare services.

4.11 Contribution of the findings towards the proposed Model for MRM in support of Healthcare Provision

It was the objective of the study to propose a framework for managing medical records in support of healthcare provision at KNH. The findings of the study revealed that the need to create and maintain medical records was by determined by the functions and activities carried out by each clinical department. Despite this consideration findings showed that there was no uniformity in the way these records were created and maintained. Each department kept its own records which had caused fragmentation and duplication of patients' records across the departments. A total of 53 (91%) respondents expressed the need to standardize patients' records with the aim of maintaining a complete medical history of each patient to facilitate continuity of care. Research findings also revealed that medical records were valued due to the critical role they

played in supporting patient care, training of health personnel, healthcare planning, health policy formulation and medical research. However, findings revealed that effective utilization of these records was hampered by cases of scanty, illegible and incomplete medical records. It was the view of a total of 48 (83%) respondents that establishing standards on the structure, content and context of medical records could ensure that clinical information documented in a medical record was consistent, complete and reliable. It was also a finding of the study that the medical records management practices were inadequate. The respondents proposed various strategies towards improvement of these practices which included; development and implementation of a medical records management policy, medical records disposition policy and a disaster management plan. Research finding finally showed that there were numerous challenges facing the management of medical records impacting negatively on the provision of healthcare services. The findings revealed that proposed solutions could focus on availability of more training opportunities for medical records personnel, awareness raising to the rest of KNH staff, adequate top management support, allocation of sufficient funds for medical records management requirements, adoption of an electronic medical records system and establishing an advocacy strategy for medical records management all aimed at enhancing provision of healthcare services.

4.12 Conclusion

This Chapter dealt with data presentation, analysis and interpretation based on the study objectives and with the research questions in mind. The findings of the study revealed that medical records were considered important in the provision of healthcare services at KNH. They were not only useful in patient care but also in healthcare planning,

training, research and health policy formulation. The quality of medical records in terms of completeness and authenticity was found to be inadequate due to lack of clinical documentation standards, thus undermining access to a complete and reliable record of care for each patient. In addition, lack of a medical records management policy, disaster management plan and an effective medical records disposition policy had contributed to inefficiency in the management of these records hampering delivery of quality healthcare services. The medical records management function was faced by numerous challenges including; shortage of competent medical records personnel, inadequate security for medical records, poor environmental control measures, low ICT usage and poor advocacy for medical records management. All these challenges had greatly undermined the role of medical records to adequately support the provision of healthcare services at the hospital. The research findings laid the foundation for a proposed Model for medical records management in support of healthcare provision at KNH. The proposed Model focused attention on the establishment of clinical documentation standards, development and implementation of relevant policies, staff competency development, adoption of an electronic medical records system, strengthening of top management support and establishment of an advocacy strategy for medical records management.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The study sought to investigate the effectiveness of medical records in the provision of healthcare services at KNH with a view to proposing a Model for managing medical records in support of healthcare provision at the hospital. This Chapter therefore focuses on the summary of findings, conclusions and recommendations of the study.

5.1 Summary of Findings

The findings are summarized below based on the study objectives.

5.1.1 Business Activities that generate Medical Records at KNH

Research findings revealed that there were several clinical departments at KNH involved in various activities in the provision of healthcare services. The main activities included; diagnosis and treatment, processing of diagnostic investigations, nursing care and medication administration. It was established that each department created and kept its own records in recognition of the need to maintain records as evidence of the business activities taking place at the hospital. Findings revealed that there was lack of uniformity in the way these records were created and maintained which had caused serious fragmentation and duplication of patients' records across the departments. Findings also revealed that it was a daunting task to access a complete record of care for each patient required by the medical team to inform present and future clinical decisions.

5.1.2 Types and Formats of Medical Records Generated as part of KNH Healthcare System

The study revealed that the key types of medical records included; patients' case notes, nursing care notes, diagnostic & imaging records and drug administration records. The records were created in largely paper-based format, x-ray films and electronic format. Findings revealed that information on the care of each patient was recorded either in pre-designed medical forms and filed in a medical record file or in outpatient cards bearing a unique identification number. A key finding was that there was inconsistency in the design of the medical forms, content and organization of the patient information contained in a medical record file. The study found instances of illegible, scanty and incomplete medical records on the patient medical history, treatment plan and outcome as well as poorly authenticated medical records.

It was a finding of the study that inadequate medical records had caused repetition of clinical investigations and procedures to enable informed clinical decision making. Research findings further revealed that there were no clinical documentation standards to ensure uniformity and integrity of medical records to provided credible evidence of healthcare.

5.1.3 Use of Medical Records in the Provision of Healthcare Services at KNH

The study revealed that medical records were considered critical in supporting the core business of KNH. All the respondents were in agreement that medical records supported clinical decision making and continuity of patient care. The other key finding was that

medical records contained useful information utilized in making management decisions such as determining healthcare priority areas, budgetary allocations, human and material requirements including development of health sector plans and policy. Findings also demonstrated that medical records were heavily used in training of healthcare personnel and conducting medical research in the hospital. This was done in line with KNH mandate of facilitating medical education and participating in national health planning and policy formulation. The study findings also showed that utilization of medical records in the provision of healthcare services was greatly hampered by frequent cases of missing and lost medical records including delays in availing required records. Consequently, treatment was sometimes delayed, patients' appointments re-scheduled and dissemination of clinical information to facilitate decisions was greatly slowed down.

5.1.4 MRM Practices in Support of Healthcare Provision at KNH

A key finding of the study was that medical records management practices were inadequate to effectively support healthcare delivery at KNH. Findings showed that the filing systems, retrieval, security, control and access to medical records were guided by standard operating procedures. Strict adherence to these procedures was lacking including monitoring and evaluation to ensure that they remained adequate to guarantee safety and accessibility to medical records. Findings further revealed that although tracer cards and dispatch registers existed for purposes of tracking medical records these tools had not provided adequate safeguards against loss and misplacement of medical records. As a result lot of time was wasted searching for missing patients' records and cases of lost and misplacement files were quite common. Findings showed that in such

circumstances patient turn-around time was long impacting negatively on the quality of services provided by the hospital. Research findings further revealed that apart from the standard operating procedures, there was no written medical records management policy at KNH to define commitment and responsibility for medical records including relevant guidelines for their management. Accountability for proper management of medical records could therefore not be enforced leading to inefficiencies in creation, filing, control and access necessary in facilitating delivery of quality healthcare services.

In addition, research findings revealed that there was lack of effective records retention and disposal policy for medical records. The existing medical records retention and disposal policy was outdated and poorly implemented leading to continued retention of old medical records including shortage of storage space. Finding also showed that due to the inadequacy of the policy cases of indiscriminate destruction of medical records had been reported sometimes denying patient with chronic illness proper medical care dependent on availability of their records. In addition, a lot of time and manpower was wasted searching for medical records required either for continuity of treatment, litigation, training or research. It was also a finding of the study although the policy was being reviewed most staff had inadequate knowledge on its importance and benefits to the hospital in enhancing healthcare delivery. Findings further revealed that despite KNH being a centre for training of health personnel and medical research the hospital had not established a hospital archives. Consequently, preservation of vital medical records was poorly addressed undermining not only training aimed at producing skilled

healthcare personnel to deliver healthcare services but also medical research a major contributor to knowledge critical for health policy formulation. However, findings also showed that a proposal on the establishment of a hospital archives had been developed pending approval which was a positive indicator of renewed effort towards adequate protection of vital medical records.

The study findings also revealed that KNH had not put in place a disaster management plan for medical records to spell out ways of mitigating the risk of permanently losing medical records, both in paper-based and electronic format in case of a disaster. Findings revealed that some patients' records had been damaged due to flooding caused by leaking pipes which had serious implications on patient care management. Another finding was that KNH had established a disaster management plan for the hospital which focused on saving lives in the event of external mass tragedies. The plan had not included the management of internal disasters which could affect equipment, buildings, records, document and human beings putting the lives of patients at risk in case of loss of their medical records due to disasters.

5.1.5 MRM Challenges faced in the Provision of Healthcare Services at KNH

A key finding of the study was that medical records management function was faced by numerous challenges which had affected the delivery of quality healthcare services. One of the challenges as revealed by the findings was that the number of personnel responsible for managing medical records had decreased over the years and unable to cope with the growth of medical records following increased hospital workload. The situation had caused a serious staff shortage and the hospital had not taken measures to

address the gap. This was compounded by limited training opportunities for medical records staff composed mainly of clerical officers without formal training in medical records management. Thus, medical records were not properly management affecting prompt availability of needed records to support patient care. The research findings further revealed that sponsorship for training was dependent on availability of funds and priority areas mainly focused on training of medical doctors and nurses. Besides training of medical records staff findings also showed that majority of the other KNH staff lacked adequate knowledge on the importance of proper medical records management which had contributed to mishandling of these records hampering their utilization in healthcare delivery.

The other key challenge as revealed by the findings was that medical records management was not adequately supported by the KNH management. There were insufficient budgetary allocations to cater for medical records management requirements. Consequently key requirements such as storage equipment and space for medical records were limited leading to storage and retrieval problems hampering timely availability of these records in meeting the present and future needs of patients. In addition, it was revealed by the research findings that KNH processes were largely manual with very limited use of ICT in most of the operations. This had led to long queues at service points and long patient waiting time severely affecting delivery of quality healthcare services at the hospital. Research findings further revealed that KNH had put in place HMIS with limited medical recordkeeping functionalities undermining the authenticity and integrity of electronic medical records critical in ensuring that these

records remain credible in the provision of healthcare services. The findings of the study also revealed that there was lack of an effective advocacy strategy for medical records management. Therefore, the management of these records was not well appreciated and adequately supported by staff and KNH management contributing to the challenges of managing medical records affecting efficiency in healthcare delivery at the hospital.

5.1.6 Proposed Strategies for Improving MRM in Support of Healthcare Provision at KNH

The research findings demonstrated that the quality of medical records in terms of completeness, reliability and authenticity was compromised due to lack of written clinical documentation standards. Majority of the respondents proposed that putting in place standards focused on the structure, content and context of medical records could help in safeguarding the integrity of medical records and ensure their credibility in the provision of healthcare services. Findings further showed that the medical records management practices were inadequate which had undermined effective utilization of medical records. As mitigation measures proposed strategies pointed to the development and implementation of a medical records management and disposition policies to provide for consistent and effective management of medical records necessary to adequately support provision of healthcare services. In addition, the findings showed that a comprehensive disaster management plan was lacking and the establishment of the plan was proposed to ensure safety of medical records during disasters which could severely affect continuity of treatment in case these records were

damaged. It was a finding of the study that the medical records management function was faced by numerous challenges which had impacted negatively on the provision of quality healthcare services. To address these challenges the respondents proposed the need to deploy adequate medical records personnel and conduct intensive training for these staff to enable them manage medical records professionally to adequately support healthcare delivery at the hospital. Awareness raising for the rest of staff on the importance of proper medical records management was also proposed to enhance proper handling in the use of medical records. In addition, adequate support by KNH top management and an effective advocacy strategy to champion the business value of medical records management were viewed to be crucial in addressing the challenges facing management of medical records critical in supporting efficiency in the provision of healthcare services. The establishment of an electronic medical records system was also proposed aimed at enhancing the delivery of quality healthcare services.

5.2 Conclusion

One of the objectives of the study was to establish the business activities which generated medical records at KNH aimed at gaining understanding into the nature of these activities and the need to create medical records as evidence of the activities. The research findings revealed that activities carried out by various clinical departments in line with KNH mandate included; provision of specialized treatment, training of medical personnel, conducting medical research and participating in national health planning and policy formulation. To provide evidence of the business activities findings showed that each department created and maintained its own records. The study

concluded that medical records were valued as the only credible evidence to support the business needs, legal and statutory requirements of KNH. ISO 15489:1 (2001) states that; records enable organizations to conduct business in an orderly, efficient and accountable manner as well as meet legislative and regulatory requirements among other benefits. WHO (2007) concurs pointing out that creating and maintaining proper medical records brings huge benefits such as; high standard and evidence of clinical care, continuity of care, an accurate account of treatment, intervention and improved communication among healthcare providers. These views clearly bring out the primary purpose of creating medical records which was to provide documentary evidence of patient care and facilitate present and future treatment.

The research findings also revealed that there was no uniformity in regard to opening of patients' files and cards which had caused fragmentation and duplication of these records across the clinical departments. Based on this finding the study concluded that lack of a standardized medical records system had hampered proper creation and access to a completed record of care of each patient which formed the basis for clinical decisions. From the definition of a medical record as a chronological written account of a patient's medical care, it was expected that all information relating to the care of each patient was filed in one file. This could certainly ensure maintenance of a complete medical history of each patient which is critical in the present and future management of patients. In support of this view, WHO (2007) points out that the purpose of creating medical records is to enable healthcare professionals to use current and consistent data in continuity of care; to provide reliable and accurate permanent medical history of the

patient and demonstrate the clinicians accountability for professional practice and outcome of care as a continuous and contemporary record. IRMT (1999) points out that the practice of keeping multiple files for each patient cannot be recommended as it makes it difficult for doctors and nurses to gain access to the patient's complete medical history. Such a situation could lead to repetition of tests and probably inaccurate diagnosis. Centralizing medical records for each patient therefore enables clinicians to work from more complete information speeding up the pace of diagnosis and treatment. It results in a safer, more effective and efficient care in line with best clinical practices.

Another objective of the study was to determine the types and formats of medical records generated as part of KNH healthcare system with the aim of interrogating factors influencing medical records creation and formats in which they were created. A key finding of the study was that KNH core business, training and research needs including legal and statutory requirements were key considerations in considerations in determining the types and formats of medical records. Thus, the study concluded that a clear understanding of the organizational structure, business processes, functions and activities is critical in understanding the types of records created resulting from business transactions. This is supported by ISO 15489:1 (2001) which states that; an analysis of business activity and processes will provide an understanding of the relationship between the organization's business and its records. It is a clear way of gathering information on the strengths and weaknesses of existing systems and processes which is useful in either strengthening them or developing new ones. The aim is to ensure that appropriate medical records are created to provide credible evidence of the activities or

business transactions. Findings further revealed that medical records were largely generated in paper-based format, while electronic records were limited to only a few aspects of healthcare delivery. The paper-based medical records were mainly in the form of a wide range of pre-designed medical forms used to document the nature of service or care provided to each patient. According to IRMT (1999) the use of pre-printed forms in hospitals saves staff time and ensures that necessary information is recorded consistently and is easily accessible.

However, findings also revealed that there was lack of standardization in regard to the structure, content and context of clinical information contained in a medical record. As a result, cases of incomplete, scanty and poorly authenticated medical records were common. Based on this finding the study concluded that lack of written standards on clinical documentation impacted negatively on the quality of medical records generated at KNH. It is important to note that healthcare professionals rely on medical records for effective clinical decisions which demand that medical records should be accurate, complete, authentic and reliable. ISO 15489:1 (2001) describes the characteristics of adequate records as including; authenticity, reliability, integrity and usability. The Royal College of Physicians (2008) advises that; for purposes of providing good clinical care, doctors must keep clear, accurate and legible records reporting the relevant clinical findings, the decisions made, the information given to the patients' and any drugs prescribed. Failure to create and maintain accurate, complete and authentic medical records may have serious implications on patient healthcare. According to the University of Tennessee (2007) medical records assure the delivery of appropriate and

timely medical care to patients and if they are illegible, incomplete or untimely they may represent substandard patient care. A similar view is held by Mwakyusa et al (2006) making reference to a pilot study conducted at Naivasha District Hospital in Kenya on the implementation of a structured paediatric admission record. The findings of this pilot study were that due to standardization, the content of the admission record greatly improved as the information was more complete and concise. In addition, all important clinical features were well recorded resulting to improved performance by healthcare providers. There is no doubt that without standardization, the integrity of medical records can be greatly compromised affecting provision of quality healthcare services.

It was also the objective of the study to determine the contribution of medical records in the provision of healthcare services. Research findings demonstrated that, medical records played a critical role not only in patient care management but, also in the planning of healthcare services, training, research litigation and health policy formulation. Based on this finding the study concluded that the worth of medical records was demonstrated in the manner in which they were utilized in the delivery of healthcare services. Mann et al (2003) view medical records as serving both primary and secondary purposes. The authors point out that the primary purpose of medical records is to support clinical decision making and enable communication among healthcare providers while the secondary purpose is to support planning, medico-legal cases, clinical audits and research. Drake (2000) concurs with this view by stating that medical records can be used in a number of ways which include; patient management,

evaluating adequacy and appropriateness of care, providing evidence in protecting the legal interests of either the patient, the clinician or the hospital besides providing data necessary for promoting hospital services and education including information to expand the body of healthcare knowledge.

It is recognized that medical records cannot serve their intended purposes if they are not easily accessible to authorized users. The findings of the study revealed that there were frequent cases of missing and lost medical records which contributed significantly to long patient turn-around time, repetition of investigations and re-scheduling of patients' appointments. The study therefore concluded that effective utilization of medical records was handicapped by inadequate retrieval mechanisms prevailing at KNH. Kemoni and Ngulube (2007) argue that, where records cannot be retrieved due to defective file classification systems managers would be forced to take decisions on an ad hoc basis without the benefit of precedence or historical memory. Failure to avail medical records on time may not only affect patient care but may also derail management decisions, healthcare planning, research and policy formulation all of which depend on information derived from medical records. Barasa et al (2004) points out that without access to reliable health information, health managers cannot make decisions to allocate resources effectively, improve the quality of healthcare services or effectively address epidemics.

The other objective of the study was to analyze the status and effectiveness of medical records management practices in support of healthcare services. The research findings

revealed that the filing, tracking and control procedures for medical records were unsatisfactory hampering effective availability and accessibility to the records. In view of this finding the study concluded that medical records management practices were inadequate since there was no medical records management policy to articulate requirements in respect to records identification, safe custody, access, security and disposition necessary in promoting efficiency in the provision of healthcare services. According to Surrey Community Health (2010) a records management policy brings huge benefits to agencies such as hospitals which include among others; communicating to all staff the agency's commitment to records management and staff recordkeeping responsibilities as well as promoting a culture of good recordkeeping practices. Findings revealed that the standard operating procedures were not adhered to properly and lacked credibility as effective guidelines in the management of medical records. On the contrary, written policies provide a consistent and effective framework for proper management of records including medical records. ISO 15489:1 (2001) states that; organizations should define and document policy for records management whose objective should be creation and management of authentic, reliable and useable records capable of supporting business functions for as long as they are required. By establishing a medical records management policy KNH will be in a position to ensure that medical records management requirements are met thus, enhancing quality of healthcare, accountability and minimizing inefficiencies associated with poor recordkeeping.

The other key finding of the study was that KNH had not put in place a written disaster management plan for medical records and incidences of damage to the records due to floods had been reported. It is recognized that medical records like all other records in both paper and electronic formats face the risk of damage or loss from hazards and disaster such as fire, floods, pest infestation and technological disasters. The study therefore concluded that without a disaster management plan to mitigate the risk of damage, the threat of permanently losing medical records in the event of a disaster could become a reality. Such a situation could put the hospital at great risk in the event of litigation besides undermining patient care, teaching and research undertakings. According to Australia Territory Records Office (2008) disaster plans focus on the disaster mitigation, response to disaster and measured necessary for the swift resumption of daily operations. The importance of a disaster management plan is given emphasis in the findings of a study conducted by Ngulube in 2003 on the preservation and access to public records and archives in South Africa. The study concluded that a disaster preparedness plan is critical as it enables an organization to plan and make decisions about emergency response and recovery in regard to records and archives. Loss or damage of medical records through disasters is a matter of great concern with serious repercussions on the core business of the hospital since medical records are unique and once damaged or lost cannot be replaced. The lives of clients seeking services at the hospital could also be endangered mainly because continuity of treatment is largely dependent on availability of the patients' records.

Further, the objective of the study was to analyze the medical records management challenges faced in the provision of healthcare services at KNH. From the research findings the study concluded that the management of medical records was faced by numerous challenges which included; lack of adequate competent staff, inadequate support from the hospital management, low utilization of ICT and advocacy strategies to champion the business value of medical records including its pivotal role in healthcare delivery. Based on the research findings the conclusion drawn is outlined below:

Findings revealed that there was a shortage of medical records staff and competency deficiencies which had impacted negatively on proper management of medical records thus affecting healthcare delivery. The study concluded that sound medical records management was to a great extent dependent on deployment of adequate and competent personnel to effectively support the core business of KNH. The need to have well trained records managers in an organization was revealed in a study carried out by Kemoni in 1999 to examine the policies and practices for managing medical records at Moi Teaching and Referral Hospital in Eldoret. The study established that not all staff involved in the management of medical records were trained resulting to inadequate medical records management practices. This implies that professional management of medical records requires skilled manpower capable of ensuring timely availability and accessibility of medical records to enhance the medical care given to patients. The World Bank Group (2000) points out that in many countries around the world recordkeeping systems are unable to cope with the growing mass of unmanaged records

and this is particularly true in countries where records and archives managers lack training or professional development opportunities. Training will enable the staff not only to manage medical records properly but also to quickly adapt to the ever changing world of ICT which demands acquisition of new and innovative skills necessary in supporting speedy delivery of healthcare services.

The other key finding of the study was that medical records management function was not adequately supported by the hospital top management despite the fact that medical records played a central role in the core business of KNH. Findings revealed that security of medical records was not fully guaranteed since requirements for medical records in terms adequate infrastructure and proper environmental control had not been satisfactorily met due to insufficient budgetary allocations. The conclusion drawn was that adequate top management support was a key driving force in terms of planning and provision of resources needed for proper medical records management. Good records management practices require that adequate storage space and equipment for records should be provided to enable proper filing, storage and protection of records including prompt retrieval of required records to facilitate delivery of healthcare services. World Bank et al (2000) states that adequate and appropriate equipment as well as materials needed should be provided for handling, storage and preservation of records throughout their life-cycle. There is no doubt that if medical records are not properly protected they may not survive for long periods to serve as evidence of the purposes for which KNH created them. The challenge of inadequate physical facilities for records is not peculiar to KNH. Setareki et al (2005) observes that inadequate resources and space constraints

for records and archives is major challenge facing most developing countries. In the circumstances, it is important for KNH to take a strategic decision and focus on addressing the challenges facing the management of medical records with the aim of enhancing provision of quality healthcare services.

Research findings also demonstrated that ICT was not fully incorporated into the medical records processes which had resulted to long patient turn-around time and poor response time to enquiries and dissemination of health information to users. In view of this finding the study concluded that lack of an elaborate ICT infrastructure could minimize KNH competitive edge given the increased demand for quality healthcare services by clients. ICT is considered an important tool in healthcare delivery to enable speedy capture, processing, storage and access to clinical information. The benefits KNH is likely to enjoy by fully adopting ICT are as established by a study carried out by Menke et al (2001) to determine the potential benefits of computerized clinical documentation system in the paediatric intensive care unit at the children's hospital, Columbus. The study revealed that documentation provided by the computerized system was more complete and legible and led to improved clinical decision making. The research findings further revealed that KNH was implementing an electronic health management information system (HMIS) with limited capabilities for capturing clinical information as records. The conclusion drawn from this finding was that adequate attention had not been given to safeguarding the authenticity and integrity of medical records in an electronic environment critical in providing credible evidence of the care provided to patients. Unlike paper-based medical records, electronic medical records are

more vulnerable to undetected alteration, loss and unauthorized access. In such circumstances, special consideration needs to be given to matters of authenticity, accessibility, preservation and disposition of these records by adopting an electronic medical records system (EMRS) capable of defining records classification, metadata standards, access rights and long term preservation. According to Texas Medical Association (2009) EMR relates to information on an individual that is electronically created, gathered, managed and consulted by licensed clinicians and staff involved in the individual's healthcare. Emphasizing on the benefits of adopting EMR systems WHO (2006) points out that the system enables hospitals to improve on accuracy and quality of medical record documentation, enhance access and sharing of information between and among health professionals, improves on the quality of care provided and enhances efficiency of medical records services. Besides leading to improved healthcare services, adoption of EMRS can result into huge saving due to its massive data storage capabilities. Funds needed for the purchase of additional medical records storage equipment, medical stationery and acquisition of additional storage space will be substantially reduced. In addition, saving on manpower and time needed to manage a large collection of paper-based medical records could be realized.

The other challenge as revealed by the findings was that strategies for championing the business value of medical records management were weak. The implication as revealed by the findings was that there was low appreciation and marginal support for medical records management. In view of this finding the study concluded that the worth of medical records management was not fully recognized by KNH staff due to lack of an

effective advocacy strategy contributing to medical records management challenges impacting negatively on healthcare delivery. It is recognized that proper management of medical records requires significant amount of resources from which the KNH top management expects to derive benefits from such heavy investments. Strategies for assessing the tangible and intangible benefits of medical records management and communicating the same to the top management are significant in ensuring the function continues to attract funding and support capable of adequately supporting provision of healthcare services. This is reinforced by Donald (2007) who argues that lack of effective strategies to champion the business value of information services is the cause of marginalization and little recognition of the value of information in an organization. Consequently, inadequate budgetary allocations are provided and little effort is made to equip the staff with necessary skills and competencies to effectively manage information resources. In such a situation Donald (2007) advises that information managers need to align themselves with the organization's goals and develop strategies for assessing the business value of information services. The aim would be to make sure that the value and contribution of information services are known throughout the organization and accorded adequate support with the objective of promoting delivery of quality healthcare services at KNH.

In line with the research findings discussed earlier, it was also the objective of the study to propose a framework for managing medical records. The study concluded that the provision of quality healthcare services could be greatly enhanced through sound medical records management. This implies that appropriate measures needed to put in

place to ensure proper management of medical records throughout their life- cycle. Towards this goal, the proposed framework therefore needs to address the establishment of medical records policies and procedures aimed at standardizing aspects of creation, filing, control, access, security and disposition of these records. In addition, the accuracy, completeness, authenticity and reliability of medical records could not be adequately ascertained due to lack of standards as revealed by the findings. The proposed framework therefore needs also to focus on the establishment of standards to ensure integrity of clinical information in the form of medical records. To enhance the management of medical records adoption of EMRS could also form part of the proposed framework aimed at promoting efficiency in healthcare delivery. Further, the framework could address aspects of staff capacity building and strengthening of both KNH top management support as well as establishment of an effective medical records management advocacy strategy all aimed at providing necessary support in the provision of healthcare services.

5.3 Recommendations

The study revealed that medical records were considered an important resource in the provision of healthcare services at KNH. The findings further revealed that the effectiveness of medical records was dependent on the application of best practices in the management of these records. In line with the research findings the study makes the following recommendations.

5.3.1 Development and Implementation of a MRM Policy in Support of Healthcare Provision

The research findings revealed that KNH had not put in place a medical records management policy to provide consistent and effective framework for managing these records to adequately support provision of healthcare services. It is recommended that urgent action be taken to develop the policy to provide the legal framework regarding creation, control, storage, access, security and disposition of medical records aimed at ensuring safety and availability of medical records in the delivery of healthcare services. In addition, the policy should clearly spell out the KNH top management commitment towards medical records management including responsibilities of the staff concerning the management of these records throughout their life-cycle to facilitate proper handling and use of medical records.

5.3.2 Establishment of Clinical Documentation Standards

Another finding of the study was that KNH had not put in place written clinical documentation standards to serve as yardstick in ensuring accuracy, uniformity, completeness and integrity of clinical information contained in a medical record. This is critical in ensuring that medical records remain credible in meeting the present and future needs of patients. The study therefore recommends the establishment of clinical documentation standards outlining key requirements on the structure, content, context of clinical information recorded in a medical record. These should further outline the design and content of medical forms and the responsibility of healthcare professionals in respect to clinical documentation. This will promote uniformity, completeness, consistency and integrity of medical records aimed at ensuring standardization in

patient care. It is also recommended that a multi-disciplinary medical records advisory committee be appointed with the mandate of spearheading the implementation of the standards.

5.3.3 Capacity Building

The study further established that quite a big number of staff managing medical records were clerical officers with no formal training in medical records management. In line with this finding, the study recommends that KNH urgently institutes a training programme for the medical records staff to equip them with relevant knowledge and skills to enable them manage medical records professional to adequately support efficiency in the provision of healthcare services. The study further recommends that the training programmes should incorporate awareness raising for KNH staff on the role and importance of medical records management in enhancing proper use of these records.

5.3.4 Review and Implementation of Medical Records Retention and Disposal Policy

The research findings also revealed that the existing medical records retention and disposal policy was obsolete and no longer applicable in ensuring effective disposition of medical records. It is recommended that the ongoing review of the policy be fast-tracked in order to put in place a revamped disposition policy. The new policy should spell out clear guidelines relating to medical records retention requirements based on business needs, statutory, regulatory and research concerns, retention periods and disposition actions. The policy once implemented will facilitate systematic disposition

of medical records and safeguard vital medical records needed for long term management of patients with either chronic or terminal illness besides facilitating training and medical research.

5.3.5 Establishing an Electronic Medical Records System

Research findings revealed that ICT integration into medical records processes was marginal and automation existed in only a few element of health information processing. The study recommends the establishment of an electronic medical records system (EMRS) with adequate medical recordkeeping functionalities to safeguard the authenticity and integrity of the records necessary in ensuring credibility of these records in clinical decision making. The study further recommends that the EMRS should be backed by an EMRS policy to clearly define the requirements for medical records classification, metadata standards, access rights, retention schedules and long term preservation. This will enable the medical records to survive as long as they are required to provide authoritative evidence of the care provided to patients at KNH.

5.3.6 Strengthening Top Management Support for MRM

The findings further revealed that MRM function was not fully supported by KNH top management contributing to numerous challenges faced in the management of these records affecting efficiency in healthcare delivery. The study therefore recommends that key requirements for medical records management be prioritized in the KNH strategic plan. Among the requirements are; provision of adequate storage equipment, infrastructure modification to cater for additional space for staff and the records, provision of adequate firefighting equipment, enhances security such as CCTV

surveillance and environmental control. This is all aimed at assuring security and availability of medical records whenever required in the provision of healthcare services.

5.3.7 Development and Implementation of a Disaster Management Plan

Findings revealed that KNH had not put in place a disaster management plan for medical records to mitigate the risk of damage or loss in the event of a disaster. Damage or loss of medical records through disaster may endanger the lives of patient seeking services at KNH since continuity of treatment is dependent of availability of their records. In line with this finding the study recommends that a disaster management plan for medical records be develop and implemented. The plan should provide clear guidelines on risk assessment and prevention, preparedness, response and recovery including evaluation to consistently guarantee the safety of medical records. KNH should also consider constituting a disaster management team which will coordinate all disaster related matters.

5.3.8 Advocacy for MRM to Enhance Provision of Healthcare Services

The research findings further revealed that the business value of medical records management was not well appreciated by KNH staff. This had resulted to lack of collective responsibility in the management of medical records leading to mishandling severely affecting proper utilization of the records in the delivery of healthcare services. The study therefore recommends that an advocacy strategy be put in place. The strategy should not only focus on staff sensitization on the business value and importance of medical records but also champion a change in mindset and policy towards medical

records management. The result would be well managed medical records impacting positively on the quality of healthcare services provided at KNH.

5.4 Proposed Model for Medical Records Management in Support of Healthcare Provision

The study proposes a framework which if implemented will enhance the management of medical records to adequately support provision of healthcare services at KNH. The Model borrowed some of its elements from the Records Continuum Model formulated by Frank Upward in 1998 and ISO 15489:1 (2001). The borrowed elements of Records Continuum Model consists of its four dimensions which include; records creation, capture of records as evidence, establishing recordkeeping systems and use of records including elements of managing electronic records which are discussed in detail in chapter 2 (2.1.3). The borrowed elements of ISO 15489:1 (2001) focus on the importance of business activity analysis aimed at understanding the relationship between business activities and the records generated as well as guidelines on the implementation of a records management system that incorporates best practices.

The proposed Model further incorporates elements of clinical documentation standards and advocacy for medical records management to enhance provision of healthcare services which are original ideas by the researcher derived from the study. The Model describes seven (7) stages which if followed may transform the management of medical records at KNH. The aim would be to ensure that medical records management requirements are met to effectively support provision of healthcare services. The Model is shown on **Figure 2.**

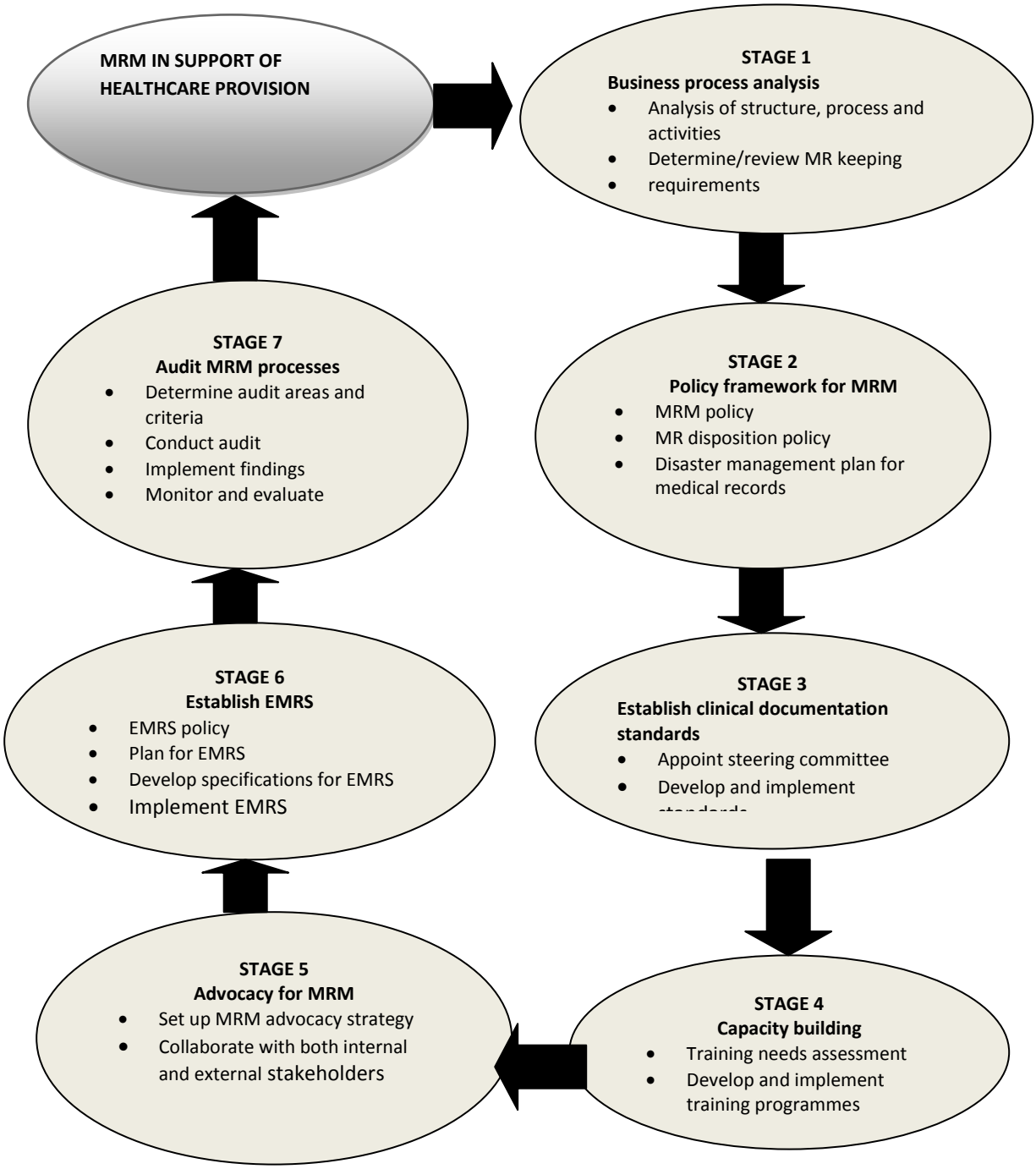

Figure 2: Proposed Model for Medical Records Management (MRM) in Support of Healthcare Provision at KNH

Stage 1: Business Process Analysis

Stage 1: Business Process Analysis

Business process analysis is an in-depth scrutiny of an organization's structure, functions, processes and activities to enable better understanding of the nature records and the manner in which they were created and used. Such an analysis lays the foundation for determining the factors influencing records creation and understanding the systems put in place to manage these records. The information is useful in identifying strengths and weaknesses of the systems and processes and serves as a guiding factor in either strengthening existing systems or procedures or in the development of new ones. It would therefore be advisable for KNH to undertake a business process analysis as a first step towards improving the quality of medical records and their management practices. This would ensure that reliable medical records are generated to facilitate clinical decision making in the present and future management of patients.

Stage 2: Policy Framework for MRM in Support of Healthcare Provision

The Model proposes a policy framework for medical records management. Policies are rules, principles and guidelines adopted by an organization including hospitals to provide direction towards achievement of goals and objectives. They ensure that operations are carried out in a consistent and accountable manner. Development and implementation of policies related to; medical records management, retention and disposal of medical records including disaster management will provide the legal framework for KNH to drive the process of change in the way medical records are

managed. The change effect will definitely impact positively on the quality of healthcare services offered by the hospital.

Stage 3: Establishing Clinical Documentation Standards

Another important element of the Model is the establishment of clinical documentation standards. Standards ensure that services offered meet set requirement in a consistent manner. Development and implementation of clinical documentation standards will provide a high level framework for enhancing the quality of medical records benchmarked against clinical best practices. This will provide assurance that diagnosis and treatment of patients is based on accurate and reliable medical records.

Stage 4: Capacity Building

The Model further proposes capacity building for medical records personnel. Staff training and development is the cornerstone of effectiveness and efficiency in medical records management. Medical records are a key component of clinical practice and require to be managed professionally to satisfy the requirements of best clinical practices. A lot of attention therefore needs to be drawn towards assessment of staff training needs and organizing training for medical records personnel as part of an overall capacity building strategy. This will equip them with relevant knowledge and skills to effectively manage both paper-based and electronic medical records. Focus may also be on creating awareness to the rest of the staff through seminars and workshops on the role of medical records in healthcare delivery with the aim of strengthening collective responsibility in handling medical records.

Stage 5: Advocacy for MRM to Enhance Healthcare Provision

Another element of the Model focuses on an advocacy strategy for medical records management. This will be important in championing the business value and importance of medical records to both internal and external stakeholders. Such a move will uplift their appreciation for the need for proper medical records management and enlist their willingness in support of any proposed change initiatives. It will also in a very positive way elevate the profile of medical records management function and even attract donor funding from external partners towards improvement programmes for managing medical records. These initiatives will result to sound MRM practices impacting positively on the quality of healthcare services offered at KNH.

Stage 6: Establishing Electronic Medical Records System

The Model further proposes the establishment of an electronic medical records system (EMRS). An EMRS serves as a useful tool in supporting speedy and timely provision of healthcare services. Establishment of an EMRS will involve planning, design and implementation of a system capable of safeguarding the authenticity and integrity of medical records. Development and implementation of an EMRS policy will help define levels of responsibility and lay guidelines for defining medical records classification, metadata standards, access rights, retention and disposal schedule and long term preservation. The policy will in the long run ensure that reliable medical records are maintained and accessible whenever needed to facilitate treatment and other healthcare services at KNH.

Stage 7: Auditing Medical Records Processes

Finally the Model proposes auditing of medical records processes. Audit refers to a review or scrutiny of systems, processes and procedures. The main purpose of an audit is to provide assurance that systems, processes and procedures are effective, compliant and free from any risk. Auditing will involve identifying the aspects to be audited, determining the auditing criteria, data collection and evaluation. Carrying out regular audits of medical records processes and management practices will help identify strengths and weaknesses and allow for corrective and preventive actions to be taken thus enhancing compliance to both MRM and clinical best practices.

5.5 Suggestions for Further Research

The study investigated the effectiveness of medical records in the provision of healthcare services at KNH. From what emerged from some of the research findings one aspect I would like to suggest for further research is on the importance of metadata standards in clinical documentation to enhance healthcare delivery.

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APPENDICES

Appendix 1: Research Authorization by KNH/UON Ethics and Research Committee

KENYATTA NATIONAL HOSPITAL
Hospital Rd. along, Ngong Rd.
P.O. Box 20723, Nairobi.
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP", Nairobi.
Email: KNHplan@Ken.Healthnet.org

Ref: KNH-ERC/ A/1

7th January 2011

Margaret Njoki Mbugua
IS/MPHIL/025/08
Moi University
ELDORET

Dear Margaret

RESEARCH PROPOSAL: "EFFECTIVENENESS OF MEDICAL RECORDS IN THE PROVISION OF HEALTHCARE SERVICES AT KENYATTA NATIONAL HOSPITAL" (P383/11/2010)

This is to inform you that the KNH/UON-Ethics & Research Committee has reviewed and **approved** your above revised research proposal for the period 7th January 2011 – 6th January 2012.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given. Clearance for export of biological specimens must also be obtained from KNH/UON-Ethics & Research Committee for each batch.

On behalf of the Committee, I wish you a fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of the data base that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

PROF A N GUANTAI
SECRETARY, KNH/UON-ERC

c.c. The Deputy Director CS, KNH
The HOD, Records, KNH
Supervisors: Prof. Justus Wamukoya, Moi University
Dr. A. Chege, Moi University

Appendix 2: Research Authorization by the National Council for Science and Technology

APPENDIX 2

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telegrams: "SCIENCETECH", Nairobi
Telephone: 254-020-241349, 2213102
254-020-310571, 2213123,
Fax: 254-020-2213215, 318245, 318249
When replying please quote

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: **NCST/RRI/12/1/INF/27/5**

Date: **2nd November 2010**

Ms. Margaret Njoki Mbugua
Moi University
P. O. Box 3900
ELDORET

RE: RESEARCH AUTHORIZATION

Following your application for extension of authority to carry out research on ***"Effectiveness of medical records in the provision of healthcare services at Kenyatta National Hospital"*** I am pleased to inform you that you have been authorized to undertake research **in Nairobi Province** for a period ending ***31st August 2011.***

You are advised to report to **the Director, Kenyatta National Hospital** before embarking on the research project.

On completion of the research, you are expected to submit **two** copies of the research report/thesis to our office.

P. N. NYAKUNDI
FOR: SECRETARY/CEO

Copy to:

The Director,
Kenyatta National Hospital
NAIROBI

Appendix 3: Introductory Letter to the Participants

Dear Participant,

I am a student at MOI University pursuing a Master of Philosophy degree in Information Science specializing in Records and Archives Management. I am conducting a study on the Effectiveness of medical records in the provision of healthcare services at KNH. The research will focus on creation of medical records, use and management including the value and importance attached to medical records in healthcare delivery. The research will also address the challenges encountered in the use and management of these records. The purpose of this letter is to seek your participation in the research. It is expected that this study will result in a framework to enhance the management of medical records in order to deliver effective and efficient medical records services. The information will be treated confidential and no responses shall be linked to particular respondents.

Thank you for your time and cooperation.

Yours faithfully,
Margaret Njoki Mbugua

Appendix 4: Consent for Participation

I……have been explained the objectives of the research. I have noted that my confidentiality will be strictly respected and my participation will have no risks involved. I have also noted that my participation in the study will contribute to improvement of medical records management at KNH.

I therefore voluntarily and willingly agree to participate in the study.

Signature……..Date……

Appendix 5: Interview Guide for Medical Doctors

1. Designation of respondent_____

   Department_____

   Duties and responsibilities_____

Objective 1: Establishing the business activities that generate medical records at KNH

2. What aspects of healthcare is department responsible for?

   _____

   _____

   _____

3. How critical are the services you provide to the overall healthcare system?

   _____

   _____

   _____

Objective 3: Determining the contribution of medical records in the provision of healthcare services

4. How are you involved in the creation of medical records?

   _____

   _____

   _____

5. Why is it important to create and keep medical records?

   _____

   _____

   _____

6. In what ways do you use medical records in the discharge of your duties?

_____
_____
_____

7. What specific medical records are critical in the performance of your work?

_____
_____
_____

8. What constitutes a reliable medical record?

_____
_____
_____

9. In what aspects of healthcare delivery are medical records useful and why?

_____
_____
_____

Objective 4: Analyzing the status and effectiveness of the present medical records management practices in supporting healthcare services at KNH

10. What reasons make you access medical records in the course of your work?

_____
_____
_____

11. What challenges do you face when accessing and using medical records?

_____
_____
_____

12. How do you go about solving the problems you face when accessing and using medical records?

_____

_____

_____

13. What are the challenges of using medical records in their present form?

_____

_____

_____

14. To what extent have you embraced computerization in the course of your work?

_____

_____

_____

15. How do you think computerization can assist in the management and use of medical records?

_____

_____

_____

Thank You

Appendix 6: Interview Guide for Senior Nursing Officers

1. Designation_____

   Department_____

   Duties and Responsibilities_____

Objective 1: Establishing the business activities that generate medical records at KNH

2. What services does your department provide?

   _____

   _____

   _____

3. How important are these services in the provision of healthcare services?

   _____

   _____

   _____

Objective 2: Determining the types and formats of medical records generated as part of healthcare system

4. What types of medical records do you create and maintain?

   _____

   _____

   _____

5. In what formats are these records created?

   _____

   _____

   _____

6. What is the annual volume of the medical records you create and maintain?

_____

_____

_____

Objective 3: Determining the contribution of medical records in the provision of healthcare services at KNH

7. How important are the medical records you create in the discharge of your duties?

_____

_____

_____

8. Why is it important to create accurate, complete and authentic medical records?

_____

_____

_____

9. How do you ensure accuracy, completeness and authenticity of medical records?

_____

_____

_____

10. Who uses your records?

_____

_____

_____

11. What are the records used for?

_____

_____

_____

Objective 4: Analyzing the status and effectiveness of the present medical records management practices in supporting healthcare services at KNH

12. Who is responsible for the management of medical records in your section?

    _____
    _____
    _____

13. What guidelines and procedures are used in the management of medical records?

    _____
    _____
    _____

14. What assistance do you get from medical records personnel in regard to management of medical records?

    _____
    _____
    _____

15. What problems do you encounter with the present medical records management practices?

    _____
    _____
    _____

16. How do you deal with these problems?

    _____
    _____
    _____

17. In what ways can the management of medical records be improved?

    _____
    _____
    _____

Thank you

Appendix 7: Interview Guide for Medical Records Officers/Assistants

1. Designation_____

   Department_____

   Duties and responsibilities_____

Objective 2: Determining the types and formats of medical records generated as part of healthcare system

2. What types of medical records are generated at KNH?

   _____
   _____
   _____

3. What are the various formats in which medical records are generated?

   _____
   _____
   _____

4. What is the annual volume of each type of medical records?

   _____
   _____
   _____

5. What challenges do these formats pose in the management of medical records?

   _____
   _____
   _____

Objective 3: Determining the contribution of medical records in the provision of healthcare services at KNH

6. Who are the main the users of medical records?

   _____
   _____
   _____

7. For what purposes do they use these records?

_____
_____
_____

8. How are medical records accessed?

_____
_____
_____

Objective 4: Analyzing the status and effectiveness of the present medical records management practices in supporting healthcare services at KNH

9. What guidelines and procedure do you use in the management of medical records?

_____
_____
_____

10. How effective are theses guidelines and procedures?

_____
_____
_____

11. What specialized equipment is available to store medical records?

_____
_____
_____

12. What measures have you taken to keep medical records secure?

_____
_____
_____

13. Why is security important in the management of medical records?

_____
_____
_____

14. How long do you keep medical records and why?

_____
_____
_____

Objective 5: Analyzing the medical records management challenges faced in the provision of healthcare services at KNH

15. What challenges do you face in the management of medical records?

_____
_____
_____

16. How do these challenges affect healthcare delivery at KNH?

_____
_____
_____

17. How do you address these challenges?

_____
_____
_____

18. What kind of training do you receive to enhance your job skills and knowledge?

_____
_____
_____

19. To what extent does this training meet the requirements of your job?

_____
_____
_____

20. In what ways does KNH top management support your department?

    _____
    _____
    _____

21. How adequate is the support you receive from KNH top management?

    _____
    _____
    _____

Objective 6: Proposing a framework for managing medical records in support of healthcare provision at KNH

22. What can be done to improve on the management of medical records?

    _____
    _____
    _____

23. What specific policy, managerial and professional aspects need to be addressed to enhance the management of medical records?

    _____
    _____
    _____

Thank You

Appendix 8: Interview Guide for Radiologists and Laboratory Technologists

1. Designation of respondent_____

   Department_____

   Duties and responsibilities_____

Objective 1: Establishing the business activities that generate medical records at KNH

2. What activities give rise to the medical records created by your department?

   _____
   _____
   _____

3. To what extent do the services you provided support healthcare services?

   _____
   _____
   _____

Objective 2: Determining the types and formats of medical records generated as part of KNH healthcare system

4. What types of medical records do you create and maintain?

   _____
   _____
   _____

5. In what formats are these records created?

   _____
   _____
   _____

6. Who are the users of the medical records you create?

   _____
   _____
   _____

7. In what ways do the medical records you create support healthcare services?

   _____
   _____
   _____

8. How important are these records in supporting healthcare services?

   _____
   _____
   _____

Objective 4: Analyzing the status and effectiveness of the present medical records management practices in supporting healthcare provision at KNH

9. Who manages medical records in your department?

   _____
   _____
   _____

10. What problems do you find with the present medical records management practices?

    _____
    _____
    _____

11. What causes these problems?

    _____
    _____
    _____

12. How can these problems be addressed?

    _____
    _____
    _____

Thank You

Appendix 9: Interview Guide for Pharmacists

1. Designation of respondent_____

   Department_____

   Duties and responsibilities_____

Objective 1: Establishing the business activities that generate medical records at KNH

2. What services does your department provide?

   _____
   _____
   _____

3. How important are these services in supporting healthcare services?

   _____
   _____
   _____

Objective 2: Determining the types and formats of medical records generated as part of KNH healthcare services

4. What types of medical records do you generate in the course of providing healthcare services?

   _____
   _____
   _____

5. In what formats are these records?

   _____
   _____
   _____

6. What is the annual quantity of the medical records you generate?

   _____
   _____
   _____

Objective 3: Determining the contribution of medical records in the provision of healthcare services at KNH

7. What aspects of healthcare do medical records you generate support?

   _____
   _____
   _____

8. How important are medical records in each of these aspects?

   _____
   _____
   _____

Objective 4: Analyzing the status and effectiveness of the present medical records management practices in supporting healthcare services at KNH

9. What guidelines do you use in managing your records?

   _____
   _____
   _____

10. How effective are these guidelines?

    _____
    _____
    _____

11. Why are your medical records not managed by professional medical records personnel like the rest of healthcare records?

    _____
    _____
    _____

12. How long do you keep your records and why?

    _____
    _____
    _____

13. In what ways can computerization of your medical records improve services in your department?

    _____
    _____
    _____

14. What knowledge and skills do you have in records management?

    _____
    _____
    _____

Objective 5: Analyzing the medical records management challenges faced in the provision of healthcare services at KNH

15. What challenges do you face in the management of medical records?

    _____
    _____
    _____

16. How can these challenges be addressed?

    _____
    _____
    _____

Thank You

Appendix 10: Interview Guide for Rehabilitative Service Officers

1. Designation of respondent_____

   Department_____

   Duties and responsibilities_____

Objective 2: Determining the types and formats of medical records generated as part of KNH healthcare delivery system

2. What types of medical records do you create in the discharge of your duties?

   _____
   _____
   _____

3. In what formats are these records?

   _____
   _____
   _____

Objective 3: Determining the contribution of medical records in the provision of healthcare services at KNH

4. In what aspects of your work do you use medical records?

   _____
   _____
   _____

5. What role do medical records play in supporting healthcare services?

   _____
   _____
   _____

6. Who are the users of your records?

   _____
   _____
   _____

7. In what ways do they use the records?

_____
_____
_____

Objective 4: Analyzing the status and effectiveness of the present medical records management practices in supporting healthcare services at KNH

8. What guidelines do you use in the management of your medical records?

_____
_____
_____

9. Why are your medical records kept and managed separately unlike other healthcare records?

_____
_____
_____

10. Who is responsible for managing the medical records in your department?

_____
_____
_____

11. What problems do you encounter in accessing and using medical records?

_____
_____
_____

12. How do you go about solving these problems?

_____
_____
_____

13. How do you think medical records can be better managed?

_____
_____
_____

Thank You

Appendix 11: Check-list to Respondents for Pretesting the Interview Guides

1. (a) Does the interview guide have any typographic errors?

Yes [ ] No [ ]

(b) If yes, please indicate them in the interview guide

2. (a) Are there any misspelt words in the interview guide?

(b) If yes, please indicate them in the interview guide

3. (a) Is the interview guide font size sufficient for reading?

Yes [ ] No [ ]

4. (a) Is the vocabulary used in the interview guide appropriate for the respondents?

Yes [ ] No [ ]

(b) If no, please provide suggestions below:

_____
_____
_____

5. (a) Are the questions presented in a systematic and logical order?

Yes [ ] No [ ]

If no, please provide suggestions below:

_____
_____
_____

6. (a) Are the questions easily understood?

Yes [ ] No [ ]

If no, please provide suggestions below:

_____
_____
_____

7. Is the interview guide to long?

Yes [ ] No [ ]

If yes, please provide suggestions below:

_____
_____
_____

8. Kindly provide any other suggestions which will help improve the quality of the interview guide

_____
_____
_____

Thank You

Appendix 12: Observation Checklist

ITEM	OBSERVATION	COMMENTS
Creation of medical records	Documentation of patient record Availability and use of medical record forms Quality of medical records forms, file folders, cards and registers	
Control of medical records	Medical records classification schemes Medical records tracking tools Medical records retrieval tools Access to medical records by users	
Security of medical records	Types of equipment and space adequacy Medical records protection measures	
Medical records retention and disposal	Availability of medical records disposal schedule at users points Adequacy of medical records disposal schedule Compliance with the requirements of the medical records retention and disposal schedule	