



**MANAGEMENT OF MEDICAL RECORDS: A STUDY AT PRINCESS MARINA  
HOSPITAL-GABORONE, BOTSWANA**

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
OF THE AWARD OF A MASTERS DEGREE IN ARCHIVES AND RECORDS  
MANAGEMENT

BY

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**DECLARATION**

I, Tiro Ngidi hereby declare that the dissertation submitted for the Master's Degree in Archives and Records Management to the University of Botswana, apart from the assistance recognized, is my own original work and has not been previously submitted to any university for the award of an academic qualification.

Tiro Ngidi

July 2015

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## **DEDICATION**

I dedicate this work to my beloved family and friends for the moral support during my research period. Thank you and I love you all!

## **ABSTRACT**

The purpose of this study was to investigate medical records management practices at Princess Marina Hospital (PMH). The Medical Records Unit (MRU) was one of the largest units in PMH and was in possession of records dating as far back as Botswana's independence in 1996, yet it was not clear if proper systems had been put in place to manage them.

The objective of this study was therefore to investigate records management practices from the time of creation (birth) until they were disposed permanently, either through destruction or storage in an archival institution or records centre. Furthermore, the study aimed at making recommendations for the improvement of record management practices at PMH.

The study was informed by the record life cycle model and the records continuum model. The theoretical framework for the study subscribed to the principles of good record management based on ISO 15489-1 standards which dictate for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records.

The study used both quantitative and qualitative research methodology to gather information. The research design, therefore used was a mixed method approach which employed both quantitative as well as qualitative methods of data collection. Several documentary sources for this study were reviewed amongst others which included reports relevant to health in Botswana from the Ministry of Health such as policy documents, WHO with specific chapters to Botswana on health issues, the Ministry of Health Portal, SADC Protocol on Health, PMH brochure, local newspapers, internet sources, books, ISO 15489, and dissertations.

The study showed that there was poor management of medical records at the Princess Marina Hospital and the record management system in place was insufficient.

The study therefore recommended that the policy on records management which was said to be in a draft form be finalized in order to guide the processes and procedures for record management practices at PMH.

In addition, the study also recommended that a good records management system at PMH was needed that would ensure that proper data and information was fed into the NHIS. This would enhance proper planning and financing to the health sector by the government of Botswana.

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### **LIST OF ABBREVIATIONS**

AHIMA:	American Health Information Management Association
BMA:	British Medical Association
BNARS:	Botswana National Archives and Records Services
BOPA:	Botswana Press Agency
DHIMS:	District Health Information Management Systems
EMR:	Electronic Record Management
EHR:	Electronic Health Record
GMC:	General Medical Council
HIMS:	Health Information Management System
HIPAA:	Health Insurance Portability and Accountability Act

HIV/AIDS:	Human Immune Deficiency Virus/ Acquired Immune Deficiency Syndrome
ICT:	Information Communication and Technology
IRIN:	Integrated Regional Information Network
IRMT:	International Records Management Trust
ISO:	International Standards Organization
MRC:	Medical Records Centre
MRU:	Medical Records Unit
MoH:	Ministry of Health
MLG:	Ministry of Local Government
NACA:	National Aids Coordinating Agency
NARSS:	National Archives and Records Service of South Africa
NAS:	National Archives of Scotland
NDP:	National Development Plan
NHIS:	National Health Information System
NICTP:	National Information and Communication Technology Policy/ Maitlamo Policy
OSU:	Oregon State University
PHC:	Primary Health Care
SAPA:	South Africa Press Agency
SADC:	Southern African Development Community
WHO:	World Health Organization

## **DEFINITION OF TERMS**

### **Electronic record**

Electronic records are informational or data files that are created and stored in digitized form through the use of computers and applications software. They are stored on various magnetic and optical storage devices and are products of computers and computer software. The format of an electronic document does not change the fact that it is a record, but its electronic form and its dependence on machines for creation and reference do change the way these records must be stored and managed (California Records and Information, 2002).

### **Electronic Health Record**

Electronic Health Records (EHR) is a secure, real time, point of care, patient – centric information resource for clinicians. The EHR aids clinician’s decision making by providing access to patient health record information where and when they need it and by incorporating evidence based decision support. The EHR automates and streamlines the clinician’s workflow, closing loops in communication and response that result in delays or gaps in care. The EHR also supports the collection of data for uses other than direct clinical care, such as billing, quality management, outcomes reporting, resources planning and public health disease surveillance and reporting (Handler et al, 2003).

### **Electronic Records Management (ERM)**

As with records in other formats, electronic records must be managed through their entire life cycle from creation, when the records are created or received; through their active life, when the records are accessed frequently (at least once a month); through their inactive life, when the records are no longer active but have to be retained for a period of time for legal, fiscal, administrative, or historical reasons; until their final disposition which could be destruction or preservation as a permanent record (Florida Department of State, 2010).

## **Health Record**

Health record is a collection of clinical information pertaining to a patient's physical and mental health, compiled from different sources. Health records contain demographic data, next of kin, GP details, and most of the following: medical history; examinations; diagnoses; treatment (including surgical procedures and drug therapy); results of investigations, labs (e.g. biochemistry, haematology, pathology), imaging (e.g., plain films, scans); alerts and warnings (e.g., allergies, blood group, obligatory drugs, etc.); record of preventative measures (immunizations, screening breast, cervical, faecal, occult blood); nursing records; clinical correspondence and referrals for treatment; consent forms for surgical procedures; theatre reports; discharge letters; postmortem reports. Health records are maintained by, or on behalf of, the health professional concerned with the patient's care and maintained as private documents (Medical Dictionary, 2012).

## **Legal Health Record**

AHIMA (2015) defines legal health record as "generated at or for a healthcare organization as its business record and is the record that would be released upon request. It does not affect the discoverability of other information held by the organization. The custodian of the legal health record is the health information manager in collaboration with information technology personnel. Health Information Management professionals oversee the operational functions related to collecting, protecting, and archiving the legal health record, while information technology staff manage the technical infrastructure of the electronic health record.

## **Medical Records**

That part of a client's health record that is made by physicians and is a written or transcribed history of various illnesses or injuries requiring medical care, inoculations, allergies, treatments, prognosis, and frequently health information about parents, siblings, occupation, and military service. The record may be reviewed by a physician in diagnosing the condition (Medical Dictionary, 2009).

### **Primary Health Care**

A basic level of health care that includes programs directed at the promotion of health, early diagnosis of disease or disability, and prevention of disease. Primary health care is provided in an ambulatory facility to limited numbers of people, often those living in a particular geographic area. It includes continuing health care, as provided by a family nurse practitioner (Medical Dictionary, 2009).

### **Record**

All information created, sent and received in the course of your job is potentially a record. Records provide evidence of your agency's business. Whether something is a record depends on the information it contains and the context. Records can be in paper, digital or other formats. Examples include: emails; faxes; spreadsheets; databases; maps and plans; samples and objects; information in business systems; letters; text messages; minutes; policy and briefing; papers; photographs; research data; social media sites (National Archives of Australia, 2015).

### **Record Appraisal**

A process of assessing records for their value and determine how to preserve or dispose them (BNARS, 2009).

### **Record Continuum Model**

McKemmish (1995) describes the continuum model, as something of which no separate parts are discernible, a continuous series of elements passing into each other. The continuum theory like the life cycle theory is in agreement that records are created, used, retained and disposed of but not at discrete stages as it is the case in a life cycle model but instead at different points throughout the records existence.

### **Record Disposal**

The act of implementing appraisal decisions; this includes transferring records to the archives or destruction (BNARS, 2009).

**Record Disposal Schedule**

A timetable used to determine when certain records should be disposed of (BNARS, 2009).

**Record life cycle**

The lifecycle model suggests that records move from one phase to another, over time, in a linear rather than a cyclical way, i.e. from creation to active use then semi/inactive use and ultimately disposition (Macleod and Hare, 2006).

**Records Management (RM)**

ISO 15489:2001 defines Records Management (RM) as the “field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records, including the processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records”.

**Record Retention**

Record retention is the process of preserving and maintaining records for a given period of time (BNARS, 2009).

**Vital records**

Vital records comprise those that are necessary to recreate the organization's legal and financial status and to determine the rights and obligations of employees, customers, stockholders, and citizens (OSU, 2008)

## **CHAPTER 1 INTRODUCTION**

### **1.1 Introduction**

Records have a long history and use in decision making from various spheres of life. According to Mazikana (1990), records have always been a good source of information for decision making as such, have existed since man acquired the ability to record information in writing. The earliest keeping of records and archives can be traced to the Ancient Civilizations when records of birth, property, law, money tax and official and private transactions began to be kept to facilitate the conduct of government business, and for education, religion and family purposes.

Medical records emanate from information gathered from patients seeking medical attention from the various facilities that provide health care services. Hospitals have existed from a long time with the responsibility of providing care to patients which is often documented. The origins of many of the great hospitals, according to Snook (1992), can be traced from 325 AD. In the Western world the oldest operative hospital named Hotel Dieu in Paris, was established around 600AD, whilst in the North American continent, the first solid hospital was established in 1524 and in America the first hospitals can be traced to the early eighteenth century (Snook, 1992). Considering the history of hospitals it would be difficult to exclude the existence of medical records from the time when hospitals came into existence. The assumption could therefore be that medical records have always been found in hospitals as proof of documentation of a health delivery service to patients.

The World Health Organisation (2006) gives the purpose of medical records and the circumstances under which they are created including their nature with regards to secrecy and confidentiality. The record primarily records the facts about a patient's health with emphasis on events affecting the patient during the current admission or attendance at the health care facility. The record is created by those who interact with the patient including the patient, which means the record has an element of secrecy and confidentiality which

must be adhered to. The issue of trust between the health professional and patient is therefore crucial as it can make the patient to disclose information freely to a practitioner. According to Tan and Gunasekara (2000), most health information is collected in a situation of confidence and trust for the purpose of care and treatment. Assurances as to confidentiality and protection of privacy are vital components of the relationship between patient and health professional and are necessary if the latter is to obtain accurate information from the former in order to make accurate diagnoses. Continuation of care to a patient is also important hence details given in a medical record is not only for accuracy but should offer additional details for future care and assessment. Therefore, a medical record should also provide details on what, when, why and how services were provided as well. Similarly, to the issue of confidentiality, medical records are also considered to be legally binding hence the importance of protecting them from unscrupulous users. Failure to maintain confidentiality of medical record can result in litigation (Booyesen, 2000).

Hospitals deal with the life and health of their patients. Medical Records management has become an integral activity of the hospital management. The department provides multiple benefits not only to the patients but also to running a hospital efficiently. Medical Records are a clinical, scientific, administrative and legal document relating to patient care in which sufficient data is recorded by trained observers as per sequence of events to justify the diagnosis and therapy, giving the results thereof are in accordance with reasonable expectation of present day scientific medical care. A medical record system must be organized to render service to the patient, the medical records staff, the hospital administration, and society. In the interests of economy, accuracy of information, and good communication, all information should be concentrated in the original Medical Records, which should be indexed and filed in the main medical record department (Vision 2020 e-resource team, 2012).

Good medical care relies on well-trained doctors and nurses and on high-quality facilities and equipment. Good medical care also relies on good record keeping. Without accurate, comprehensive up-to-date and accessible patient case notes, medical personnel may not



offer the best treatment or may in fact misdiagnose a condition, which can have serious consequences. Associated records, such as X-rays, specimens, drug records and patient registers, must also be well cared for if the patient is to be protected. Good records care also ensures the hospital's administration runs smoothly: unneeded records are transferred or destroyed regularly; keeping storage areas clear and accessible; and key records can be found quickly, saving time and resources. Records also provide evidence of the hospital's accountability for its actions and they form a key source of data for medical research, statistical reports and health information systems.

A patient record serves a number of purposes in a hospital environment. A patient record is a communication tool in the hospital set up: it communicates patient information such as patient's medical history and treatment amongst physicians. It also serves as a legal document and it can be used as evidence in a court of law. Additionally, it is used for billing and medical research purposes (Weiss, 2000; Wager et al, 2005). Patient records by nature are very sensitive because of their contents. Patient information usually contains identification details such as names, contact details, patient medical history, diagnosis and treatment. Thus it is important to adopt appropriate measures to safeguard the privacy and confidentiality of patient information found in patient records.

In many hospitals, autonomy is given to each department in the management of its records. Unfortunately, this decentralization of records care may lead to poorly designed filing systems, loss of information, premature destruction or unnecessary retention of records and ultimately to inefficiency and wasted resources. Above all, patient care will be adversely affected if correct records are not maintained or if records are inadequately managed or if there is no means of coordinating the care the same patient receives in different departments. A structured and effective records management program, covering all departments and all records irrespective of media, should be the aim of every hospital. A comprehensive records program will help to ensure that staff have access both to clinical information and to administrative records on a wide range of issues, including policy, precedents, legal rights and obligations, personnel, finance, buildings, equipment and resources (IRMT, 1999).

In light of the prevailing perception from the public of the gaps that exist in the management of records at Princess Marina Hospital, this study, set out to explore in-depth the extent to which issues related to the management of patients records, like privacy and confidentiality of patient records were addressed at Princess Marina Hospital.

The focus of this study was on the clinical data of patients housed at the Medical Records Unit (MRU) as custodians of patient records at PMH and used medical records and patient records interchangeably to mean one and the same thing.

## **1.2 Background to the study**

The American Heritage Medical Dictionary (2007) defines a medical record as “a chronological account of a patient examination and treatment that includes the patient medical history and complaints, the physician’s findings, the results of diagnostic tests and procedures, and medication and therapeutic procedures.”

Comerford (2003) gives some examples of what constitutes a health record and mentions forms of the initial assessment flow sheets; problem or nursing diagnosis list; care plan or clinical pathways and other flow sheets. Given the complexities of medical records health professionals normally organize the data by category by placing undue focus on format and content. The record should also be easy to read and accessible to all members of the health care team and ultimately the reviews. This will ensure proper identification of problem areas, plan better patient care and evaluate the care given.

The term medical record and patient record are sometimes used interchangeably in referring to the document that captures the health information of a particular patient. Skurka (1998) warns that the term medical and patient records are different and a distinction should be made between the two types of records. Medical record implies that physicians participate in and supervise the medical care provided to patients in health care institutions. Patient record is a term that encompasses not only the record of medical care provided but also a listing of services provided by non-physician health care practitioners.

Medical records are also categorized into four main groups according to the National Archives of Scotland, (2015). These are as follows:

- i) Administrative, which includes demographic and socioeconomic data such as the name of the patient (identification), sex, date of birth, place of birth, patient's permanent address, and medical record number;
- ii) Legal data including a signed consent for treatment by appointed doctors and authorization for the release of information;
- iii) Financial data relating to the payment of fees for medical services and hospital accommodation;
- iv) Clinical data on the patient whether admitted to the hospital or treated as an outpatient or an emergency patient;

In order for a medical record to provide meaningful outcome and fulfill the purposes it is intended to serve, it needs to be managed properly. According to Shepherd and Yeo (2003), records management is the systematic control of an organization's records, throughout their life cycle, in order to meet operational business needs, statutory and fiscal requirements, and community expectations. Effective management of corporate information allows fast, accurate and reliable access to records, ensuring the timely destruction of redundant information and the identification and protection of vital and historically important records. The guiding principle of records management is to ensure that information is available when and where it is needed, in an organized and efficient manner, and in a well maintained environment. This principle cuts across all forms of records including medical records. According to the National Archives of Scotland (2015), organizations must ensure that their records are authentic, accurate, accessible, comprehensive, compliant effective and secure. Below is a detailed description on records management principles applicable to medical records.

*i) Authentication*

Authentication is needed to confirm the content of the entry, either by written signature, initials or computer-generated signature code. It must be possible to prove that records are what they purport to be and who created them, by keeping a record of their

management through time. Where information is later added to an existing document within a record, the added information must be signed and dated. With electronic records, changes and additions must be identifiable through audit trails.

The Legal Medical Records Standard of the University of California (2015) attests to the importance of authentication of a record to the effect that a signature identifies the author or the responsible party who takes ownership and attests to the information contained in a record entry.

#### *ii) Accuracy*

Records must accurately reflect the transactions that they document. Information collected on behalf of a patient to form a record has to be accurate enough to guarantee the necessary care given (Murphy, 2001). Accuracy is therefore an important element of a medical record more so that they serve many diverse purposes in the daily operations of a health care organization. The record allows a patient's health care providers to communicate with one another; provides a basis for planning a patient's course of treatment. Medical record is a reflection of a document that gives the quality of care for review at a later time. The record also provides a source of information for statistical analyses; and establishes a basis for the billing process and the generation of financial reports hence has to be accurate for best results and therefore is accuracy is crucial.

#### *iii) Accessibility*

Records must be readily available when needed. Records provide access to precedents or previous work and thus save time and money by eliminating the need to create resources afresh (Shepherd and Yeo, 2003). The records should therefore be available at the time they are needed to support effective patient and doctor contact as well as to provide continuity of care.

#### *iv) Completeness*

Records must be sufficient in content, context and structure to reconstruct the relevant activities and transactions that they document. In order for medical records to be regarded as complete, McGuire (2001) states that a series of questions asked by a caregiver to the

patient has to take place. The questions about the complaints and observations such as temperatures breath sounds current medications taken, allergies and family medical history. Following interviews and observations, possible consultations with other caregivers, receipt of the results, the care giver will make a clinical interpretation based on the findings from the assessment made.

*v) Comprehensiveness*

Records must document the complete range of an organization's business and for medical records give comprehensive history of a patient to enable proper assessment and care needed.

*vi) Compliance*

Records must comply with any record keeping requirements resulting from legislation, audit rules and other relevant regulations.

*vii) Effectiveness*

Providing a good medical record documentation aids in the quality assurance process Murphy (2010). Having a well- organized and legible medical record allows the auditor a clear picture of the patient complaints, symptoms, and procedures or to alleviate or eliminate the patient's illness or injury, status of the patient condition following the treatment and final outcome. Records must be therefore be maintained for specific purposes and the information contained in them must meet those purposes.

*ix) Secure*

According to Green and Bowie (2005) the Record Department is responsible for allowing appropriate access of patient information while at the same time maintaining confidentiality for patient. Medical records form an important part of documents or records within any health institution or a medical facility. Due to the importance attached to medical records, there is usually a department responsible for ensuring proper administration and management of records to enhance medical delivery service. Such a

department also ensures that issues of care and safe keeping are in place to avoid abuse by those not supposed to view the records.

Furthermore medical records must be securely maintained to prevent unauthorized access, alteration, damage or removal. They must be stored in a secure environment, the degree of security reflecting the sensitivity and importance of the contents. Where records are migrated across changes in technology, the evidence preserved must remain authentic and accurate (National Archives of Scotland, 2015). Tan and Gunasekara (2000) asserted that health information is plagued with problems of access, duplication and interpretation. For example, the nation's health professionals requiring information for the care and treatment of patients have had to rely on fragmented information flows, as information is needed for care and treatment of patients is collected at different levels. This can be avoided if there is proper facility that manages medical records and is well staffed to keep up with the demands of work. Records must therefore, be protected and kept in a safe place to ensure good access as and when needed.

According to Tavakoli and Johanbkhs (2013), retention of medical record is an important matter in a health care facility. Medical records must be maintained by a facility to support patient care; meet legal and regulatory requirements; achieve accreditation; allow research, education, and reimbursement; and support facility administration. The duration of record retention differs for the various types of records kept such as laboratory data, radiology reports and films, fetal monitor strips, birth certificates, Master Patient Indexes) and for different facilities like physicians' offices in hospitals.

Medical records retention as well as its disposal or destruction is important considering challenges usually associated with space and storage of records. Medical records personnel should therefore, maintain a specific program or have a policy in place to retain and destroy the records to avoid these challenges.

## **1.2 The Structure of Health Services in Botswana**

Health is an essential basic human right and Botswana as a country has consistently committed to providing health care services to her citizens. Botswana National Health

Policy recognizes the enjoyment of a level of health that allows every citizen to lead an economically and socially productive life as a human right (MoH, 2011). The Ministry of Health has a model of excellence in providing health services which aims to improve physical, mental and social well-being of every citizen to fully contribute to the development of Botswana through a healthy nation (MoH, 2015). Furthermore, the MoH has the portfolio responsibility to provide leadership on health matters and therefore is accountable for coordinating and leading the health sector in Botswana including formulating policies, setting standards, regulating as well as ensuring that quality and affordable health services are delivered to all.

Health care systems in Botswana are delivered through a decentralized model comprising both government and the private sector with the primary health care being the pillar of the delivery system and the MoH exist to promote and provide comprehensive service to the nation (MoH, 2015). Primary health care in Botswana are integrated within the overall hospital services being provided on the outpatient sections of all levels of hospitals. Public health care services are provided at minimal fees for citizens while foreign nationals pay reasonable and subsidized fees. Private health care services are mostly used by patients who opt not to use public health services (SADC, 2015). Health services are also provided through private health practitioners and mine hospitals, Non-Government Organizations (NGO's) and mission facilities. The Botswana Defense Force, Prison Services, mining companies, and universities also provide health services to special groups.

The public sector is the predominant provider of health care services in Botswana with 80% of people receiving care from public facilities and programs (MoH, 2011). The MoH philosophy (2015) is based on providing quality affordable health services to the nation. The MoH is also a major provider of health services through a wide range of health facilities and management. The MoH provides primary health care through the District Health Management Teams (DHMT's). The DHMT's are responsible for running a network of health facilities, hospitals, clinics, health posts and mobile stops as well as

community based preventative and promotive services in their areas of service delivery under their mandate.

In ensuring that health services are appropriately delivered to the citizens, several structures and departments exist within the MoH. These structures are mainly responsible for financing, planning, monitoring and providing adequate health service delivery and improvement within the health sector of Botswana (MoH, 2015). It is through the below mentioned departments that the MoH delivers public health services at national and district levels:

**The Department of Clinical Services** is responsible for providing quality preventative, curative and rehabilitative care to patients in government hospitals;

**Public Health Department** is mandated to develop and implement public health policies as well as ensuring public health goals are met;

**The Department of Public Health** is responsible for developing and implanting public health practices as well as ensuring that public health goals are met;

**The Department of Health, Policy Development and Monitoring and Evaluation** provides strategic direction and support on issues pertaining to health policy, planning and research and information management in order to ensure that policies are well formulated; programs and plans coordinated, integrated, monitored and evaluated so as achieve national health goals; and

**The Department of Aids Preventative and Care** is accountable for providing leadership in the provision of comprehensive HIV/AIDS services in the health sector. This is achieved through facilitation of policy and program development for health systems as well as to provide adequate response in the provision of prevention, treatment and care support of HIV/AIDS;



Botswana has an extensive network of facilities which include hospitals, clinics, health posts and mobile stops in 27 health districts. In addition to an extensive network of 101 clinics with bed, 171 clinics without beds, 338 health posts and 884 mobile stops (MOH, 2015). These facilities provide various degrees of health care services in the country. It is through these structures that a combination of preventative and rehabilitative health care services as well as treatment and care of common problems are provided at the Clinics, Health posts, Health Centres, District Regional Hospitals, Mobile Stops and National Referral Hospitals. Below are the roles played by the various health facilities in Botswana.

**Clinics** offer outpatient care including preventive care. Most clinics have beds reserved only for patients requiring maternity care. Clinics are also mainly found in rural areas and are staffed with nurses and family welfare educators who sometimes due to staffing constraints fill in for nurses, (MoH, 2015);

**Health Posts** are health facilities with the lowest level of curative care such as dispensing of fever or cough medication. These are mostly located in the remotest part of the country and the service offered is basic due to limited facilities such as laboratories and x-rays;

**Health Centres** include Supervision of clinics and health posts; general inpatient care; laboratory examination; x-rays and surgery;

**District/Regional Hospital** provides services at the health centres and additionally offer specialist services for serious and complicated health problems; basic curative, preventive and promotive services; inpatient care for more complicated health needs (MoH, 2015);

**Mobile Stops** are found in some selected places in the most remote areas where a health official is chauffeured in a vehicle to attend to patients who might need medical assistance. They are mainly targeted for nomadic societies with no permanent homes. These societies are catered for as part of the government responsibility of ensuring that all its citizens have access to medical care; and

**National Referral Hospitals** offers the highest level of medical care in the country with services which include specialist clinical services for serious and complicated health problems. National Referral Hospitals also have more specialist equipment (MoH, 2015)

Table 1.1 provides a summary of public health facilities in Botswana:-

**Table 1.1: Types of Health Facilities in Botswana.**

<b>Facility Type</b>	<b>Number</b>
Referral Hospitals	3
District Hospitals	14
Primary Hospitals	17
Health Clinics with Maternity	104
Health Clinics without Maternity	173
Health Posts	338
Mobile Posts	844
Private Hospitals	6
Private Medical Clinics	167

**Source: Government of Botswana Portal, 2015. Available at: <http://www.moh.gov.bw/healthinfo.html>**

Significant efforts are also evident in the country's participation in matters of regional and international concerns relating to health issues. Botswana is a signatory to the SADC Protocol on Health of 1999. As a signatory, Botswana automatically complies with all regional body issues agreed to on matters of health. For example, all SADC members are committed to coordinate regional efforts on epidemic preparedness, mapping, prevention, control and where possible the eradication of communicable and non – communicable diseases (SADC, 2015). Botswana is also one of the 189 States who adopted the UN Millennium Declaration and endorsed a framework for development. Three Millennium Development Goals (MDG's) relate to health aimed to reduce child mortality by two thirds; reduce maternal deaths by three quarters and achieve universal access to reproductive health and to halt and reverse the spread of HIV; achieve universal

treatment for HIV by 2010 and halt and reverse the incidence of malaria and other major diseases (World Health Organization, 2015).

It is through the existing framework and environment set by the MoH that PMH as a referral hospital and a centre of excellence operates. The hospital is the biggest in the country with good facilities, service and medical personnel. Services offered to patients are not only directed towards providing clinical care but include a conglomeration of other issues aimed at achieving a holistic benefit on the functions of the hospital. A good medical record management is also necessary for the attainment of services rendered by the hospital. Hence this study investigated how medical records are managed at PMH.

### **1.2.1 The National Health Information System (NHIS)**

The Botswana National Health Information System (NHIS) was set up with the ultimate objective of collecting data, to inform health programme planning as well as policy making and ultimately global health outcomes and equity (MoH, 2012). Data provided from the system is intended to be accurate, complete and relevant to serve the needs of clients. Once the system functions well, it empowers decision makers to manage and lead more effectively by providing useful evidence at the lowest possible cost. The ultimate objective of a Health Information System in Botswana therefore, is to inform action in the health sector performance. The availability and use of information from the NHIS enables:

- i) Improved definition of a population;
- ii) Recognition of problems;
- iii) Setting of priorities in the research organization;
- iv) Determination of a potential impact;
- v) Planning and resource allocation;
- vi) Monitoring or performance or progress;
- vii) Evaluation of outcomes after interventions and
- viii) continuity in medical and health care; and
- ix) It also empowers individuals by enabling their participation in the health care policy and decision making processes;

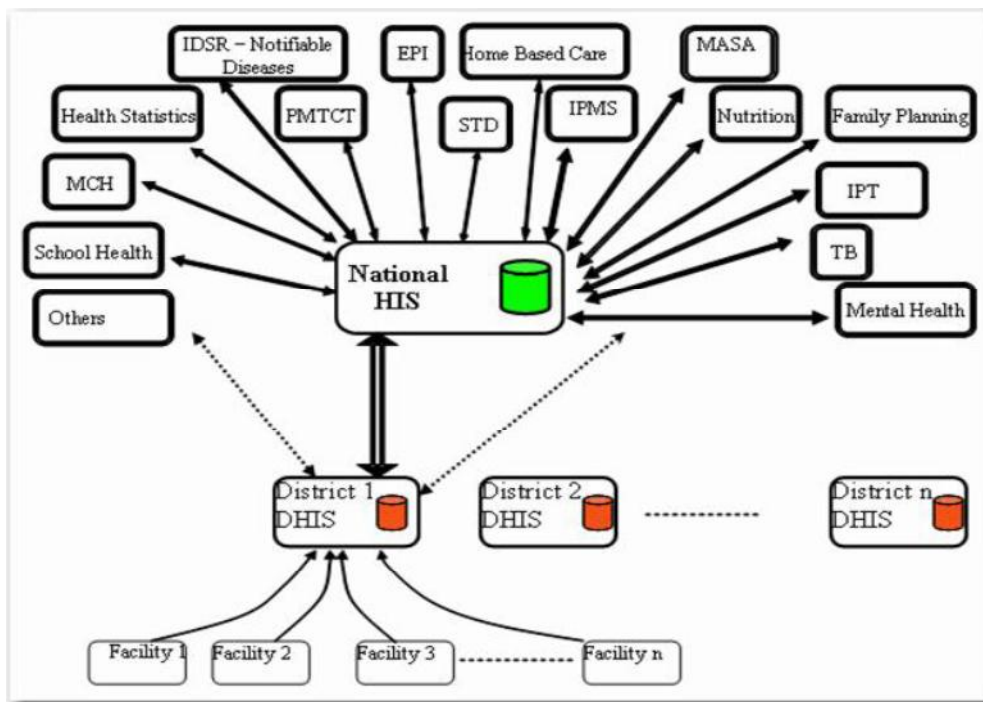
The available information from the National Health Information System is intended to support government programs and plans in the health sector. Participation by a pool of network members by contributing the necessary information to the system is significant. This information once captured from network members is used in planning, management and financing of health facilities and programs in Botswana as and financing of medical research.

Although a well-functioning health information management system is critical for monitoring and evaluation of the performance of the health sector there are notable flaws. The National Health Policy (2012) points out some challenges with the system related to timely data collection, collation, analysis, interpretation and dissemination. Not all the health systems data are captured and stored in a single database. Weak referral and supervisory frameworks for health facilities and management units mean that timely reporting, data entry and cleaning, analysis, interpretation and the use of data does not always happen. These challenges further add on the use of data for planning purposes or programme improvement due to it being limited as different information systems are incompatible. Hence, there is limited use of data for planning purposes or programme improvement which in turn undermines the quality of information. Different information systems (epidemiological, logistics, human resources, health statistics, and finance) are incompatible and poorly coordinated. The existing monitoring and evaluation processes are fragmented; this affects the tracking of outcomes, impact on health status, and programme interventions, the Health Policy Document further states.

PMH as a health facility is among other health networks in Botswana responsible for collecting and contributing data to the NHIS exchange and sharing through the Internet. The system provides information about the health of the people in a country. The collected information is used by governments in the planning of health facilities and programs, for the management and financing of health facilities as well as medical research. PMH contributes to the NHIS since it is a referral hospital that attends to patient throughout the country with various illnesses and conditions. For example the NHIS is supported from PMH through data gathered from patients from the clinics and mental

health care facilities on referral to PMH. It is important that data contributed is meaningful, accurate and timely to guarantee relevant decision and planning at national level, as well as for financing purposes in the health sector. In order for this to be realized medical records as carriers of all the necessary information at PMH has to be managed in order to reflect a true picture on the needs related to health issues, challenges, professional care needed, training and recruitment, equipment and infrastructure to mention but a few. Figure 1.1 below shows the network structure of Botswana’s National Health Information System.

**Figure 1.1 National Health Information System Network (NHIS)**



Source: Ministry of Health, Portal, 2015. Available at: <http://www.moh.gov.bw/healthinfo.html>

### **1.3 Location of the Study**

Princess Marina Hospital has existed in Gaborone, Botswana for close to five decades. The hospital was established in 1966 when the country gained independence and began operating on April 4, 1967. At the time it was dubbed as a Maternity Clinic as well as the biggest building in Gaborone which only constituted a few building blocks at Independence Avenue. At the time it was called ‘Princess Marina’ and was the most relevant name for the hospital as it shone like a diamond and brought life and colour to the mother city, Gaborone (Mmegi, 2015).

During the early years of establishment, it is stated that as Gaborone grew with developments such as residential neighborhoods, malls, post office, police station and others, more migrants moved into Gaborone, attracted by the greener pastures of the city. Accordingly, as stated in (Mmegi, 2015), from servicing a population of five thousand (5000) at independence, Marina presently has three hundred thousand (300,000) residents of Gaborone to attend to and sees about two thousand five hundred (2,500) patients daily with about one hundred in Accident and Emergency department.

PMH currently offers a wide spectrum of services both preventive and curative as well as serving as a primary, district and tertiary hospital. Some of the services offered by the hospital are surgery, dietetics, pharmacy, oncology, medicine, social work, laboratory, dental services, ear/nose/throat, occupational therapy, intensive care to mention but a few (PMH, 2015). The hospital is a 567 bedded unit with an average inpatient population of 750 patients and a staff compliment of 1300 spanning across 32 departments. There are about 600 nurses and 147 doctors. On average 2500 patients are seen daily from the hospital’s outpatient department (PMH, 2015).

Over the years the hospital is said to have witnessed an increasing complexity of diseases associated with the cross cultural make-up of Gaborone and also the growing medical sophistication among patients. PMH however, is said to have continued to specialize and adapt over the years as a Centre of Excellence in collaboration with various partners. It is noted that from 2009, the hospital introduced several initiatives that have set new

standards in the provision of health services in the country. This includes conducting 76 heart surgeries at PMH with a team of doctors supported by the Mauritian government.

According to PMH (2015), other initiatives for the centre of excellence include the Orthopedic Centre of Excellence, Spinal Cord Injury Rehabilitation Centre, Diabetic Centre of Excellence, Hypertensive Disorder Pregnancy (HDP) Centre and Nephrology and Organ Transplant Centre. These centres are briefly described below:

**The Orthopedic Centre of Excellence** was started in March 2009 in collaboration with the University of Witwatersrand in the Republic of South Africa to provide specialist orthopedic services, in particular, Arthroplasty (hip and knee joint surgery in 2009);

**Spinal Cord Injury Rehabilitation** centre was started in October 2011 to improve quality of life of spinal cord injured people and rehabilitate them back to their respective communities. It was developed in partnership with Swedish Team (Botswana Spinalis Foundation);

**Diabetic Centre of Excellence** was established in 2010 at Block 6 clinic. The clinic offers one stop service for the care of diabetic patients including state of the art retinal cameras, dietetic, pharmacy and ophthalmology. The staff compliment entails diabetic nurses, diabetic specialists and a family medicine specialist;

**Hypertensive Disorder of Pregnancy (HDP) Centre** was started in partnership with the University Of Botswana School Of Medicine in January 2014 to provide specialized care of pregnant women with elevated Blood Pressure to reduce risk of complications (pre-eclampsia /eclampsia and death). HDP causes highest maternal deaths in the world and second in Botswana; and

**Nephrology and Organ Transplant Centre** was established to provide both hemodialysis peritoneal dialysis services (artificial kidney patients and to provide organ transplant services)

Table 1.2: below Shows the Staff Compliment of Princess Marina Hospital for 2015:-

Staff Compliment at PMH

<b>Cadre</b>	<b>No.</b>	<b>Cadre</b>	<b>No.</b>
Medical Officer	126	Administration	37
Medical Specialists	15	HCA om	139
Consultants	13	Library	1
Nursing	561	Medical Records Officers	3
Radiology	14	Medical Records Clerk	5
Physiotherapy	9	Hospital Orderly	80
Prosthetics	3	Kitchen Hand	13
Dietician	10	Cook	17
Psychology	2	Switch Board Operator	11
Pharmacy	43	Messengers	6
Laboratory	40	Gatekeeper	3
Speech Therapy	5	Porter	8
Theatre Assistant	5	Attendants	21
Occupational Therapy	6	Seamstress	3
Nutrition	2	Storekeeper	3
Dental	49	Public Relation Officer	1
Optometrist	1	Catering	4
Information Technology	5	MEMS	8
<b>Total</b>	<b>909</b>	<b>Total</b>	<b>363</b>
<b>Grand total</b>	<b>1272</b>		

**Source:** PMH Establishment Register: Ministry of Health (2015)



#### **1.4 PMH - Medical Records Unit (MRU)**

According to Moses (2015), the Chief Records Officer at PMH, the history of the MRU dates back as far as 1983 and that the unit currently houses medical records from 1993 to date. He revealed that other records are housed in storages outside PMH and are accessible when needed.

According to the information provided by Moses, the objective of the MRU is to maintain medical records that are documented accurately, timely and readily accessible in order to allow prompt retrieval of information, including statistical data. The unit's specific roles include being responsible for the administrative arrangement connected with each patient's attendance at PMH including appointments, bookings, maintenance of waiting visits, reception of patients and creation of the initial patient's medical record. In addition, the unit provides custody of inpatient records and offers services for access, maintenance and filing of records once patients are discharged from the wards. Another role played by the unit is in relation to medical staff and include provision of clerical and secretarial services.

Since the unit is mandated to provide custody for inpatient records, the unit keeps and maintains records from the various wards within PMH and for its out-stations. The wards within PMH for which records are managed by the MRU include oncology, private, intensive care unit, maternity, delivery, postnatal, antenatal, gynecology, medical (male and female), orthopedic (male and female), surgical (male and female), pediatric (surgical), pediatric (medical) and spinalis. Outstations wards are Interim Home for cancer patients and the Tuberculosis (TB). The Unit's current staffing levels include 3 Medical Records Officers, 6 Records Clerks and 10 Data Clerks mainly responsible for the registration of outpatients. The main challenge mentioned include lack of a Medical Records Policy, which is said to be in a draft form. As a result according to Moses, (2015) obsolete records for which the owners are deceased long time back are still found within the medical records system. Moses further revealed that all new patients' information is computerized since 1999.

Given the long history of PMH as well as the MRU, this study set out to investigate how records from the selected inpatient wards of the hospital were managed focusing on creation, use, maintenance, retention and disposal.

PMH creates medical records on day-to-day basis during consultation processes and other medical management and care relating to patients. As the medical records are created to gather information and provide care and management for patients, there are other issues for consideration. These include access, confidentiality, security, storage, retention and disposal of records. This study focused on the management of medical records at PMH with the Medical Record Unit as the centerpiece.

### **1.5 Management of Medical Records in Botswana**

There are few studies in Botswana which address patient records and their management at PMH. Available studies are lacking in addressing issues on the proper management of medical records (Seiponi, 1996; Luyinda, 1994; Maimela et al, 1989; Bly, 1980 and Abankwah, 1999). The existing studies carried out in the 90's like those done by Abankwah, 1999; Luyinda, 1994; and Bly, 1980 have established that there is a need for more investigation on problems of poor record keeping in hospitals and health centers in Botswana. Some of the hospitals covered in the survey included the Bamalete Lutheran hospital, PMH, Scottish Livingstone and Deborah Retief Hospitals where tasks related to the management of records were handled by clerks usually on a part time basis. Bly's, (1980) survey, made a strong recommendation on the training of medical records personnel.

Another study by Maimela et al (1989) revealed that more than fifty percent 50% of the medical records were not properly filed and subsequently it was not easy to retrieve them. Seiponi (1996) revealed that patient records were indexed, filed and retrieved by clerks.

A study by Ndabambi et al (2013) investigated issues of security and confidentiality at Princess Marina Hospital relating to patient records management. The conclusions made from the study have revealed lack of policy to regulate the management of patient records in Botswana compared to other countries like South Africa which has policies and

guidelines that govern patient records namely, Medical Records Policy and Guidelines on keeping Patient Records. Another issue highlighted was that there exist problems of inadequate patient records storage, access and security of patient records which could lead to the violation of patient privacy and confidentiality.

Although this study is focusing on PMH, there have been reported issues of litigation and related incidents of poor records keeping common in other hospitals. For instance, at the Bamalete Lutheran Hospital, babies were swapped as a result of a tag which was used to identify them. Their mothers had trouble identifying them later with one mother insisting that the baby tagged was hers and not the other lady's baby. Her pleas fell on deaf ears as the babies were only reunited with their parents eighteen months later (Midweek Sun, July 2008: 3).

Following the incident the hospital superintendent at the Bamalete Lutheran Hospital Dr. Ruth Pfau expressed deep regret for the mistake and the trauma for the parents of the concerned children. She further assured the public that the hospital standards have improved including baby identification. The hospital has since paid close to US\$16,000.00 as compensation to both parents for swapped babies.

Another incident involved wrong diagnosis as a result of poor record keeping. A middle aged woman Ms. Kgakgamatso Sekgabetlela (Midweek Sun, July 2008: 4) was wrongfully diagnosed as an HIV positive patient, due to negligence on the part of Taung Clinic in the South East District in March 2003. The mistake resulted in her suing the government for US\$71,428.00 in damages and for the trauma she suffered during the period. However, the sum of US\$21,428.00 was paid as compensation.

Overcrowding of patients at PMH is a challenge likely to impact on the status of medical record keeping practices. A report from the Midweek Sun, 15 February (2006: 2), states that overcrowding in the maternity ward is a common scene resulting in appalling unhygienic conditions for both mothers and the newly born babies. Other health threatening conditions are said to include maternity ward being infested with

cockroaches, blocked toilets as well as unclean bathrooms. Over-crowding at PMH has been as a result of the HIV/AIDS pandemic and other related ailments. All this preliminary records management issues beg for a thorough investigation on the management of medical records at PMH.

Efforts to improve access to patient records which is relevant to their management are however continuing. The recent development of a system developed by Blackoak Company allows patients to store their medical records in one place. In that way according to Nkani (2015), a medical doctor can access patient's medical history from the system without having to go through manual files or asking the patient to give the history orally. The system is yet to be implemented pending the availability of resources. However, developers have been urged to pilot the system as soon as possible because the government will support it through outsourcing since it cannot manage it.

Earlier on in 2013, another system was developed by two young individuals, Derrick Khupe and Billy Batlegang. Their system used mobile phones to increase the quality and quantity of prenatal and neonatal care in rural and urban Botswana. Through the system, expectant mothers can register their pregnancy through their mobile phones, in that way allowing them to access content about pregnancy related health topics. Significantly the system aimed to enable registered pregnant women to interact with health professionals who can provide support on such issues.

Against, this background, this study therefore sought to examine how PMH as a referral hospital in the capital city of Gaborone manages its medical records. A preliminary visit to PMH Medical Records Unit revealed several issues and challenges regarding the management of patient records. The records storage area is small and with records piled on top of tables and some crowded in storage cabinets. Working space for staff at the Records Unit is also not conducive such that three members shared a small office. It was also found out that records have not been disposed since the inception of the Records Unit in 1983 instead being kept elsewhere. The reason for lack of disposal was attributed

to lack of a policy. Shortage of staff was also mentioned as a key challenge at the Records Unit as such contributes to the slow and inadequate service delivery.

This preliminary examination by the researcher at the Medical Records Unit, revealed obvious record management issues and challenges which required further investigation. Records management challenges in Botswana have a long history as seen from this sub-section and this has obviously impacted on planning for health care delivery system in the Botswana. The initial remedies for the prevailing problems need to be addressed by properly managing medical records at PMH as a major contributor to the NHIS in order to contribute information and data necessary to inform all the necessary developments in the health sector.

### **1.5.1 Management of Patient Records**

The sensitivity of patient records has brought several challenges to managing institutions. The commonest relates to storage, access, safety and security. Large hospitals which use primarily manual based patient records systems experience storage problems. Access to patient records is another challenge that users and custodians face. Sometimes there is conflict on the ownership and the right of access to a patient record. The US Fair Health Information Practice Act of 1997 has tried to reduce this friction by mandating a healthcare provider to allow individuals to examine their patient records and it also has provision for a civil and criminal penalty for failure to abide by this requirement (Wager et al 2005).

The safety and security of patient records is a challenge to personnel in-charge of patient records. Nicholson (1996) revealed that there were numerous instances where case notes were not kept in secure conditions. In a number of examples cited by Nicholson, it would have been easy for unauthorised persons to have had access to case notes either from open libraries or from other uncontrolled areas. Case notes, for instance, were found unattended to in out-patient clinics and were sometimes left in clinic areas overnight because the medical records department had closed. She stressed that all users of case notes (doctors, nurses, medical secretaries, ward clerks, medical records staff and others)

should be aware of the importance of security. Nicholson further provided that, unattended computer terminals, particularly if left logged on, are another risk as are fax machines and inadequately protected and controlled computer networks.

The challenges of managing patient records are closely linked to the abuse of patient information. When patient records are not properly managed, without proper security measures, they can be misused, which can lead to possible violations of privacy and confidentiality of patient records. Transberg and Rashbass (2004), among others, are concerned about the misuse of medical records and state that:

*“the confidentiality of medical records is threatened in many different ways. Most newsworthy is the misappropriation and disclosure of medical records for financial gain or to cause harm or embarrassment”.*

Prior literature suggests that the threat of abuse of patient records manifests, not just in unauthorized users, but in those authorized to access files as well. Often, confidentiality is breached through legally sanctioned activities such as billing procedures conducted from remote locations as well as casual or careless conversations among medical professionals in hospital elevators (Weiss, 2000).

It is also important to note that the misuse of patient information found in medical records is not only manifested in paper-based records, misuse can also occur in electronic based records. Electronic tools such as the Internet, electronic mail, digital imaging and telemedicine are now indispensable for conducting business in the electronic healthcare field and are equally vulnerable. They are vulnerable because the electronic environments allow remote usage of records. In this regard, effective security systems are needed to limit unauthorized access to electronic patient records (McClanahan, 2008). Gartee (2007) discusses that electronic patient records are being commonly used and provide many benefits. Firstly, an electronic patient record improves the quality of healthcare and access to information. Secondly, it reduces clinical errors often attributed to illegible physician' handwriting. Electronic patient records may also contribute to cost reduction measures in the management of patient records. Besides, they also improve information

sharing by health practitioners thus enhancing communication of patient information (Shaw, 2001; Seipone, 1996).

Despite their benefits, electronic medical records present a number of challenges. Gartee (2007) for example, points out that they are costly and need a substantial amount of finance in order to set up. Another disadvantage of electronic patient records is that they are technical in nature; and demand training before they can be used. In addition, they lack standardized terminology, system architecture, and indexing which render it hard to implement.

Some of the challenges of using electronic patient records are security related. Security lapses might compromise the privacy and confidentiality of patient records. Gartee (2007) further states that system designers must consider how individually identifiable patient information will be protected and also meet regulatory requirements before using electronic patient records. Technological compliance solutions are some of the measures that have been adopted to safeguard electronic patient records. One such technological compliance solution is data encryption, whereby Internet Transfer Protocols are managed, in order to limit access to records. In this case, the activities concerning electronic patient records are tracked to identify who received disclosed data. Another way of safeguarding electronic patient records is through the use of biometrics (e.g. fingerprint ID recognition) to secure access to computers on networks and information storage devices (McClanahan, 2008).

In a nutshell, several authors in both the developed and developing countries agree that patient records are important in the health fraternity for purposes of patient care. However, patient records need proper management through proper storage areas, controlled access and adequate security to safeguard privacy and confidentiality of patient information.

Ndabambi et al (2013) conducted a study on the issue of patient record privacy and confidentiality at Princess Marina Hospital. The sample comprised of 105 respondents drawn from medical professionals, medical records personnel and administrators at Princess Marina Hospital and the Department of Clinical Services at the Ministry of

Health. The study established that even though there are legislative frameworks and policies that regulate the patient medical-practitioner relationship such as the Botswana Health Professions Act of 2001 and Nurses and Midwives Act of 1995, as well as the Public Service Act of 2008, there were no policies in place to regulate the management of patient records in Botswana as compared to other countries such as South Africa which has policies and guidelines that govern patient records, namely; Medical Records Policy and Guidelines on the Keeping of Patient Records.

### **1.6 Statement of the Problem**

Several authors in both the developed and developing countries agree that patient records are important in the health fraternity for purposes of patient care. However, patient records need proper management through proper storage areas, controlled access and adequate security to safeguard privacy and confidentiality of patient information. A study at Princess Marina Hospital, by Ndabambi et al (2013), focused on a sample of 105 respondents drawn from medical professionals, medical records personnel and administrators at Princess Marina Hospital and the Department of Clinical Services at the Ministry of Health. Even though there are legislative frameworks and policies that regulate the patient medical-practitioner relationship such as the Botswana Health Professions Act of 2001 and Nurses and Midwives Act of 1995 and the Public Service Act of 2008, there is no specific policy to regulate the management of patient records in Botswana. This is in contrast to other countries such as South Africa which has policies and guidelines that govern patient records, namely; Medical Records Policy and Guidelines on the Keeping of Patient Records. The absence of the medical records policy should be a source of concern.

In addition, reports in the print media cited in section 1.2 (background) pointed towards a problem of poor patient record management in Botswana Hospitals.

The provision of a good health system is one of the key priority areas for the government of Botswana, with the MoH getting the second largest share of the national budget at 15.5% or P5.67 billion (MFDP, 2015). The budget is shared across the health sector facilities for the provision of good medical services and care across all spectrums including clinics, health posts, primary hospitals, mobile stops and referral hospitals.



Budget allocation to the MoH is based on the information acquired from the various sectors of health in the country to determine the needs.

Princess Marina Hospital as a national referral hospital is mandated to provide a good medical service and care to its patients. The hospital is also regarded with high esteem as the Centre of Excellence in medical practice in Botswana. As a Centre of Excellence PMH has an important role to play and responsibility of providing high quality health care and treatment as well comprehensive health care services to patients. The medical services provided also have to be sufficient and easily accessible to patients.

The health sector is important as it deals with the lives and well-being of the people and requires adequate planning for resources for which sufficient information must be provided.

Despite the existence of the NHIS currently, there are still challenges relating to timely data collection, collation, interpretation and dissemination to the NHIS from institutions mandated to do so. Other challenges relate to poor data entry and cleaning, analysis and interpretation and use not taking place. As a result the use of data for planning purposes or programme improvement becomes limited. It therefore becomes imperative for PMH as a referral hospital, centre of excellence and one of the major contributors to the NHIS to have a well-managed medical records management system in place guided by international best practices. Such a good record management system would further ensure that whatever information is captured from patients is accurate enough to support the long and short term planning on the needs of the citizens on health care delivery in Botswana.

This study, therefore sought to investigate patient record management in Princess Marina Hospital as a case, in order to determine the trend in other hospitals in Botswana.

### **1.7 Objectives of the Study**

The main objective of the study was to assess the management of medical records at PMH. The specific objectives of the study were to:

- i. Establish the procedures used for managing medical records at PMH using the record life-cycle model and ISO 15489;
- ii. Understand the legislative and regulatory framework for managing medical records at PMH;
- iii. Determine whether there were methods in place for securing medical records;
- iv. Identify the challenges of managing medical records at PMH
- v. Assess staffing requirements for managing medical records
- vi. Formulate recommendations for the effective management of medical records at PMH.

### **1.8 Research Questions**

The study intended to answer the following questions:

- i. What are the procedures used for managing medical records at PMH?
- ii. What is the legislative and regulatory framework for managing medical records at PMH?
- iii. What methods are in place for securing medical records at PMH?
- iv. What are the challenges of managing medical records at PMH?
- v. What are the staffing requirements for managing medical records at PMH?
- vi. What are the recommendations for the effective management of medical records at PMH?

### **1.9 Justification for the study**

This study was initiated with the rationale of determining how medical records were managed at Princess Marina Hospital. It was hoped that the research would assist Princess Marina Hospital to identify specific challenges the hospital faced in the management of medical records, a step that is crucial for initiation of any improvements. The findings and recommendations of this study could also be used by other health institutions to improve the public health services by implementing an effective records

management system. Effective records management eliminates missing files, shortage of physical filing space, lengthy turnaround time in retrieving files and lengthy patient waiting time. It also assists in monitoring the movement of records in a non-electronic format in the public health institutions.

In other words, the study would increase efficiency and effectiveness of business activity in the public health sector. This is because knowledge and practice of proper records keeping helps to increase efficiency and effectiveness of business activity (Swan, Cunningham and Robertson 2002:79).

Records management is implemented to ensure that relevant records and information are safely kept and made available when required or requested. Efficient records management needs to be used as a cornerstone for compliance with implementation of these principles (Mullon, 2004).

### **1.10 Significance of the Study**

This study is significant and relevant in addressing issues of medical records management at PMH, Medical Records Unit. It has uncovered flaws and challenges which can be looked into by authorities for implementation towards improvement in the service delivery exercise especially that the PMH is a Centre of Excellence. The study is also a source of information for other hospitals in the country and likely to inform them on similar problems and challenges as well as on ways to address them. The recommendations made from the study are hoped to improve records management practices and increase productivity and an atmosphere of faith and trust by patients in the service received at PMH. It is the view of the researcher therefore, that the study is likely to prompt further research to address existing gaps not identified and towards improving service delivery as a result contribute to the body of research in the field of records management and archives in general.

### **1.11 Limitations of the study**

This study primarily investigated record management practices for medical records at PMH, using the MRU as the custodian of medical records. The main limitation was lack of previous studies on the management of medical records at PMH to assess the extent of

improvement if any at the location of study. Information about the PMH was scanty and old even from offices that are expected to keep it such as the library and the Public Relations Unit. There was unavailability of some key documents such as annual reports, brochures, statistical reports, minutes from minutes, newsletter etc. normally found in institutions. The MRU was not able to share any document about the unit that could have possibly captured its operations. Documents found were old and less meaningful for the study such as the Annual Report whose latest edition was published in 1995. Therefore, the actual sourcing of information relevant for the study was very difficult to find

### **1.12 Scope of the study**

The study investigated the management of medical records at Princess Marina Referral Hospital by health records and information officers to assess how medical records are generated, handled and its' effects on decision making process. On the handling of patients' medical records, the study dwelt on access, retrieval and storage, confidentiality, retention and disposition and security of medical records.

### **1.13 Chapter Summary**

As developing country Botswana's health service is faced with many challenges. Despite the attempts by the governments of Botswana through the ministry of health (MoH), Botswana's health service has declined over the past years as compared to other developing nations. One of contributing factor to this is lack of proper management of the current NHIS in relation to data collection, collation, interpretation and dissemination to institutions mandated. Other challenges relate to poor data entry and cleaning, analysis and interpretation and use not taking place. It is imperative for PMH as a referral hospitals, centre of excellence and one of the major contributors to have well managed NHIS with well-defined medical records management system in place guided by international best practices. This study sought to further discuss the role of the National Health Information System (NHIS) in the country and how data and information contributed to it is significant in supporting adequate planning and financing of health projects in the country.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This Chapter offers a literature review on the management of medical records within the framework of the record life cycle, benchmarking with ISO 15489 standards on records management. The review thus examines current methods and trends of record management practices of medical records as practiced today. The literature review Chapter is divided into several sections for which discussions will focus on a theoretical overview of a record life cycle and the records continuum model, the importance of managing medical records, the role of the medical records department or unit, the significance of electronic medical records, as well as security, privacy and confidentiality of medical records. The review further discussed the role of the National Health Information Systems (NHIS) in general. The discussions on the NHIS aimed at showing the need for proper medical records management as the information contained in them is contributed to the NHIS as a major source for providing data and information required for planning and financing programmes in the health sector. For example data about the number of tuberculosis or infant mortality rate at any given facility. The review therefore assisted the researcher to make a better assessment on whether medical records at PMH are managed in accordance with the current trends and best practice using the record life cycle model and as dictated by the international standards like ISO: 15489. The review further uncovered why it is crucial for facilities that are contributors to the NHIS such as PMH to efficiently manage their medical records.

#### **2.2 Theoretical Framework**

A study on the management of medical records at PMH will adopt the Records Life cycle Model and the Continuum Model for assessment. Globally, the continuum model is recommended for its relevance in managing electronic records as acknowledged by Upward, (2001). Equally, the study has also adopted the records life cycle model as it is also associated and found appropriate for the management of manual records as asserted

by Keakopa, (2006). Medical records at PMH are managed manually and partially electronically. The records life cycle and continuum models are discussed below.

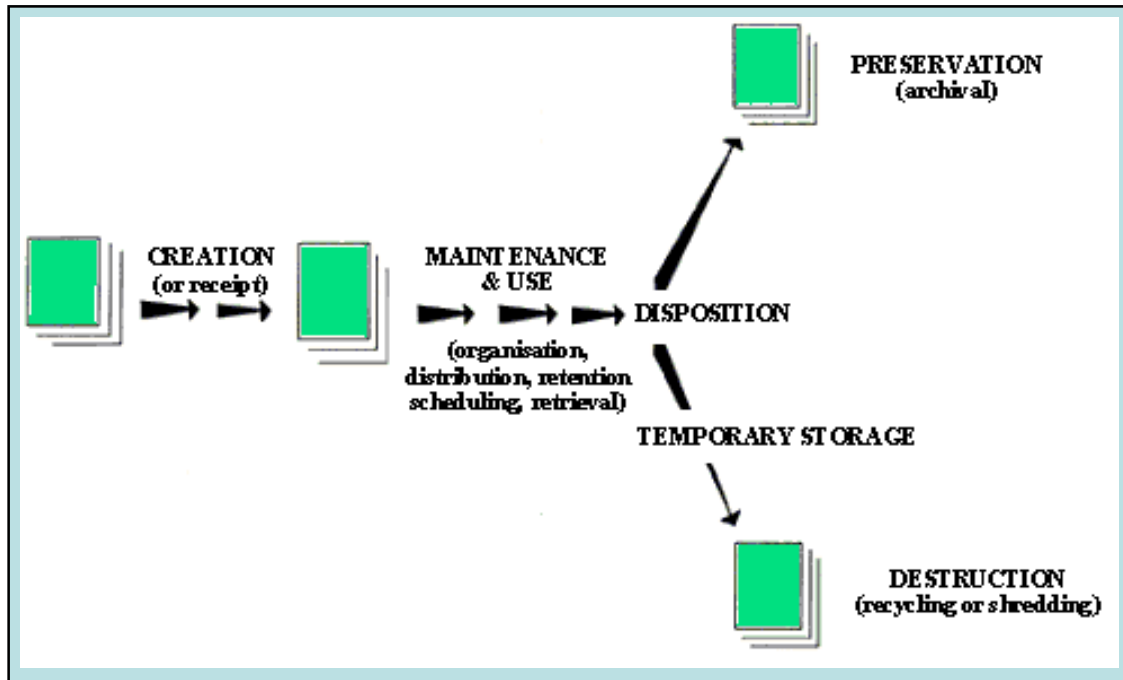
### **2.3 Record Life Cycle**

Just like a living organism, records have a life cycle as signified by their creation, use and disposal after their survival period. According to Yeo and Shepherd (2006), the records life cycle is in common use. Furthermore the concept indicates that records are not static, but are subject to life related to that of a biological organism. Hence the records are born; live through youth and old age and then die. According to Hare and McLeod (1997), the creation stage phase is the root of the life span of the record. It is the stage where records and information are initially created or acquired. The creation or acquisition of records could also be through various means (Penn et al, 1989). For example, an individual writes a letter or memorandum to a business associate, an applicant applies for a vacant position in a particular organization or an existing record is placed on a copying machine and in a matter of seconds one becomes two and so on.

The maintenance and use stage of a life cycle covers distribution, active storage, security and updating of the records throughout the organization. It is the stage where records are used and shared. Furthermore, according to the National Archives of Canada (2003), the phase provides a suitable environment for easy access to timely, accurate and available information in a record. Records disposal is a stage of a life cycle which refers to the transfer of the record to a repository for safe keeping for a set period of time. Records could also be sent to the archives for permanent storage. Before the records could be disposed they go through an appraisal system. Disposal could be through safe keeping by transferring records to the archives or through permanent destruction. Records reach their inactive phase when their primary value to the organization lapses. The National Archives of Canada (2003) mentioned that records are disposed at the stage when they have reached end of their life cycle. In disposing in- active records consideration need to be made concerning the value of information the record contains. The life cycle therefore draws to the conclusion that records are kept initially for organizational purposes and that

they may be relocated into archival custody when because of time are no longer into active use as indicated on Table 1.3 below:-

**Table 1.3: Records Life Cycle Model**



*Source: Department of Education and Children's Services: 2009*

## 2.4 Records Continuum Model

The continuum model according to Shepherd and Yeo (2006) was developed in the 1980s and 1990s in response to criticisms of the life cycle model. In the continuum model there are no separate steps: managing records is seen as a continuous process where one element of the continuum passes seamlessly into another. As discussed earlier a concept of record management known as a life cycle sees it through a number of stages whereby records pass through noticeable stages from creation to use until records can no longer be used hence disposed of. Wakumoya (2000) mentioned that the continuum model focuses on the management of records as a continuous process. The model therefore views management of records in terms of the business process or the functions and activities of the organization which the records document. These views are in line with McKemmish (1995) who also said with the continuum model records are managed

continuously or as a continuum, a process described as something of which no separate parts are discernible, a continuous series of elements passing into each other.

The continuum model as viewed by Upward (1998) says that the continuum model is a departure from the traditional approach taken by archival institution that recognizes that in the electronic age, physical custody is no longer an essential element of preservation strategy. The continuum model, therefore, subscribes to the idea that different stakeholders create, use, manage, and retain records, not in discrete stages, but at different points throughout the record's existence. Furthermore, the model recognizes that records pass through identifiable phases which are reference points, not separate functions. Below is a pictorial presentation of the continuum model:-

**Figure 1.2: Records Continuum Model**

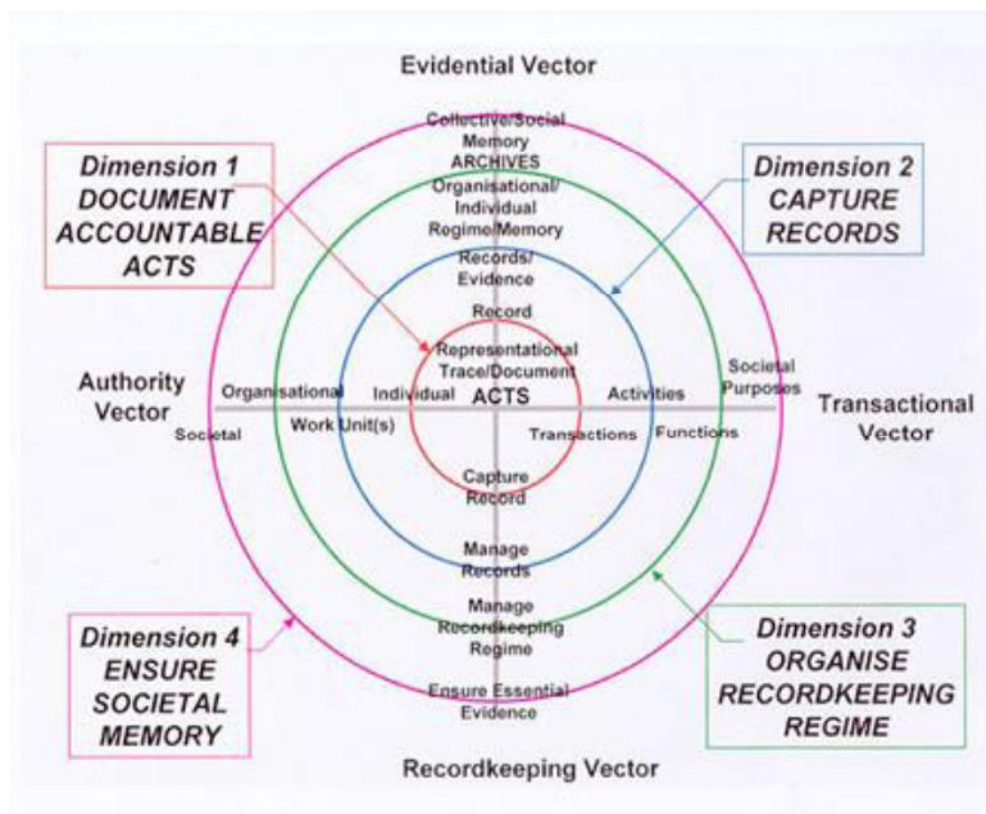


Figure 2: Records Continuum Model: Upward, 1998.

Managing records is therefore an important activity as it reflects their value in relation to their usefulness and the contribution they make in an organization. The issue of managing



records as articulated by Ryan (2006) is that essentially, well managed records make a fundamental contribution to accountability and transparency. Evidently due to the usefulness of records, all records should be managed irrespective of their nature, environment of creation and use, location and other relevant factors. Medical records are therefore no exception to these important processes of records management.

While it is appreciated that records play a significant role in fulfilling organizational mandate, they cannot be retained for good. If records are retained unnecessarily their retrieval processes will be difficult and resources wasted. Increasingly according to Shepherd and Yeo (2003), organizations are recognizing the benefits of well managed records and are implementing programmes to ensure that the right records are created and retained. An effective records management programme should be seen as a positive means toward ensuring that records are available for use when needed, privacy and confidentiality are maintained and that redundant records are destroyed.

## **2.5 Records Management Standards**

The International Standard Organization – ISO 15489-1, 7.1 outlines the principles of records management programmes. According to the (ISO 15489-1, 2003: 6) records are created, received and used in the conduct of business activities; to support continuing conduct of business; comply with the regulatory environment and provide necessary accountability, organizations should create and maintain authentic, reliable and useable records, and protect the integrity of those records for as long as required. To this effect, organizations should carry out a comprehensive records management programme which includes:

- i) Determining what records should be created or captured, and the technologies to be used.
- ii) Deciding in what form and structure records should be created and captured and the technologies to be used.
- iii) Determining what metadata should be created with the record through records processes and how that metadata will be persistently linked and managed.

- iv) Determining requirements for retrieving, using and transmitting records between business processes and other users and how long they need to be kept to satisfy those requirements.
- v) Deciding how to organize records so as to support requirements for use.
- vi) preserving records and making them accessible over time, in order to meet business requirements and community expectations
- vii) Complying with legal and regulatory requirements, applicable standards and organizational policy.
- viii) Ensuring that records are maintained in a safe and secure environment
- ix) Ensuring that records are retained only for as long as needed or required and
- x) Identifying and evaluating opportunities for improving the effectiveness, efficiency or quality of its processes, decisions and actions that could result from better records creation or management.

It is therefore necessary that all records regardless of type be managed and guided accordingly by the ISO 15489-1 standards on records management.

## **2.6 An Understanding of Medical Records**

According to Jethani (2004), medical records are defined as the daily orders, which the consultant has to refer to time and again until the patient is completely cured of the disease. Daily notes therefore play a very important role as they provide sufficient information that the consultant can refer to in the care of a patient. Even when treatment has been completed daily notes provide reference for further treatment and follow-up.

Jethani (2004) sees the importance of medical records as significant for the following:

### **1) Consultants in person**

Consultants work according to Jethani (2004), depends on operative notes for proper judgment in treating a patient. These notes could be to plan for the next operation; to know any anesthesia problems met with and to plan for the operation of the next eye. Follow - ups is also very crucial activity in patient care on the part of a consultant. The record has to indicate when a patient has to come for the next treatment or even when the patient has to be examined by another doctor.

## **2) Consultants who get referrals**

Medical records importance to the consultants is tied to medical ethics and that if a patient is to be referred to other consultant, the original consultant should write down the original history in detail, medications and the findings. This is done to assist the next doctor in coming up with an informative conclusion on the diagnoses to offer further treatment accordingly.

## **3) Nursing staff**

Nursing staff members also play a crucial role in making medical records important. This is so because they get their instructions from daily orders regarding which drugs are to be given and the frequency of each of them. These instructions are said to be directed by the orders from the Medical Records Unit and;

## **4) Legal purposes**

Health professionals have to be responsible for the negligence if anything goes wrong. Therefore medical records are a single most important document through which the innocence of the doctor concerned can be proved. Hence all the details regarding the management of the patient should be documented precisely in the medical records.

Accusation of malpractice and unethical code of conduct according to Jethani (2004) can be made against the concerned consultant if he fails to provide the patient with all the details and the case sheets of his admission, operation and the postoperative medication along with the dosage.

Well-kept records and documents can therefore offer defense shields for medical practitioners in the court of law. According to injured Gillies (1994), failure to record significant patient information on the medical record makes a nurse guilty of negligence when the patient is injured because of a physician's ignorance of significant information about medical history signs and symptoms. Furthermore, Gillies (1994), also states that medical record must be accurate to provide a sound basis for care planning therefore errors in nurses charting must be corrected promptly in a manner that leaves no doubt about the facts. Every health agency should have a policy and protocol that an erroneous

about entry be crossed through, labeled as erroneous signed by the employee who corrects the error and retained in the patients record. Correct information should then be documented to replace the erroneous data.

Therefore proper maintenance of records should become an essential part of good practice. A view regarding documenting patient care information is further shared by Dieneman (1990), that good charting is critical element of the nurse duty to the patient. Also that through charting provides the quality and quantity of care given to the patient. Hence nurses have a legal responsibility for accurate reporting and recording of patient's conditions, treatment and responses to care. Not only should all the entries regarding patient care be recorded but should according to Dieneman (1990), be timely, factual, relevant and pertinent. Nurses should also conform to the standard care, record promptly and often as well as note the date and time.

Eskeris (1998) outlined some 7 legal issues regarded as pitfalls in nursing which need to be considered in safeguarding patients and protecting caregivers from law suits. Common to the seven issues given only four specifies the need to document information gathered regarding patient's care. These issues are as follows:

**1) Failure to communicate**

Communication between nurse and patient and between nurse and other health care professionals is essential to safeguarding patient well-being. This he emphasized that it is imperative to keep physician informed of the patient status and to be certain that the caregiver fully understands the physician's instructions. If the communication between the nurse and physicians is not properly documented the nurse can be held liable for failure to communicate. Therefore Eskeris (1998) advice is to document all telephone conversations and include the exact times of calls and the exact contents of the discussion.

## **2) Failure to provide sufficient monitoring**

Failure to monitor is a common cause of malpractice suits and this charge can arise in almost any area of hospital. Furthermore, if frequent monitoring is ordered for patients to have a physician the frequency should be specified. Failure to document how a patient was monitored and a patient sustained an injury, the judge or jury might be more apt to conclude that a patient was neglected. Hence it is important to ensure that the frequency of monitoring is specified in physicians order or policies and procedures; monitor the patient as the condition warrants and as ordered and to document the frequency of patient monitoring and status of patient.

## **3) Failure to follow physician's orders or established protocols**

Eskeris (1998) states "if you fail to follow a physician's order of an established protocol, you are putting yourself in an extremely vulnerable position legally." To be legally protected, it is necessary to follow orders or protocols and documenting actions executed, and;

## **4) Patient Pitfalls**

Injuries' resulting from patient falls in the hospitals is known to be common and can cause lawsuits against nurses. Although in most cases there is no absolute liability to the caregiver it is necessary to have proof that such an incident has happened. In addition to the documentation given on account of what has happened, Eskeris (1998) asserts it is necessary to document all measures taken to protect a patient in the patient's medical record.

Comeford (2003) alludes on the purpose of a medical record as to provide evidence of the quality of patient care and is used by the various groups to help and evaluate patient care. This definition is line with the one by the World Health Organization (WHO) (2001) which states: the main purpose of the medical record is to record facts about the patient history with emphasis on the events affecting the patient during the current admission or attendance at the health care facility and other continuing care of the patient in future episodes requiring health care.

Medical records also have primary uses documented by WHO (2001) as:

- To document the course of the patients illness and treatment
- To communicate between attending doctors and other health care professionals providing care to the patient
- For the continuing care of the patient and;
- For research of specific diseases and treatment.

It is from the importance of medical records and the role they play in the health of patient that their management becomes crucial.

### **2.7 Importance of Managing Medical Records**

Like any other records, Medical records are no exception to records management practices due to the importance and contribution they have in the provision of patient health care and management. Once created medical records have to be kept and maintained for continuity and accountability for proper medical care services. Record keeping is therefore part of the record management practices.

There are many reasons given relating to the importance of patient record keeping and according to Booyesen (2000) these are as follows:

- To provide current, comprehensive and concise information on the condition and care of patient in an accurate manner.
- To record and report problems experienced in providing the care and the actions taken to solve them.
- To note down the factors that have an effect on the patient's physical, psychological and social well-being.
- To inform staff of treatment required in rendering of care by all staff concerned with the provision of care as well as response of the patient to treatment.
- To keep a chronological record of the entire event concerning patient care from admission to discharge.
- To improve auditing of care rendered and to provide information on where improvement is necessary.
- To measure compliance with standards.
- To report on incidents and the steps taken to prevent them from re-occurring.

- To protect staff from legal action against them
- To plan for future using the statistics available
- To determine the cost of patient care. Records can be viewed by accounting department to determine the cost involved in caring for a patient and
- To ensure effective communication between everyone involved in the delivery of health care.

By all means a medical record should be seen as a record associated with a patient with all the recorded details regarding clinical administration given to a patient. It serves as documentation concerning the patient and his care as well as providing sufficient data to justify diagnosis and treatment.

While medical records are justifiably created under the various circumstances, on a whole, their creation can be looked into within the framework of primary and secondary reasons. Green and Bowie (2005) states that the primary purpose of the patient record is to provide continuity and care services so that others who treat the patient have a source of information from which to base additional care and treatment. By the same token, McWay (2003) also asserted that in the most basic sense, medical record serves as the chronological document of clinical care rendered to the patient. Created contemporaneously with the clinical care rendered, it provides a method for various medical disciplines to communicate the patient's illness and course of treatment during a particular episode of care. Further they supply information to caregivers involved in a patient's subsequent episode of care. While emphasis on the purpose for medical records focuses on the provision of crucial details about the patient and care and management there are other uses.

In addition to direct patient care medical records serve other clinical purposes. Through concurrent and retrospective analysis, medical records are relied on by the medical, nursing and scientific communities as primary source of information for research. By identifying specific incidences of disease, medical records assist the public health community's efforts to control disease and monitor the overall health status of a

population. Furthermore medical records assist in quality improvement activities because they provide a source from which to evaluate the adequacy and appropriateness of patient care. With regard to the rationale behind the creation of medical records, Comeford (2003) also alludes that the purpose of a medical record, is to provide evidence of the quality of patient care and is used by the various groups to help and evaluate patient care.

This definition is line with the one by the WHO (2001) which states, the main purpose of the medical record is to record facts about the patient history, with emphasis on the events affecting the patient during the current admission or attendance at the health care facility and other continuing care of the patient in future episodes requiring health care. WHO (2001) clearly stated that medical records are a written collection of information about a patient's health care and are essential for his or her present future care. Information contained in the medical records is used for the management and planning of health care facilities and services; for medical research and production of health care statistics.

To show that medical records are useful and created for purpose, doctors, nurses and other health care professionals write in medical records so that they can use the information again when the patient comes the medical record workers ensure that the medical record is available for health care personnel when the patient returns to the health care facility. According to WHO (2001), the primary purpose for creating medical records is as follows:-

- i) To document the course of the patients illness and treatment
- ii) To communicate between attending doctors and other health care professionals providing care to the patient
- iii) For the continuing care of the patient and
- iv) For research of specific diseases and treatment

As stated by WHO (2001) regarding use of the medical record, Gillies (1994) specifies the value of the medical record as an information source document that should be used to plan, care, evaluate care, allocate costs, educate personnel and substantiate legal claims.



If the medical record is not available then the patient may suffer, due to lack of previous information which could be vital for their continuing care. In addition if the medical record cannot be produced when needed for patient care the medical record system is not working properly and confidence in the overall work of the medical record service is affected.

The collection of health statistics of medical records are not just for the facilitation of medical care and management. McWay (2003) points out that the health care providers rely on medical records to support the billing of insurance and benefits claims of individual patient whom they have provided care for. Third party payers rely on medical records to make payments on claims to health care providers and to monitor the appropriateness of care and services rendered to the patient. Employers rely on medical records to document the extent of an employee's disability. Of great significance also medical records are also relevant as legal documents. This view is given by McWay (2003) who mentioned that medical records are the backbone of virtually every professional liability action.

Medical records are used to prove what did or did not happen in a particular case and to establish whether the applicable standard of care was met. Since memories fade and persons who participated in direct patient care are not always available at home at the time of trial, the medical record serves as the most frequently used method to reconstruct an episode of patient care. While it is imperative to create a medical record for the purpose of continuity in the care given to a patient it is also necessary to ensure that such records are well cared for such that they can be availed each time they are needed including having all the necessary information captured appropriately. Given the various circumstances under which medical records are used they require a certain degree of care and management to facilitate proper use in the provision of patient health care and management.

Once created medical records have to be kept and maintained for continuity and accountability for proper medical care services. An outline on the usefulness of medical

record as stated by Booyesen (2000) is that they provide current, comprehensive and concise information on the condition and care of patient in an accurate manner; record and report problems experienced in providing care and actions taken to solve them; note factors that have an effect on the patient's physical, psychological and social well-being; inform staff of treatment required in rendering care by staff concerned as well as response of the patient to treatment; report on incidents and the steps taken to prevent them from re-occurring; protect staff from legal action against them; plan for future using the statistics available; ensure effective communication between everyone involved in the delivery of health care.

McWay (2003) mentioned some characteristics necessary for ensuring that medical records serve both their primary and secondary purposes and these are authentication and timeliness, completeness. With regard to authentication and timeliness the key issue is that all entries in the medical record must be authored and authenticated. It is stated that authorship is required to identify the health care provider who has made the entry either in writing, by dictation, keyboard or keyless data entry. Authentication is needed to confirm the content of the entry, either by written signature, initials or computer-generated signature code. For timeliness, health care providers, who make an entry in the medical record, must do so contemporaneously with the actual occurrence of the event. The need for timeliness is said not only to be critical to delivering quality patient care, but required as a condition of both licensing and accreditation. Concerning completeness of a medical record it is not only a matter addressed by state laws, federal and state regulations and accrediting standards but rather a matter of common sense. The reason given is that, without a complete medical record, the health care provider's ability to render quality patient care and conduct research education is impaired.

Also the health care provider's ability to present a defence in a law suit is called into question. In order that a medical record is regarded to be complete, McGuire (2001) states that a series of questions asked by a caregiver to the patient has to take place. The questions about the complaints and observations such as temperatures breath sounds current medications taken, allergies and family medical history. Following interviews and

observations, possible consultations with other caregivers, receipt of the results, the caregiver will make a clinical interpretation based on the findings from the assessment made.

Once sufficient information has been gathered to create a medical record of a patient, a filing system has to be developed and that the filing system should have a life span of at least five years (Booyesen, 2000). Each patient should have a separate record providing full particulars of the patient name, address, family and social background, name and family doctor and medical aid number. A well-organized numbering and filing system is essential to the effective storage and retrieval of patient records. All these activities require that patient records be easily accessible and retrieved in a timely fashion (Green and Bowie, 2005). It has also been noted by McWay (2003) that corrections to the medical record are important considering that sometimes mistakes and omissions are made unintentionally.

In such a situation the recommendation given is that the person who made the original entry must make corrections to the record usually by drawing a single line through the entry and writing "error". The same principle is said to apply on correction of information stored in a computerised patient record which is made by way of an addendum. If the medical record is not authentic, complete or available on time then a patient's life may be jeopardized with fatal results. By all means a medical record should be seen as a record associated with a patient with all the recorded details regarding clinical administration given to a patient. It serves as documentation concerning the patient and his care as well as providing sufficient data to justify diagnosis and treatment. In view of the above scenario on what constitutes medical records and how the records are created including issues of management it becomes evident that a certain degree of care need to be exercised to ensure proper keeping and facilitation of record access and retrieval. The role of the Medical Records Centre or Department therefore becomes imperative as a central place where medical records are managed.

## **2.8 The Role of the Medical Records Department**

Medical records form an important part of documents or records within any health institution or a medical facility. Due to the importance attached to medical records, there is usually a department responsible for ensuring proper administration and management of records to enhance medical delivery service. Such a department also ensures that issues of care and safe keeping are in place to avoid abuse by those not supposed to view the records. According to Green and Bowie (2005), the record department is responsible for allowing appropriate access of patient information while at the same time maintaining confidentiality for patient and provider data.

Medical Record Department (MRD) as defined by WHO (2001) is an extremely busy department and the work of medical record clerks very demanding. Although according WHO (2001) staff is not directly involved in patient care however; the information recorded in the patient's medical record is an essential part of that care offered by the department. Medical record staff therefore must be resourceful and dedicated to working in a busy and extremely important section of the hospital. Even so, the U.S Office of Personnel Management (1991) cautions that in outlining the functions of the MRD it must be noted that specific demands for services vary according to the type of the institution.

WHO (2001), further identifies the primary functions of MRD to include development and maintenance of the master patient index for patient identification; retrieval of medical records for patient care and other authorized use; discharge procedure and completion of medical records after an inpatient has been discharged or has died; coding diseases and operations of patient discharged or died; filing of medical records; evaluation of medical records service; completion of monthly and annual statistics and for medico-legal issues relating to the release of patient information and other legal issues.

With regard to the role of staff for the MRD the United States Office of Personnel Management (1991) states among others that, personnel must have the medical records management and administrative knowledge and skills necessary to the development and

maintenance of medical records programme; develop and implement policies and procedures to process medico-legal documents and insurance and correspondence requests, and to document, store and retrieve medical records information conforming with Federal State and local statutes; advice staff members or research investigators on methods of recording and retrieving health care data for special studies and perform retrieval of data for studies; coordinate with appropriate personnel to manage, supervise and perform administrative work to meet procedural, legal and administrative requirement concerned with the admission, treatment, transfer and discharge of patients; design, conduct and test an in service education program for medical records employees, medical staff members, students and other health care personnel; make projections on growth of medical records system and implement design changes to accommodate programme expansion etc.

Given the nature of roles found within the MRD different cadres of personnel are found such as “Medical Records Administrator, Medical Records Administration Specialist, and Medical Records Officer/Technician/Clerk/Attendant etc. The sensitivity and confidentiality of medical records has been an issue of discussion some decades ago. According to Snook (1992), the Medical Records Administrator must be alert to certain legal requirements with regard to the handling and release of medical information and medical records. The Medical Records Administrator is expected to handle privileged communication with individuals through the courts or various governmental agencies under established hospital policy and follow state federal rules and laws (Snook, 1992). Furthermore, the Medical Records Administrator is the special guardian of medical records that are under litigation. In that capacity the administrator has to testify orally or in writing at legal hearings and sometimes actually has to go to court to indicate that the hospital record is the accurate medical document as it is purported to be.

Other than the roles of the MRD staff, there exists also the medical records committee which acts as liaison between the medical records department and physicians in the hospital (Snook, 1992). This committee’s main duty is to supervise the organization of records. The committees are mandated to review and approve all new medical record

forms. The committee further evaluates the accuracy of certain record details relating to the management and administrative matters of the records.

From the functions of the MRD it is evident that there are many roles performed hence several sections and departments within the MRD. The statistical section of the MRD provides the input to many computerized data services that hospitals use to generate computerized patient data profiles. Further to this, Snook (1992) notes the primary source of this data is the patients discharge abstracts that is submitted to certain third party agencies. This data is then summarized in computer language and sent to a computer with large memory banks. Once data has been computerized the hospital will then be able to receive the information in a readable and quickly retrieval fashion. Hard copies of medical records on the other hand can be stored as microfiche which is regarded as an efficient cost effective means of storage and retrieval.

Another notable section according to Snook (1992) is the Transcription Section which is an area in which typists transcribe the summaries and report dictated by physicians on paper for filing in the medical record. Snook (1992), however also notes that unlike in the past where medical transcribers were employed, the situation has since changed as the services are now outsourced. The advantage in outsourcing the subscriber's services is that it relieves the hospital from maintaining a bank of technical transcription equipment and a cadre of qualified typists.

## **2.9 Functions of Electronic Health Records (EHR)**

An electronic record means information which is generated electronically and stored by means of computer technology. Electronic records are also considered to include all components of electronic information systems namely, electronic media as well as all related items such as input documents, printout, programmes and metadata ( NARSS, 2006). According to Hamilton (2009), the concept of a patient's medical information stored electronically instead of on paper is not a new one. Patient records before the advent of computers were manual stored and maintained in paper and other formats. Historically, a patient's medical records consisted of handwritten notes, typed reports,

and test results stored in a paper file system. A separate file folder was created and stored at each location where the patient was examined or treated. X-ray films and other radiology records typically were stored separately from the chart, even when they were created at the same medical office. This style of record keeping was not only tedious and cumbersome but consumed a lot of time hence a need for some more user-friendly style of maintaining health records leading to the development of the EHR (Gaarte, 2003).

The rationale behind using EHR today according to Gaarte (2003) came through a study sponsored by the Institute of Medicine of the National Academies. The study sponsored by the Institute of Medicine of the National Academies known as IOM called for the creation of an electronic patient record that resides in a system specifically designed to support users by providing accessibility to complete and accurate data, alerts, reminders, clinical decisions support systems, links to medical knowledge and other aids. President Bush in his 2004 State of the Union Address stated that “by computerizing health records, we can avoid dangerous medical mistakes, reduce cost and improve care” (State of the Union Address, 2004: 12). Torrey (2012) pointed out that in the past, medical history was obtained by questions. This happened by completing forms about medical history including previous surgeries or drugs taken on a regular basis. This means that if a piece of information is forgotten or not noted because it appeared unimportant the medical history will not be complete and likely to result with incomplete diagnoses by the doctor.

The creation of electronic health records came with many benefits in terms of improved clinical information and accessibility, patient safety, improved patient care and efficiency and savings (Hamilton, 2009). With the health patient record better clinical information to the health care provider can be realized. Access to the patient medical information also becomes easier and is available at the patient’s point of care. Further to that, the health care provider can easily be informed of past medical history, family medical history, immunization records and many other issues relevant on the care of a patient. With regard to ease of access of information as a result of the EHR decisions can be made spontaneously. For instance, when a patient telephones on an issue of concerning

medication currently on, the health care provider can instantly access the patient chart on EHR and make whatever decisions are needed such as prescriptions and to document the consultation immediately.

Despite the existing ethical and legal obligations the Health Insurance Portability and Accountability (HIPPA) (2013) states that access regarding patient information have become more common. According to the American Medical Association (2012) electronic health information systems allow increased access and transmission to health data. Physicians in integrated delivery systems or networks now have access to the confidential information of all the patients within their system or network allowing patients to be treated more efficiently and safely. Furthermore, at most, quick access to our records can be life - saving if an emergency occurs. Another benefit that can be seen from having computerized records is safety (Torrey, 2012).

EHR also allows for up to date information such as test results, routine and current medications and allergy information which are needed to base certain decisions on, quickly. Just like any other record keeping, moving patient records from paper and physical filing systems to computers and their super storage capabilities creates great efficiencies for patients and their providers, as well as health payment systems as noted by Torrey (2008). The challenge of reading handwritten notes, orders and prescription has been eliminated with the EHR. Patients chart information is clear and legible including reports and letters to other specialists and patients. Other benefits with regard to patient safety are that EHR provides routine information and reminders allowing for health maintenance screens to be tracked automatically.

Although efficiency is important it is not the only benefit of having computerized records. Individual patients, access to good care becomes easier and safer when records can easily be shared (Torrey, 2012). Important information such as blood type, prescribed drugs, medical conditions and other aspects of medical history can be accounted for more quickly. Automatic screening can be done by patient age, gender, past diagnoses, past medical procedures or even family medical history. Furthermore the EHR can evaluate



the patient information and alert the practitioner regarding tests, procedures, or screenings that are due. An alert is a term used in an EHR for a message or reminder that is automatically generated from the data. Alerts are usually based on programmed logic. For example, an electronic prescription system generates an alert when two drugs known to have adverse interactions are prescribed for the same patient (Gaarte, 2006).

All in all the use of computerized health record systems is convenient. It also facilitates remote access as well as being able to store information in a more organized and easier way to read compared to the paper record. The system knows no boundaries as access to information can be simultaneous allowing for decision to be made instantly. Therefore EHR systems are good for the improvement of efficiencies of processes such as data collection, data management and data retrieval. The EHR systems like other systems are not without faults. Some of the disadvantages below have been outlined by (Gurley, 2004). Startup costs can be excessive “although providers are concerned with return on investment, they realize that the gains from EHRs are in patient safety and efficiencies rather than in tangible and measurable financial terms”. There is a substantial learning curve and it is helpful if the users have some type of technical knowledge.

Confidentiality and security issues are concerns associated with both the paper health record and the EHR. Stringent security measures should therefore be applied to protect the confidentiality of patient information. It is also in the patient’s best interest for the EHR to be accessible for appropriate and legitimate uses by authorized users. Other barriers include lack of standards for the EHR systems. Lack of standards through encryption or data integrity, return on investment is unknown as noted by Hamilton (2009). Measuring Return on Investment (ROI) furthermore according to Hamilton (2009) includes intangible, immeasurable, non-financial information, such as improved patient care, patient safety, and more efficient processes. Also, although an EHR can be customized for a specific medical practice there is always some process change required by the provider and medical staff.

The fact that there are multiple people who can access the record at once can also mean that every error on the record can have a major impact. Problems relating to power outages, computer crashes, viruses, concerns about adequate backup are also some of the few challenges the EHR systems have. For example, failure in hardware and software can have a bearing in loss of information. There is also a problem of lack of trust and safety for records stored electronically. Hence concerns' regarding alteration of medical records without the consent or knowledge of relevant authorities is legitimate. Providers must therefore, have the assurance that the medical records are safely stored for future accessibility.

### **2.10 Security, Privacy and Confidentiality of Patient Records**

The use of computers and information technology has issued a new way to store vast amounts of information using physically small storage area. This method also provides convenience where several people are able to access information at the same time from different sites. While this development is good it must be ensured that the security of patient records is not at risk nor compromised anyhow. McWay (2003) states that health information contained in the medical records serve a variety of clinical and nonclinical purposes, direct patient care, quality improvement activities, public health monitoring , and billing and reimbursement, to name but a few.

Furthermore, that the most important purposes of health information contained in the medical record are the legal document recording a particular episode of a patient's care. The legally binding aspects of patient information is further supported by Greene and Bowie (2005) who assert that any information communicated by a patient to a health care provider is considered privileged communication, which means it is private. Maintaining confidentiality of patient records is of prime importance and extensively elaborated by several authors and bodies; AMA, (2012); Green and Bowie, (2005), HIPAA, (2013) and McWay (2003). According to the American Medical Association (2012), a physician is responsible for maintaining patient confidentiality. This means that a physician may not disclose any medical information revealed by a patient or discovered by a physician in connection with the treatment of a patient.

Green and Bowie (2005) mentioned that a breach occurs when a patient's information is disclosed (or released) to other(s) who do not have a right to access the information. AMA (2012) affirms that information disclosed to a physician during the course of the patient-physician relationship is confidential to the utmost degree. Patient should also feel free to disclose their conditions to physicians. Full disclosure enables the physician to diagnose conditions properly and to treat the patient properly. In return for the patient honesty, the physician generally should not reveal confidential communications or information without the patient's express consent unless required to disclose the information by law (AMA, 2012). Furthermore, according to the HIPAA (2013) privacy and security provisions, patients have the right to an expectation of privacy regarding their privileged communication, which means information cannot be disclosed without their authorization; security safeguards must be implemented to ensure that facilities, equipment, and patient information are safe from damage, loss, tampering, and theft or unauthorized access as noted by Green and Bowie (2005).

Patients have the right to confidentiality, which is the process of keeping privileged communication secret and means that information cannot be disclosed without the patient's authorization (exception include information released via subpoena *duces tecum* and according to statutory reporting requirements). A subpoena is a command issued by court or other authorized official to appear and or present certain documents and other things. A subpoena *duces tecum* is often used in the context of health information management, commanding the custodian of the records to produce a particular record at trial or disposition and provide testimony as to the authenticity or the record produced (McWay, 2003).

Greene and Bowie (2005) also states that a breach of confidentiality occurs when patient information is disclosed to others without the patient's authorization. Given the importance and nature of patient information it is imperative that they should be protected from misuse and unscrupulous individuals who might use it for wrong purposes. It is important that the medical records staff is aware of the need to maintain confidentiality and the patient's right to privacy. As the person in charge of the MRD

they are responsible for seeing that unauthorized persons do not have access to the medical record and that information is not given out without the patient written consent according to WHO (2001). Providing health services is an endeavor that requires that all the processes involved in its handling should be carried out with a lot of care and degree of sensitivity. This is so because by nature medical information is private and confidential hence should only be used or seen by those that are entitled to it. Medical records are also considered to be legally binding hence the importance of protecting them from unscrupulous users. Patient records are therefore, not just medically important but are legally crucial.

According to Tan and Gunasekara (2000), health information is plagued with problems of access, duplication and interpretation. For example, the nation's health professionals requiring information for the care and treatment of patients have had to rely on fragmented information flows, as information is needed for care and treatment of patients is collected at different levels. Most health information is collected in a situation of confidence and trust for the purpose of care and treatment. Assurances as to confidentiality and protection of privacy are vital components of the relationship between patient and health professional and are necessary if the latter is to obtain accurate information from the former in order to make an accurate diagnoses (Tan and Gunasekara, 2000).

Confidentiality of legal health records is binding as a matter of principle. Addison (2003) mentioned that information from the legal health record should be disclosed in response to authorized requests for copies of patient record. Electronic records should be transmitted in a method that minimizes the risk of breach of security and protects the patient's privacy as defined in the HIPAA (2013) privacy and security standards. Maintaining confidentiality of medical records is not always seen as positive in health care delivery issues since it impedes negatively on research. Some of the leading figures in British medicine have told the British Broadcasting Corporation (BBC) that the law that protects the confidentiality of patient medical records is hampering research into cancer (Watts, 2001). It was further reported that experts say new rules introduced by the

General Medical Council (GMC) may make it impossible for scientists to gain access to existing medical records and stored samples of human tissue. The argument made was that individuals right of confidentiality should not be permitted to overpower society's need for medical research that could come up with treatments and cures for fatal diseases.

While realizing that confidentiality of medical records should be respected in Britain, the law justifies access to patient records and that confidential information could be released without reservation. According to the BBC News (2001), a clause of the Health and Social Care Bill permits the Health Secretary to demand the disclosure of patient information, which would normally be entirely confidential. However, the British Medical Association (BMA) (2007) ethical guidelines states that patients permission for the release of information is valid only if the patient understands the consequences of his or her records being released, and how the information will be used. This is in line with the Data Protection Act of 1998.

### **2.11 Use of EMR in Developing Countries and Sub Saharan Africa**

In Africa millions of people die every year, and Sub-Saharan Africa, in particular, shows little progress towards achieving five of the six health-related Millennium Development Goals (MDG) targets (WHO, 2009). Countries in this region require health information systems that will enable them to generate the data needed to monitor progress towards the achievement of the targets. The health information systems in most African countries currently are primarily paper based and are woefully insufficient to meet both patient and reporting needs. On the other hand, information and communication technologies (ICTs) offer unparalleled opportunities to respond adequately to this challenge (WHO, 2009).

Just five years ago, the use of electronic medical records (EMRs) in resource-poor countries in the Global South was, at best, experimental. Few organizations thought their usage was realistic, and fewer still had deployed such systems. The handful of projects that used an EMR system fell mainly into two groups: those that used expensive commercial software in specialist projects and private hospitals and those that developed the software in-house, usually to manage a specific disease (McGrath et al, 2004). Since then, several successful medical information systems and EMRs have been implemented

in developing countries and information technology is much more widely available in resource-poor areas. These factors, along with recognition of the benefits of EMRs in improving quality of care in developed countries, have created a broad interest in the use of health information technology systems (HIT) in the management of diseases such as HIV and drug-resistant TB (McGrath et al, 2004).

In 2001, the Departments of Medicine and Child Health and Paediatrics at Moi University, Eldoret and the Department of General Internal Medicine and Geriatrics at the Indiana Evaluation study on implementation of electronic medical record system (EMR) in Malawi University School of Medicine, in collaboration with the Moi Teaching and Referral Hospital in Eldoret, Kenya, established the Academic Model for Prevention and Treatment of HIV/AIDS (AMPATH) (Sika et al, 2009). The AMPATH Medical Record System (AMRS) was the first functioning comprehensive electronic medical record system committed to managing and improving the quality and efficiency of care for patients with HIV/AIDS in sub-Saharan Africa. It has played a significant role in patient care in all AMPATH sites. It has standardized patient data collection and made data retrieval much faster than the traditional paper-based record. It has enabled evidence-based decision making for patient encounters and for the health system. The AMRS is affordable and represents a model system for recording critical HIV/AIDS data in resource poor settings that will be delivering an increasing amount of HIV care. This model will also allow those funding the rapid increase in the provision of HAART to know the return they are getting on their investment and hopefully encourage continued treatment of the worst medical disaster to ever befall humanity.

While most sophisticated EMRs in low-income regions are in large cities, where infrastructure and staffing needs are more easily met, Partners in Health (PIH) pioneered web-based EMRs for HIV and TB treatment in rural areas (Allen et al, 2006). The HIV-EMR, developed in Haiti, was deployed in two Rwandan health districts starting in August 2005. In less than six months (August 2005 through January 2006), the EMR tracked over 800 patients on ARV treatment. The addition of new features and adaptation to local needs was happening concurrently with the rapid scale-up and evolution of the medical program itself. The EMR in Rwanda provides support for patient monitoring,

program monitoring, and research. Patient monitoring includes information for care of individuals, such as historical medical summaries and alerts. This is especially useful given the large distances between the clinics. The EMR in Rwanda also has an instrument to predict drug requirements and aid pharmacists in packing.

PIH in Rwanda learnt that well-trained data entry persons are required to maintain an EMR system; the team also learnt that at least 4 months of on job-training is needed to properly train data entry persons. Data entry persons must have the ability to solve problems and follow up ambiguous or suspect data, and IT support persons must be available. Care providers must also be trained to properly report changes in treatment

## **2.12 The Role of the National Health Information Systems**

### **2.12.1 Definition and Functions**

The Pacific Health Information Network (2015) defines the NHIS as any system that captures, stores, manages or transmits information related to health of individuals or activities of organizations that work within the health sector. The definition incorporates things such as district level routine information systems, disease surveillance systems and also includes laboratory information systems, hospital patient administration and human resource management information system. This definition is in line with the WHO (2007) which states that the Health Information Systems (HIS) provides the underpinnings for decision making with four key functions: data generation, compilation, analysis and communication and use. The HIS thus collects data from the health sector and other relevant sectors, analyses the data and ensures that their overall quality, relevance and timeliness, and converts data into information for health related decision making. Information generated from the system thus enables decision makers at all level of the health system to identify problems and needs, make evidence based decisions and allocate resources optimally.

In some instances the HIS is set up at district levels as in South Africa where the system was developed in 10 districts. The initial introduction of HIS in South Africa was 1996 but was later extended to the entire country in 2001. The District Health Information System was set up to collect aggregated routine data from all public health facilities

(Carrib, 2008). The system aimed to ensure the appropriate and collective use of resources to improve the health service performance and the health of the community. Like most NHIS, the South African DHIS collect, analyze and converts data into information that will be useful in determining health systems actions. Such data must be reliable accurate and timely. The system thus aimed at supporting decentralized decision making and health service management. Furthermore, it allows health workers to analyze their level of service provision, predict service needs and access performance in meeting health service targets.

The provision of health of all citizens is by far considered an important duty by all governments in developed and developing countries. However, in developing countries resources are usually inadequate as well as being a major challenge to support the required needs in the health sector. As a result assistance is usually sought or offered from other sources as declared by Stansfield et al (2008), in that developing countries and global network of donors and non- governmental organisations have agreed that health systems need to become stronger if gains in healthcare are to be achieved and sustained. Stansfield et al (2008) further notes that existing data collection and use is fragmented, inconsistent and often of poor quality and therefore recommended a NHIS and that the system is capable of supporting day to day management, long term planning and policy development for the entire health system. It also plays an important role in ensuring that reliable data and information for operational and strategic decision making that saves lives and enhances health is available.

The existence of NHIS according to Carrib (2008) are usually to respond to an increasing demand for health information to inform policies, priority setting, resource allocation, monitoring of impact of health programmes and progress towards goals. Therefore, managing a Health Information System requires various types of information from a variety of sources to support its mandate. Data from different sources are also at various levels of the health care system as identified by WHO (2007) as follows:



- i) Individual data about the patients profile, health care needs and treatment serve as the basis for clinical decision making. Health care records provide the basis for sound individual clinical care.
- ii) Health facility level data both from aggregated facility level records and from administrative sources such as drug procurement records enable health care managers to determine resource needs, guide purchasing, decision for drugs, equipment and supplies. Data from supplies health facilities can provide immediate and ongoing information relevant to public health decision making only if certain decisions are met. The data must be of high quality, relate to all facilities (public and private) and be representative of services available to the population as a whole.
- iii) Population level data are essential for public health decision making and generate information from both facilities and communities with focus not only those who use the services but also crucially about those who do not use them and;
- iv) Public health surveillance brings together information from both facilities and communities with focus mainly on defining problems and providing a timely basis for action. This is especially so when responses need to be urgent as in the case of epidemic diseases. The need for timeliness of reporting and response, and the requirement for effective linkages to those in authority with the responsibility for disease control impose on the HIS.

### **2.12.2 Sources and Formats of Data and Information**

There are several sources of information and data about the country's health information system which permits it to function. According to WHO (2007), information can be obtained from the different sectors and agencies that have responsibilities for the generation, synthesis and use of data in the country, regional and global level. At the country level the Ministry of Health record the timeliness and quality data through health services and disease surveillance systems. International agencies working on health also maintain information about the availability and quality of data on international health goals. In South Africa for the District Health Information Systems, Carrib (2008) asserts that data were collected by health care workers during each consultation; using paper

based record systems and late collated. Several separate registers exist for the collection of data on patients with chronic illnesses, tuberculosis care, HIV and Aids including the Prevention of Mother to Child Transmission (PMTCT) and immunization. The format and availability of these registers differ from clinic to clinic.

The issue about the formats through which information is presented is also important. This is because information or data is of little value if it is not presented in formats that meet the needs of multiple users. These users include among others policy makers, planners, managers, health care providers, communities and individuals. Therefore, the dissemination and communication are essential features of the HIS.

### **2.12.3 Advantages and Challenges of the NHIS**

Improvements in the completeness and quality of data collected through the systems in South Africa have been reported. Despite some known advantages in the use of NHIS especially with regards to positive contribution in decision making relevant to the health sectors there are also setbacks. There have been reported delays in submission of data due to non-delivery of forms, poor understanding of indicators, unreliable data quality, facility managers not maintaining data summaries and poor feedback. Carrib (2008) noted that the systems are rarely evaluated in developing and developed countries. This is despite the fact that large resources are allocated to them; there has been little evaluation of the systems. Evaluation of the systems is fundamental though to ensure that they are efficient, collect high quality relevant information and are used optimally by the relevant parties to provide the necessary information and data needed in the health sector.

### **2.13 Summary**

From the literature review, most authors have provided insights and prove that there is a relationship between a need for good health care and records management. According to most authors (Carrib, 2008; Stansfield et al (2008); and Addison, 2003), health care requires broad and detailed information, maintenance of good records and their availability to those in need of them to support effective patient care.

All types of records, medical records are no exception to the processes and procedures followed in a record life cycle of creation, use, maintenance and disposal. The medical records as found in the review are a health care record and must justify a patient treatment, support diagnosis of a patient progress and response to medication and services as well as explaining the outcomes of the care provided. Proper management of medical records also ensures that there is continuity and care of a patient and supports the decision made at any point in time.

Different authors demonstrated that that the Electronic Health Record (EHR) use has many benefits in the management of medical records. EHR can improve clinical information and accessibility, patient safety, improved patient care and efficiency and savings. For example, access to medical information can become easier and is available at a patient point of care.

## **CHAPTER 3**

### **RESEARCH METHODOGY**

#### **3.1 Introduction**

Research methodology describes and justifies the overall approach that will be adopted in the research process, from the theoretical foundation to the strategies that will be used in the collection and analysis of the data. It is a system of explicit rules and procedures in which research is based and against which claims of knowledge are evaluated (Ojo, 2009). It explains and justifies the research strategy chosen. Research design issues, which include the sampling technique, questionnaire, procedure and data analysis techniques, are addressed.

Therefore this section focuses on the research techniques that were adopted and used for the study with the aim of achieving the research objectives

#### **3.2. Research Design**

The research design philosophy adopted for a study contains important assumptions about the way in which a researcher views the world (Saunders, Lewis, & Thornhill, 2009). These assumptions will underpin the research strategy and the methods chosen as part of that strategy. The research philosophy reflects how a researcher considers or thinks about the effects of the approach taken in the development of knowledge; informally, it is the way we go about doing research (Saunders et al, 2009).

This study adopted a mixed methods research (MMR) philosophy. The definition of MMR remains a contested area. Johnson, Onwuegbuzie and Turner (2007) asked 21 researchers for a definition of MM and received 19 responses. These definitions were diverse and were differentiated in terms of what was being mixed, the stage in the research process where the mixing occurred, the extent of the mixing, the purpose of the mixing and the drive behind the research.

The Journal of Mixed Methods (2006), in its call for papers defines mixed methods as ‘research in which the investigator collects, analyses, mixes, and draws inferences from both quantitative and qualitative data in a single study or program of inquiry’.

A more comprehensive definition is provided by Creswell and Plano Clark (2007) who define mixed methods as follows: Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.

Teddlie and Tashakkori (2010) define the methodology of MM as: “The broad inquiry logic that guides the selection of specific methods and that is informed by conceptual positions common to mixed methods practitioners (e.g., the rejection of “either-or” choices at all levels of the research process).

For purposes of this study, the Creswell and Plano Clark (2007) definition of MMR methodology was adopted since it clearly articulates the fact that both quantitative and qualitative methods are used, as was the case in this study.

### **3.3 Population and Location of Study**

The location and population of study was Princess Marina Hospital. Population of a study is a group (usually of people) about whom we want to draw conclusions. However, given that resources do not always permit that a study can be for the entire group only a section of the population is normally investigated of whom generalization can be made about the whole number (Babbie, 2003). The population in this study consisted mainly of various health professions including records officers who are directly involved with the creation, storage, management, appraisal and disposal of medical records at Princess Marina Hospital. The health professionals included medical doctors, a pathologist, physiotherapists, oncologists; psychiatrists, radiographers, registered nurses for various disciplines such as psychiatrist, as well as record officers.

For this study, the target population was **1272** staff members, which is the total staff compliment of Princess Marina Hospital (PMH Establishment Register: Ministry of Health, 2015).

### **3.4 Sampling Procedure**

Sampling is a crucial component for most research processes. In Aina's (2004) view, sampling is very essential for social research especially in cases where the problem to be solved involves a large population. The technique involves selecting a representative sample from the population. Usually the findings from the sampled population can be used to generalize the whole population. Purposive sampling was used for this research based on its strength as being appropriate in having the information needed and meeting the requirements of the study.

According to Collins et al (2006), purposive or judgmental sampling, also referred to as theoretical sampling, is when the researcher selects a sample that can be judged to be representative of the total population. This judgment is made on the basis of available information or the researcher's knowledge about the population. The purposive sampling method was chosen for this study because the sample that was chosen was directly or indirectly involved with patient records.

For the quantitative aspect of this study, a total of **26** health professionals out of a total target population of 1272 individuals were purposively selected to participate in the study as shown in Table 1. 4 below:-

**Table 1.4: Summary of sample population for the study**

Department	Sample Groups	Research Instrument	Purposively Sampled		Total
			Senior Officer/Head	Assistant	
Oncology Ward		Questionnaire	1	1	2
Eye Ward	Assistant Nursing Officer	Questionnaire	-	1	1
Male Surgical Ward	Nurse	Questionnaire	1	1	2
Female Medical Ward	Nurse	Questionnaire	1	-	1
Physiotherapy Unit	Physiotherapist	Questionnaire	1	-	1
Psychiatric Clinic	Psychiatric Nurses	Questionnaire	1	1	2
Accident and Emergency	Registered Nurses	Questionnaire	1	1	2
Delivery Ward	Nurse/Midwives	Questionnaire	1	1	2
Infectious Disease Control Clinic	HIV/AIDS/ART Management	Questionnaire	-	1	1
Intensive Care Unit	Registered Nurses	Questionnaire	1	1	2
Pediatrics Ward	Registered Nurses	Questionnaire	1	1	2
Private Ward	Registered Nurses	Questionnaire	1	1	2
X-Ray	Radiographer	Questionnaire	1	-	1
Pathology	Pathologist	Questionnaire	1	-	1
Neonatal	-	Questionnaire	1	1	2
Medical Records Unit	Archivist/Records Officers	Questionnaire	1	1	2
					<b>Total=26</b>

*Source: Field Data*

### **3.5 Data Collection Instruments**

The study used both primary and secondary data collection methods. The main instrument of data collection was questionnaires supplemented by in-depth interviews and observations. The instruments were used for assessment on the management of medical records at PMH. The reason for complimenting questionnaires was to make up

for the missing details that may exist in each of the methods. Below is a discussion for each of the data collection instruments:-

### **3.5.1 Questionnaires**

Questionnaires are one of the research instruments commonly used to gather data. This data collection instrument according to Onyango (2002) consists of set of questions for submission to a number of persons or respondents in order to gather data. Generally, questionnaires are categorized as closed or structured questionnaires and open or unstructured questionnaires. The format for questionnaires distributed to the sample population contained both closed and open ended questions and these were completed by a group categorized as health professionals and records officers for the study at PMH on the management of medical records. The close ended questions offered respondents with alternative answers in which they were asked to select an answer from the options given. With open ended questionnaires respondents were at liberty to give in- depth responses on the questions asked.

Questionnaires are one of the research instruments commonly used to gather data. This data collection instrument according to Onyango (2002) consists of a set of questions for submission to a number of persons or respondents in order to gather data. Generally, they are categorized as closed or structured questionnaires and open or unstructured questionnaires. In a closed or structured questionnaires, the respondents are provided with alternatives from which to select one or more than one answer depending on the structure of the question. Open ended or unstructured questionnaires are designed to allow free responses from participants rather than on confining them to specific alternatives.

According to Onyango (2002), questionnaires like other research instruments have both advantages and disadvantages. The mail questionnaire encourages frank responses as it guarantees anonymity and better as it is completed without the researcher being present. Questionnaires also allow for large amounts of data to be collected when constructed well with a short space of time and are relatively easy to analyze. Disadvantages found in the



use of questionnaires include elimination of personal contact between researcher and respondents. Often there is a problem of questionnaires not being completed and returned to the interviewer. Respondents can also give poor responses so that they comply with the request.

### **3.5.2 Interviews**

To supplement the responses from the quantitative component of the study (i.e. 26 respondents), interviews were conducted with a total of three (3) medical doctors distributed as shown in **Table 1.5** below. The reason for having interviews with doctors was because they were always busy, worked on shifts and thus only questions relevant to them were asked for instant responses. If questionnaires were left for the doctors to complete, there was a possibility of questionnaires being misplaced or lost especially that some doctors share working spaces and come at different times for work depending on the shift. The interviews involved gathering information from the respondents through verbal interaction between the researcher and the respondent. To ensure that the interview addressed all the objectives of the study, a list of questions that were pertinent to the research problem was used as a guide to avoid missing out some questions.

Out of the total of three (3) medical doctors interviewed, only one (1) doctor disclosed his name with the rest preferring to mention just their designation and the departments they worked for.

The use of interview according to Babbie and Mouton (2001) offers the advantage of getting a better response rate, and also personal contact provides chance to correct any misunderstanding between the researcher and the respondent. Advantages of interviews are outlined by Collins et al (2000) as follows:-

- i) Due to the flexibility of interviews, they can provide a researcher with detailed and fresh information the researcher may not have predicted or anticipated.
- ii) Since interviews involve dialogue between the interviewer and respondents, unclear questions can be clarified.

- iii) Additional information can be obtained by asking follow up questions, especially where responses are ambiguous or unclear.
- iv) Interviews allow the researcher a rapport or even a personal relationship with respondents.
- v) Respondents do not have to be literate.
- vi) Nonverbal communication can be observed and noted.
- vii) Random samples can be drawn.
- viii) The way in which questions are asked can be standardized.

On the negative side, interviews are more time consuming for the researcher, may be misleading, and requires good interview skills. The disadvantages of interviews stated by Collins et al (2000) are as follows:-

- i) Bias is a central problem because an interviewer may hold a bias opinion towards the interviewee because of the respondent's demographics (e.g. race, gender, age).
- ii) Face to face interviews are costly in terms of preparations made for the interview, travel costs to hold an interview transcribing recordings or preparing systematic field notes after the interview.
- iii) Practice and skill are required to obtain honest and detailed interview as the interview needs to know how to ask questions, how to listen, write notes and whether they should anticipated the need to ask probing questions.
- iv) Breadth is often scarified for depth as researcher cannot interview a large sample owing to the time and expense involved. Table 1.5 below shows interviews conducted with medical officers at PMH:-

**Table 1.5: Interviews with medical doctors/officers**

<b>Name/Designation</b>	<b>Department/Unit</b>	<b>No. of interviews held</b>
Dr. Modise	Accident and Emergency	1
Medical Officer	Medical ward	1
Medical Officer	Critical Care	1
		<b>Total=3</b>

*Source: Field Data*

### **3.5.3 Personal Observation**

Personal observation is one of the methods commonly used for data collection and involves observation of processes and procedures until a conclusion is reached. Through this type of data gathering method, a researcher will be in a position to obtain first hand and direct experiences on how things are done and by the same token being in a position of checking and validating facts presented in the responses from the interviews. Carrying out an observation depends on the research design and on theoretical assumptions on which the study is based according to Collins et al (2000). The reason for making observation for this study was to observe what different people who are involved in managing records do or say, rather than what they say they do. This was necessary for this particular study in order to supplement the questionnaires and interviews, since people are not always willing to write their true views on a questionnaire or tell a stranger what they really believe in at interviews. While the advantages seem to be possible with observations there are challenges too. It is not always obvious what the role of neither the observer nor the effect on the people and situations observed because it is difficult to measure.

Observations are also time consuming and sometimes surrounded by ethical dilemmas inherent in observing real life situations made for research purposes. Observations made for this study were at the Accident and Emergency (A&E) Department and the Medical Records Unit. The study used a non-participatory obtrusive observation and observed how records were created upon arrival of patients at the A&E department. The observations made within the same department were on how admission or discharges for patients in relation to their medical records take place. By the same token the at the MRU observations made included creating patient records for new patients as well as the retrieval of records for old patients on admission. Through observation, the researcher was able to experience how medical records at Princess Marina Hospital were managed and this helped in the elimination of bias from respondents. Due to time constraints observations could not be made in all the departments and units covered by the study. Also that, processes addressing managing patient records is common to most of the departments and units of the hospital.

### 3.5.4 Document Review

Several documentary sources for this study were reviewed which include annual reports for PMH, Ministry of Health policy documents, newspapers, internet sources, books, ISO 15489, and dissertations. Secondary sources are very important in doing research as outlined by Adams et al (2007) because of the following reasons:-

- i) Large representative samples were beyond the resources of the individual researcher are available.
- ii) Good for examining longitudinal data and looking for trends
- iii) Supporting documentation and explanation of methodology, sampling strategy and data codes are given.
- iv) The research can concentrate on data analysis and interpretation.

Adams et al (2007) further stated the disadvantages of secondary sources as follows:-

- i) Data may be compatible for the research
- ii) Data may not cover all subjects or groups for the research
- iii) There can be depth limitations in that one may see a trend or an audit in a time series but there may be no data available to allow investigation of the reasons or consequences.
- iv) There might be gaps as the information may not come from all time periods
- v) Its historical and therefore may not be relevant to current issues

There is a significant gap in the literature regarding the use of secondary sources in research.

### 3.6 Data Presentation and Analysis

According to Cresswell (2003), data analysis is the act of converting data with the intention of taking out useful information and facilitating conclusions. The analysis is therefore made to provide answers to the research question. The analysis from questionnaires for a study on managing medical records at Princess Marina Hospital was interpreted, where each question was discussed and findings from the sample analyzed. Moon stats (2005) Statistical package was used for the statistical analysis of data that was collected. Data generated through Moon stats (2005) was further put into Microsoft Excel (2007) for a visual presentation of the research results. Methods used to interpret findings of the research study included pie charts, bars and table graphs.

Qualitative data gathered through interviews, observation, documentary and open ended questionnaire was also analyzed for this study. According to Collins et al (2000), the first requirement of qualitative analysis is to organize the data by bringing some order or structure to it. This requires some sort of coding on the text based data such as field research notes and consequently can be filed either chronologically or thematically or both. Thematic analysis was used for analyzing qualitative data for this study.

### **3.7 Summary**

This chapter discussed research methodology used for the study on managing medical records at Princess Marina Hospital. Discussions covered research design, location and population of study sampling procedures, data collection instruments and data presentation and analysis.

## CHAPTER 4 FINDINGS

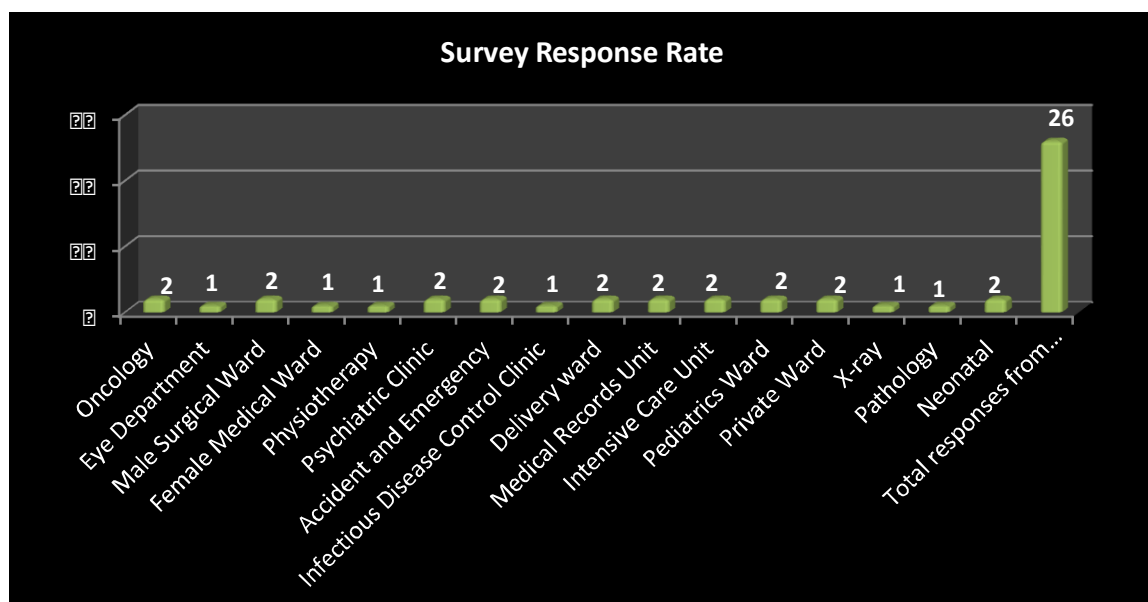
### 4.1 Introduction

This chapter presents findings of the study that was conducted to examine the management of medical records at Princess Marina Hospital.

### 4.2 Survey Response Rate

Out of a total of thirty seven (37) questionnaires that were distributed to the various health professionals and medical records officers at Princess Marina Hospital, twenty six (26) were filled out and returned, giving a response rate of 70%. None responses are likely to occur as noted by Welman et al (2005). As a result, the data analysis on questionnaires administered is based on twenty six (26) questionnaires filled out and returned by the respondents and the various departments and units at PMH. Responses from the interviews conducted as well as observations made were also incorporated into the findings. Figure 1.3 below presents the survey response rates from the various units and departments of the hospital:-

**Figure 1.3: Survey response rates from the various units and departments**



Source: Field Data

### **4.3 Type of Medical Records**

The first objective of this study was to establish the procedures followed in managing medical records at PMH. The study accomplished this by looking into the various types of medical records created at PMH as shown in Figure 4 below. Figure 4 shows that out of a total of 26 respondents, a majority (20) indicated that PMH generated records in the form of patient files. These patient files included treatment papers, diagnosis and other records that showed doctors and nurses interventions. They also included all the investigations done on a patient such as pathology investigations, heart scans, and blood pressure, weight and temperature readings. Further still, these patient files also included patient register, mortality and mobility statistics and the immunization register.

Another type of medical record generated at PMH was patient drug record, as mentioned by one (1) of the respondents, with another one (1) respondent indicating the following records; patient X-rays, and psychiatric, dietician, and social worker's notes collectively referred to as patient records.

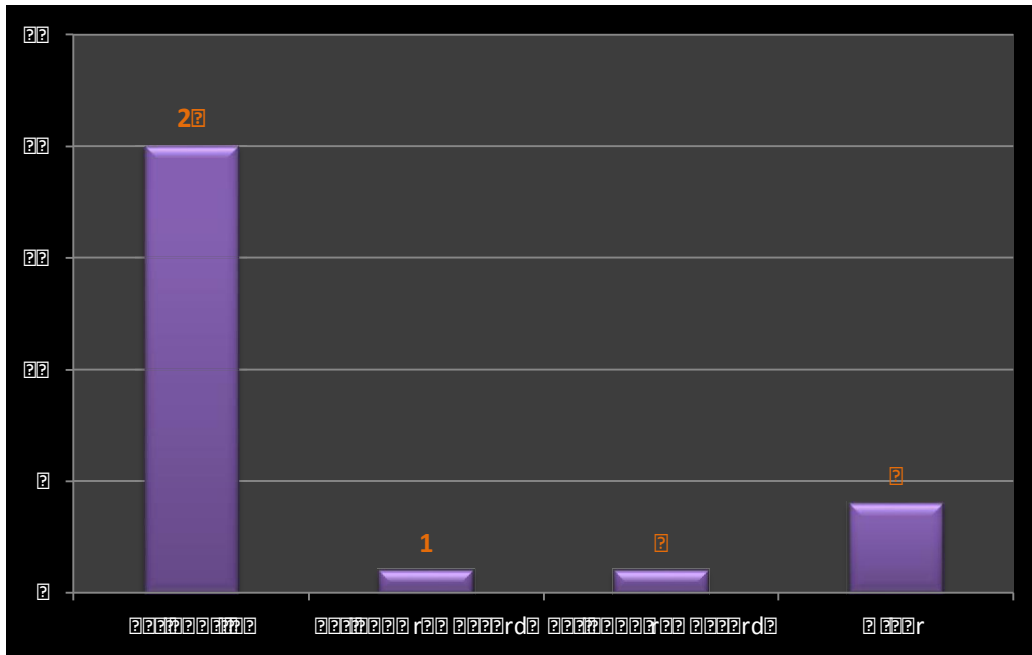
The other records mentioned by four (4) of the respondents included health progress records, diagnosis and inpatient records.

The interviews conducted with the three (3) medical doctors, similarly indicated that the types of records generated at PMH were mostly records on patient history, which primarily addressed issues of management and care of the patient. Regarding the details of the contents of the records on patient history, the examples given by the doctors interviewed included information relating to doctors notes; dietician's meal plans; drug sheet; temperature and blood pressure readings; pathology tests, x-ray and other forms of scan reports. In essence doctors revealed from the interviews that patient records are basically created to gather information necessary for the doctor's assessment and other plans necessary for the patient's well-being.

The study also revealed that most records were a combination of paper and electronic format as indicated by 55% of the respondents, followed by paper format which was

mentioned by 36% of the respondents, with 5% of the respondents indicating that records were kept in photographic and electronic formats. Figure 1.4 below shows the type of medical found at PMH:-

**Figure 1.4: Types of Medical Records**



*Source: Field Data*

#### 4.4 Patient Record Creation and Purpose

In addition to the procedures followed in managing medical records at PMH, this study also determined the personnel who were responsible for the creation of medical records including the circumstances for their creation.

Figure 5 below shows that a majority of the respondents (74%) were involved in the creation of patient records. The respondents further outlined a number of reasons why patient records were created. The justifications provided were that patient records were necessary because they were used to identify a patient during admission and other important details such as physical address, contact person, telephone number and existing medical conditions such as allergic reactions to some medications. Other reasons cited for creating patient records were; for continuous care, management and ease of reference and

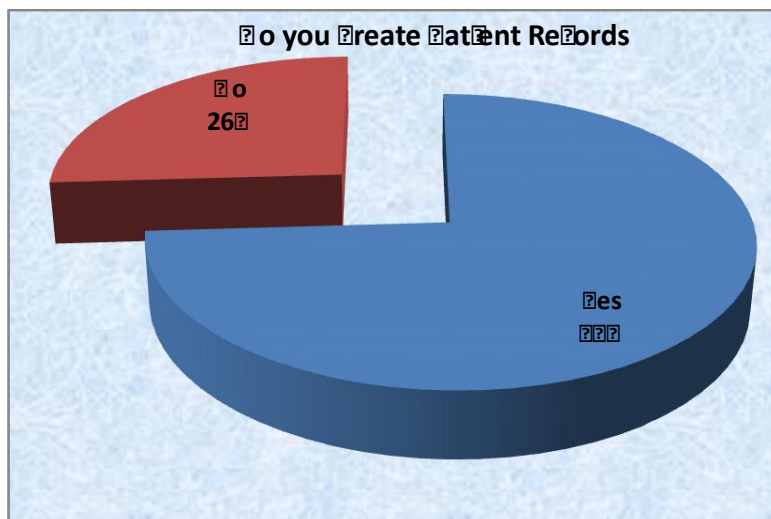


to capture information which added value to the overall care of a patient. It was also mentioned that records were crucial in the admission or discharge of a patient. Patient records were also said to be created and used daily for as long as a patient was still under the care of the hospital for monitoring progress of the patient. Finally, depending on the nature of service offered in the wards, some patient records were created for supervision, monitoring and evaluation of mortality and tuberculosis occurrences.

Responses from the interviews conducted with the doctors also revealed that they were involved in the creation of records.

Basically this study established that patient record was part of the patient’s history and was important for the future care of patients. Examples of patient care included the investigation and management of patients like assessment and care; drug dispensation; relevant diets; temperature and blood pressure readings and any other form of care required on a patient. Figure 1.5 below shows the scale at which patient records are created by the population sample:-

**Figure 1.5: Record Creation and Purpose**



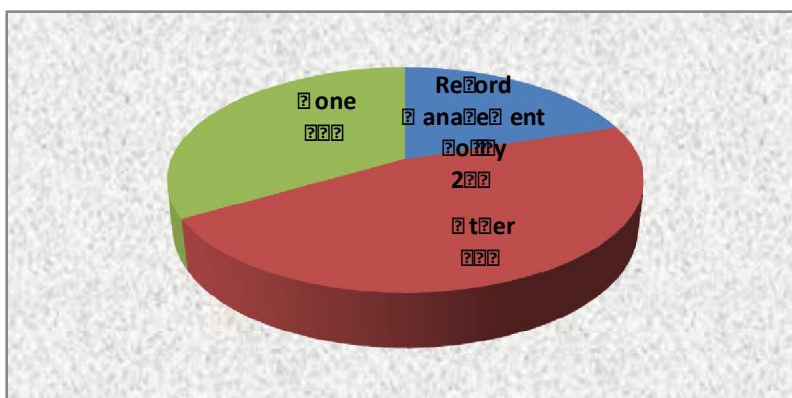
*Source: Field Data*

#### 4.5 Policies in place relevant to record management practices

Objective 2 of the study intended to establish the existence of record management policies and guidelines at PMH. In Figure 6 below, although it was stated by the majority of respondents (47%) that there were some records management policies in place, it turned out that such were not policies but merely a practice followed for everyday use by respective units and departments. For example, there was a general practice that as soon as a patient was discharged, a file was supposed to be sent back to the Medical Records Unit for safekeeping.

With regards to patient file borrowing, there was a record book which was used to document the details of a file borrowed from its current location. Twenty percent (20%) of respondents who indicated that there were policies in place mentioned the availability of the Records Management Protocols. However efforts to access the document were futile due to the red tape involved in getting it. It was also found that where efforts had been made to develop a record management policy, to date, it remained in a draft form pending implementation from the Ministry of Health. For example, the Princess Marina Hospital Medical Records Policy (Internal Policy) was said to have been in a draft form since 2007. Thirty three percent (33%) of the respondents indicated that there were no record management policies at Princess Marina Hospital. Figure 1.6 indicates the existing records management policies at PMH:-

**Figure 1.6: Existing Records Management Policies**



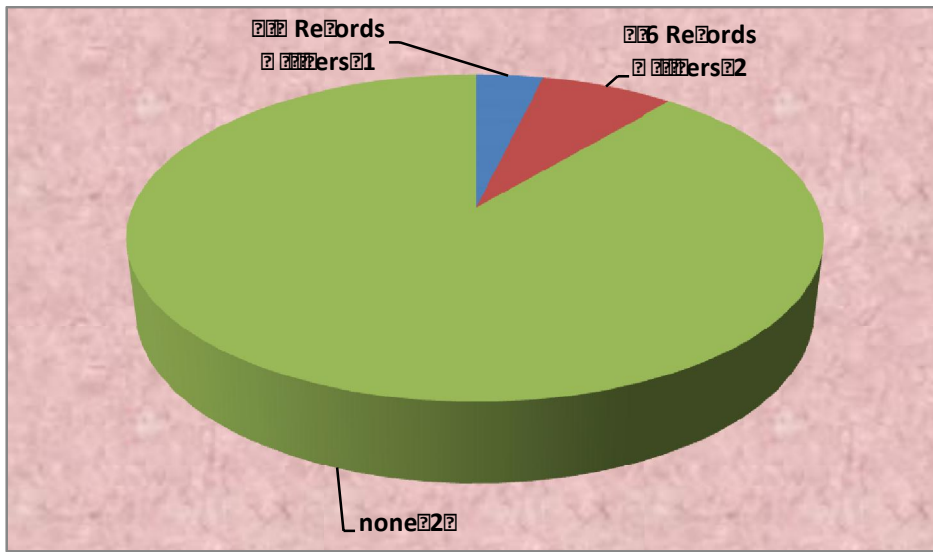
*Source: Field Data*

#### **4.6 Staffing Levels for Record Officers**

Objective six of the study intended to establish staffing compliment of record officers at PMH and whether the number was sufficient to carry out the responsibilities related to patient record management. The findings revealed that there were three record officers managing the MRU and only one record officer responsible for serving in the wards. There were suggestions by these officers that considerations should be made to have more record officers responsible for most of the wards. The reasons they gave were that patient record keeping and management work was demanding and required specialist staff to handle it. Most of the tasks related to the management of patient records in the wards were carried out by the nursing staff and other health professionals. As a result patient caretakers spent a considerable amount of time maintaining records instead of focusing on the care and management of patients. A suggestion was also made by the respondents to have at least one records officer per shift to ease the load on the nurses so that they could dedicate time to patient care.

In other units the respondents also mentioned that there was need for more record officers to facilitate the implementation of the Integrated Patient Management System (IPMS) for ease of retrieval and the management of patient records as a whole. The IPMS was said to have brought a lot of work which needed to be completed in order to bring the records up to date through computerisation. The IPMS was used to store and manage patient data whilst in custody of the hospital. The current number of staff was therefore cited as not sufficient to keep up with the demands of the workload for records officers in the mist of the computerisation on-going efforts. Figure 1.7 below shows staffing levels at PMH:-

**Figure 1.7: Staffing Levels for Record Officers**



*Source: Field Data*

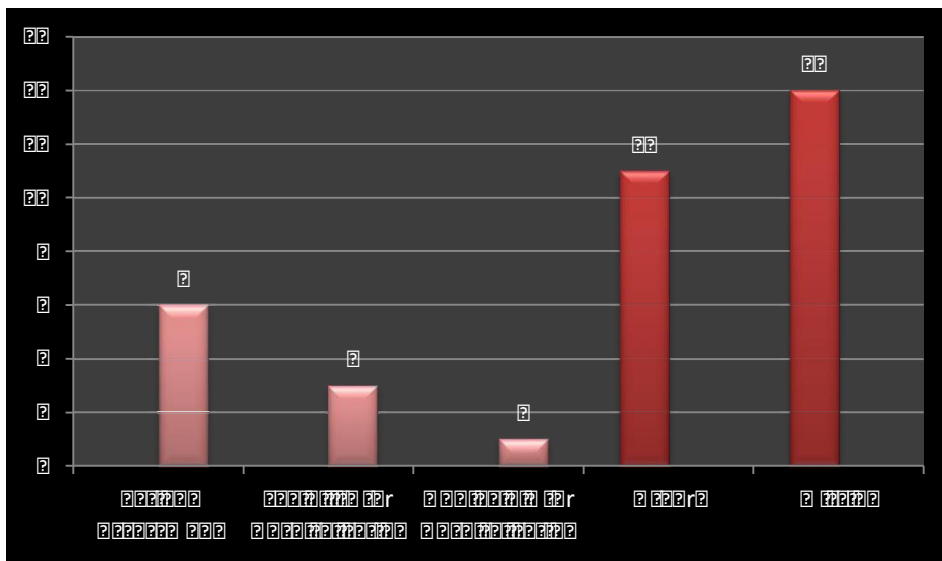
#### **4.7 Processes for Generating Patient Records**

Procedures for managing records were also looked into in relation to the various processes followed by the respondents in creating patient records. The responses indicated that the process of creating patient records began with an assessment of a patient. It was during the assessment of a patient when it was also determined whether a patient was legible or not for hospitalisation. All the captured information formed the patient record. The respondents also mentioned that the information gathered was important as it was necessary to give the necessary care and management relevant to the established condition.

Respondents from the MRU indicated that the process for creating patient records was for both outpatient and inpatient. This process was carried out by clerks who would register a patient and assign the clinic for examination. If the patient was not admitted there were forms in use such as admission notes, drug form, history and progress record form, chart form, x-ray and blood test forms used for capturing the necessary information required for assisting the patient.

Similarly from the interviews conducted the responses from doctors indicated that upon attending to a patient, all the investigations carried out were captured and documented. Furthermore, based on the findings made and the condition of the patient, there could be some additional interventions made on the part of a patient which could include hospitalisation or the provision of medication to an outpatient. Figure 1.8 below shows the processes involved in generating patient records:-

**Figure 1.8: Processes for Creating Records**



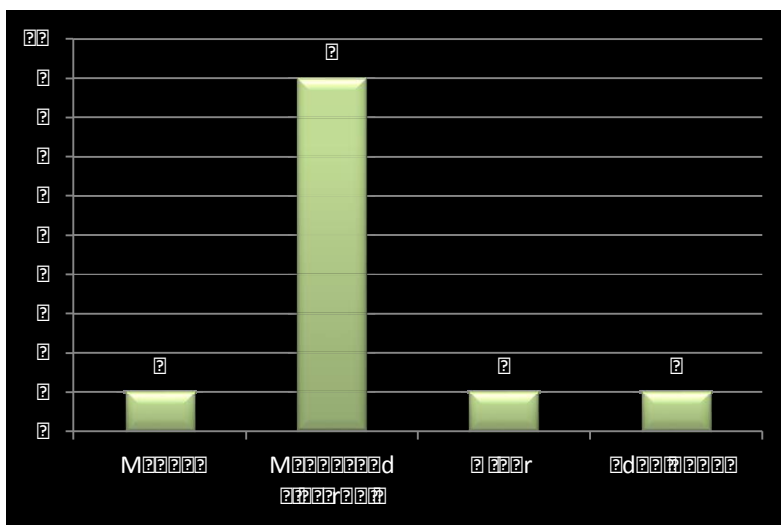
*Source: Field Data*

#### 4.8 Medical Records Disposal

This study wanted to examine the methods used for disposing patient records as one of the procedures followed for their management. Respondents indicated three methods of disposing records as manual, through the computer and a combination of both as shown in Figure 9 below. Respondent who mentioned disposal through the manual system indicated the use of a registered file. This involved patient file being registered in the discharge book, signed by responsible officers and sent to the Records Unit. The records unit staff upon receiving the file also signed the discharge book.

It was apparent from the responses obtained from health professionals that with the exception of staff from MRU that record disposal was not well comprehended. It was interpreted to mean removing a file from its current location at the ward to the MRU. It was only the responses from the medical records unit staff which showed some understanding of disposal of records. Patient records were currently not disposed due to lack of a Records Centre. Figure 1.9 below illustrates methods of disposing patient records:-

**Figure 1.9: Records Disposal Methods**



Source: Field Data

#### 4.9 Security and Enhancement of Confidentiality for Patient Records

Objective 3 of the study intended to establish the level of security in place for patient records at PMH. It was necessary to establish the extent of security regarding patient records because patient data was confidential and should be accessed by only those who were mandated to do. As shown in Figure 10, below, out of the twenty six (26) respondents, the majority (11) indicated denied access as used to safeguard security of patient records. This was followed among others, by other existing measures which involved the use of passwords and record control books for documenting patient records.

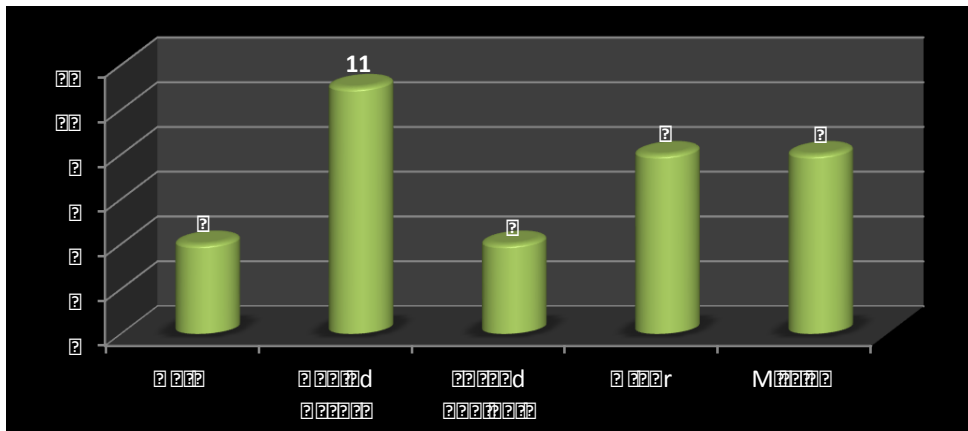
The least control measures used given by the respondents included taking oath by the health professionals and caretakers not to disclose patient information to unauthorised

parties. Also, mentioned by the respondents was storing of records in locked cabinets. It was also established from the responses that despite existing measures in place to protect patient records there were challenges. This was noted in some wards whereby it was stated that there were no clear measures that were taken to keep files away from unauthorised people.

Similarly, observations made regarding security of patient records was also enforced by allowing exclusive members of staff access to records. Examples of those with the right to access patient records were doctors, nurses, dieticians, physiotherapist, laboratory technicians, radiographers and many others. In some instances other parties such as legal practitioners, police, social workers, researchers and administrators also gained access to patient records. Medical records staff also had access to patient records primarily during the registration of a patient and custody of records.

Interestingly to note, that from the interviews, respondents also mentioned that health professionals should have access to patient records because they were familiar with the pros and cons surrounding patient privacy and confidentiality. Responses from interviews conducted on doctors indicated that security for patient records was enhanced by denying patients who were admitted access to their files. The reason given was that patient data was confidential and the record could contain legal issues that could arise due to access made by a patient. The record could also wear out due to mishandling, resulting in loss of data which was important for the management and care of patients. Figure 1.10 below shows some measures in place for the security of patient records:-

**Figure 1.10: Security Measures for Patient Records**



*Source: Field Data*

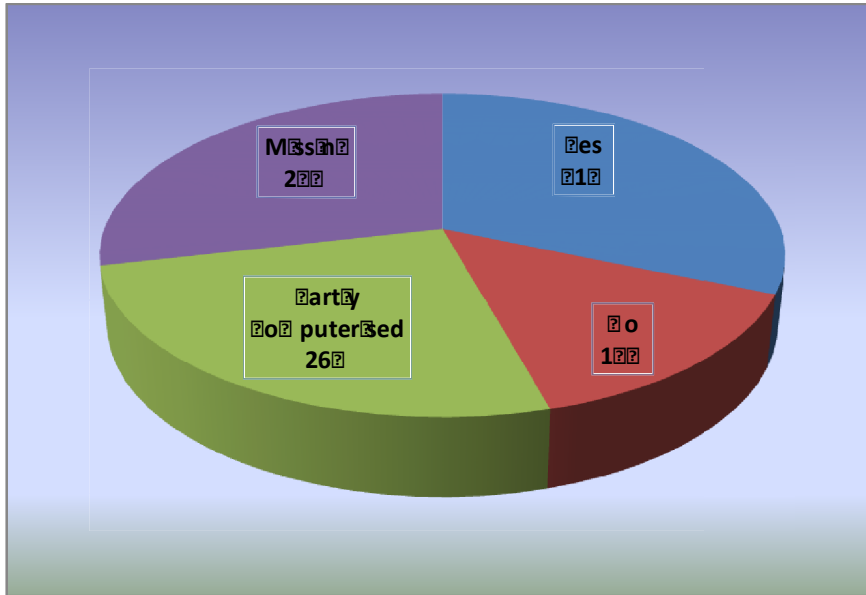
#### **4.10 Status on Computerization of Patient Records**

This study sought to establish the status of computerization of patient records at PMH. As shown in Figure 11 below, thirty one percent (31%) of the respondents stated that computers were being used for patient record keeping while twenty six percent (26%) indicated that computerisation of patient records was partly in use. However, it was found out that in both cases the manual and computer systems ran concurrently. Fourteen percent (14%) of the respondents indicated that there was no computerisation of patient records in the respective departments and units. Twenty nine percent (29%) of the questionnaires were not answered.

On the interviews conducted with the doctors, it emerged that failure to have a fully-fledged computerisation processes had a negative bearing on the availability of storage for records. This was further aggravated by the fact that manual records were many, bulky and there was limited space for their custody thus exposing files to possible abuse. An observation made from the MRU as a result of a congested storage was that retrieval time for files was long. Figure 1.11 below, indicates the level of computerisation at PMH:-



**Figure 1.11: Computerization of Patient Records**



*Source: Field Data*

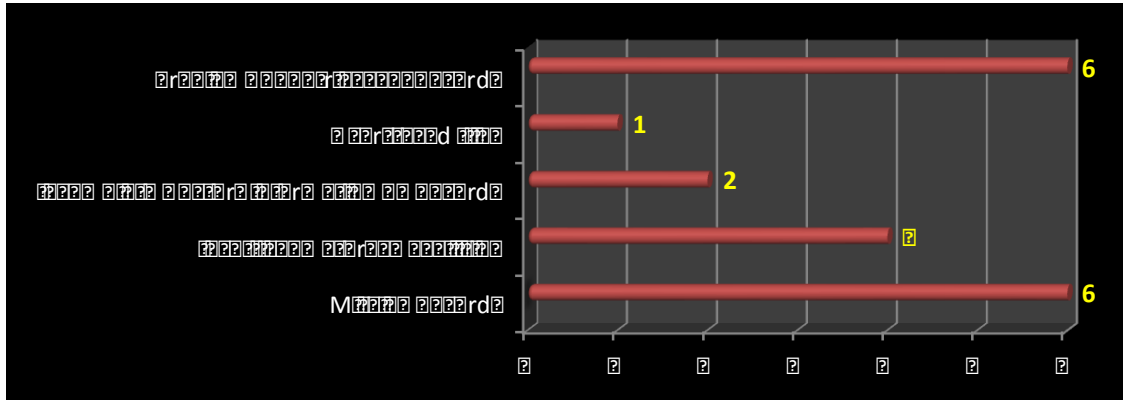
#### **4.11 Patient Record Management Problems at PMH**

Figure 12 shows that there were nineteen (19) responses regarding problems experienced in managing records at PMH. Missing and the retrieval of patient records had been cited as the most common problems by 6 respondents each. Insufficient storage facilities for patient records were mentioned by four (4) respondents. There was a mention of overstayed files at respective units, cited by one (1) respondent. According to the respondents, doctors were often reluctant to complete a discharge summary form for patient files. As a result, files stayed for a longer period in the wards before they could be sent to MRU.

Other problems mentioned included lack of medical records staff for carrying out records management tasks at the various units and departments; lack of computerisation of records to facilitate easy access of patient records; poor quality paper used to document information regarding patient condition, care and management and storage problems which were augmented by lack of Medical Records Centre where medical records could be disposed to. The problem regarding lack of a record disposal facility was said to be

common to all health facilities nationally. The figure 1.12 below gives an indication of record management problems at PMH:-

**Figure 1.12: Patient Record Management Problems**



*Source: Field Data*

#### 4.12 Summary

This chapter presented the findings of the study on the management of medical records at Princess Marina Hospital. The findings showed the type of medical records created at PMH and also revealed that the majority of respondents were involved in the creation of these records. Issues on staffing levels, processes for the creation of records, policies and guidelines available, patient records disposal methods, level of computerisation were also highlighted in the findings. Finally the Chapter also identified some of the problems faced at PMH regarding the management of medical records.

## CHAPTER 5

### DISCUSSION OF THE FINDINGS

#### 5.1 Introduction

The main objective of the study was to investigate how medical records at PMH were managed. An investigation was carried out in the various departments and units of the hospital with responses from identified health professionals and medical records officers. The investigation was carried out through the use of questionnaires, interviews as well as observations by the researcher.

The study set out to address the following research questions.

- i) What types of medical records were generated at the PMH?
- ii) What are the procedures used for managing medical records at PMH?
- iii) What are the policies and regulations that guide management of medical records at PMH?
- iv) What methods are in place for securing medical records at PMH?
- v) What are the challenges of managing medical records at PMH?
- vi) What are the staffing requirements for managing medical records at PMH?
- vii) What are the recommendations for the effective management of medical records at PMH?

The population of the study was staff compliment of PMH was numbered 363 health professionals including medical doctors, registered nurses, physiotherapists, psychiatrist, pathologists, radiographers as well as record officers. Out of the thirty seven (37) questionnaires distributed to the health professional's category including records officers, twenty six were returned. An additional number of three (3) interviews were conducted specifically with medical doctors. Data analysis for this study was therefore based on the twenty six questionnaires and three interviews conducted with medical doctors including some observations made. Findings for both the questionnaires and interviews were

incorporated in the discussions. Due to small content on the findings some sub-headings have been combined such as the one on the type and format of patient records and status on storage facilities and computerization.

## **5.2 Type of Medical Records**

The study established that there were different types of patient records and these were primarily created to serve specific purposes. The study also revealed that the numerous types of patient records served a purpose of documenting and evaluating the treatment of patients. The study further found out that the records existed to portray patient information gathered at any point in time including the care given. The study revealed that patient records served as legal documents and as such could be used to substantiate evidence in a court of law. The legal purpose of medical record was line with Addison (2003) observation that patient records could provide information required to address legal issues.

Several examples have been highlighted by the study, which include patient's chart giving past and present condition and thus serve as a communication tool for health care team. Specific examples for data that went into a patient record included doctor's diagnosis and treatment plan, treatment option and final treatment list, instructions given to patients, medication prescribed comments and impressions. Similar examples of patient records highlighted by Comeford (2003) also include face sheets, which gives information on the identity of the patient by name, date of birth, social security number, address, marital status, drug allergies etc. The medical history record also stipulates nursing care plan which includes nursing documentation on the crucial part of the complete medical record. The assessment carried by nurses also forms the type of patient record and include medication administration record whilst the physician order sheet record gives progress notes on the patient. Other records include diagnosis list, nursing care plan including the discharge summary plan. Basically the type of records found provide content relating to what has been derived as information from the patient condition and management from the time of admission until discharge from the hospital.

Related to the type of records was the format of records for which the study found out that the records were in three different formats namely; paper; electronic and photographic records. Green and Bowie (2005) also confirms format for patient records as paper format known as the manual record and the electronic health record or computer based record. However, most records found from the study at PMH were predominantly in paper format. Examples of which included admission forms, 24 hour fluid balance chart, pathology forms, in-patient admission form etc. Photographic records found from the study were radiography and printout from scan results. The study further revealed that electronic records included information captured on behalf of a patient and stored electronically for various purposes. Example from the PMH for an electronic record included admission record for patients.

### **5.3 Patient Record Creation and Purpose**

Findings for the study from a questionnaire distributed to the various respondents from the health professional category and interviews from medical doctors indicated numerous processes for creating patient records but all with a common cause, aimed at providing care and management of a patient. Patient record provides evidence on the quality of patient care and is used by various groups to help evaluate and enhance patient care as noted Comeford (2003). The findings from the study further established that processes followed were informed by a number of activities carried out on the part of a patient. The processes include among others assessment of a patient upon admission at the hospital to determine legibility for hospitalization or not. This assessment is carried out by a doctor who attends to a patient in relation to the medical conditions at hand. With the help of other health professionals some additional investigations may be carried out such as laboratory test, x-ray, drugs to be administered etc. and all these recorded in a patient record.

### **5.4 Staffing Levels**

It was evident from the study that the number of record officers was not sufficient to carry out duties related patient records. Technically, from the findings there were only four record officers serving the entire hospital. Three based at the MRU and one serving

the wards. The findings of the study have further revealed that due to the insufficiency of records staff, health professionals undertook duties meant for records officers resulting in negligence of duties they were directly responsible for and the processes also consumed a lot of time. It also emerged from the findings that computerization of patient processes was partly in place hence the need for multitasked records officers who could provide excellent service and as a result help to improve on safety of lives for patients.

The success regarding efficiency of services provided by the health information department such as the MRU at PMH will therefore depend among other things on good staffing levels for record officer's staff. This will mean the many roles that records staff are mandated to do can be shared for optimum results in order to achieve the responsibilities of the MRU which were many. Green and Bowie (2005) says health information staff develop, monitor and improve systems related to the establishment, maintenance, control and dissemination of medical records and related patient information. An assertion by Green and Bowie (2005) is further supported even from the early writings by Brumm (1995) who mentioned that because of sheer volume of patient records alone, maintaining control over design processes of records is complex and a time consuming task and therefore calls for devoted records management expertise.

### **5.5 Processes for Generating Patient Records**

The findings established that processes for generating patient records at PMH were informed by a number of activities carried out on the part of a patient. These included among others assessment of a patient upon admission at the hospital to determine legibility for hospitalization or not. This assessment was carried out by a doctor who attended to a patient in relation to the medical conditions at hand. Usually the history and physical examination was prepared as one handwritten or transcribed report which assisted the physician in establishing a diagnosis on which to base treatment and served as a reference for future illnesses (Greene and Bowie 2005). With the help of other health professionals some additional investigations may be carried out such as laboratory test, x-ray, drugs to be administered etc.

## **5.6 Existing Records Management Policies and Guidelines**

The study at PMH revealed that there were no policies and guidelines that informed management of medical records. Due to lack of a clear policy which guides record management practices at PMH the study also found out that there were problems in relation to the management of patient records and these included the following:

- ☒ Slow retrieval of records
- ☒ Overstayed files in the wards
- ☒ Incomplete doctors information on patient records
- ☒ Insufficient storage facilities
- ☒ Insufficient records staff to match the requirement of record management practices at PMH
- ☒ Lack of computerization of records to facilitate access of patient records.
- ☒ Lack of a Medical Records Centre for the disposal of medical records.

According to McWay (2005) there should be policies that guide action to be taken on records and its management. The haphazard management of medical records at PMH could be a result of lack of policies and guidelines for the management these records

## **5.7 Medical Records Disposal**

Disposal of patient records was not well comprehended by the staff, as the responses showed that disposal was understood to mean the removal of files from the wards to the RMU for safekeeping. Hence respondents mentioned that disposal of patient records was undertaken by the administration staff, human resource office, supplies and purchasing officers. The only exception was the MRU who clearly stated that due to lack of retention policy the unit did not dispose medical records. The study revealed absence of policies in record management except for the PMH Medical Records Policy which was still in a draft form since 2007. The study further revealed that there was a practice in place used to manage patient records which involved the movement of files from one place to the other. This practice was regarded as a policy even though there was no documentation about its existence.

Due to lack of a clear policy which guides record management practices at Princess Marina Hospital the study also found out that there were problems in relation to the management of patient records and these included slow retrieval of records, overstayed files in the wards, incomplete doctors information on patient records, insufficient storage facilities, insufficient records staff to match the requirement of record management practices at PMH, lack of computerization of records to facilitate access of patient records and lack of a Medical Records Centre for the disposal of medical records.

The above problems could be addressed through the existence of a policy such as for issues relating to disposal of patient records which Green and Bowie (2005) confirms that it should be implemented in a manner consistent with established policies. Also that, institutions cannot retain records for good and therefore it becomes necessary that a policy should be in place to govern the destruction specifying or recommending the method to be used.

### **5.8 Security and Enhancement of Confidentiality for Patient Records**

Patient records were without any doubt containing confidential information with exclusive right of access to those mandated to view it. Given the importance and nature of patient information it is imperative that they should be protected from misuse by unscrupulous individuals who might use it for wrong purposes. It is important that the medical records staff is aware of the need to maintain confidentiality and the patient's right to privacy. Any information communicated by a patient to a health care provider is considered privileged communication which means it is private (Greene and Bowie, 2005). This study has confirmed a level of restrictions with regard to who should access patient records by putting in place measures denying loose access on patient records. These measures included the use of password, locked cabinets, taking an oath not to disclose confidential information.

While this was the case, the findings revealed that sometimes patients had access to their records especially on things involving laboratory tests and x-ray results. Over and above all these efforts to contain patient records and imposing strict measures on access,



interviews from doctors on the other hand revealed a lack of appropriate security in general from the wards. This includes having lack of clear measures taken to keep files away from unauthorized persons.

The issue of access to patient records was also clearly stated to be for those with direct responsibility to management and care of a patient including those responsible for the custody of records. These were categorized as health professionals and other ancillary staff such as counselors and records officers. However, the study also found that in some cases patient files were accessible to police officers and legal practitioners. For example when a patient had a case to lodge against a hospital or a doctor a legal representative such as a lawyer for a patient would have access to a patient record in order to file an application for use in a court of law. The study further revealed that access to records was through the use of computers where some patient records were computerized in some units and departments and information about the patient could be obtained by logging into the computer. This was common for pathology tests where results were sent directly to the practitioner who ordered an investigation to be carried out. Computerized processes were also said to be very useful as found from the interviews conducted with doctors as the results could be interpreted prior to attending a patient and thus saving time.

### **5.9 Computerization of Patient Records**

The majority of patient records were manually managed. However, in most wards some records and processes relating to patient care were computerized. For example a register of patients in a particular ward including admission dates. A great majority of files at the MRU were manually maintained and this alone impacted on the available limited storage facilities as well as on the provision of services relating to the retrieval of patient files manually. This study has further revealed that lack of computerization of patient records impacts on issues of limited storage at the MRU in the sense that patient records were bulky and demanded a lot of space to preserve. Storage problems had also been associated with other challenges regarding slow retrieval of patient records even for those who required urgent medical attention. This was necessitated especially where past

history was needed to substantiate the decision made on care and management of a patient. The findings further revealed there was a need for a fully-fledged computerization of processes relating to patient records. Computerized records will contribute towards the improvement of services regarding patient record management. It will also address the issue of limited space for patient records as computerized records are not space bound. Computer systems were used extensively to collect, analyze, display and retrieve health care data and information (Greene and Bowie 2005).

### **5.10 Patient Record Management Problems**

Respondents in the study also shared some crucial information regarding the problems and measures necessary towards the improvement of patient records management at Princess Marina Hospital captured as follows:

- i) There was an urgent need to have fully-fledged computerisation of patient records including electronic filing system. Electronic records have some positive effects and can reverse the most adverse conditions as noted by Torrey (2012) that at most, quick access to our records can be lifesaving if an emergency occurs.
- ii) The study further revealed that there were storage challenges for patient records which were mostly created daily.
- iii) Storage facilities for patient records were not sufficient and this resulted in a lot of challenges among which included loss of patient records. This was not good for patients as some historical and information crucial for both current and previous visits made to ensure proper care and management of patients was lost.
- iv) The number of records staff was not sufficient considering the amount of work at hand with regards to management of records. It is therefore necessary to have records clerks in the wards for the continuous updating of all forms of patient records.
- v) Medical Records Unit staff training needs to be furthered in order to handle the challenges associated with management of patient records.

## CHAPTER 6

### SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

#### 6.1 Introduction

The basis for this study was to carry out an investigation on how medical records were managed at PMH using the principles of records management life cycle. An investigation was conducted through the use of questionnaires and interviews administered on a group of respondents categorised as health professionals and record officers as well as medical doctors. Some observations relevant to research question were also made. This chapter gives an overview of on the primary findings, makes conclusions and recommendations of the study.

#### 6.2 Summary of findings

The following is a summary of the findings regarding patient record management at PMH

##### 6.2.1 Types of Patient Records

Regarding storage of patient medical records, the study revealed that these were stored mostly in paper format. However, by their nature, these records were quite bulky and posed a challenge in terms of their storage. This was compounded by lack of enough space at the MRU to store these bulky files.

##### 6.2.2 Patient Record Creation and Purpose

The processes and purpose for the creation of patient records were in line with the practice used globally in that data was gathered from a patient, recorded and the necessary interventions provided as determined by a practitioner attending a patient. Responses from the questionnaire indicated that the processes followed in the creation of patient medical records were aimed at giving the necessary care and management relevant to the established condition. However, the study revealed that some medical records about patients were kept in other clinics or in outpatient cards. This had the effect of not creating a balance in the treatment of patients as data is fragmentally maintained and stored.

In addition to this and based on the observation made, there were other departments in which patient records were not kept at the wards and the MRU but as patient records unless in cases of hospitalisation. These included among others the Physiotherapy Department, Medical Clinic, Outpatient Clinic and the Infectious Disease Control Centre.

### **6.2.3 Staffing Levels**

The study revealed that there were serious inadequacies regarding staffing of the MRU. In addition, some of these staff members seemed not to have the full requisite training needed in managing patient records. There is a risk therefore that these factors are compromising on the quality of patient record management at the MRU, which affects the overall service delivery to the patients.

### **6.2.4 Policy and Guidelines on Medical Records Management**

The study revealed that, there was a lack of policies regarding management of patient records, which is a serious handicap to institutions such as PMH. There is no written policy or policies to guide many functions involving management of patient records. For example lack of disposal and retention policy has adverse implication on issues of storage which is already a challenge at PMH. Lack of policies on some of the functions involving patient management implies that there is no consistency in the way things were done and this might have negative effects. Some practices which were in place regarding common methods used with regards to disposing records were not consistent nor apply across the board. Even where practices in place were considered useful, they were not mandatory to all involved in record keeping.

Related to the above problem, there were some inconsistencies on the dispatching of files from the wards to the MRU as pointed out on the part of medical doctors. The one mentioned involved failure by doctors to append signatures on files for patient discharge from the wards. The practice being that once a doctor's signature had not been appended, a file could not leave the ward.

### **6.2.5 Security and Enhancement of Confidentiality for Patient Records**

The study also revealed that the security of patient records was not satisfactory, despite the availability of other measures to secure patient records. Confidentiality and restricted access of patient records cannot be over emphasised to avoid any form of abuse by those without rights to these records

### **6.2.6 Computerization of Patient Records and Storage Facilities**

The study also revealed that, despite the efforts in place to computerise patient record management, a lot of functions involving patient records were still being carried out manually

## **6.3 Conclusions**

The conclusions below were drawn from the study on managing patient records at PMH.

The study revealed that there were different types of patient records and these records were created based on the circumstances upon which a patient was attended to by a medical practitioner. The available records were found in paper, electronic and a combination of electronic and paper formats.

Regarding security of patient records, the study found that there were some measures in place to secure patient records and to protect confidentiality of records, though the measures had loopholes necessitating improvements on the systems in place.

Regarding patient record generation, the study revealed that there were some key processes in place which dictated how a patient record was created. Related to this was the management of these records. The study showed that despite the systems in place to manage patient records, there were some prevailing challenges. These challenges included; limited space area for the safekeeping of patient records; shortages of records officers to keep up with the workload for records management; incomplete computerization processes which affected productivity and efficiency relating to access of records for patients in need of medical attention; lack of policies to guide management

for patient records including lack of a disposal policy for records to guide the disposal of inactive patient records which occupied lots of space given their bulkiness.

## **6.4 Recommendations**

### **6.4.1 Types of Patient Records**

It has become quite evident that paper format records are not the best option for maintaining and storing medical records. Also due to the fact that patient records were not alterable some of the data kept as records were no longer valid such as blood pressure, weight, and temperature readings recorded some decades ago.

In order to save on storage space and increase the efficiency of storage of medical records and turn-around time of retrieving them at the MRU, the researcher recommends computerization of patient medical record keeping. In addition to the above mentioned benefits of computerization, the expectation is that the patients will be attended to timely and faster.

### **6.4.2 Patient Record Creation and Purpose**

In order to have a coherent and consistent management of patient's records, information from the outpatient record should also be captured in a patient record kept in the hospital. Patient information should be complete and captured in a single record to allow for a balanced investigation, care and management. This method would save time on fresh investigations carried out by providing an absolute patient data which will also inform decisions on the investigations, care and management of a patient.

### **6.4.3 Improving Staffing Levels at MRU and initiating training of Record Officers, Health Professionals and Other Ancillary Staff.**

The issue of insufficient Record Officers at PMH has a lot of negative effects on the number of operations and procedures regarding patient records management. It also has an impact on data and information contributed to the NHIS which is crucial for planning and financing of the health sector. Amongst those include slow retrieval process, misfiling, poor record keeping, loss of records as well as being time consuming. These challenges can have adverse effects and fatal results on the life of a patient. It is therefore

recommended that units and departments be staffed with record officers to enable care takers an opportunity to focus on patient care as opposed to record keeping and other related tasks. There is also a need to increase the number of record officers from 3 to be able to cope with other work demands at the RMU involving the computerisation of all records in their custody.

Skill training and development forms an important part in any career development and service delivery in any institutions such as the hospital. The researcher therefore recommends that the Medical Records Unit staff should be constantly upgraded with relevant training to enable them cope with the demands of medical records management. This is also because patient record management requires multi skilled personnel especially in the area of information technology. Patient records are specialized records which require that those handling them should be familiar with some issues on medical field. This could help to minimize issues relating to the wrong allocation of file records and facilitate easy retrieval. Training is also required on the part of doctors, health professionals and ancillary staff on all important issues relating to good record management practices. Such training will address among others, issues relating to management of patient records in general

#### **6.4.4 Processes for Creating Patient Records**

The researcher recommends that the MRU should have a system where all patient medical information can be coherently and centrally captured to ensure completeness of patient medical records.

#### **6.4.5 Policy and Guidelines on Medical Records Management**

The researcher recommends that medical records retention and disposal policy be developed and applied mandatorily across all the units involved in medical records management. This policy will guide all the activities undertaken with regard to the management of records. For example, the policy should stipulate the time limit for files to be taken out of the ward once a patient has been discharged, which will curtail the problem of files being lost and misplaced after patients are discharged.

#### **6.4.6 Security and Enhancement of Confidentiality for Patient Records**

The researcher recommends that security officers should be available 24 hrs around the clock to ensure that patient records were not tampered with. Patient records contain very important data on all the investigations carried out about the patient including management and care given. It is therefore important that such records should be in a secure place lest patient life is compromised when crucial information is needed to address issues relating to their health.

It also recommended that checks and balances should be put in place to ensure that those who have access to patient files do not remove anything from it after use. This is particularly for patient records with mitigation issues against the hospital or individual care givers.

#### **6.4.7 Computerization of Patient Records and Storage Facilities**

The researcher recommends that computerisation of medical records processes should be fully fledged. In a hospital environment where a lot of care needs to be exercised on patients, the speed at which some activities are carried out is of prime importance because it involves the life and death of a patient. A fully fledged computerisation of processes involving management of patient records will greatly improve service delivery on a number of activities carried out. For example retrieval of files will be fast and patients attended to promptly.

Safekeeping of files will be easy and a lot of space will be economised since electronic records do not consume a lot of space compared to the ones stored manually. Security of records will also be improved as access to records can be denied through the use of passwords and biometrics methods for identification. Computerisation of processes will also improve on the dispatch of results from one unit to another about a patient needing care and thus saving lives. Computerisation of patient records should therefore be one of the top most priorities for full implementation at PMH.



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**APPENDICES**

**Appendix 1.1 Questionnaire for Health Professionals and Record Officers**

**Purpose:**

The purpose of this questionnaire is to gather information regarding patient record management practices at Princess Marina Hospital from various units and departments. The study is purely for academic purposes in fulfilment of the requirements for the award of a Master’s Degree in Archives and Records Management. Information gathered will be treated in strictest confidence.

**Instructions**

Please respond to the questions in this questionnaire as honestly as possible. If space provided is not sufficient please use a separate piece of paper for additional details.

**Thank you.**

**1. State Department/section /unit/ ward**-----

**2. Name and Job Title (name optional)**-----

- a) Doctor
- b) Nurse
- c) Record officer/Clerk
- d) Other (please Specify)-----

**3. Were you involved with the creation of patient records?**

- a) Yes
- b) No
- c) If yes explain -----
- d) If no explain -----

**4. What type of patient records were found within this department?**

- a) Patient records
- b) Drug records
- c) X-ray records

d) Other (specify) -----

**5. In what format were patient records found?**

- a) Paper
- b) Electronic
- c) Paper and electronic
- d) Photographic
- e) Other (explain)


-----

**6. How many Records Officers/Clerks work within your department?**

- a) 0-3
- b) 3-6
- c) 6-9
- d) Above 9
- e) None


**7. Is the number of Records Officers/Clerks sufficient?**

- a) Yes
- b) No
- c) If no explain


**8. Please explain the processes followed when patient records were created?  
(Provide as much detail as possible)**

- a) Assessment
- b) -----
- c) Legibility for Admission
- d) -----
- e) Not legible for Admission
- f) -----
- g) Medical records
- h) -----
- i) Admission
- j) -----



k) Other (explain)

l) -----

**9. Where were patient records kept in your department?**

a) Medical Records Unit (MRU)

b) Wards

c) MRU and Wards

d) Not kept

e) With patient

f) Other-----

**10. If records were kept other than at a place you have mentioned why is it so?**

a) Administration office storage

b) Other (specify)-----

**11. How were the records filed?**

a) Alphanumeric

b) Numeric

c) Other Explain -----

**12. Who accesses patient records and for what reason?**

a) Health Professionals

b) Administration Staff (AS)

c) Medical Records Staff (MRS)

d) HP and AS

e) HP and MRS

f) HP, AS, MRS

g) Other -----

**13. Patient Information is confidential. What measures were in place to ensure that third parties do not gain access to patient information? Please explain in detail?**

a) Oath

b) Denied access

c) Locked cabins

d) Other (explain)-----

**14. For how long were patient records kept in your custody?**

- a) 0-3 months
- b) 3-6 months
- c) 6-12 months
- d) Over 12 months
- e) It depends-----

**15. How were patient records disposed of?**

- a) Manually
- b) Electronically
- c) Manually and Electronically
- d) Don't know
- e) Other (explain) -----

**16. Who authorises patient records disposal?**

- a) Health Professional (HP) Staff
- b) Medical Records Staff (MRS)
- c) Administration Staff
- d) HP and MRS
- e) I don't know
- f) Other (explain)-----

**17. If disposed records were kept where they were kept for how long and what happens thereafter?**

- a) 0-2 months
- b) 3-5 months
- c) 5-7 months
- d) 7-9 months
- e) Above 9 months
- f) Other
- g) I don't know-----

**18. Do you have enough storage facilities?**

- a) Yes
- b) No

c) If no explain-----

**19. Is your medical record keeping systems computerised? Please explain.**

- a) Yes
- b) No
- c) Partly computerised
- d) In progress
- e) If no explain-----

**20. What policies were in place relevant to record management practices within your department?**

- a) Record creation policy
- b) Record management policy
- c) Record disposal policy
- d) Other (explain)-----

**21. What problems do you have with regards to record management practices?**

- a) Missing records
- b) Lack of storage facilities
- c) Failure to discharge patient records by doctors
- d) Overstaying of files in wards
- e) Slow retrieval of records

**22. Is there any other information that you would like to share**

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### **Appendix 1.2: Interview Questions for Medical Doctors**

1. What type of patient records do you create and the format they were found?  
Please give the examples.
2. How were patient records created i.e. the processes involved?
3. For what purposes were the records created
4. Patient information is confidential. What measures were in place to ensure that patient access to patient records denied to unauthorized parties?
5. What challenges were presented with regard to patient record management practices?
6. What recommendations do you have regarding patient record management?

### **Appendix 1.3: Letter of Request Permission to Conduct a Study at PMH**

### **Appendix 1.4: Examples of Medical Forms**

### **Appendix 1.5: Accident and Emergency Form V1**

### **Appendix 1.6: Chemical Pathology Request and Report Form**

### **Appendix 1.7 Fluid Balance Chart**

### **Appendix 1.8 Radiography Request Form**