ASSESSMENT OF MEDICAL RECORDS MANAGEMENT IN SUPPORT OF SERVICE DELIVERY AT MOI TEACHING AND REFERRAL HOSPITAL, ELDORET, KENYA

BY

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DECLARATION

DECLARATION BY THE CANDIDATE

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IS/MPHIL/078/011

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DEDICATION

This thesis is dedicated to my parents Mr. and Mrs. John Koech for their moral support and to my husband George and children, Megan, Merab, Gloe and Goen for persevering my absence during the studies.

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LIST OF ABBREVIATIONS AND ACRONYMS

AMRS   Automated Medical Record System

HRIS   Health Records and Information System

ICA   the International Council on Archives

ISO   International Standards Organization

MTRH   Moi Teaching and Referral Hospital

ICT   Information Communication and Technology

IREC   Institutional Research and Ethics Committee

ACKNOWLEDGEMENT

ABSTRACT

Medical records support patients care, provide continuity in the event of a disaster and protect the interests of the organization and the rights of employees. However, in almost all public health facilities in Kenya, medical records are kept in files and folders. The aim of the study was to assess medical records management at Moi Teaching and Referral Hospital (MTRH), in support of service delivery and suggest suitable guidelines in medical records management and the delivery of services. The specific objectives of the study were to: identify types of medical records created at MTRH; establish medical services offered at MTRH; determine how medical records are organized and managed at MTRH; explore staff competency and skills required at the MTRH HRIS department; determine physical and information infrastructure needed for records management and service delivery at MTRH; and suggest suitable guidelines in medical records management and service delivery at MTRH. The study was informed by the records continuum model and FOX IT service delivery model. The study used a case study research method and adopted a qualitative with some aspects of quantitative approach. Purposive and stratified sampling techniques were used to select a sample size of 302 respondents however the study arrived at saturation point after interviewing 96 respondents. Data were collected through interviews and were analyzed using descriptive statistics and later presented in text, table, charts and figures. The key findings of this study were: medical records are not surveyed, records are not appraised and medical records are not destroyed. The physical and information infrastructure needed for records management and service delivery at MTRH include backup facilities to secure data, stable internet connections to avoid network fluctuations, portable devices and satellite telecommunications amongst others. The study recommends the use of policy guidelines in relation to best practices of how medical records are managed; the use of electronic systems for opening, tracking and indexing of files; further training of records staff; and conducting regular records awareness workshops.

CHAPTER ONE

INTRODUCTION AND BACKGROUND INFORMATION

1.0 Introduction

This chapter gives information on the following aspects; background information of Moi Teaching and Referral Hospital (MTRH), organizational structure, statement of the problem, aim and objectives of the study, research questions, assumptions, significance of the study, scope of the study and limitation of the study.

Hospitals, both public and private, create, receive and maintain records as evidence of their functions, activities and transactions. Any information documented as a result of processes and activities of a particular business is a vital asset of an organization as any other vital assets including finance and human resources. Moreover, records in an organization are a unique and irreplaceable source of information about its work, achievements, and continuity. Record serves as a reliable and an authentic source of information which must retain its originality throughout its use. Dikopoulou et al., (2010) pointed out that organizations keep their records to promote accountability and also are important in the planning and decision making processes. Kemoni and Ngulube (2007) opine that an effective records management programme is a key component of any public sector for efficient and enhanced service delivery.

A medical record is an important document that is used by healthcare institutions and practitioners to record patient history, illness, and treatment (Mogli, 2009). A medical record is created as evidence of an interaction between a patient and healthcare personnel during a patient's visit to a healthcare facility. The interaction may involve, among other things, the recording of information about a patient's biographic data as well as temperature, blood pressure, and diagnostic test results. It also may document operations

and other forms of treatment. Steward (2005) points out that medical records form an integral part of healthcare service delivery as they contain critical information whose primary purpose is to facilitate continuum of care and treatment of patients.

Service delivery is important to both public and private organizations. Arries, Ebin and Newman (2008) asserted that service delivery has become an increasingly important concern of public healthcare services. The authors maintain that healthcare service delivery can be measured by reliability, responsiveness, courtesy, customer orientation, confidentiality, and caring. To promote efficient healthcare service delivery, healthcare facilities need to create people driven services that are characterized by quality, equity, timeousness and a strong code of ethics (Arries, Ebin and Newman, 2008). Records management is vital to service delivery by any institution or organization. Kemoni and Ngulube (2007) pointed out that misfiled and lost records are likely to delay the service delivery and hence dent the image of any service provider.

The management of medical records has a long history. For a long time medical records have been in paper format. However expansion in the healthcare service delivery has seen paper format becoming more problematic. In the United States of America (USA), for example, the amount of patient information on paper and the lack of a central storage system led to large volumes of medical records being stored in various locations. It was also noticed that the storage often had fragmented, inaccurate, incomplete, duplicative, and poorly documented information (Steward, 2005). According to Syed-Mohamad et al. (2010) in Malaysia the paper-based records had problems in communicating essential information necessary for quality and efficient patient care. The filing system created problems in retrieving medical records. The paper records lacked uniformity across departments and patient information was captured differently.

Similar problems were experienced in Kuwait where in the study by Al-azmi et al., (2009) it was revealed that records officers took time in locating records. In Hong Kong the paper based medical records posed some challenges of retrieval and sharing of patient medical information due to lost and misplaced records (Ting et al., 2011). To overcome problems associated with paper based records many countries, especially in the developed world, adopted the use of information technology for better and effective use of medical information to improve healthcare service delivery (Al-azmi et al., 2009).

Marszalek (2006) opinioned that the management of medical records in South Africa differs among public healthcare service institutions. According to this author some hospitals use electronic records systems while others use both manual and electronic records systems. Tp and Sa (2006) pointed out that good and accurate record keeping as well as the communication of clinical information between health practitioners is essential for good and quality healthcare practice.

Admittedly, in developing countries the management of medical records has not been taken as a priority and is generally inadequately supported and poorly managed (Wong and Bradley, 2009). In Ethiopia, for example, medical records were commonly missing, incomplete and inaccessible while in Ghana the management of medical records faced many obstacles including ineffective filing and retrieving due to poor or unsuitable storage facilities (Williams & Boren 2008).

In Kenya, it is a requirement by the government that records are properly created and preserved for use. According to laws of Kenya, public archives and documentation service act, chapter 19 (2003), the government recognizes the need for record keeping for the public. This includes health records since the records carry information that concerns the Kenyan citizens. Medical record management system has faced constraints like lack of a

written health information policy to ensure compliance and enforcement in reporting, low reporting rates (under 60% for most of the sub systems), making the data unrepresentative for management, planning and budgeting at all levels, un-timeliness/late reporting; resulting in delays in data processing, analysis, utilization and outbreak response, inadequate health records and information personnel and inadequate capacity for data analysis and management skills among others. (Health Metrics Network Kenya, 2008)

1.1.1 Different Types of Medical Records

There are two types of medical records namely paper medical records and electronic medical records. According to Windleh (2010), a medical transcriptionist comes across various types of medical paper records generated by hospitals, labs, doctors' offices, etc. Each one has different type of content that requires different type of formatting standards. The most common types of medical records that a medical transcriptionist transcribes include: Patient History and Physical exam report, Consultation report, Operative report, Radiology report, Pathology report, Laboratory report, Emergency report, Progress note report, Therapy report, Clinical notes, Autopsy reports, Biopsy reports, Psychiatric observation, Referral letter, Daily reports and Discharge Summaries.

Pat *et al.*, (2010) on the other hand give the following as the types of paper medical records that can be found in any health facility; Hospitals and emergency rooms records, Emergency medical services records (ambulance or medical intensive care unit/MICU), Records of physicians and specialists, Outpatient imaging (x-rays, MRI scans, CT scans, and so forth),Any outpatient labs where blood work or other tests (EMG, EKG, and so forth) were done, Inpatient and outpatient rehabilitation records including physical therapy, occupational therapy, and so forth, Outpatient pain treatment centers, Pathology specimens and reports, billing records, Visiting nurse home care records, Mental health,

substance abuse records and HIV records, Assisted living and nursing home records, Employment physicals, Fetal monitoring strips 'Videotapes of procedures, Pathology or laboratory work that was referred to an outside source, Drugstore pharmaceutical records, Inpatient pharmacy profiles, Inpatient narcotic control records, Labor and delivery, operating room, emergency room, radiology, and laboratory logs, Communication books used by nursing shifts to report to each other, Insurance companies records, Risk management reports or incident reports if there is an unusual occurrence.

According to the Head of HRIS Department do have the following as the paper medical records; Central Record Registration form, Demographic Details form, Social work form, Referral form, Continuation sheet, Treatment sheet, Nursing cardex, Chart (fluid input and output, head injury, four hourly, two hourly, ICU), Laboratory request form, Radiology request form, Operation notes, Consent forms, Mental forms, Maternal records, Neonatal form, Input invoice, Matrons day and night report forms, Discharge summary and Registration form

1.1.2 Medical Records Management and its Benefits

Medical records management involves: planning, controlling, directing, organizing, training, promoting and other managerial activities related to the creation, maintenance, use and disposition of medical records to achieve adequate and proper documentation of a health care organization's policies and transactions (Fraser, 2010).

Kemoni (2008) on the other hand affirms that there are multitudes of benefits that can be accrued from records management which include: ability to mitigate the considerable risks associated with inadequate records management practice, specifically, accountability, transparency, sound corporate governance, and public sector efficiency; compliance with statutory requirements; ability to provide enterprise-wide access to documents, records and

information resources contained within multiple databases; ability to manage electronic documents and records as inviolate and credible evidence, knowledge of fundamental records management practices and how they relate to Freedom of Information and Information Privacy principles and increased productivity and individual accountability.

Accordingly, IRMT (1999) affirms that the critical benefit of Medical Records is the enablement of organization to conduct business in an orderly, efficient and accountable manner, provide protection and support in litigation including the management of risks associated with the existence of or inadequate evidence of organization activity. Medical records provide continuity in the event of a disaster protects the interest of the organization, the rights of employees, patients and present and future stakeholders and are a cornerstone of legal cases. Malpractice, product liability, personal injury, workers compensation, and other medical-related cases all depend on the information contained in and discovered from medical records.

Yet collecting, organizing, and analyzing data for these records is no small task. Records must be identified and obtained from many sources—a time-consuming and often frustrating task. They must be mined for meaningful data and organized for effective analysis and presentation. Doing a good job often takes considerable effort but is absolutely necessary to building a strong case. In fact, the time and effort involved can cause firms to turn away large or complex cases that would otherwise be very attractive (Mediconnect Global, 2008).

Management of records is essential for organizations and society as it protects and preserves records as evidence of transactions. It further states that records management system results in a source of information about business activities that can support subsequent activities and business transactions (ISO 15489-1, 2001)

1.1.3 Concept of Healthcare Service Delivery

Healthcare service delivery is not a new phenomenon but can be traced back to ancient civilization. According to Eike-Henner, (2001) the healthcare service delivery was a contact between a healthcare provider and the healthcare consumer. According to the author, the physicians or healthcare service provider obtained vital data from patient and retained it for future references. Before the invention of paper and eventually communication technologies such data were stored on various media including clay or wax tablets and animal skins. Inarguably healthcare service revolved around a patient's record as it still does at present.

Service delivery of any nature is all about capability; capability of the team that was in place, capability of your business to deliver on the promises that were made; and capability of being able to stand over any key performance indicators or service level agreements (IRMT, 2004). It continues to emphasize that Service delivery is all about people first, process and procedure second because People delivered the work required to time and quality, they engaged with the customer and make them feel appreciated (or otherwise) and also people make the project work or fail. And finally, service delivery is about the customer that is, the customer needs to appreciate what is being delivered, is the one that gave you a reference next time that you are looking for one and a customer is a person that pays you once the job is done (IRMT, 2004).

1.2 Background Information to Moi Teaching and Referral Hospital, Eldoret

The (MTRH Report, 2015) explains that Moi Teaching and Referral Hospital (MTRH) is the second National Referral Hospital in Kenya after Kenyatta National Hospital (KNH). The Hospital is located along Nandi Road in Eldoret town (310 Kilometers Northwest of

Nairobi the capital city of Kenya), Uasin Gishu County, in the North Rift region of Western Kenya.

The report further states that the hospital started in 1917 as a cottage hospital with a bed capacity of 60 to cater for the health needs of Africans. An outpatient department with an x-ray unit was built in October 1952. At that time the staff quarters were grass thatched. An additional outpatient department building was put up in 1962 when the staff population was 55. By 1963, the bed establishment was 125 with an amenity ward already established.

In 1978, the immediate catchments like Rift Valley, Western and Nyanza provinces, population was rapidly growing, and with increasing patient load from referring health facilities requiring urgent serious medical attention, the Hospital was elevated to level five. The staffing was also improved by number and were given more incentives to cope with the growing needs. Back then it was known as the Eldoret District Hospital.

The (MTRH Bulletin, 2014) indicates that the Hospital has since grown from 125 beds capacity and is now a fully-fledged referral facility with 750-bed capacity. MTRH uses state-of-the-art facilities in the provision of its services and aims to be a centre of excellence in all specialties. MTRH incorporates the Academic Model Providing Access to Healthcare (AMPATH), the Regional Blood Transfusion Centre (RBTC), Moi University's School of Medicine and the School of Public Health and the Alcoholic Drug Abuse (ADA) Unit. The Hospital receives patients from the entire Western Kenya, parts of Eastern Uganda and the Southern Sudan therefore serving a wider catchment area.

The bulletin further indicates that MTRH, as a training institution, has a history that stretches from early 1970s when the Eldoret District Hospital School of Nursing was established with the hospital as its base.

Finally the establishment of Moi University in 1984 and the subsequent establishment of the Faculty of Health Sciences at the University was a landmark event that directly impacted on the development of the hospital. The development led to its elevation from a district hospital to a teaching and referral institution. Marking this change was the construction of a new outpatient complex, student hostels, a modern morgue and senior staff houses through a grant from the Chinese government in 1990. These facilities were opened in 1990. Thereafter, the complex was equipped by the Government of Kenya with modern diagnostic and clinical equipment (MTRH Bulletin, 2014).

1.2.1 Moi Teaching and Referral Hospital Staff Establishment

MTRH has a total of three thousand one hundred and seventy members of staff with thirty one departments. The staff establishment as at December 2014 was as follows:

Table 1.1: MTRH Staff Establishment

S/NO.	NAME OF THE DEPARTMENT	STAFF ESTABLISHMENT
1	Administration(management, administrators and secretaries)	90
2	Planning	4
3	Human resource	42
4	Monitoring and Evaluation	4
5	Audit	15
6	Legal	5
7	Supply chain	81
8	Catering	93
9	Security	164

10	Public relations	34
11	Telephone exchange	12
12	Finance	119
13	ICT	68
14	Engineering	91
15	Plaster	18
16	Public health	17
17	House keeping	405
18	Pharmacy	106
19	Dental	34
20	Nutrition	54
21	Clinical medicine	255
22	Laboratory	149
23	Nursing	898
24	Health Records and Information Services	176
25	Occupational therapy	37
26	Transport	37
27	Radiology	33
28	Physiotherapy	39
29	Orthopedics	11
30	Social work	79
	TOTAL	3170

(MTRH Staff Establishment Report 2014)

1.2.2 Services Offered by Moi Teaching and Referral Hospital, Eldoret

Moi Teaching and Referral Hospital offers a wide range of health services both Out-Patient and In-Patient. The services are supported by modern state of the art clinical and diagnostic equipment manned by trained and qualified medical, para-medical and support staff of different cadres both from the hospital and College of Health Sciences and are administered through the various Clinical Departments in the hospital. In addition, hospital

committees have been formed under the Deputy Director Clinical Services to enhance patient care and overall delivery of services.

In summary, the services are as follows:

    a) To provide health care services to members of the public;

    b) To provide facilities for medical education research;

    c) To ensure efficient management of the hospital;

    d) To participate in national health planning programmes;

    e) To support and receive all referral cases from the region and within its environs; (MTRH Bulletin, 2015).

1.2.3 Health Records and Information System Department (HRIS)

This department is the custodian of the medical records at MTRH (MTRH Bulletin, 2015). Mediconnect Global, (2008) states that in the healthcare delivery system, patient care relies heavily on the availability of precise and complete information. Health records and information personnel are therefore responsible for organizing information systems to give this support that involves application of clinical knowledge, information technology and database management. All these must be done with due regard to ethical and legal consideration and emphasizes on the personal and sensitive nature of the information being collected and processed. The history of health records runs parallel with the history of medicine. Health records are necessary for the practice of medicine as medications are for effective treatment and they seem to have been made from earliest antiquity.

1.2.3.1 Functions/Role of the HRIS Department

    a) Reception and registration of patients

    b) Filing and retrieval of patients' records

    c) Editing of the patients case records

d) Storage and maintenance of all medical records

e) Coding and classification of diseases and procedures in medicine

f) Collecting, compiling, analyzing of health data, storage and dissemination of health information

g) Distribution of medical forms

h) Maintaining confidentiality and security of medical record. (MTRH Bulletin, 2015).

1.2.4 Functions of Nursing Department

a) Triaging (taking vital signs of the patient)

b) Billing

c) Administering medication to patients

d) Documentation on cardex records

e) Documentation on chart records

f) Carrying out procedures e.g. dressing, cleaning of patients especially bedridden

g) Do daily and monthly reports

h) Filtering of patients

i) Admitting and discharging patients(MTRH Bulletin, 2015)

1.2.5 Functions of Clinical Medicine Department

a) Patient examination

b) History taking

c) Request for examination e.g. lab requests

d) Diagnosing patients

e) Prescribing drugs to the patients

f) Performing procedures and surgeries (MTRH Bulletin, 2015)

1.3 Statement of the Problem

A medical records management programme ensures the creation, maintenance, confidentiality, security, preservation and easy retrieval of patient medical records. Medical records are integral to the continuity, quality and efficient healthcare service delivery. Poorly managed medical records may lead to hospital staff spending more time to locate and retrieve patient medical records. This could have adverse consequences to those in critical health condition since it is difficult for the medical personnel to render effective healthcare services without relevant medical records.

In MTRH the apparent lack of efficient management of medical records has led to a situation where many medical personnel and patients prefer the use of patient held medical records to ensure the continuity of care and the delivery of healthcare service as well as reducing the time for waiting. Instances of lost files or patients waiting for long for files to be retrieved have also been reported. Admittedly, this is a grave violation of the confidentiality and security of medical records and contrary to the stipulations by the Kenya National Health Act. This equally impacts the nature of healthcare service delivery.

The extent to which medical records management programmes in MTRH influence healthcare service delivery has not been widely documented. This study sought to investigate medical records management practices and service delivery at MTRH and suggest suitable guidelines in service delivery to the users.

1.4 Aim and Objectives of the Study

To assess medical records management in support of service delivery and to give suggestions for improvement at Moi Teaching and Referral Hospital.

1.4.1 Objectives of the Study

The specific objectives of the study were to;

a) Identify types of medical records created.

b) Establish medical services offered

c) Determine how medical records are organized and managed.

d) Explore staff competency and skills required at HRIS department.

e) Determine physical and information infrastructure needed for records management and service delivery.

f) Suggest suitable guidelines in medical records management and service delivery.

1.5 Research Questions

For the above objectives to be addressed, the study sought answers to the following research questions:

a) What are the types of medical records created?

b) What kind of medical services are offered?

c) How are medical records organized and managed?

d) What are the competency and skills required at HRIS department?

e) Which physical and information infrastructures are needed for records management and service delivery?

f) What suggestion can be made to improve the management of medical records in health service delivery at MTRH?

1.6 Justifications of the Study

An effective management of hospital records is a critical factor in providing capacity for hospitals' efficiency, accountability, transparency, information security and indeed good

governance. Health workers in the public health institutions, such as medical doctors and nurses, are usually not able or are struggling to render timely and effective health services to citizens due to a lack of effective records management systems. Ineffective records management systems usually lead to long patient waiting times before patients receive health service

The health workers usually end up not rendering certain services because the health history of the patient is not contained in medical files. This is due to the fact that, if the health worker proceeds treating patients without enough information about the patients' health background s/he may end up rendering poor health service that might be risky to patients' health. For this reason this study examined medical records management in support of service delivery at Moi Teaching and Referral Hospital to contribute towards bridging the research gap identified in the study of records management practice in the health facility with a view to suggesting effective and efficient ways of meeting this challenge as few research has been done.

1.7 Assumptions of the Study

The study is based on the following assumptions;

a) The current records management practices are not sufficient in effectively managing the medical records.

b) The HRIS department staff faces various challenges in its mandate of while managing medical records.

c) Service delivery is not satisfactory to patients, doctors and institution.

1.8 Significance of the Study

This study is important for government, policy makers, health institutions, records professionals and researchers. This is because the study provides insight into the role of

records management practices in improving both clinical and administrative decision making in public hospitals.

The findings from the study provides useful information to governments and policy makers for the formulation of records management legislations, regulations and policies both at the national and corporate levels to help ameliorate the challenges that health institutions encounter when creating and managing records throughout its life cycle.

The study will provide a more effective and reliable tool for improving the management of medical records in the hospitals. Besides, it will provide a detailed analysis of the types of records kept in the hospital as well as the preservation/management practices that are currently in place cum the challenges encountered in record handling in Kenyan Hospitals. The results will also directly point to the development and management of medical records and their use in achieving maximum output and good service delivery at MTRH and other hospitals in Kenya

To the researchers and academicians, it's expected that the study will form a base for another study. The findings of this study will also add new knowledge on the topic and serve as a base for further research in areas where other scholars will identify a gap.

1.9 Scope of the Study

The study was conducted in the department of Health Records and Information Services in Moi Teaching and Referral Hospital covering fifteen units. Further information was gathered by interviewing some doctors and nurses on the effect of medical records management. Although this study was conducted to establish records management and service delivery in MTRH, the main focus was entirely based on the role of medical records management in support of service delivery at MTRH. Records for other activities

such as financial records, transport management records, and human resource management records were not covered by this study. The population of the study was limited to the medical records management staff, doctors and nurses who are the key to patients' service delivery at MTRH.

1.10 Limitation of the Study

In course of this study, the researcher faced challenges that hindered access to information and thus affecting validity and reliability of information that was to be collected by the researcher. The target respondents were reluctant to give information due to fear that the information could be used against them. The researcher overcame this limitation by first explaining the objective of the study to the respondents before starting to collect data. A letter for data collection was obtained from Moi University as proof that the information to be collected would be purely for academic purposes. MTRH created and used different types of records in their service delivery processes, but the study was only focused on patients' medical records because they affected people's lives directly. Records for other activities such as financial records, transport management records, and human resource management records were not covered by this study.

1.10 Summary

The chapter has presented; background of the study, statement of the problem, aim and objectives, research questions, justification and significance of the study, assumptions, scope and limitations of the study operational definition of significant terms as used in the study.

1.11 Definition of Operational Terms

Medical record - refers to the collection of information concerning a patient and his or her health care that is created and maintained regularly course of treatment.

Medical records management - refers to the planning, controlling, directing, organizing, training, promoting, and other managerial activities related to the creation, maintenance and use, and disposition of medical records to achieve adequate and proper documentation of a health care organization's policies and transactions.

Records management - is 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 and information about business activities and transactions in the form of records.

Record keeping - means creating and maintaining a complete, accurate and reliable evidence of business transactions in the form of recorded information.

Theory - is a system for explaining phenomena which states constructs and the laws that inter relate the constructs to one another.

Model - is a representation used to explain theories.

Service delivery - is a way of providing quality services to consumers.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter covers the theoretical framework on which the study was based and it reviews previous studies that was conducted and which have relevance to this study. The purpose of this is to bring out the strengths, weaknesses and significance to this study.

2.1 Review of Theories

Kombo and Tromp, (2006) define theoretical framework as a collection of interrelated ideas based on theories. It is a set of a reasoned set of prepositions, which are derived from and supported by data or evidence. Theoretical framework attempts to clarify why things are the way they are, based on theories.

2.1.1 Theories in Records Management

Various records management models have been developed by national archival institutions, archives schools, international professional records and archives management organizations, and records and archives management scholars. According to Shepherd and Yeo (2003), all the models originated from the records life-cycle and records continuum approaches. Models focus on the management of electronic records, while others emphasize the management of both paper and electronic records.

Tough and Moss (2006) point out, however, that among record-keeping professionals, the life cycle and the records continuum models have dominated discourse, with the life cycle approach challenged by the records continuum model. There are other theories which include: The International Council on Archives (ICA) Model, The National Archives (TNA) 2005 Model, The Design and Implementation of Record Keeping Systems (DIRKS) Model and other. The study only focused on the two. This is due to the fact that,

most models aim to show a progression of actions taken at different times in the life of a record: typically, its creation, capture, storage, use and disposal. Some writers show this as a linear progression, while others describe a loop or circle (Kemoni, 2008).

2.1.1.1 Records Life-cycle Concept/Theory

The development and application of the Records Life-cycle concept in records management is a subject to discussion (Ngulupe and Tafor, 2006). The records lifecycle concept was an analogy of the life of a biological organism, which was born, lived and died. In the same manner, a record was created, used as long as it had continuing value and was subsequently transferred to national archives or destroyed. The records lifecycle concept had four phases, namely: creation, distribution, maintenance and use, and appraisal and disposition. The records life-cycle had been regarded as a theory which provided the framework for the operation of a records management programme. Though the records life-cycle concept has influenced the development of records and archives management in many parts of the world, it has had its own critics.

Yusof and Chell (2000) were of the opinion that its application in managing electronic records needed to be replaced by a model which appropriately reflected the special characteristics of electronic records. The perceived weaknesses of the concept led to the development of the records continuum model. Hence the theory may be more applicable to those studies dealing with management of paper based records in organizations (Kemoni, 2008).

2.1.1.2 Records Continuum Model

The model was developed in the 1990s by Frank Upward, senior lecturer in the School of information Management and Systems at Monash University in Melbourne, who was influenced heavily by Jay Atherton's theories about the relationship between records

management and archivists (Upward, 1996).The model provides for a graphical tool for framing issues about the relationship between records managers and archivists, past, present and future, and for thinking strategically about working collaboratively and building partnerships with other stakeholders. Shepherd and Yeo (2003) stated that the records continuum concept was developed in the 1980s and 1990s, in response to criticism of the life-cycle models. In a continuum, there were no separate steps. Managing records was seen as a continuous process in which one element of the continuum passed seamlessly into another.

The records continuum is a consistent and coherent regime of management processes from the time of the creation of records (and before creation, in the design of recordkeeping systems) through to the preservation and use of records as archives (Upward, 1996). Upward argues that records are used for transactional, evidentiary, and memory purposes, and should be handled by a unified approaches to archiving/recordkeeping, regardless of retention periods.

He further says that records are logical rather than physical entities, regardless of whether they are in paper or electronic form. The recordkeeping profession needs to integrate recordkeeping into business and societal processes and purposes. Archival science is the foundation for organizing knowledge about recordkeeping.

Contributions of the Continuum Model

The model brings together records managers and archivists under an integrated recordkeeping framework with a common goal: to guarantee the reliability, authenticity, and completeness of records (Upward. 1996).
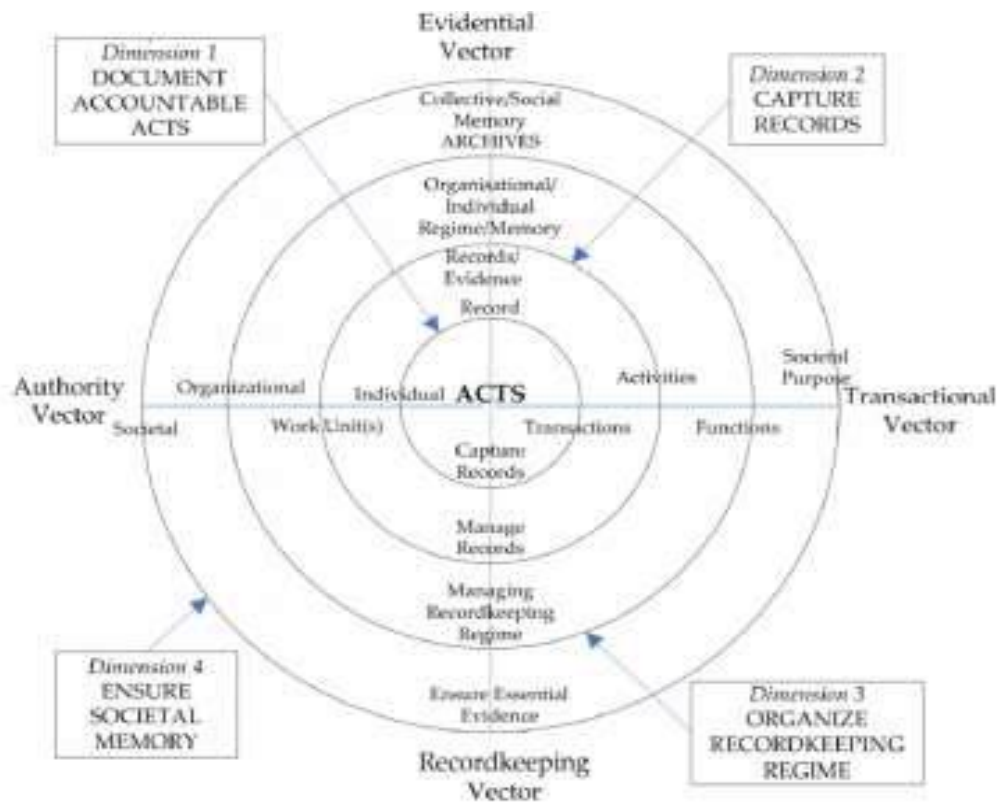
Figure 2.1: Records Continuum Model
Source: (Upward. 1996).

Dimension 1: Creation

The creation dimension involves: a creator(s); the transaction in which they take part, of which a document is a result of the document itself (with or without archival characteristics) the trace (or representation) of that transaction embodied in the document; the model which identifies accountable acts and creates reliable evidence of such acts by capturing records of related/supporting transactions and records of business activities are created as part of business communication processes within the organization (Upward, 1996).

Dimension 2: Capture

The capture dimension involves: the personal and corporate recordkeeping systems that capture documents to support their function as evidence of the social and business activities of the units responsible for the activities and tagging the created/received records

metadata, including how they link to other records. With characteristics from the second dimension, records, now attest to evidence of action and can be distributed, accessed and understood by others involved in undertaking business activities (Upward, 1996).

Dimension 3: Organize

The organize dimension involves: investing the record with explicit elements needed to ensure that the record is available over time and formal system for storage and retrieval that constitutes the organization's corporate memory (Upward, 1996).

Dimension 4: Pluralize

The pluralize dimension involves: the incorporation of the broader social, legal, and regulatory environments in which records operate. Records required for purposes of societal accountability become part of wider archival systems that comprise records from a range of organizations. Reviewing, accessing and analyzing the records beyond the agency for social, legal, and cultural accountability for as long as they are required.

Axes, 1

The recordkeeping axis represents the state of the record and is the closest axis to the traditional Life Cycle model, as it follows a record from creation to description, then to organization, and then to incorporation in a general body of information.

As a record moves out to each stage, it does not lose the previous quality; an individual record within the cultural memory is still a document that has been created.

The axis is still about context rather than about the passage of time.

Axes, 2

The identity axis indicates what entity that record is associated with.

The transactional axis is concerned with the use of that record.

The evidence axis is about the record's state as evidence.

A record may be involved in any of the axes, depending on when it is considered, and in what context (Upward, 1996).

Upward concludes that the records continuum model's purpose-oriented approach to records management changes the role of recordkeeping from reactive to proactive. The model broadens the interpretation of records and recordkeeping systems offered by the lifecycle model.

The researcher chose the records continuum model because the model brings together records managers and archivists under an integrated record keeping (both paper records and electronic records).

2.1.2 Theories in Service Delivery

There are various models in service delivery that have been advanced to help in provide efficient services to the patients. Some of the models used in service delivery are as follows; ITIL service delivery model and Consultative model of service delivery

2.1.2.1 ITIL (Information Technology Infrastructure Liability)

ITIL itself is based on a set of prescriptive manuals which define the steps and processes involved in what is described as the ten ITIL disciplines which include incident and problem management, Configuration management, release management and financial management. These manuals define the best practice for these disciplines. Organizations then strive to adopt ITIL, which means that they carry out the IT service processes as described in the ITIL manuals. Furthermore, suppliers of helpdesk and configuration management software systems ensure that their systems are ITIL compliant and support ITIL processes (Hochstein *et.al*, 2005).

2.1.2.2 Consultative Service Delivery Model

A consultant and a consultee work together to address an area of concern or a common goal for change through a series of meetings and conversations. The consultant helps the consultee through collaborative problem solving and professional support, while the consultee helps the client(s) with full support and assistance from the consultant. (Buysse & Wesley, 2005)

2.1.3 Fox IT Service Delivery Model

Figure 2.2: Fox IT Service Delivery Model

The horizontal elements represent the 5 areas of Service Management as defined and publicized by ITIL. The vertical elements represent what Fox IT do across the Service Management elements.

The Fox IT Service Delivery Model seeks to continually increase service quality whilst decreasing the cost and time to implement Service Management, building through the use of a standardized approach that covers all aspects of Service Management. Using this

approach, firms are able to deliver higher quality. Fox IT is also able to deliver quality at a lower cost and to a shorter timescale as our model is backed up by reusable best practice. The Fox IT model is not new, it is tried and tested and continues to improve the way Service Management is delivered.

2.1.4 Core Elements of Service Management

Service Strategy provides advice and guidance on designing, developing and implementing service management–both as an operational capability within an organization but also how to use that capability as a strategic asset. It tries to ensure that consideration is given as to why a particular activity is to be performed - before an organization begins to think about how it was performed.

The Service Design stage of the lifecycle starts with a set of new or changed business requirements and ends with the development of a solution designed to meet the documented needs of the business. This developed solution, together with its Service Transition Pack, are then passed to Service Transition to build, test and deploy the new or changed service. After completion of these activities, control is transferred to the Service Operation and Continual Service Improvement stages of the service lifecycle.

The Service Transition stage of the lifecycle provides guidance on ensuring that the introduction, deployment, transfers and decommissioning of new or changed services is consistently well managed. Service Transition ensures that the transition processes are streamlined, effective and efficient so that the risks relating to the service in transition are minimized. The Service Transition stage of the lifecycle receives input from the Service Design stage and provides output to the Service Operation stage.

Service Operation is responsible for all aspects of managing the day-to-day operation of services, ensuring that processes and activities are operated (and continue to be operated) on a 'business as usual' basis. Its key purpose is to coordinate and perform the processes and activities that support the delivery of the services at the levels defined in the relevant Service Level Agreements. The scope of Service Operation covers the services, the service management processes, the underpinning technology used to deliver those services - and the people used to manage all of these aspects.

The Continual Service Improvement is not a lifecycle stage, but a wrapper used throughout the whole service lifecycle. It has inputs and outputs for all lifecycle stages. It focuses on the overall health of Service Management within the organization (Fox IT, 2012)

2.1.5 Justification for choosing Fox IT Service Delivery Model

The researcher chose to use Fox IT as a service delivery model for the study because the model manages day to day activities for the organization by coordinating and performing the processes and activities that support delivery of services and above all there is continual service improvement which focuses on the overall health of service management within the organization.

2.2 Grounded Theory and Saturation Point

According to Charmaz (2009)", Grounded theory refers to a set of systematic inductive methods for conducting qualitative research aimed toward theory development. The term grounded theory denotes dual referents: (a) a method consisting of flexible methodological strategies; and (b) the products of this type of inquiry. Increasingly, researchers use the term to mean the methods of inquiry for collecting and, in particular, analyzing data. The methodological strategies of grounded theory are aimed to construct middle-level theories

directly from data analysis. The inductive theoretical thrust of these methods is central to their logic. The resulting analyses build their power on strong empirical foundations. These analyses provide focused, abstract, conceptual theories that explain the studied empirical phenomena.

Grounded theory has considerable significance because it (a) provides explicit, sequential guidelines for conducting qualitative research; (b) offers specific strategies for handling the analytic phases of inquiry; (c) streamlines and integrates data collection and analysis; (d) advances conceptual analysis of qualitative data; and (e) legitimizes qualitative research as scientific inquiry. Grounded theory methods have earned their place as a standard social research method and have influenced researchers from varied disciplines and professions.

Walker (2012) says that Saturation is a tool used for ensuring that adequate and quality data are collected to support the study. It is frequently reported in qualitative research and may be the gold standard. Charmaz (2006) supports the statement by saying that indeed data saturation is often used as a criterion to evidence the quality of qualitative research.

Tracy (2010) grounds it all by stating that, the concept of data saturation has its roots in grounded or 'bottom up' theory. She continues to explain that in grounded theory, the researcher/s develop theory through the collection and analysis of data rather than first forming a hypothesis and later use data and analysis to test it. Grounded theory researcher/s base their sampling on the emerging theory, termed 'theoretical sampling', and continue to collect data until they achieve 'theoretical saturation' whereby no new or relevant insights seem to be emerging from the data being collected.

The term data saturation is born from the term theoretical saturation and is now generally used to refer to the process of gathering and analyzing data till the point where no new insights are being observed. The concept of data saturation is considered as important because it addresses whether a study is based on an adequate sample to demonstrate content validity (Tracy, 2010).

2.3. Electronic Medical Records (EMRS)

Trisha Torrey, (2008) describes the EMRS as being of two kinds. Older records, generally pre-2000, are usually scanned and stored in a graphic format or portable document format. She further indicates that anything from doctors' notes to x-rays or other test results such as ultrasounds or MRIs as the types of EMRS.

On the other hand, MTRH as reported by the Head of HRIS Department, have medical records which are created using the fun soft software which enables the officers concerned to create a database for a patient that captures geographic details of a patient plus the name. The patient is also given a unique number for identification and retrieval purposes.

2.4 Medical Records Filing Systems

In the medical field, filing is one of the essential processes when it comes to the management of information. Different methods of arranging medical records impact on the maintenance of records and retrieval of information. Wavomba, (undated) mentions the following as the filing systems when managing medical records.

2.4.1 Alphabetical Filing

With alphabetical filing, medical records are organized using the last and first name. This makes it easy for you to locate medical records for appointments. This filing system

expedites the information retrieval process but lacks confidentiality; a patient can be easily identified this way, but the name must be visible to do so.

2.4.2 Straight Numeric Filing

A numeric system files medical records in chronological order. There are three types of straight numeric filing systems used in storing medical records: the unit numbering system, the serial unit numbering system, and the serial numbering system. In the serial numbering system, every patient receives a new number every time he/she is treated at the hospital. If you visit the hospital five times, you get five different medical record numbers. Unlike the serial numbering filing system, with serial unit numbering despite receiving a new medical record number, your previous records are brought forward and filed by the number that was issued to you latest. As for the unit numbering system, you are assigned one medical number during your first visit, which is applicable in all subsequent treatments and visits. The straight numeric filing method increases client confidentiality and makes it easier to retrieve information. Another advantage is that office personnel can be easily trained on its usage.

2.4.3 Middle- Digit Filing

In this type of medical filing system, numbers are grouped in pairs just like with terminal-digit filing. However, in this case, primary numbers are formed by the two digit numbers in the middle of six consecutive numbers while secondary numbers are the first two numbers in the same order of six numbers. Tertiary numbers are made up of the last two digits. The disadvantage of this type of filing is that it is more complicated and therefore personnel require more training time. Furthermore, it cannot be used in cases where numbers are higher than six.

2.4.4 Terminal Digit Filing

In the terminal filing system, the last two digits of the filing system mark the primary location of the file. The system has six numbers divided into three groups by the use of a hyphen, for instance 45-67-78. In the system, you have both the secondary and primary numbers which are made up of the last two digits and the first two respectively.

2.4.5 Subject Filing System

The subject filing system organizes a patient's records on the basis of subject area, such as insurer's or patient's information. The advantage of this type of medical filing is that everything related to a particular subject is grouped together in a single location. The disadvantage is that it is hard to decide on the location for filing the information. This is because some information fits in more than one subject area or none Wavomba (undated)

On the other hand, Booth *et.al*, (2009) consider the following as the filing Systems;

1. Alphabetic

☐ Most common system

☐ Files are arranged in alphabetical order

☐ Files are labeled with the patient's last name first, first name, then middle initial

☐ Each individual must have a separate file

☐ Indexing rules

☐ Guidelines for sequencing files

☐ Each part of name is a *unit*

☐ Last name

☐ First name

☐ Middle name

      ☐ Titles (Jr., Sr. etc.) are the fourth indexing unit (to distinguish identical names from each other)

    ☐ Use for all alphabetizing done by a medical practice

11. *Numeric*

☐ Organizes files by numbers instead of names

      ☐ Patients are assigned sequential numbers

      ☐ This system is often used with highly confidential information

      ☐ A master list of patient names and numbers must be kept

☐ Terminal digit filing

    ☐ Treat the last 2, 3, or 4 digits in a number as a single unit

      ☐ For example, the numbers 024 represent the last three digits of a longer number

      ☐ The numbers 024 are then considered ending or terminal digits, so all folders ending in 024 are grouped together

    ☐ Filing is done based on last group of numbers

☐ Middle digit filing

    ☐ Uses the middle group as primary index for filing

111. Color coding

☐ Used to distinguish files within a filing system

      ☐ Can be used with either alphabetic or numeric   filing systems

      ☐ Using classification with color coding

    ■ Identify how files are to be classified

- Select a separate color for each classification

  - Post codes so all are aware of them

- With alphabetic filing systems

  - Each letter is assigned a color

  - The first two letters of the last name are color-coded with colored tabs

  - Can easily tell if files are filed correctly

- With numeric filing systems

  - Numbers 1 to 9 assigned a distinct color

  - Helps in identifying numeric files that are out of place

- Tickler files

  - Reminder files

  - Check on a regular basis

  - Organized by month, week of month or day of week

  - Computers systems offer tickler files in the form of a calendar Reminders set to alert prior to event

- Supplemental files

  - Separate files containing additional information

  - Prevents cluttering of primary files

  - Stored in a different location than primary file

  - Contents should be distinguished from the primary file contents.

Booth *et.al*, (2009)

MTRH has so far used three types of filing system namely; straight-numeral, terminal digit and computer generated filing system as noted by the Head of HRIS Department. He further explains that the straight numeral was used from the beginning to the year 2004 then terminal digit was used up to 2012 Mid October, when computer generated filing

system was initiated. The three types came as a change in the management of the department.

2.5 Records Management and the Management of Health Information

In the United States of America, accessibility and affordability of healthcare services by all was declared a national priority. The only way to achieve this is through an in-depth knowledge of patient health information history that is captured in the medical records. The patient health information is normally gathered when the patient visits the healthcare facility. Ting et al. (2011) aver that decision making by healthcare professionals rely heavily on the knowledge and availability of patient medical history.

The continuity of healthcare services relies on the availability of accurate, complete and comprehensive patient health information. According to Green (2011), a medical record is a record that documents a patient's past medical history. Services like diagnoses, treatments and procedures performed are also spelt out. A medical record can be described as a multifunctional document used to record critical health information about patient medical condition which is used by healthcare professionals to administer patient treatment (Wong and Bradley, 2009). These two authors assert that a medical record is the cornerstone in the delivery of quality health care service and efficiency of patient care during the hospitalization and subsequent follow up visits. Steward (2005) maintains that medical records are an integral part of healthcare as they hold critical information of a patient.

Adesina et al. (2011), point out that a medical record can be in a paper or an electronic format. Healthcare professionals rely on the availability of complete, accurate and comprehensive patient health information that is contained in the medical record to administer diagnosis and treatment. The IRMT (1999) asserts that the common practice in

hospitals is to keep medical notes together in one file bearing the patient's name and other personal details. Included in the file are the referral letters from the local healthcare centres and other documents relating to the patient's health condition. The IRMT recommends that each patient should have a single file as it is crucial for the quality of healthcare service delivery and continuity of patient care.

Ting et al. (2011) note that in Hong Kong most healthcare institutions use paper based medical records. According to these authors, the paper based medical records pose challenges in medical practices. The first challenge is the huge collection of these records which makes it difficult to retrieve them and some records get lost or go missing. The misplaced or lost medical records make it difficult for any healthcare professional to provide required standard of healthcare. The authors further argue that with the paper based medical records the sharing of patient medical information is impossible. It is common practice that people visit more than one medical institution in their lifetime and so they cannot be expected to recall all the previous medical history during each hospital visit. This is prone to cause undesirable medical decisions due to inaccurate information supplied to the attending healthcare professional. In the Greater Tzaneen Municipality of Limpopo, for instance, the patients' booklets were introduced to improve the continuity of care for patients (Norden et al. 2004). The idea and the use of patient held records (PHR) originated from the unexpected experiences of patients when visiting the healthcare facilities and the original patient folder with the previous consultations became unavailable. This is common in the facility held records (FHR) where the hospital clerks will spend more time searching for a misplaced or a missing patient folder.

The shift to keeping medical records in an electronic form has led to a reduction of hurdles like misdiagnoses, missing or lost medical records, service delays, and staff shortages,

which can occur due to incomplete or disintegrated information. In the rapid developing information and communication technologies (ICTs) environment, the healthcare industry, like other sectors, is adopting information and communication technologies in the creation, maintenance, use, and storage of health information. In the ICT environment, medical records, charts and paper files are digitally stored and become available in the doctors' offices. The storage of medical records in digital form certainly has benefits in the healthcare industry in many ways. For example, the use of ICT makes it easy to retrieve and access medical records; it consumes less space compared to the paper based records; and enables the sharing of health information amongst healthcare providers.

The use of ICT in hospitals allows real time access to healthcare records irrespective of the user's location. Adesina et al. (2011), opine that the integration of ICT in hospitals provides healthcare professionals with a quick access to patient health information. They further observed that sharing health information amongst healthcare professionals facilitates the coordination of healthcare service delivery in healthcare facilities.

Norway is a developed country that has legally allowed patients to access and read their medical records using information technology. According to Wibe et al. (2011), access to medical records is expected to reduce power imbalance between the patient and the healthcare professional. Patients in Norwegian hospitals request their copies of medical records to secure a smooth transmission of information between health personnel inside the hospital and between different hospitals. In such systems, patients are taking full responsibility of their health and keep themselves informed about what is contained in their medical records. The current practice in Norway is expected to reduce documentation errors which sometimes arise from the records being mixed up. In addition to the technologically driven patient care, Wibe et al. (2011) assert that in Norway there is an

initiative to implement the use of patient held record system (PHR), which will also be based on electronic applications. The initiative of PHR system is aiming at making medical information available online for easy access by patients.

Mogli (2009) points out that the traditional paper-based medical records are undergoing a major transformation. However, in the developing world, transformation remains low due to a general lack of the necessary resources. In the study conducted at the Gulf Cooperative Council (GCC) in Kuwait, Qatar, Bahrain, Oman, Saudi Arabia and United Arab Emirates (UAE), it was established that there were problems regarding medical record management programmes. Records in some hospitals in these countries had their medical records poorly organized and sometimes resulting in some of the diagnostic tests to be lost. The unavailability of diagnostic tests usually results in the repetition of tests which are mostly expensive to reproduce.

In Ethiopia, Wong and Bradley (2009) found out that there were reports of frequent missing and incomplete medical records. The study by these two authors revealed that in the hospital in Ethiopia, there were four distinct points of patients' registration. It was indicated that each point of registration uses its independent patient registration log book. The patient information is recorded in the log book and a medical record number is assigned. There was no central medical record storage system. They reported that some medical records were kept in the clinics or in physicians' offices. It was also possible that more than one patient could share the same medical record number making it difficult for medical staff to use previous patient health information and follow the chronology of diagnostic treatments administered to each patient This normally results in the returning patients being assigned new medical record numbers due to missing records (Wong and Bradley 2009).

Shonubi et al. (2005) have shown that in Lesotho the paper based medical record system was still prevalent. The patients normally retain their medical records obtained from the healthcare institution from the first visit. This kind of medical record is in the form of a small book which is presented at any healthcare institution and is used for quick reference to the patient's medical history.

In South Africa (PHR) is normally used by the clinics at a Primary level of healthcare facilities. Patients are advised to bring their small books whenever visiting the clinics and even the hospital to enable the attending health professional to follow the patient health information history by consulting the small booklet used by the clinics.

A health care service has a wide range of information requirements. Records management meets a substantial part of these, but others are met by the collection and analysis of data and the production of statistics or by access to externally generated information sources whether in printed or electronic form. Facilities for the provision of published information are normally provided in libraries, but in many health care institutions the management of data and statistics is considered part of the 'medical records' function. These tasks are ideally the responsibility of the statistician and the data manager: records management and statistical analysis are different skills.

Large teaching hospitals are likely to require specialized data analysis providing detailed information for health care planning, administrative purposes and research, as well as a substantial library to support staff research interests, teaching and study programmes.

In recent years information management has acquired an increasingly high profile in the world of health care. It is worth noting here that the need for information based on statistical data has grown in response to the requirements of aid donors and in recognition

of the value of accurate and timely information for health service planning and budgeting. In this area, records departments have an important role to play (IRMT, 1999).

2.6 Staff Competency and Qualification

According to Alwi, (2010) a medical records clerk should have the following as the skills, competencies and minimum qualification.

a) Knowledge of modern office equipment

b) Interpersonal/human relations skills

c) Organizational skills

d) Telephone etiquette skills

e) Ability to maintain records and files

f) Ability to operate personal computer

g) Ability to maintain confidentiality

h) Ability to exert physical effort maintaining and distributing files

Minimum Qualifications

Education and experience equivalent to a high school certificate.

As the roles within this area are so varied not all roles require all of these skills.

Some of the skills required include:

a) Organizational skills

b) Remaining calm under pressure

c) Attention to detail

d) Basic computing skills

e) Being attracted by the idea of using and developing your skills within the medical field

f) Enjoying providing hospitality and looking after people's comfort and well-being

g) An aptitude for hospitality

h) Awareness of hygiene and nutritional issues

i) Liking practical, hands-on work (skilled and unskilled)

j) Interested in problem solving and management

k) Taking pride in improving the surroundings for patients, staff and visitors

l) An awareness of safety issues and some technical or design flair

m) Leadership skills

n) Project management skills

o) Confidence in dealing diplomatically with tricky situations

p) Flexibility, reliability and good driving skills are valuable

q) Interest in technology

r) Aptitude for science

The term information infrastructure (II) refers to the communications networks and associated software that support interaction among people and organizations. The Internet is the phenomenon that has driven the debate to date. The term Information Infrastructure (II) is useful as a collective term for present networks (i.e. the Internet) and likely future facilities (Robert, 2008).

2.7 Infrastructure for the Management of Medical Records

Hospitals, like other organizations, produce medical records daily either in paper or electronic format. Green (2011) contends that for an effective storage and retrieval of such vital records, it is essential that a well-organized numbering and filing system be put in place. Like other records, medical records require space and filing equipment for storage purposes. This is important for facilitating location and retrieval of records efficiently and timeously. Filing equipment can also contribute positively to safe keeping of records.

2.7.1 Space

Green (2011) averred that healthcare facilities that use paper based medical records need to acquire filing equipment to store the records and when selecting such material they should consider the location of records. It is recommended that before purchasing any equipment for medical records management, there should be prior identification of appropriate space where the equipment will be located. This help in calculating enough space to fit the equipment for records storage, facilities for staff and patient registration. This is not only unique to hospitals but all organizations that create records on their daily operations whether uses centralized or decentralized system of records management, they do need enough space for the storage of their records. Green (2011) argues that healthcare facilities should keep and retain medical records to ensure easy retrieval. The IRMT (1999) asserts that a waiting area for registration must be large enough and if possible there must be a spacious counter for possible patient interviews. It is recommended that the patient registration areas and medical records storage should be in close proximity to allow quick retrieval of patient folders.

The space should be big enough to accommodate a reception area for patients and a secure area for records and staff. Staff involved in patient registration must sit behind the counter, and behind them should be located a master patient index and patient folder shelving. Green (2011) posit that the file area should be organized to constitute more space for filing equipment and allow for possible file expansion. Marutha (2011) observes that a lack of filing space was the major cause of misfiling, missing records and damage to records.

2.7.2 Storage equipment

2.7.2.1 File Covers

The International Records Management Trust (1999) recommends that the design of file covers used for patients should contain a hospital name printed or stamped on the cover. Some hospitals may also prefer to print the word 'confidential' on it as well. The patient's name, number and the last date of hospital attendance are also critical information to be included on the file cover. In countries where A4 size paper is used, the file cover should be slightly bigger than the paper size to allow proper protection of the medical notes. In that way, the medical records inside the file cover will not be folded and get damaged. Inside the file cover, the medical records should be secured with plastic fasteners to reduce the risk of becoming detached or disorganized.

2.7.2.2 Filing Cabinets

The commonly used storage equipment for paper records are vertical file cabinets, lateral file cabinets, shelf files and movable or compressible files.

*i. Vertical File Cabinets***:** According to Kallaus (1987) these are conventional storage cabinets consisting of one to five drawer sizes in which records are stored in drawers. They are considered as advantageous for storing larger materials like X-ray records in hospitals.

ii. Visible File: According to Green (2011), the visible file system allows the user to easily view the content of the drawer. In hospitals, the manual master patient index cards for inpatients are often stored in these files until the time of discharge.

iii. Lateral File Cabinet: These are known to have drawers that open from the long side and look like a chest of drawers or a shelf unit with retractable doors. These cabinets consist of roll-back drawer fronts which allow for a quick retrieval of patient folders.

Lateral file cabinets are designed to consume lesser space and are suitable for narrow spaces (Green, 2011).

iv. Shelf Files: These are simple shelves with a filing space like a standard drawer cabinet. Mostly, the shelves may be open style arranged like a stationery book shelf. In using this type of storage, the staff may use a step stool to access patient folders that are stored on top of the shelf (Green, 2011).

v. Movable Files: Green (2011) argues that these types of files are available on manual and those that are controlled by power. The manual movable files are mounted on tracks that are secured on the floor and are moved through the use of a handle. The power movable files move when a clerk touches a button. Public hospitals in the Limpopo Province were found to have good filing cabinets, filing boxes and file covers (Maratha, 2011).

2.8 Healthcare Service Delivery

In the United Kingdom, there were regular reports and negative stories about service delivery including patient deaths in hospitals. In Hong Kong, it was discovered that there were difficulties in accessing and retrieving medical records due to huge collections of paper based records (Ting et al. 2011). It was noted that there were challenges of misplaced records, difficulties in sharing the patient health information and medical errors due to invisible medical processes.

To improve the quality of healthcare service delivery, most countries are increasingly implementing the use of information and communication technologies (ICTs) for their records management programmes. Syed- Mohamad, Ali and Mat-Husin (2010) aver that the use of ICTs in healthcare delivery has potential for reducing adverse incidents which

can occur due to medical errors, incomplete and disintegrated information. The integration of ICTs in healthcare service delivery requires the whole hospital system to have a robust ICT infrastructure including hardware, software and maintenance. The most cited problem in the integration and use of ICTs in the healthcare delivery sector is attributed to a lack of qualified personnel who are able to utilise the infrastructure to achieve efficiency and effectiveness in healthcare service delivery.

According to Williams and Boren (2009), the African continent is plagued by many challenges such as a lack of a robust healthcare infrastructure to ensure the continuity of patient healthcare services and access to healthcare facilities, which remain a concern. In the study conducted in Ghana, it was established that there was a dearth of resources such as personnel, finance and infrastructure.

Wong and Bradley (2009a) contend that an efficient medical records management is often lacking in most of the developing world as compared to most developed countries where the medical records management is always supported by a stable infrastructure. A lack of requisite infrastructure in most developing countries impacts negatively on healthcare service delivery. In Lesotho, Shonubi et al. (2005) found that accessing healthcare services was difficult due to infrastructure related challenges such as improper physical facilities, unavailability of equipment as well as trained personnel. Lesotho is a mountainous region which frustrates healthcare service delivery due to impassable roads. As a result, the government has established a Lesotho Flying Doctors Service unit to serve remote clinics which are inaccessible by road. Due to infrastructure problems, for communication processes the healthcare staff and clinics, uses one way radio facility to reach the areas where telephone services are not available.

South Africa is not immune from this problem especially the rural parts of the Eastern Cape Province. Distances travelled by those who seek healthcare services are indicated as one of the major barriers to healthcare use especially where the healthcare facilities are located far away from a large number of residences. According to the study by Tsawe and Susuman (2014) the residents in the rural areas of Eastern Cape travel long distances to access healthcare services and often have to wait in long queues before actually getting the healthcare services. Apart from the long distances that patients have to travel in the rural areas, healthcare staff shortage and the long waiting time for service reduces service satisfaction and impact negatively on the quality of healthcare service delivered.

South Africa, like other developing countries, is struggling to achieve requisite healthcare service delivery due to scarcity of trained personnel and insufficient infrastructure (Van Rensberg – Bonthyzen, 2012). The ultimate aim of the government of South Africa is to develop a unified national healthcare system capable of delivering quality healthcare services to all its citizens (M'kumbuzi et al., 2004). The constant shortage of healthcare professionals affects the quality of medical records management programmes in both urban and rural hospitals (Marszalek and De Villiers, 2006). South Africa is facing a challenge of producing, recruiting and retaining a qualified health service workforce. Wadee and Khan (2007)

2.9 Challenges of Managing Medical Records

With a growing population and an increase in the number of patients, the pressure on doctors and hospital staff has increased drastically in the last decade. It has become very difficult for a physician to track a patient's medical history (including past visit information, lab results, previous medications, and drug allergies) through a traditional system. It is not uncommon for patients to have labs repeated because of improper lab

records. This affects service delivery in that the patients see that they are not cared for and can run away from the hospital because of frustrations, while others may end up dying.

Data is exchanged mainly through calls, fax, or mail. For every lab test and every medicine prescribed, the doctor has to pass the information to an administrative assistant who in turn informs the pharmacy or the laboratory. Then the assistant notifies the patient. When the prescription or the test results are ready, the pharmacy or laboratory informs the assistant who in turn notifies the patient — a slow and error-prone process.

The patient's records are maintained in charts at various locations. The hospital administration updates its copy of patient records when the patient visits them. Similarly, all the laboratories and pharmacies that the patient visits have their own set of paper records. In this scenario, if the patient changes doctors, the new doctor must hunt for information regarding previous conditions and treatments. As the records are scattered across various locations, important information such as drug allergies or recent surgeries is not easily accessible.

In this system the patient's data cannot be accessed by more than one department at any given time. For example, if the patient's file is with the general medicine department, then the orthopedics department has to wait until the file is released by the general medicine department, wasting valuable time.

It is very difficult to maintain a single file containing all the different forms of medical records such as X-rays, CT scan reports, blood work, and prescriptions. With a paper-based system, the whole process of data storage and retrieval becomes very labour intensive for the hospital staff. An assistant has to go through the entire file to retrieve certain records and then be sure to re-file them at the appropriate place in the file. For

example, consider a patient who has been going to a hospital for ten years. This hospital has all of the information about the patient from the past ten years in a single file. If the doctor wants to compare the blood work of the patient from the past five years, imagine the time the assistant spends retrieving all the data and the time the doctor spends analyzing it. And after the records are reviewed, the doctor and the assistant must re-file every single piece of information properly.

A paper-based system requires a lot of physical space to store all the patient records. The hospitals spend an enormous amount to maintain all of the hard copies. This system works very poorly in an emergency situation. The doctor cannot start the diagnosis or treatment until the assistant pulls the medical record. This delays treatment and may even cost the life of a patient.

Concurring with the Krishna (2011), on the challenges of managing medical records, MTRH faces the problem of storage space, large number of untrained staff and the issue of inadequate supply of stationery among other challenges.

2.10 Possible Solutions on Challenges of Medical Records Management

Digitizing patient records addresses a large number of challenges faced by medical providers including the ability to easily locate patient information and quickly share records with other authorized parties leads to satisfactory service deliver on patients and entire institution. However, electronic records do not solve all of the issues. Each medical department has its own information system that tends to be organized around function—not patients. And these systems are rarely integrated across the organization. When you introduce third-party providers you also have the difficulty of sharing information securely and easily.

Snowbound Software's powerful viewing and conversion technology provides easy and cost-effective access to patient records for providers and patients from virtually any system. Leading healthcare software solution providers including Jefferson Regional Medical Centre, Eclipsys, IDX, LanVision, GE Medical, Siemens and McKesson HBOC rely on Snow bound's technology to enhance their medical records solutions. Offers healthcare providers and other authorized parties hassle-free and secure access to electronic medical records anywhere, any time.

Ensure HITECH/HIPAA compliance by incorporating crucial document processing and archiving capabilities and enhance interoperability between disparate EMR systems by enabling users to access and view patient records, regardless of where they are stored, through a universal viewer.

As a healthcare provider, you're facing a number of competing priorities. On the one hand, you're committed to providing quality care and ensuring patient safety. At the same time, you're challenged to keep costs down, secure patient data, and maintain compliance in a rapidly expanding regulatory environment (Krishna, 2011).

2.11 Summary and Gaps Identified

This chapter has presented the theoretical frameworks upon which the study is based. It has presented literature on types of medical records, records management best practice, staff competency and qualification, records management and the management of health information and challenges of managing medical records.

Ineffective records management systems usually lead to long patient waiting times before patients receive health service. The health workers usually end up not rendering certain services because the health history of the patient is not contained in medical files. This is

due to the fact that, if the health worker proceeds treating patients without enough information about the patients' health background s/he may end up rendering poor health service that might be risky to patients' health.

ICT or electronic records management systems can be used to ensure easy and fast access to treatment and retrieval of information or records (Ojo 2009). Most of the literature was from developed countries whose medical records management are well structured as opposed developing countries such as Kenya and more sore in MTRH where there is insufficient medical records management practices. The study thus sought to assess medical records management in support of service delivery and give suggestions for improvement at MTRH

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter discusses the study area, research design, study population, target population, sample size and sampling technique. It also highlights Inclusion criteria, Exclusion criteria, Data Management, Reliability and validity, Data Analysis and Presentation.

3.2 Research Area

This study was carried out at Moi Teaching and Referral Hospital (MTRH) is the second largest National Referral Hospital in Kenya after Kenyatta National Hospital (KNH). The Hospital is located along Nandi Road in Eldoret town (310 kilometres Northwest of Nairobi the capital city of Kenya), Uasin Gishu County, in the North Rift region of Western Kenya. The county lies between 34° 50′ and 35° 37′ East longitude and 0° 03′ South and 0° 55′ North latitude. It serves not only the residents of Uasin-Gishu County, but also the entire Western Kenya, parts of Eastern Uganda and Southern Sudan. MTRH is the second biggest referral hospital in Kenya after Kenyatta National Hospital with a bed capacity of approximately 750. As part of its functionality, the hospital has generated and continues to generate huge number of records which poses a big challenge in terms of management.

3.3 Research Design

This study employed both qualitative and quantitative approaches. The rationale for using both qualitative and quantitative approaches is to collect sufficient data to explain the aim of the research. The use of both approaches help to gain advantages of both qualitative and quantitative approaches and make up for the disadvantages and weaknesses of each. According to Creswell (2003) the use of both approaches tends to improve the quality of

research as the weaknesses of one approach is covered by the strengths of the other method. A combination of more than one research approach or triangulation in this research gave the researcher the opportunity to collect numeric data and the feelings, opinions, and interpretations of the providers of the healthcare services based on the management of medical records at MTRH.

The mixed methods approach was also used by Marutha (2010) in his study about records management in service delivery in the health sector in the Limpopo Province. The rationale for using the qualitative research methodology is that it explores information in the form of quality, such as explanations, descriptions and narratives. Qualitative data collected during the study sought to investigate the effectiveness of medical records management programme at MTRH. All the objectives of the study were obtained through interview schedule which aided to collect qualitative data. The use of qualitative method was to assist the quantitative approach. The qualitative research method gave participants an opportunity to give their thoughts, interpretations and understanding by describing and explaining the situation in their environment. It concentrated much on the context of what is studied to provide an understanding of the political, social, psychological, economical and cultural condition of the environment under the study.

The quantitative research method explored and measured the situation basing on statistical information such as how many people supported or did not support certain issues or statements and interpret the results. Quantitative methods are always geared to documenting subject attributes expressed in quantity and to measure variables to produce figures which will allow judgments to the status of the variable in question. In support of this Ngulube (2005) asserts that quantitative research depends on statistical and

mathematical techniques. The most common data collection methods used in quantitative research are questionnaires and structured and unstructured interviews.

The researcher used a case study research method which was mostly qualitative with aspects of quantitative approaches. This enabled the researcher to get rich information while collecting and analyzing data.

3.4 Population of the Study

The study population was 3170 (three thousand one hundred and seventy). This was the total number of staff at MTRH.

3.5 Target Population

The target population was 1330 (one thousand three hundred and thirty) which was a total number of staff from the three departments considered relevant to this study. They included, 898 nurses, 118 doctors, 137 registered clinical officers and 176 health records staff and ICT manager.

3.6 Sample Population

The sample population was 302 (three hundred and two) members that is, 202 nurses, 26 doctors, 31 registered clinical officers, 39 health records staff and 4 HODs (HOD for Clinical Medicine, HRIS, Nursing and ICT).

3.7 Sampling Methods

The study used a multi – method sampling technique which utilized two sampling methods namely: purposive and stratified.

3.7.1 Purposive Sampling

The study used purposive sampling to specifically select respondents with a purpose in mind that they would meet the criteria for being in the sample. In this study the researcher identified Information and Records managers and/or overall supervisors/heads of the Information and records management unit in the hospital as the key participants to take part in the interview data collection process.

Using the staff establishment report of 2014, the study purposively selected three (3) departments namely: nursing, clinical medicine and HRIS. This is because nursing and clinical medicine departments are key in service delivery, while the HRIS department manages medical records of the hospital (Table 1.1). HoDs from the three departments were also purposively selected due to the positions they hold in the department.

3.7.2 Stratified Sampling

The target population was stratified into three departments namely: nursing, clinical medicine and health records and information services. Stratified sampling technique was used to select people based on random procedure and this sampling was used by grouping or separating participants into non-overlapping groups according to their areas of specialization/specialties. The researcher then applied simple random within the grouped population in each institution (Zou 2006). It is with stratified sampling that standard errors were reduced as this technique controls variance proportions. This is because all the units or categories of the population were covered in the sample.

3.7.3 Sample Size

A sample size of 298 respondents and 4 key informants was arrived at for the study as shown in the table 3.1.

Table 3.1: Sample Stratification

Departments/strata	Number	Sample Size
Key Informants	4	4
Nursing	897	202
Clinical medicine		
a) Doctors	117	26
b) Registered clinical officers	137	31
HRIS	175	39
TOTAL	**1330**	**302**

The Fisher's formula (Fisher, 2006) was used to determine total sample sizes and individual sample sizes for individual departments in the following ways:

3.7.3.1 Fisher's Formula for Sample Size

The sample size was determined by the use of statistical Fisher's formulae (2006) using

$$n = \frac{Z^2pq}{d^2}$$

Where

n = desired sample size (population >10,000) i.e. population greater than 10,000

Z = the standard normal deviation usually set at 1.96 or simply 2.00 which correspond to 95% confidence level.

p = estimated characteristic of the study population (50% / 0.5 since no national prevalence)

q = 1 – p

d = the minimum error / degree of accuracy desired, which is usually set at 5% or 0.05

Therefore;

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = \frac{0.9604}{0.0025}$$

$$= 384.16$$

$$= 384$$

Since the target population is less than 10,000 the following formula was used to determine the desired sample size.

$$nf = \frac{n}{1 + \frac{n}{N}}$$

Where

nf = the desired sample size (N<10,000) i.e. population less than 10,000

n = the desired sample size (384)

N = total population (target) <10,000 (according to study, the target population is 1326 exclusive of the 4 key informants)

nf= 384

1+ 384

1326

=297.7667

Thus, desired sample size = 298. Consequently, the study ended up with a sample size of 302 respondents (sampled population plus the key informants which are the HoD clinical medicine, nursing, and HRIS and ICT manager).

3.7.3.2 Fisher's Formula for each Stratum

Probability proportional sampling formulae by Fisher was used to determine individual sample sizes for individual departments as shown below;

$$P = \frac{Xn}{N}$$

Where X= Number of individuals in each cluster

N= Target population

n= Desired sample size

For example the nursing department, the sample size of 202 was arrived at as shown below;

p=897*298/1326

=201.5882

=202

Whereby: 897 is the total number of nurses

298 is the desired sample size

1326 is the target population

3.8 Inclusion Criteria

The inclusion criteria included

a) Health records and information services technologist, doctors and nurses

b) Willing to participate in the study

3.9 Exclusion Criteria

All the health records and information services technologist, doctors and nurses who were not on duty during the study period and those not willing to participate in the study was excluded.

a) Employees working other departments in the hospital and who are not health records and information services technologist, doctors and nurses

b) Not willing to participate.

3.10 Data Collection Method

Data collection was conducted primarily through an interview. According to Kasomo, (2007) interview is a way of obtaining data from a person by asking rather than watching him (respondent) behaves.

3.10.1 Interviews

Interview schedules were used to collect data from both the key informants and the rest of the respondents. A semi-structured questionnaire was used to interview the hospital records administrator. Semi-structured questions in the interview schedule were used to collect quantitative data while non structured questions were used to collect qualitative data.

Four interview schedules were designed for each of the following groups of respondents:

   a) Nurses (see appendix 11)

   b) Doctors and Registered Clinical Officers (see appendix 111)

   c) Records Staff (see appendix 1V)

   d) HOD Nursing, Clinical Medicine, HRIS and ICT (Key Informants) (see appendix V)

The researcher preferred interview for this research because it presents an opportunity for the respondent to seek for clarifications on issues arising from the interview and vice versa and secondly it helped in the acquisition of information on the respondents' experiences, opinions and attitude as well.

3.10.2 Document Review

Data on records management policy were reviewed using various relevant documents such as relevant websites and books in order to determine their relevance in the case.

3.11 Data Collection Procedure

The researcher interviewed the respondents as she meets them and Heads of Department based on their convenient time. During this time, the researcher introduced herself to the respondents and gave a summary of the topic under study, its purpose and the potential benefits of the study to them and institution. She also assured them of the confidentiality of the data collected. Data collection took a period of four months.

3.11.1 The Interview Procedure

The researcher took in-depth face to face interviews with the respondents and each interview lasted for about 10 to 15 minutes.

The researcher was able to record the responses and this made it possible for the researcher to determine the frequency of certain responses which helped in determining the point of saturation. The data saturation occurred after interviewing 96 respondents (71 nurses, 4 doctors, 6 registered clinical officers 15 HRIS staff) and 4 key informants.

3.11.2 Recording Interviews

Mugenda (2013) recommends that interviewer should record the respondent's exact answers as expressed and an attempt should be made to summarize, paraphrase or correct bad grammar. The researcher recorded the interview response in a note book purposely meant for collecting data.

3.12 Quality Control (Reliability and Validity)

The reliability of the interview schedules was determined by checking the questions asked against the objectives of the study to ensure that there was content validity of the instrument.

3.12.1 Pilot Study

Pilot study is a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size (statistical variability) in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale.

A pilot study was carried out on three people from each department in Uasin Gishu County Hospital (Nursing, Clinical Services and Health Records and Information services). The results of the pilot study helped in eliminating ambiguity in some questions and in fine tuning of the questions.

3.13 Data Presentation and Analysis

Quantitative data analysis resulted in the presentation of data in tables and graphs while qualitative data analysis meant the construction of analytical narratives, explanations and descriptions. Analyzing data in a table form made it easier for the researcher to interpret the data. The researcher thereafter gave meaning to the tables and the graphs used for data analysis. According to Fidel (2008) the end-product of the qualitative method is text that includes image and drawing, while a quantitative method output numbers as outcomes of analysis. Both methods support each other without any demarcation. Quantitative and qualitative approaches are used to address different aspects of the research problem, in order that a fuller picture might be developed and can be regarded as complementary.

3.14 Ethics Considerations

After receiving authorization from Moi University, National Council of Science and Technology and Institutional Research and Ethics Committee in Moi Teaching and Referral Hospital, the researcher informed the respondents about the overall purpose of the study. The researcher assured the respondents on confidentiality, honesty, objectivity, integrity and legality in the whole research process.

3.15 Summary

This chapter has discussed the research methodology that was used to carry out the research study. It has presented the research area, general research design, target population, sample population, sampling methods, fisher's formula for sample size, data collection method, quality control, data presentation and analysis.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the results obtained from the study. It includes the general information of the respondents that were under the study. The data were analyzed quantitatively and presented in frequencies and converted into percentages and thereafter presented into tabular forms, pie charts and bar graphs because the data reduced from 302 respondent to 100 respondents and there was a need to present more of it (Chenail,1994).

The study managed to sample 100 respondents out of the desired 302 individuals. This represents about 30 percent response rate, a figure which is significant for the data analysis. The minimum number for analysis is 30 respondents as per (Kothari, 2004).

Table 4.1: Response rate

	Sample size		Response rate	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Management	4	1.30	4	4
HRIS staff	39	13.10	15	15
Nurses	202	84.50	71	71
Doctors and clinical officers	57	19.20	10	10
Total	**302**	**100**	**100**	**100**

4.2 Demographic Characteristics of the Respondents

The demographic information of the respondents reported included gender, age, level of education and years of experience at work.

4.2.1 Gender of the Respondents

The study established that the gender of the respondents was that there was gender sensitivity and equity in the hospital. The findings are as shown in Table 4.2.

Table 4.2: Gender of the Respondents

	Male		Female		Total	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
Management	4	100	0	0	4	4
HRIS staff	11	73.30	4	26.70	15	15
Nurses	7	9.90	64	90.10	71	71
Doctors and clinical officers	7	70	3	30	10	10
Total	**29**	**29**	**71**	**71**	**100**	**100**

The statistics in table 4.1 shows the gender distribution of the study respondents. Generally it shows that 71 (71%) of the respondents were female whereas the remaining 29 (29%) were male. However, a close scrutiny indicates that management comprised of the four percent who were male, 15 (15%) were HRIS staff of which 11 (73%) were male with 4 (27%) female, 71 (71%) were nurses with 60 (90%) being female and 7 (10%) female and 10 (10%) were doctors and nurses, 7 (70%) male and 3 (30%) female. The statistics indicate that nurses form the majority of the study with the management having the lowest percentage in the representation during the study.

4.2.2 Distribution by Age Brackets

Table 4.3 shows the age distribution of the study respondents.

Table 4.3: Distribution by Age brackets

Age brackets	HRIS		Management		Nurses		Doctors and Clinical officers		Cumulative distribution
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	
18-25 years	4	27	-	-	12	17	2	20	18
26-35 years	10	67	-	-	29	41	3	30	42
36-45 years	1	6	2	50	27	38	4	40	34
Above 46 years	-	-	2	50	3	4	1	10	6
Total	**15**	**100**	**4**	**100**	**71**	**100**	**10**	**100**	**100**

The highlights show that more than 76 (76%) of the respondents were of the age groups 26 to 35 years 30 (42 %) and 36 to 45 years 24 (24 %). The figures indicate that there are more than 10 (67%) of the HRIS staff were in the age group 26 to 35 years, while the 29 (41%) of the nurses being in the age group 26 to 33 years, with further 27 (38%) in the 26 to 35 years, with 12 (17%) being the 18 to 25 years. The management was split into two halves with one half falling in the 36 to 45 years category and the other in the 46 years and above category. The age distribution of the doctors and clinical officers show that 7 (70%) were in two age groups, 26 to 35 years 3 (30%) and 36 to 45 years 4 (40 %). The variance in the age distribution could be attributable to the recruitment criteria that are used by the institution and probably also to the age demographics in the overall population.

4.2.3 Distribution by Educational Level

The statistics on the distribution of respondents' highest education level is shown in Table 4.4.

Table 4.4: Distribution by Educational Level

Educational level	HRIS		Management		Nurses		Doctors and Clinical officers		Cumulative distribution
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	
Masters' Degree	-	-	2	20	1	1	1	10	4
Bachelors' Degree	10	67	2	20	7	10	5	50	24
Diploma	5	33	-	-	63	89	4	40	72
Certificate	-	-	-	-	-	-	-	-	
Total	**15**	**100**	**4**	**100**	**71**	**100**	**10**	**100**	**100**

The statistics show 72 (72%) of the respondents had a diploma level of training with 24 (24%) having a bachelor's degree while four percent had master's level of education. The distributions were as follows, the management had equal distribution of master's and bachelor's degree with 89 percent of the nurses having the diploma level of training. It was established that 10 (67%) of the HRIS staff had bachelor's degree. The doctors and clinical officers; 1 (10%) had master's level, 5 (50%) had bachelor's degree and the remaining 4 (40%) had a diploma level of training. This distribution could be explained by the HR policies used in the recruitment of the staff.

4.2.4 Distribution by Working Experience

The study sought to determine the working experience of the respondents and the findings were as shown below.

Table 4.5: Distribution by Working Experience

Working experience	HRIS		Management		Nurses		Doctors and Clinical officers		Cumulative Distribution
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	
> 5 years	2	13	-	-	13	18	1	49	16
6-10 years	9	60	-	-	29	41	5	26	43
11-15 years	3	20	3	75	22	31	3	16	31
<16 years	1	7	1	25	7	9	1	9	10
Total	**15**	**100**	**4**	**100**	**71**	**100**	**10**	**100**	**100**

Table 4.5 shows the levels of distribution of the study respondents. As the statistics show, 43 (43%) of the respondents had between 6 and 10 years' experience, 16 (16%) having less than 5 year experience while 31 (31%) while 10 (10%) had more than 16 years and above. With reference to HRIS staff, 9 (60%) had between 6 and 10 years, while 51 (72%) of the nurses had between 6 and 15 years, while those in the management had more 11 years' experience. The results affirmed that the HRIS staff possessed enough skill required for work demands.

4.3 Types of Medical Records Created at MTRH

A hospital creates various medical records in order to improve service delivery. The study sought to establish various medical records created at MTRH and the results were as shown in Table 4.5.

Table 4.6: Types of Medical Records Created at MTRH

Types of medical records	Agree		Disagree		Not sure	
	Frequency	%	Frequency	%	Frequency	%
Outpatient/inpatient records	15	100	-	-	-	-
Patient file folder	13	87	-	-	2-	13-
Admission forms	11	74	-	-	4	26
Continuation forms	9	60	2	13	4	27
Lab request	12	80	1	7	2	13
Radiological request	8	54	2	13	5	33
Cardexes and charts	12	80	-	-	3	20

Table 4.5 above shows the type of medical records that are created at MTRH as the HRIS staff. Statistics show that the HRIS staff affirmed that outpatient/inpatient records, patient file folder (referral form, operation notes and consent forms), admission forms, continuation forms, lab request, radiological request and cardexes and charts are all created by the hospital to improve service delivery to service seekers. Though an open ended question, nurse, doctors and registered clinical officers indicated records created as patient history, counseling and testing record and discharge forms. Though the creation of the files is done by the different individuals within the distinct departments it indicates that the HRIS staffs fully understand and appreciate their responsibilities. Other patient details mentioned include treatment sheets and discharge summaries. The creation and subsequent use and management of created records may pose a significant risk and problems to the institution and thus, Meijer (2001) opined that managing electronic records in a

government entity is increasingly becoming difficulty, since information and communication technologies confront organizations with various opportunities and risks. This affirms that notion that though hospitals created the records the task of record management could be one of the challenges faced by the institution. Duranti (2001) on the other hand, argued that the use of ICTs may negatively affect accountability because the electronic records may not be preserved, difficult to find or unreliable.

4.3.1 Time of Creation of Medical Records at MTRH

Through questioning, the study established that the medical records creation at MTRH is done at various levels which include:

a) Records are created when registering patients to the hospital which occurs when new or continuing patients request for medical services. These records are done at the entry point when individual seeks to see a doctor or a clinical officer for diagnosis, review or consultation.

b) Records are created in the hospital when discharging patients which occurs at the exit point. This type of records is equivalent to the closure of the patient record file as the individual has fully recovered.

c) The hospital creates records when admitting and treating the patients which occurs when a patient needs further and close observation all the time. This is just an extension of the new patient record file for an individual whose ailment is much severe than was expected or during the routine medical examination of an inpatient.

d) Records are created during booking of an appointment with a patient which occurs at the entry point however it is of the referral format or selective specialized services as requested by the patient themselves.

4.4 Medical Services Offered

The study determined that medical services offered at MTRH are as follows:

a) Medical diagnosis which involves the analysis, observation and treatment of virtually every other individual who seeks curative or preventive healthcare services. This is the major services that MTRH offers to its clients

b) Outpatient services include all those services which are offered to individuals who are seeking curative services but are not seeking to be admitted for further examinations.

c) Inpatient services is the converse of the inpatient services and includes all the healthcare services whether preventive or curative offered to patients who are admitted for further reviews, examination or scrutiny.

d) Preventive healthcare services are the services that are either precautionary or protective in nature. These services are provided upon request or for the patients with specific needs such as malnutrition, worm infection, hypertension, and many others.

e) Antenatal services are specifically designed for the pregnant women and are designed to aid in successful completion of pregnancy term.

f) Post natal services are designed to help the mothers and newborns adapt and grow in the new environment.

g) Surgical services are specialized intrusive and conducted to treat an internal ailment, trauma or correct an anomaly.

h) Post curative services are offered to the inpatient who are recuperating at the holding units of the hospital

i) Referral services consist of those services which are by extension or referred by a third party for further analysis.

There are other medical services that are not available at MTRH such as heart surgery

4.4.1 Hindrances to Medical Service

The study established the factors that are hindering MTRH from medical services not offered. Content analysis of the questionnaire indicated that;

a) The hospital lack sufficient equipment such as computers and other necessary medical diagnostic equipment.

b) Unavailability of medical records forms in the hospital. This in turn affects the capability of the medical personal to diagnose fully the ailments afflicting the patients.

c) There is lack of motivation from departmental heads to develop institutional capacity to provide the aforementioned services. This is due to organizational aspects.

d) There is lack of records management policy and lack of skilled and competent staff in records management field.

4.5 Organization and Management of Medical Records

The study sought to understand from the HRIS how that organization manages its records and the findings are presented as follows.

4.5.1 Patients' Registration Systems in Place at MTRH

The study sought to determine patients' registration systems that are in place at MTRH to aid service delivery. The findings of this item are as follows.

Table 4.7: Patients' registration systems in place at MTRH

Patients' registration systems	Agree		Disagree		Not sure	
	Frequency	%	Frequency	%	Frequency	%
Funsoft	15	100	-	-	-	-
Computerized system	13	87	-	-	2	13
AMRS	7	48	-	-	8	52

The statistics from Table 4.7 indicate that HRIS employees affirmed that Funsoft is one of patients' registration systems put in place and is used at MTRH. More than half 13 (87%) indicated computerized system is the other system put in place at MTRH, although 2 (13%) of the respondents were not sure what the system is. Less than half 7 (48%) of the respondents indicated that AMRS is used at MTRH to register patients and 8 (52%) not sure. The findings indicate that MTRH uses a computerized system even though the HRIS staffers could not differentiate between the AMRS and Funsoft. Both computer applications are used as a computer system for registering patients.

4.5.2 Records Skills Possessed

The HRIS employees possess various records management skills to enable them deliver services diligently to service seekers. The study determined various records skills possessed by HRIS employees and the statistics from Table 4.8 below indicate that majority (more than 87%) had the necessary and basic records management skills to create, retrieve and track files. However, a smaller percentage of 13 percent were not sure of the file creation, retrieval and tracking activities. This is explained by the fact that the

HRIS staffers are grappling with challenges posed by the computerized system or lack the prerequisite skills to operate the computerized system on their own.

Table 4.8: Records Skills Possessed

Skills possessed	Agree		Disagree		Not sure	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
Creating of files	13	87	-	-	2	13
Files retrieval	14	93	-	-	1	7
Tracking of files	14	93	-	-	1	7
Sorting of files	11	74	2	13	2	13
Shelving of files	11	74	1	6	3	20
Information ethics	9	60	-	-	6	40

On the other hand, 11 (74%) of employees could either sort and shelf the patient record files but for the case of a few 2 (13 %) who could not do so. The figures also indicate that 60 percent of the HRIS staff understood the information ethics that pertains to the records management while 40 percent were not able to discern the requisite ethics. The variance in record management skills could be explained by the lack of refresher courses on the part of employees to upgrade their skills or training. Though the HRIS staffers have the knowhow of managing the records, Ngulube (2000) found that records management in Zimbabwe is affected by abuse and unprofessionalism due to lack of ethics. Findings show that information ethics scored the least in the record management skills, an avenue for abuse and mismanagement of records.

4.5.3 Records Control Mechanisms

Since all organizations use various records control mechanisms and the study sought to determine the mechanisms that are used from the HRIS staff.

Table 4.9: Records Control Mechanisms

Records Control Mechanisms	Agree		Disagree		Not sure	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
File Registers	15	100	-	-	-	-
Tracer Cards	15	100	-	-	-	-
Transit Slips	-	-	-	-	15	100

Findings in Table 4.9 show that the institution uses the two mechanisms in records control; file registers and tracer cards while transit slips is either rarely used or not appreciated by the HRIS staff. This fact is best explained by the nature of the record creation and management; MTRH as an institution uses file registers and tracer slips in its primary record management activities.

4.5.4 Storage of Records

The statistics in table 4.9 concerns the storage of records from HRIS staff. The statistics indicated that all the HRIS staff affirmed that records were stored in either the physical facilities such as shelves and cabinets and information systems. These figures indicate that the institution uses both physical storage systems as well as ICT–based systems based depending on the nature of the record that is created.

Table 4.10: Storage of Records

Storage of Records	Agree		Disagree		Not sure	
	Frequency	%	Frequency	%	Frequency	%
Shelves	15	100	-	-	-	-
Cabinet	15	100	-	-	-	-
Computer system	15	100	-	-	-	-

An institutionalized computer system usually has an embedded database for storing records, however, depending on the nature of its database management system, specific database management systems can capture of relevant records relating to business processes while a generic database management systems create more risks for 'de-contextualization' of records (Meijer, 2001). In addition, though use of office systems provides opportunities for easier and faster access to records, lack of central control is an inherent risk in the management of records of this type.

The patient folders are filed numerically hence patients after registration are given the hospital identity card with the number that matches the folder number. Below is a picture that shows part of the storage facility of medical records at MTRH.

Figure 4.1: Medical Records Filing

4.5.6 Management of Patients' Records

The management of the patients' records is also a priority in the institution and thus the study sought to determine how various patients' record are managed. According to Erlandsson (1997) preserving electronic records entails preserving logical structures and also the ability to present the data as it was presented to the original users of the record. For instance, this holds true when the concern is about large, complex databases, textual documents, or digitized photographs. It is necessary, then, to build on top of the structure for preserving physical files, additional structures to preserve the logical and conceptual characteristics of records and records systems.

The management and control of the patients' records fall upon the primary sources of the record itself and as such as the statistics from content analysis show that; pathological specimen records are stored in the histology lab records office, X-ray films are stored in dark room, while pharmacological records, patient registers and nursing records are all kept in patient's file. A further analysis established depending on the need and case basis, medical records are not surveyed, not appraised or not destroyed. Though 67% of the respondents agreed that records are transferred to the archive but there is no destruction of records.

4.5.7 Training Policy

A training policy is an important element in the skills appraisal and employee development, thus the respondents' views and opinion on the matter were as follow.

Table 4.11: Training Policy

Response	Frequency	Percent
Yes	15	100
No	-	-
Total	**100**	**100**

Findings in Table 4.11 show that there is need for an institutional training policy which when applied will help employees upgrade their work skills. A training policy will should include a training needs assessment and proscribe the type of skills required of the employees.

4.6 Competence and Skills

The study established that employees maintain positive discussion with patients by observing PR skills and confidentiality of patients' information. Patient complains are handled by responding through service improvement. An employee consults others in decision making for further clarification and action. The prioritization of an employee's day-to-day task depends on service needed/demanded and number of staff available at the section. It was established that employees are motivated by the desire to satisfy their customers.

4.7 Physical Infrastructure

4.7.1 Infrastructure in Place for Records Management

Table 4.12: Infrastructure in Place for Records Management

Infrastructure	Agree		Disagree		Not sure	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
Shelves/cabinets	14	87	1	13	-	-
Computer infrastructure	12	80	3	20	-	-
Staff capacity and adequacy	10	67	3	20	2	13
Physical Spaces	13	87	2	13	-	-
Storage servers (database systems)	14	93	-	-	1	7
Portable Devices	5	33	4	27	6	60
Network systems(e-mail systems)	13	87	-	-	2	13
Web – based technology systems (WWW)	6	60	5	33	4	27

Though the most common methods for management of records are either the physical facilities and ICT – based structures, the findings from HRIS staff in the above table shows that 14 (87%) affirmed that the shelves and/or cabinets were sufficient infrastructure while 12 (80%) felt that the computer infrastructure were sufficient in records management. The remaining 2 (13%) and 3 (20%) respectively revealed that both physical facilities (cabinets/shelves) and infrastructure wasn't enough. Physical infrastructure alone cannot be the only determinant of the record management and the human capital in form of staff capacity and staff numbers are required. As is deduced from the figures, the HRIS staff felt that their capacity and number were not sufficient 10 (67%) while 2 (13%) felt that they were staffed well.

Meijer (2001) cautioned against the use of e-mail systems as an infrastructure for record management in that it both enhances and endangers the capture of context-data by facilitating the capture of certain context-data (sender, recipient, time, date, etc.), however, other context-data (link to business process, other documents, etc.) cannot be captured automatically. Organizations, therefore faces the risk of not capturing or not preserving the context-data, though the e-mail systems offer opportunities to capturing more records for accountability.

Since computerized systems usually have integrated database management systems, Meijer (2001) further stated that the use of database management systems leads to questions about what records should be kept, depending on contextual factors of the data: the underlying data, metadata about these data, query data, data that represent the output of the query and context data about the query

The growth of the institution will call for the development and employment of new methods and techniques for records management. As the figures indicate, 87 percent affirmed that the physical spaces were sufficient to handle the growth, while 93 percent and 87 percent called for the introduction of storage servers(databases) and network systems(respectively for that growth and development of the records management activity. Other infrastructures include, 33 percent firmed that portable devices helps in the management of records.

World Wide Web is a system with universally accepted standards for storing, retrieving, formatting and displaying information in a networked environment which is being increasingly used by government entities for interacting and transacting with clients. Though, the connection to an open network does however offer a strong opportunity by offering better access to records, the use of the web - technology system poses a risk of losing records when web sites are updated, old data not preserved or through intrusion (Meijer, 2001).

When the respondents were asked whether the infrastructure (staff, space, equipment and stationeries) were enough in the hospital, 67% disaffirmed that it was inadequate to support good records management practices. On the issue of backup facility, the respondents were indifferent that sometimes it is reliable and at times unreliable. The networking infrastructure was reliable in that they were able to access medical records/recourses online; it was at times inconsistency as it keeps fluctuating.

Other challenges HRIS employees face in records management that hinder service delivery include inadequate storage pace, computers breakdown, inadequate skills and knowledge and insufficient skilled records staff and privacy and confidentiality issues.

HRIS employees suggested that in order to improve service delivery at MTRH, the management should avail funds and resource that will be to improve records management department. IT resources, trained and sufficient human capital and management support play an important part in improving service delivery and thus the need for the recruitment of qualified staff and provision of necessary IT resources.

In relations to the improvement of medical records management at MTRH, the respondents indicated that the hospital should implement records management policy which should include among other things, guidelines on record management, institutional aspects governing the requisite records management infrastructure and trends in records management.

4.7.2 Patients' Details Covered

When the nurses, doctors and registered clinical officers were asked to indicate details covering the patients' records and they responded as follows.

Table 4.13: Patients' Details Covered

Patients' details covered	Agree		Disagree		Not sure	
	F	%	F	%	F	%
Prescriptions	81	100	-	-	-	-
Diagnosis	81	100	-	-	-	-
Patient's details and dates	81	100	-	-	-	-
Patient payments (bills)	81	100	-	-	-	-
Nurses in charge	81	100	-	-	-	-
Ward if admitted	81	100	-	-	-	-

The entire sample of nurses, doctors and registered clinical officers agreed that patients' details covered in their records included prescriptions, diagnosis, personal details and dates, patient payments (bills), nurses in charge and ward, if a patient is admitted.

4.7.3 Infrastructure Available

The respondents were asked to indicate infrastructure available in readiness of creation of records in the hospital and the response are as in table 4.14 below:

Table 4.14 Infrastructure Available

Infrastructure available	Agree		Disagree		Not sure	
	F	%	F	%	F	%
Registers	81	100	-	-	-	-
Computers	81	100	-	-	-	-

The study established that registers and computers are used to create records as agreed upon by the entire population. Medical services offered by MTRH according to nurses, doctors and registered clinical officers include lab tests, treatment, nursing care, operations, orthopaedic and trauma and testing and counseling. When asked about services not offered; radiotherapy stood as the only. This factors hindering the delivery/ provision of quality service is lack of enough machines/equipment.

According information from nurses, doctors and registered clinical officers, the current state of medical records has adversely affected services delivery because it takes long time to retrieve records, storage problems experienced, incompetent HRIS staff and lack of proper records management policy. Electronic techniques are preferred since it fastens record management and thus improves service delivery at the institution.

In order to improve management of medical records at MTRH, nurses, doctors and registered clinical officers suggested that the hospital must purchase modern equipment, formulate and implement records management policy, improve infrastructure and MTRH management to hire/employ competent and skilled employees for the records management department.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

The previous chapter presented the findings which were obtained from the questionnaires, interviews and observation. This chapter discusses the findings of the study. The aim of the study was to explore assess medical records management in support of service delivery and to give suggestions for improvement at Moi Teaching and Referral Hospital. There were six objectives formulated to achieve the aim of the study, namely:

a) Identify types of medical records created at MTRH.

b) Establish medical services offered at MTRH.

c) Determine how medical records are organized and managed at MTRH.

d) Explore staff competency and skills required at HRIS department at MTRH.

e) Determine physical and information infrastructure needed for records management and service delivery at MTRH.

f) Suggest suitable guidelines in medical records management and service delivery at MTRH.

5.2 Medical Services Offered

Based on the findings on the Medical services offered at the hospital it was found out that there are various services offered and they include health services, social development services, government information and financial management. Other medical services that are not available at MTRH were, heart surgery, retention and disposal schedules, regular records appraisals and survey, formulation and implementation of records management policy and digitization of record. This study was interested in the medical records

management at MTRH because they render health services and records management, and records management affects medical services directly.

The relevant departments should develop their systems by implementing a performance management system effectively, building staff capacity, reviewing, and re-engineering systems and structures continuously.

5.3 Types of Medical Records Created at MTRH

It was evident that the hospital creates and uses records during its regular operations of rendering the health service to the citizens. The major reason for sound records keeping and improving to the mode of records keeping in the health institution is to ensure improved patient care in the hospitals

The fundamental reason for sound management of records is to ensure the proper keeping of information that is to be used as evidence that the organization is operating as mandated. This is because records are the foundation for easy accountability, compliance with legislation, procedures and developing organizational memory. In health institutions the patients' records are written by hand, typed in narratives, descriptive, or charted in medical terminology as long as other people will be able to read it and comprehend the message. The information recorded must be accurate and usable for decision-making. The records are created based on observation, interpretation of data, treatment plans and patients outcomes.

5.4 Management and Organization of Medical Records

Records management needs to be treated as an organizational asset, just like human resources, financial resources among others, to facilitate organizational day-to-day administrative processes with less or no cost and stress. Records management can be used

to support the core functions, managers and external clients of the organization. Findings by Kemoni & Ngulube, (2008) suggest that poor recordkeeping and management practices in the Kenyan public sector adversely effects on service delivery and attainment of UN MDGs. Thus, to achieve economic development in line with the UN MDGs, public offices need to have in place good recordkeeping systems.

This is why Moi Teaching and Referral Hospital should put emphasis on records keeping that improve notes on patients' treatment, which should be written in patient files after each treatment and reports should be compiled for relevant parties. In so doing, the health institution will be entirely creating medical records for the institution. The role of the registry and registry staff in an electronic records environment is ultimately changing and as such there's the need to transfer records management skills to records creators in an electronic records (Erlandsson & ICACER).

Moreover, Moi Teaching and Referral Hospital should have as one of its strategic objectives 'to develop and maintain reliable information management system for the relevant department'. This is because records may not be available for retrieval when they are required due to ineffective records management system, misfiling or missing records that ought not to be a good reason for the citizen/ complainant or victim of the administrative action.

There is need to achieve this strategic objective through the management of records and archives, collection and dissemination of health and social development information, improvement of the quality of data and establishing information resource centre for the Hospital.

Also, there is need to have a proper records keeping system to always satisfy clients. The lack of proper records preservation leads to difficulty in records retrieval, which eventually results in a client waiting too long for the service. The end result of this will be citizen complaining about poor service and long waiting duration for the service

5.5 Staff Competency and Skills Required at the MTRH HRIS Department

Based on the findings, on the staff competency and skills required at the MTRH HRIS department, it's clearly evident that qualified records management staff ensures that records management work is carried out efficiently. Results by Erlandsson & ICACER (1997) indicate record staffs were not conversant with issues affecting the management of electronic records. Therefore, people need to be capacitated through training and education with the skills, knowledge and ability to establish the necessary records keeping infrastructure. This will ensure compliance with accountability and service delivery as required by the citizens. The knowledge required should cover records and archival functions, professional and contextual knowledge. The records and archival function scope should cover management of active and terminated records such as classifying, scheduling their retention, and protecting them. The other part of the scope should be appraisal and archival processes which include accessioning, arranging and describing records. The scope of professional knowledge may cover history, records and cultural memory, ethics and value of the profession.

However, it was evident based on the findings that MTRH employees at the HRIS department maintain positive discussion with patients by observing PR skills and confidentiality of patients' information. Patient complains are handled by responding through service improvement. An employee consults others in decision making for further clarification and action. The prioritization of an employee's day-to-day task depends on

service needed/demanded and number of staff available at the section. It was established that employees are motivated by the desire to do better to see patients are satisfied, availability of necessary equipment that aid service delivery, and financial rewards.

5.6 Physical and Information Infrastructure Needed for Records Management and Service Delivery at MTRH

Based on the findings it is evident that computation of archival services needs the purchase of hardware, software, training, consultancy, networking, system maintenance, user-friendly system identification, records security measures to prevent un-authorized access and virus prevention against data corruption.

Other challenges HRIS employees face in records management that hinder service delivery include inadequate storage space, computers breakdown, inadequate competent and skilled records staff, and privacy and confidentiality issues.

HRIS employees suggested that in order to improve service delivery at MTRH, the management should avail funds to improve records management department. Resources such as computers that are functioning is a key in improving service delivery. There is need to recruit more staff that are qualified and the management should support staff to pursue further training to sharpen their skills in different fields of specialization.

5.7 Suggest Suitable Guidelines in Medical Records Management and Service Delivery

Based on the findings to suggest suitable guidelines in medical records management and service delivery, it evident that the state of records management in the institution was below average this is because, at times, records were requested in bulk, which makes it difficult to retrieve, resulted in too much paperwork, no proper filing/archiving system,

poor planning, organization and supervision. In addition, many files were lost for no known reason and there was a lack of filing space, experienced officials and records management divisions. The following need to be introduced in order to improve the poor state of records in the institutions as recommended by respondents:

a) Good organization and disciplinary measures for involved staff.

b) Proper filing systems in place.

c) Improve capacity, skills and training.

d) Good administrative leadership and individual official dedication.

e) Introducing electronic records management.

f) Improving infrastructure.

g) Good/proper planning

The records management programme needs to be improved from manual to electronic. The hospital needs to have a turnaround time norm guide for patient file retrieval. In the guiding/workflow document, the issue of the time frame for returning of the paper-based files should be addressed as a gap.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the summary of findings, conclusions, recommendations and suggestions for further studies.

6.2 Summary of the Findings

6.2.1 Types of Medical Records Created at MTRH

The study established that outpatient/inpatient records, patient file folder (referral form, operation notes and consent forms), admission forms, continuation forms, lab request, radiological request and cardexes and charts are all created by the hospital to improve service delivery to service seekers. Other patient details mentioned include treatment sheets and discharge summaries. The records created are patient history, counseling and testing record and discharge forms.

6.2.2 Medical Services Offered

The study found that medical services offered at MTRH included; Medical diagnosis, Outpatient services, Inpatient services, Preventive healthcare, Antenatal services, Post natal services, Surgical services, Post curative services and Referral services. Other medical services that are not available at MTRH were: heart surgery and oncology services.

6.2.3 Management of Medical Records

The study established that MTRH uses both paper based manual and electronic medical records management system which is centralized. At the time of the study this system was serving the hospital without many problems. The few notable problems included the loss

or misplacement of patient files which necessitated the opening of temporary files. The use of temporary files carried the risk of compromising the quality of health services given since the health professionals were unable to benefit from the previous healthcare history of a patient with a temporary file.

The accrual of medical records creation at the hospital was found to be moderate with Mondays identified to be the most notable peak periods for records creation. Each new and revisiting patient had a single folder detailing their personal information and healthcare history. They were required to pay a once-off fee of R 20 the day the file was created.

6.2.4 Staff Competency and Skills required at HRIS Department

The study established that all HRIS employees had the minimum qualification in records management skills which included creating of files, files retrieval, tracing of files, sorting of files, shelving of files and information ethics. There is general lack on record management skills by the records staff and thus the provision of records management skills to records staff and other users through seminars and workshops will help improve record management.

6.2.5 Infrastructure in Place for Records Management

The results show that record management infrastructure is at MTRH is sufficient to be used at the moment since the institution uses a variety of ways (databases, computer infrastructure, web technology systems, and many others. However the challenge should be on the structural components which include adequately trained staff who can handle the work load of record management. Since there is extensive use of paper based systems, there is need for digitalization of records department.

The current state of medical records management at MTRH adversely affected services delivery. Some of the reasons that could be attributed to this include; inadequate infrastructure to support the growing demands of the institution, insufficiently trained HRIS staff and lack of proper records management policy at MTRH. Though electronic methods are preferred to improve service delivery at MTRH, it also poses risks of the ICT in general.

6.2.6 Suitable Guidelines in Medical Records Management and Service Delivery

In order to improve medical records management at MTRH, the hospital must install and improve the current available equipment, formulate and implement records management policy.

6.3 Conclusion

Based on the findings of the study, the researcher made the following conclusions.

The study concluded that the types of medical records created at MTRH are created at the source following the required procedures and guidelines of healthcare institutions. The medical records created include outpatient/inpatient records, patient file folder (referral form, operation notes and consent forms), admission forms, continuation forms, lab request, radiological request and cardexes and charts are all created by the hospital to improve service delivery to service seekers. Other patient details mentioned include treatment sheets and discharge summaries. The records created are patient history, counseling and testing record and discharge forms.

The study concluded that medical services offered at MTRH included; Medical diagnosis, Outpatient services, Inpatient services, Preventive healthcare, Antenatal services, Post natal services, Surgical services, Post curative services and Referral services. Other

medical services that are not available at MTRH were: heart surgery and oncology services.

The results indicated that medical records are organized and managed at MTRH include all the pathological specimen records, x-ray films, pharmacy records as well as patient registers and nursing records. The study further established that medical records are not survey, records are not appraised and medical records are not destroyed.

The study concluded that MTRH lack competency and skilled HRIS staff for its records management. Other challenges facing the HRIS include institutionalization which inhibits decision making at lower levels, managerial and supervision challenges and motivation.

The physical and information infrastructure needed for records management and service delivery at MTRH were use of computers, staff capacity and adequacy in records management, adequate space needed for records management and internet..

Suitable guidelines in medical records management and service delivery at MTRH include upgrading and installation of modern equipment and infrastructure and formulation and implementation of a records management policy.

6.4 Recommendations

Based on the findings, the researcher made the following recommendations.

The manual record managed system has its flaws which MTRH is not immune from them. The problems of patient folder retrieval, missing or lost files were reported in other countries as discussed in chapter two. Medical records serves as communication medium amongst the treating physicians and therefore the missing medical record breaks that communication and makes it difficult to make decisions on the diagnosis and treatment of a patient. Time spent in the retrieval of patient folders affect the quality of service. It is

against the problems mentioned above that the developed countries invested on the use and integration of health information technology in hospitals. In future, the study recommends the implementation and the use of electronic medical records in MTRH. Electronic Medical Records promotes the delivery of quality service, enhanced service and timeous healthcare service. Efficient and effective healthcare service delivery is the envisaged service for the citizens.

Medical records management systems need to be improved to ensure that the health workers in the public health institutions, such as medical doctors and nurses, do not struggling to render timely and effective health service to citizens. Effective records management systems need to be implemented by the hospital management to ensure a reasonable patient waiting time before receiving health services. The system must enable quicker or timely retrieval of records. The health workers need to render health services with the health history of each patient contained in medical files, at all times, as required to avoid rendering a poor health service that might be risky to patients' health.

Electronic records management systems need to be used to ensure easy and fast access to treatment and retrieval of information or records. In implementing electronic records management systems, the hospital should consider the records media's instability, obsolescence, hardware incompatibility, software, data format, storage media, lack of metadata, context of information, clearly assigned responsibility and long-term records preservation resources.

Staff competency and skills required at HRIS department should be addressed by conducting in-house training. Also employees should attend workshops and seminars to sharpen their skills in relation to medical records management.

The infrastructure that is currently in use by the MTRH is adequate but need to be reconsidered in the near future. The hospital uses shelves and filing cabinets in the storage of medical records and consumes a lot space that could have been used in other hospital business operations. The study recommends that the movable shelves be used instead of the files that are currently in use. The movable shelves consume less space and are manually controlled and power controlled. Also the study recommends the use of electronic medical record management system as all the records will be stored on a computer system. Through the electronic medical records management system, the patient health information history will always be available when needed by the physicians. One of the benefits of electronic medical records is its ability in information sharing; portability, patient health information is accessible in any of the health sector.

The hospital should create or develop guiding documents, such as policies, procedures, norms and standards, on the administration of patient records. They should set and document a standard norm for turnaround time for retrieval of patient medical records in the hospitals. The documents created should be reviewed regularly in a reasonable period or interval. They should ensure that, after creation, officials are trained in these documents for proper implementation to avoid unintentional contravention with them by some officials. They should also familiarize officials with relevant legislative framework governing administration, usage and access to records.

The hospital should ensure that the necessary resources and budget are available to assist in improving medical records management and administration since this positively impact on improvement in health services.

6.5 Suggestions for Further Study

This study was limited in scope because it only focused on one public hospital a similar study should be done to include more hospital. Further, a similar study in private sector should be considered.

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What is Service Delivery available at
https://www.google.co.ke/search?q=what+is+service+delivery&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a&channel=fflb#hl=en&client=firefox-a&hs=rqE&tbo=d&rls=org.mozilla:en-US:official&channel=fflb&q=what+is+service+delivery+model&revid=1351227273&sa=X&psj=1&ei=JmTRUL3GO9S1hAf2mYHIBQ&ved=0CIMBENUCKAc&bav=on.2,or.r_gc.r_pw.r_qf.&bvm=bv.1355534169,d.ZG4&fp=c7f7364152d8cf cf&bpcl=40096503&biw=1440&bih=741 accessed on 25th November 2012.

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APPENDICES

APPENDIX 1: INTRODUCTION LETTER TO RESPONDENTS

MOI UNIVERSITY

SCHOOL OF INFORMATION SCIENCES

(STRICTLY CONFIDENTIAL)

ASSESSMENT OF MEDICAL RECORDS MANAGEMENT IN SUPPORT OF SERVICE DELIVERY AT MOI TEACHING AND REFERRAL HOSPITAL ELDORET

I am Margaret Chebii Koech , Master of Philosophy student from Moi University. I am doing research on the above title and the purpose of the study is to assess the medical records management in support of service delivery at Moi Teaching and Referral Hospital Eldoret and suggest suitable guidelines in medical records management and service delivery.

The information in this interview shall not be used for any other purpose apart from research and was treated as being confidential. It would be highly appreciated if you could answer all questions accurately. Please give your honest and sincere opinion.

GUIDE FOR COMPLETI NG THE QUESTIONNAIRE
1. Please answer questions by making a tick and explain where necessary.
2. This interview took a maximum of 10-15 minutes to complete.

APPENDIX II: INTERVIEW SCHEDULE FOR NURSES

SECTION A: BIO-DATA

1. What is your gender?

   a) Male   [ ]

   b) Female   [ ]

2. What is your age bracket?

   a) 18-25 years   [ ]

   b) 26-35 years   [ ]

   c) 36-45 years   [ ]

   d) 45 years and above   [ ]

3. Highest educational level attained?

   a) Masters   [ ]

   b) Bachelor's Degree   [ ]

   c) Diploma   [ ]

   d) Certificate   [ ]

4. How long have you worked at Moi Teaching and Referral Hospital?

   a) Less than 5 years   [ ]

   b) 6-10 years   [ ]

   c) 11-15 years   [ ]

   d) Over 16 years   [ ]

SECTION B:

I: MEDICAL RECORDS CREATED

1. What types of medical records do you create at MTRH?

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2. When do you create these medical records?

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3. Which details about the patients are covered in your records?

Details covered	Agree	Disagree	Not sure
Prescriptions			
Diagnosis			
Personal Details and Dates			
Patient Payments (Bill)			
Nurses in Charge of the Patient			
Ward if Admitted			

Any other, patient details, please specify……………………………………………

4. Which of the following patient infrastructure is available in readiness of creation of records in the hospital?

Infrastructure Available	Agree	Disagree	Not Sure
Shelves/cabinets			
Computers			

Any other, specify…………………………………………………………

II: MEDICAL SERVICES OFFERED AT MTRH

1. Which medical services do you offer at MTRH?

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2. Which other medical services can you offer that is not available at MTRH?

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3. What hinders you from offering medical services?

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4. How has medical records affected service delivery at MTRH?

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III: ORGANIZATION AND MANAGEMENT OF MEDICAL RECORDS

1. Which methods do you think was the best for keeping medical records?

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…………………………………………………………………………………………………
………………………………………………………………………………………………..

2. What suggestion would you make towards improvement of medical records management at MTRH?

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APPENDIX III: INTERVIEW SCHEDULE FOR DOCTORS AND REGISTERED CLINICAL OFFICERS

SECTION A: BIO-DATA

1. What is your gender?

    a) Male   [ ]

    b) Female   [ ]

2. What is your age bracket?

    a) 18-25 years   [ ]

    b) 26-35 years   [ ]

    c) 36-45 years   [ ]

    d) 45 years and above [ ]

3. Highest educational level attained?

    a) PhD   [ ]

    b) Masters   [ ]

    c) Bachelor's Degree   [ ]

    d) Diploma   [ ]

    e) Certificate   [ ]

4. How long have you worked at Moi Teaching and Referral Hospital?

    a. Less than 5 years   [ ]

    b. 6-10 years   [ ]

    c. 11-15 years   [ ]

    d. Over 16 years   [ ]

SECTION B:

I: MEDICAL RECORDS CREATED

1. What types of medical records do you create at MTRH?

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

2. When do you create these medical records?

………………………………………………………………………………………………

………………………………………………………………………………………………

3. Which details about the patients are covered in your records?

Details covered	Agree	Disagree	Not sure
Prescriptions			
Diagnosis			
Personal Details and Dates			
Patient Payments (Bill)			
Nurses in Charge of the Patient			
Ward if Admitted			

Any other, patient details, please specify……………………………………………

4. Which of the following patient infrastructure is available in readiness of creation of records in the hospital?

Infrastructure Available	Agree	Disagree	Not Sure
Shelves/cabinets			
Computers			

Any other, specify…………………………………………………………………………...

II: MEDICAL SERVICES OFFERED AT MTRH

1. Which medical services do you offer at MTRH?

……………………………………………………………………………………………
……………………………………………………………………………………………
…………………………………………………………………………………………….

2. Which other medical services can you offer that are not available at MTRH?

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3. What hinders you from offering medical services?

……………………………………………………………………………………………
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4. How has medical records affected service delivery at MTRH?

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III: ORGANIZATION AND MANAGEMENT OF MEDICAL RECORDS

1. Which methods do you think was the best for keeping medical records?

…………………………………………………………………………………………………

…………………………………………………………………………………………………

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…………………………………………………………………………………………………

2. What suggestion would you make towards improvement of service delivery at MTRH?

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APPENDIX IV: INTERVIEW SCHEDULE FOR HRIS

What is your gender?

    a) Male   [ ]

    b) Female   [ ]

2. What is your age bracket?

    a. 18-25 years   [ ]

    b. 26-35 years   [ ]

    c. 36-45 years   [ ]

    d. 45 years and above [ ]

3. Highest educational level attained?

    a) Masters   [ ]

    b) Bachelor's Degree [ ]

    c) Diploma   [ ]

    d) Certificate   [ ]

4. How long have you worked at Moi Teaching and Referral Hospital?

    a) Less than 5 years [ ]

    b) 6-10 years   [ ]

    c) 11-15 years   [ ]

    d) Over 16 years   [ ]

SECTION B:

I: TYPES OF MEDICAL RECORDS CREATED AT MTRH

1. What types of medical records created at MTRH?

Types	Agree	Disagree	Not Sure
Outpatient/inpatient records			
Patient file folder (referral form, operation notes and consent forms)			
Admission forms			
Continuation forms			
Lab requests			
Radiological request			
Cardexes and charts			

Any other, patient details, please specify…………………………………………………..

2. When do you create these medical records?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

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II: MEDICAL SERVICES OFFERED AT MTRH

1. Which medical services do you offer at MTRH?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

2. Which other medical services can you offer that are not available at MTRH?

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3. What hinders you from offering these medical services?

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III: ORGANIZATION AND MANAGEMENT OF MEDICAL RECORDS

1. What patient registration systems are in place at MTRH?

Registration systems	Agree	Disagree	Not sure
Funsoft			
Computerized system			
AMRS			

Any other, specify……………………………………………………………………………

2. What record skills do you possess?

Skills in medical records management	Agree	Disagree	Not Sure
Creating of files			
Files retrieval			
Tracking of files			
Sorting of files			
Shelving of files			
Information ethics			

Any other, specify…………………………………………………………………….

3. Which records control mechanisms do you use?

Records Control Mechanism	Agree	Disagree	Not sure
File Registers			
Tracer Cards			
Transit Slips			

Any other, specify……………………………………………………………………

4. Where do you store your records?

Medical records storage	Agree	Disagree	Not sure
Shelves			
Cabinet			
Computer systems			

Any other, specify……………………………………………………………………

Which records policy is used in managing medical records?

Medical Records Policy	Agree	Disagree	Not sure
Retention Schedule			
Disposal Schedule			

Any other, specify……………………………………………………………………...

6. How do you manage patient records such as;

Pathological specimen records--

X ray films--

Pharmacy records---

Patient Registers---

Nursing Records--

7. Kindly state how often medical records are surveyed.

----

8. Kindly state how often medical records are appraised.

----

9. How do you destroy medical records?

Records Destruction Mechanism	Agree	Disagree	Not sure
Transferring to the archive			
Burning them			

Any other, specify…………………………………………………………………..

10. is there any training policy at MTRH that enables one to further his/her studies?

Yes ☐

No ☐

If yes, which one ………………………………………..…………………..

If no, why? ……………………………………………………………..……

IV: STAFF COMPETENCY AND SKILLS

How do you maintain a positive discussion with the patient?

How do you handle patient complains?

Do you consult others in making decision?

At what point do you prioritize your day today tasks?

What motivates you in your work?

V: PHYSICAL AND INFORMATION INFRASTRUCTURE

1. What ICT infrastructures are in place for records management?

Infrastructure Available	Agree	Disagree	Not Sure
Shelves/cabinets			
Computers and Information System			
Staff capacity and adequacy			

Physical Space			
Storage servers			
Portable Devices			
Network systems			

2. In your own opinion do you feel the infrastructures are enough (e.g. staff, space, equipment, stationeries)?

Yes ☐

No ☐

Support your answer? ………………………………………………...…………

3. Do you have back up facility? ---

4. How secure is the data? ---

5. How stable is the network? --

6. Are you able to access medical records/resources online? ------------------------------

7. What other challenges do you encounter in records management that hinders service delivery?

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8. What suggestion would you make towards improvement of service delivery at MTRH?

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……………………………………………………………………………………….

……………………………………………………………………………………….

9. What suggestion would you make towards improvement of medical records management at MTRH?

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APPENDIX V: INTERVIEW SCHEDULE FOR KEY INFORMANTS

SECTION A: BIO-DATA

1. What is your gender?

    a) Male   [ ]

    b) Female   [ ]

2. What is your age bracket?

    a. 18-25 years   [ ]

    b. 26-35 years   [ ]

    c. 36-45 years   [ ]

    d. 45 years and above [ ]

3. Highest educational level attained?

    a) Masters   [ ]

    b) Bachelor's Degree   [ ]

    c) Diploma   [ ]

    d) Certificate   [ ]

4. How long have you worked at Moi Teaching and Referral Hospital?

    a. Less than 5 years   [ ]

    b. 6-10 years   [ ]

    c. 11-15 years   [ ]

    d. Over 16 years   [ ]

SECTION B:

a) What are the types of medical records created at MTRH?

………………………………………………………………………………………………

……………………………………………………………………………………

b) What kind of medical services are offered at MTRH?

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How are medical records organized and managed at MTRH?

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What are the competency and skills required at MTRH HRIS department?

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Which physical and information infrastructures are needed for records management and service delivery at MTRH?

………………………………………………………………………………………………

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What are the suitable guidelines would you suggest in medical records management and service delivery at MTRH?

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APPENDIX VI: INTERVIEW SCHEDULE FOR RESPONDENTS

1. What is your gender?

    a) Male   [   ]

    b) Female   [   ]

2. What is your age bracket?

    a) 18-25 years   [   ]

    b) 26-35 years   [   ]

    c) 36-45 years   [   ]

    d) 45 years and above   [   ]

3. What is your current Department?

    a) Clinical Medicine   [   ]

    b) Health Records and Information Service   [   ]

    c) Nursing   [   ]

3. Highest educational level attained?

    a) PhD   [   ]

    b) Masters   [   ]

    c) Bachelor's Degree [   ]

    d) Diploma   [   ]

    e) Certificate   [   ]

4. How long have you worked at Moi Teaching and Referral Hospital?

    a) Less than 5 years   [   ]

    b) 6-10 years   [   ]

    c) 11-15 years   [   ]

    d) Over 16 years   [   ]

SECTION B:

I: TYPES OF MEDICAL RECORDS CREATED AT MTRH

1. What types of medical records created at MTRH?

Types	Agree	Disagree	Not Sure
Outpatient/inpatient records			
Patient file folder (referral form, operation notes and consent forms)			
Admission forms			
Continuation forms			
Lab requests			
Radiological request			
Cardexes and charts			

Any other, patient details, please specify…………………………………………..

2. When do you create these medical records?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

………………………………………………………………………………………..

II: MEDICAL SERVICES OFFERED AT MTRH

1. Which medical services do you offer at MTRH?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

………………………………………………………………………………………..

2. Which other medical services can you offer that are not available at MTRH?

....

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3. What hinders you from offering these medical services?

....

....

....

III: ORGANIZATION AND MANAGEMENT OF MEDICAL RECORDS

1. What patient registration systems are in place at MTRH?

Registration systems	Agree	Disagree	Not sure
Funsoft			
Computerized system			
AMRS			

Any other, specify…………………………………………………………………

2. What record skills do you possess?

Skills in medical records management	Agree	Disagree	Not Sure
Creating of files			
Files retrieval			
Tracing of files			
Sorting of files			
Shelving of files			
Information ethics			

Any other, specify…………………………………………………………………

3. Which records control mechanisms do you use?

Records Control Mechanism	Agree	Disagree	Not sure
File Registers			
Tracer Cards			
Transit Slips			

Any other, specify…………………………………………………..

4. Where do you store your records?

Medical records storage	Agree	Disagree	Not sure
Shelves			
Cabinet			
Computer			

Any other, specify……………………………………………………………………

5. Which records policy is used in managing medical records?

Medical Records Policy	Agree	Disagree	Not sure
Retention Schedule			
Disposal Schedule			

Any other, specify…………………………………………………..

6. How do you manage patient records such as,

   a) Pathological specimen records--
   b) X ray films--
   c) Pharmacy records--
   d) Patient Registers---
   e) Nursing Records--

7. Kindly state how often medical records are surveyed.

----

8. Kindly state how often medical records are appraised.

----

9. How do you destroy medical records?

Records Destruction Mechanism	Agree	Disagree	Not sure
Transferring to the archive			
Burning them			

Any other, specify…………………………………………………..

10. is there any training policy at MTRH that enables one to further his/her studies?

        a) Yes   ☐

        b) No   ☐

If yes, which one …………………………………………..

If no, why? ……………………………………………

IV: STAFF COMPETENCY AND SKILLS

1. How do you maintain a positive discussion with the patient?

    ----

2. How do you handle patient complains?

    ----

3. Do you consult others in making decision?

    ----

4. At what point do you prioritize your day today tasks?

    ----

5. What motivates you in your work?

V: PHYSICAL AND INFORMATION INFRASTRUCTURE

1. What ICT infrastructures are in place for records management?

Infrastructure Available	Agree	Disagree	Not Sure
Shelves/cabinets			
Computers			
Staff capacity and adequacy			
Space			
Internet			
Twitter			
Portable Devices			
Cabling			
Satellite			

2. In your own opinion do you feel the infrastructures are enough (e.g. staff, space, equipment, stationaries)?

   a) Yes
   b) No

Support your answer? …………………………………………………………………..

3. Do you have back up facility? --

4. How secure is the data? --

5. How stable is the network? --

6. Are you able to access medical records/resources online? -----------------------------------

7. What other challenges do you encounter in records management that hinders service delivery?

a) --

b) --

c) --

d) --

8. What suggestion would you make towards improvement of service delivery at MTRH?

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…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

9. What suggestion would you make towards improvement of medical records management at MTRH?

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APPENDIX VII: RESEARCH PROGRAMME

Event	Dates
Defence of research proposal	October 2012
Data collection	July-August 2015
Analysis and interpretation of data	August 2015
Writing of first draft of thesis	August 2015
Reading of second draft by supervisors	August 2015
Revision of second draft of thesis	August 2015
Submission of second draft of thesis	August 2015
Correction of second draft of thesis	August 2015
Submission of final draft of thesis	August 2015
Thesis Defence	December 2015