RECORDS MANAGEMENT IN SUPPORT OF SERVICE DELIVERY IN THE PUBLIC HEALTH SECTOR OF THE LIMPOPO PROVINCE IN SOUTH AFRICA

BY

NGOAKO SOLOMON MARUTHA
(Student no. 45884889)

Submitted in accordance with the requirements for the degree of

MASTER OF INFORMATION SCIENCE

at the

UNIVERSITY OF SOUTH AFRICA

PROMOTER: PROF PATRICK NGULUBE

DECEMBER 2011

SUMMARY

This study focuses on records management in support of service delivery in the public health sector of Limpopo Province, South Africa. The study sought to investigate whether the current records-keeping practices support or undermine service delivery and the e-health readiness level. Mixed methods were used for the survey. Questionnaires, observation and interviews were used to collect data. Purposive sampling method was used to identify interview participants and stratified random sampling for questionnaire participants. The total population of the study was 324 from which 210 participants were sampled. The response rate was 77% (162).

The study discovered that records management negatively affected timely and effective health care services. This resulted in long patient waiting times and patients being treated without their medical history records. The study recommended the introduction of an electronic records management system capable of capturing and providing access to a full patient record and tracking paper record movement.

KEY TERMS: Records management, electronic records, medical records, service delivery, e-health, records disposal, records retention, records appraisal, records disaster management, archive, public health sector, Limpopo Province, South Africa

DEDICATION

This dissertation is dedicated to my mother, Sekedi (Mamaropeng) Marutha, who tried harder, days and nights with all means to ensure that I am who, what and where I am today, and my late father, Nakampe Frans (Mokaname) Marutha, without whom I might not have been part of this world today to conduct this study. You have been the pillar of my strength. I dedicate this work too to my late brothers, Sepetlela David Marutha and Matome Phineas Marutha.

"Ke mokwena moila lehlaka moroka a' meetsi a pula"
THE BIG CROCODILE

ACKNOWLEDGEMENT

I highly acknowledge and appreciate my promoter, Professor Patrick Ngulube, whose intellectual, professional guidance and supervision to the completion of this study are immeasurable. His commitment is extremely appreciated.

Of course, I also appreciate the understanding from and sacrifices made by my family, wife, Elizabeth, and daughters, Mabjala, Modjadji, Mapula and Koketso, during the time of my studies. My heartfelt thanks also go to brother, Mr Nakampe Joseph Marutha, and sisters, Ms Mmatlala Paulina Marutha, Ms Modjadji Maria Marutha, Ms Mabjala Annah Marutha and Ms Margaret Marutha; for without their presence this study would not have been successfully completed. This is also for you *bakwena*.

Much thanks and appreciation is offered to my direct study participants, who participated in the collection tools pre-test, questionnaires, interviews and observation. Their contribution to this study assisted me in my data presentation, interpretation, summary, conclusion and recommendation provided in Chapters 4, 5 and 6 respectively.

I also acknowledge and appreciate Mr Jeffrey Mohlala, the Records Manager at the Limpopo Department of Health. Without him the distribution and receipt of the data collection tool, especially the questionnaires, might not have been possible. I would also like to show my appreciation to the Limpopo Department of Health for giving me the approval to conduct this study in their department. The hospitals that supported and/or took part in this study are also thanked with much appreciation. ***"The heartland of Southern Africa – Development is about people".***

Furthermore, I owe my deep appreciation to Dr Moss Mphalane Makhura, Records Manager at the Developmental Bank of Southern Africa (DBSA) and Managing Director of Khunkhwane Information and Records Management, Mr Lucas Seabi, Subject Librarian at the University of Limpopo and Mr Maoka Andries Dikotla, Deputy Information Manager at Limpopo Department of Public Works for their professional motivation and guidance, which kept my

hopes up during this study. They also supplied me with relevant information sources, such as books and articles, which enriched this study. I much appreciate their contributions.

I also give much appreciation to Mrs Lynn Swanepoel, Manager for Human Capital Development and Training at the South African Social Security Agency (SASSA) Free State Region, Bloemfontein, for taking time to proofread and make professional grammatical corrections and guidance for Chapter 1 and Chapter 2 and Mr Mpho Ngoepe, University of South Africa (UNISA) PhD student for proofreading and advising me professionally on the entire dissertation. Both motivated me with their words of hope and encouragement to proceed with this study.

I direct my appreciation to the University of South Africaôs (UNISA) Financial Aid Bureau (FAB) for offering me a postgraduate bursary. Without the FABôs support, this study would have been difficult to complete. Thank you for giving me the world to ***"Learn without a limit".***

To all those loving people who contributed to this study, directly or indirectly, please receive my sincere gratitude and appreciation. Last, but not least, I would like to thank the almighty God, who protected me and made it possible for me to complete this study. Thank you, My Dear Lord.

DECLARATION Student number: **4588-488-9**

I declare that ***Records management in support of service delivery in the public health sector of the Limpopo Province in South Africa*** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

_____ 14 December 2011_____

Signature Date

Mr Ngoako Solomon Marutha

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CO_2	Carbon Dioxide
DPSA	Department of Public Service Administration
ECT	Electronic Communications and Transactions Act
EDI	Electronic Data Interchange
E-HEALTH	Electronic Health Services
EHR	Electronic Health Records
EMR	Electronic Medical Records
EMS	Emergency Medical Services
E-RECORDS	Electronic Records Management
ESARBICA	East and Southern Africa Regional Branch of the International Council on Archives
HIS	Health Information System
HIV	Human Immunodeficiency Virus
ICA	International Council of Archives
ICT	Information and Communication Technology
IT	Information technology
MVA	Motor vehicle accident
NARS	National Archives and Records Services
NARSSA	National Archives and Records Services of South Africa
NARSSAA	National Archives and Records Service of South Africa Act
NARSSAR	National Archives and Records Service of South Africa Regulations
NHA	National Health Act
PAERS	Patient Access to Electronic Healthcare Records System
PAIA	Promotion of Access to Information Act
PAJA	Promotion of Administrative Justice Act
PDF	Portable Document Format
PFMA	Public Finance Management Act
PHIS	Provincial Health Information System
PHR	Personal health records
PMR	Personal medical records
STIs	Sexually Transmitted Infections
TB	Tuberculosis
UNISA	University of South Africa
UK	United Kingdom
US	United States
WHO	World Health Organization

CHAPTER 1
BACKGROUND OF THE STUDY

1.1. INTRODUCTION

This research is mainly focused on records management in support of service delivery in the public health sector of the Limpopo Province in South Africa. The records management policy of the University of Greenwich Records Management Office (2009) underscores that all employees of any organisation should bear in mind that all the documents they would have created, received or maintained in any form of media during their working process, do not belong to them. These belong to the organisation and are considered to be the official records of the organisation. In other words, the organisation remains the owner of the records because employees are being paid to create the records. All the records and documents created during official work transactions are to be managed effectively and efficiently as required for the organisation. The organisation needs to keep records and ensure their proper management since it will use these records in future to support its core functions, and to comply with its legal and regulatory obligations. The very same records will also help to effectively manage the organisation. The organisation will be able to provide evidence of all the work done or not done, and how it was done, or why it was not done. This can be done on the basis of the recorded information about the decisions taken during the process or previous meeting resolutions. In support of the above, Tafor (2003:73); Currall and Moss (2008:70) argue that government must keep records to ensure the permanent preservation of their memory so that people account for their actions to citizens. Records must be protected to ensure their accessibility.

This chapter discusses the background to the study, problem statement, purpose of the study, objectives of the study, research questions, and justification of the study as well as the significance of the study. Ethical considerations regarding the study are also presented. The chapter also gives an outline of the chapters and describes the contents of each chapter.

1.2. BACKGROUND TO THE STUDY

Government produces, collects, disseminates and utilises a larger volume of records and information than any other organisations. These records are important for the lives of the public and are also used to hold government accountable for the service delivery (Tafor 2003:72; Ngulube and Tafor 2006:58). This emphasises the importance of proper records keeping ensuring government accountability in a democratic society. Proper record keeping is critical for the survival and efficient operation of day-to-day business activities (Swan, Cunningham and Robertson 2002: 79). For these reasons, government departments, including the ones in South Africa, maintain a system for records keeping.

In support of the above, Currall and Moss (2008:70) argues that governments must ensure the permanent keeping of its records since it needs to account to its citizens for its administrative actions. An effective keeping of records will enable compliance with transparency requirements. Government will be able to prove their administrative process through the records preserved. This was emphasised by Tafor (2003:73) in his citation from the International Council of Archives (ICA) (1997) that records provide ñevidence of human activities and transactionsò to protect the rights of both the public and government, and that is good for ñdemocracy and good governanceò.

Similarly, the Department of Health in South Africa creates and maintains records. It creates, maintains and uses patientsô records for different purposes in rendering its health service to citizens through its hospitals and administration centres. For example, they use patientsô medical records for nursing audits and clinical audits in their regularly conducted peer review meetings in hospitals. Peer review meetings are conducted by all provincial hospitals as a mandate from the office of the provincial health department. During the regular audit, patientsô records are used to screen the business transactions conducted by doctors and nurses. They confirm the procedures followed when doctors and nurses conducted certain critical patientsô treatment activities such as child delivery and operations, as well as investigate maternal death. The hospitals also regularly use medical records in response to legal actions/litigations or complaints from the patients or citizens about the hospital services.

Furthermore, the patientsô records are used daily to record information about the patientsô personal details, prescriptions and diagnosis for future reference to follow-up patients. The information recorded is eventually used to confirm the patientsô health history during current and future consultations. The paces at which the records are retrieved and served for this purpose determine the patient waiting time for the services. This has an impact on the quality of the service rendered by the health institution. According to Limpopo Health and Social Development (2006b: 85) the patient waiting time in the Limpopo hospitals had been five hours and five minutes in 2004. The department planned to reduce the waiting time to three hours in 2009 in order to improve the hospitalôs client satisfaction rate.

Poor records keeping will lead to the failure of the health care system to deliver efficient services. For instance, Chauke (2008:7) reported that the doctors at Nkhesani Hospital in the Limpopo Province, South Africa, could not operate on a patient because of a missing file. In the case in question, the patient was involved in a motor vehicle accident in 2005 which left her leg partially paralysed. The doctor needed the file which contained information about the patientôs accident, health problems and/or sicknesses in order to trace the history or seriousness of the injuries before conducting the operation. Unfortunately, the only available record was about diabetic illness. He further elaborated that the patient was ñnow pinning her hopes on the police file that was recorded at the accident sceneé if anything in it that can help". The spokesperson of the Department of Health and Social Development intervened and clarified that the hospital had a slight mix-up with files. The reason given was that the hospital relocated in 2007 and the files were not lost, but were at the hospital. The US Department of Health and Human Services (2006) also reported that, in most cases, 80% of the problems in the health service institutions are created by inaccurate information in medical records, inaccessible records, mislabelled specimens, and misfiled or missing charts.

This is also experienced with other government departments. Kgosana (2008:2) reported that the Department of Home Affairs failed to provide records to the Auditor-General to prove expenditure transactions worth millions of rand. The challenge of ineffective records keeping is not only experienced in South Africa. The US Department of Health and Human Services (2006) reported that in health service institutions, the ratio for missing medical records is 1:7. This means that for

every seven patients consulting at the health institutions, one medical file would be missing. It can be deduced that this is the result of ineffective records management.

Records in hospitals are also used to collect and validate statistical information daily. The statistics collected are used to regularly review the hospitalôs monthly performance in all activities. It is through proper records management that the data collected can be complete and accurate. To improve these, Barry (2001) argues that organisations need to come up with an electronic system to comply with and implement electronic records management as a necessity. It is a legitimate option which is eventually cheaper in terms of money, time and energy to ensure speedy service delivery. Nowadays, it is not productive for the information officers to retrieve statistical information through paper-based records as opposed to electronic records. Access to information in an electronic records management system is made possible by clicking a button. In a paper-based records system, information system officers need to count numbers manually, page by page, from the admission registers and validate these against patientsô files, instead of clicking a button on their desktop to retrieve the statistical report. This manual way of retrieval is time-consuming.

The Limpopo Department of Health is using both paper records and electronic records formats parallel for creating, keeping and maintaining medical records. Patientsô medical records are created in duplicate in electronic and paper format. Both paper-based patientsô medical records and electronic patientsô records are created simultaneously as each patient consult. The paper format entails all information about the patients, such as personal details, dates of consultation, financial status for consultation, prescriptions, diagnosis and treatments. Electronic formats only cover the personal details, dates of consultation and financial status (whether the patient paid for consultation or still owe the hospital money). Thus, the information that Limpopo hospitals created and preserved in an electronic format was not complete since it did not cover prescriptions, diagnosis and treatments. However, according to the Limpopo Department of Health and Social Development (2006a: 42), in 2004 the Limpopo Department of Health had only 19% registries which were fully functional. They planned to reach 100% functional registries in 2009.

Like in many other government departments worldwide, public service delivery in the public health sector seems to be a problem due to the following factors:

- Lack of effective systems for opening, tracking and indexing files (Ngulube and Tafor 2006:59-60)
- No records safety (Ngulube and Tafor 2006:59-60; Nengomasha 2009:112)
- Lack of effective training, legal and regulatory tools for management of e-records (Nengomasha 2003:66)
- No proper capturing and preservation of records (Wamukoya and Mutula 2005: 70)
- Lack of knowledge about the electronic records programôs fundamental elements, which are skilled staff and necessary competencies in the electronic information system; electronic records management legal and administrative requirement; and accurately documented policies, standard operating procedures and formal methodologies for managing e-records (Wamukoya and Mutula 2005: 70)
- Missing files and documents that delay service to the public (Kemoni and Ngulube 2008:298)
- Inadequate records keeping practices and difficulty to trace the movement of records (Kemoni and Ngulube 2008:297)
- Lack of core competencies in records management (Nengomasha 2009:112)
- No budget dedicated specifically for records management (Nengomasha 2009:112)
- No plans for managing e-records (Nengomasha 2009:112)
- No security and confidentiality to records (Nengomasha 2009:112)

To improve the above, a full implementation of information and communication technology (ICT) can be a major solution. This can ensure that evidence of official human activities and business transactions is safely preserved, safeguarded and timeously accessible. The Limpopo Health Department has more advantage of properly managing electronic records in the hospitals. This is because the National Archives and Records Service (NARS) made available and accessible to it the necessary guidelines and policies on electronic records management (Keakopa 2007:70). The current means of interaction between professionals and patients, known as telemedicine, determines the need for ICT. ICT will ensure easy and fast access to treatment and retrieval of information or records (Ojo 2009:95).

Hence, it will be easy to implement e-health in hospitals if records are effectively managed. E-health improves the old mode of interaction between clinician and patients. It is about interactive communication that creates an opportunity for knowledge sharing and also creates new knowledge. With e-health, a layperson can turn into an expert in health care through ICT, training and skills development, which leads patients to the ability of managing their own care (Rawabdeh 2007:516; Porter 2004:117; Adams and Bal 2009:37). This is because e-health improves hospitals in terms of clinical diagnosis, home care delivery and education of health professionals. It also assists with health resources, transparent management, and general e-commerce covering both health institutions and patients through ICT (Akeh and Morfaw 2007). This can eventually solve the digital division between patients and health professionals/clinicians.

Furthermore, records management can play an important role in supporting e-health services. This is because e-health, like any other service delivery method, needs to be accounted for and it should also be rendered in compliance with policies and procedures. The people involved in rendering e-health will eventually have to answer how, why, when and who rendered certain services and whether it was rendered properly. Clarke and Meiris (2006) also underscore the point that the web-based personal medical records (PMR), created during e-health services, assist clinicians with patientsô engagement, lifelong health information coordination and information access to both patients and health service providers. PMR also bring about effective communication between patients and service providers, improved efficiency in medical practice and increased drug security ñvia interaction and contra-indication checksò. Properly preserved e-health records will enable the evaluation of patient care, medical outcry investigations and medically related administrative decision-making and problem-solving. This implies that records management is crucial to the successful management of the health services and it is deemed necessary for any health system, including an e-health system.

However, in e-health, patients must also have access to their medical records and must be able to comment on them. According to Cauldwell et al. (2007:155-157) accessibility of e-health care records systems will, amongst others, assist patients to view their e-health care records while waiting for the health service and will also enable patients to personally register their arrival at the health care centre/institution. In the Patient Access to Electronic Healthcare Records System

(PAERS) patients are also able to personally access information about their ñmedical history, details of previous consultations, results and referral lettersò. Their survey also discovered that PAERS contributes much to the reduction of patient waiting time for health service and to patient administration. It takes ±11 minutes for the patients to access the health service, which includes two minutes to administer a new patient. Therefore, it is vital that e-health records be properly managed to comply with all the patientsô information requirements.

Moreover, according to Ngoepe (2004) sound records management is the heart of good public management since government services are dependent on access to information. This is because every single activity in government service requires accountability and transparency for proper governance. The State Records New South Wales (2004) emphasises that records are used to prove ówhat happened, why and by whomô. Records serve as a tool for easy accountability and are necessary to meet legal, financial and accountability requirements. In e-health all the transactions performed during interaction between patients and service providers need proper management for proper future accountability and also to meet legal, financial and administrative requirements. This implies that a successful e-health system needs maximum support from proper record keeping.

1.3. RESEARCH PROBLEM

Hernon and Schwartz (2007:306) cited that a survey conducted by Hernon and Metoyer-Duran (1993:82-83) noted that the problem statement should not be general and irresponsible. Instead, it should identify exactly what the researcher wants to study, the importance, benefits and justification of the study. It should give the reader an answer to the question of ñso whatò and ñso howò. Hernon and Schwartz (2007: 308) state that in social science research, a problem statement should lead the reader into the study. It should declare originality of the study and show the study focus and the benefit of the study to the population affected by the problem.

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

health service. The health workers usually end up not rendering certain services because the health history of the patient is not contained in medical files. This is due to the fact that, if the health worker proceeds treating patients without enough information about the patientsô health background s/he may end up rendering poor health service that might be risky to patientsô health. ICT or electronic records management systems can be used to ensure easy and fast access to treatment and retrieval of information or records (Ojo 2009:95). In traditional paper records management systems, the records managers and clerks waste a lot of time looking for missing and/or misfiled records, which is not conducive to the functioning of an organisation. There is a need for an effective records management programme to upgrade the records keeping system for easy and timely retrieval of information, improved office efficiency and productivity (Robek, Brown and Stephens 1995). It is against this background that this study was instituted to investigate issues regarding records management and adoption of e-records/health management practices in Limpopo Province.

1.3.1. RESEARCH PURPOSE

The researcher should explain his reason for conducting the study because the purpose of the research serves to inform the reader about what the researcher is planning to achieve with the study in question (Marshall and Rossman 2006:3). Terre Blanche and Durrheim (1999) define research purpose as:

> a general statement of what the researcher aim to discover, an account of where these aims come from, the importance of the findings and a rationale for the research and specific hypothesis or questions that the researcher is investigating in the particular study.

However, the purpose of the study is to investigate the extent to which the current record keeping practices in the Limpopo Province support or undermine service delivery and the level of e-health readiness.

1.3.2. RESEARCH OBJECTIVES

The study may include more than one objective, because objectives are commonly inclusive. The objectives may also be distinguished among themselves because they either appear in a descriptive, explanatory, exploratory and predictive form (Du Plooy 2002:48).

The objectives of the study are:

1. To establish how electronic records are managed in the public health sector of the Limpopo province in South Africa.
2. To determine the state of records management that hampers service delivery in the public health sector of South Africa in the Limpopo Province.
3. To find out the major causes of missing files that hamper service delivery in the public health sector.
4. To explore awareness about e-records and e-health in the public health sector.
5. To explore the availability of the necessary infrastructure, such as telecommunication networks and other ICT network connection facilities, for e-health and e-records to avoid digital division.
6. To determine availability of capacity for e-health and e-records in terms of human resources.
7. To identify existing guideline documents like policies and legislative framework governing e-records.
8. To make recommendations for improvement of records management and e-health readiness.

1.3.3. RESEARCH QUESTIONS

Questions are drawn from the researcherôs professional experience through observation and theories in real-life situations. The best research question should be testable at the end of the study (Black 1999:30). According to Du Plooy (2002:48) the researcher commonly use research questions when he is not sure about the nature of the problem, in an exploratory study, and when more information needs to be gathered for drawing a conclusion. Research questions are one of the major reasons for the researcher to conduct the study. It is the first step in which a researcher

has to take when conducting the research. The research questions and the probable sources of data are detailed in Appendix 8.

1.4. JUSTIFICATION FOR THE STUDY

This study was initiated with the rationale of determining a records management system that can improve service delivery in the public health sector of South Africa. This research will assist the Department of Health and its institutions in revealing, identifying and recommending the necessary e-health system which will enable the health institutions to render effective public health service. The findings and recommendations of this study may be used by 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 will 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). Effective and efficient records management will eventually lead to maximum compliance with Batho-Pele principles since all eight principles are dependent on business records. The eight Batho-Pele principles are consultation, service standard, access, courtesy, information, openness and transparency, redress and value for money. The South African government introduced the Batho-Pele principles to transform public services and improve service delivery. 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).

1.5. SIGNIFICANCE OF THE STUDY

This is one of the necessary parts of the study to ensure that the reader is convinced that the study is important and should be conducted. It is used to build an argument that the research is important for theoretical perspectives, policy issues, practical concern or social issues that affect peopleôs

lives on a daily basis. It is also used as an opportunity to discuss the contribution of the study (Marshall and Rossman 2006:33-34). This study will assist the Department of Health and other public institutions in general to determine the extent to which e-health can help their departments to improve health service delivery, for example, e-health systems can improve patient waiting time and patient satisfaction. The results of the study will enable the public health sectors to identify the need for and make informed decisions about the adoption of e-health system as a solution to improving public health service delivery. The study will also help open the eyes of the public sector entirely about the impact of ineffective records management and the danger of unsecured records. It will ensure that they know what e-health and e-records are and its advantages in comparison to a traditional manual way of rendering the public health services.

1.6. SCOPE AND LIMITATIONS OF THE STUDY

Limitation of the study was introduced with the intention to remind the reader about the study, the study boundaries and the contribution of the study to the understanding of the issue being researched. The limitation of the study was ñderived from the conceptual framework and the design of the studyò (Marshall and Rossman 2006:42). Although this study was conducted at South Africaôs Limpopo Department of Health and Social Development in five districts, the main focus was entirely based on records management in support of service delivery in the public sector. The research area was limited to all 40 hospitals in five districts of Limpopo, namely Mopani District, Capricorn District, Sekhukhune District, Vhembe District and Waterberg District. The study was only focused on the state hospitals, as discussed under the population of the study and the sample frame.

Each district comprises a number of hospitals. In the Mopani District, data was collected at Letaba Hospital, Evuxakeni Hospital, Sekororo Hospital, Nkhesani Hospital, Dr CN Phatudi Hospital, ML Malatji Hospital, Kgapane Hospital and Van Velden Hospital. Hospitals covered in the Capricorn District include Mankweng Hospital, Polokwane Hospital, Thabamoopo Hospital, Helen Franz Hospital, Seshego Hospital, Bohlokwa Hospital, WF Knobel Hospital, Lebowakgomo Hospital and Zebediela Hospital. In the Sekhukhune District hospitals considered for sampling were St Ritas Hospital, Dilokong Hospital, Jane Furse Hospital, Matlala Hospital,

Groblersdal Hospital, Philadelphia Hospital and Mecklenberg Hospital. The Vhembe District had hospitals such as Tshilidzini Hospital, Hayani Hospital, Donald Frazer Hospital, Elim Hospital, Louis Trichard Hospital, Malamulele Hospital, Mesina Hospital, and Siloam Hospital covered by this study. Waterberg District has eight hospitals considered, namely Mokopane Hospital, Elisras Hospital, Thabazimbi Hospital, Warmbaths Hospital, Witpoort, Hospital, FH Odendaal Hospital, George Masebe Hospital and Voortrekker Hospital.

Although this study covered the Department of Health and Social Development in Limpopo, the focus will only be on the hospitals. This was because the study is concentrated on medical or patient records management, and these kinds of records are only created, used and preserved at the hospitals. The provincial Department of Health and Social Development, its district offices, clinics, emergency medical services offices (EMS) and health centres not considered hospitals, were not part of this study. On the other hand, the hospitals also created and used different types of records in their service delivery processes, but the study was only focused on patientsô medical records because they affected peopleôs lives directly. Records for other activities such as financial records, transport management records, and human resource management records were not covered by this study. The population of the study was initially limited to the records management staff, patient admission staff, information management staff, nursing staff and medical doctors as well as the hospital CEOs. After the data collection tools pre-test, respondents gave a feedback which guided the researcher that only records management staff and information management staff was relevant for the study. The nursing staff, medical doctors and CEOs are not relevant as they would most likely not have answers for most of the studyôs questions. This resulted in the population focus being changed to cover only the staff involved with information and records management. The focus was on people dealing with patient records on a daily basis.

1.7. ETHICAL CONSIDERATIONS

It was the researcherôs consideration that ethical issues be considered in this study to ensure professionalism and quality research report. Thus the privacy and confidentiality of the information and/or data collected in this study was always considered. The researcher also ensured that all sources of information used in the content of this research are duly acknowledged.

According to Esterberg (2002:53-54), the researcher should make sure that participants in the study are duly protected in terms of confidentiality during the process of data collection, analysis and publishing of the dissertation or when disseminating the outcomes of the study. The researcher also needs to be careful when communicating his research during the process of researching or when presenting the findings of the study. It is advisable for the researcher to protect the names of the participants and the institution or community being researched. Hence, ñmost of the social researchers use pseudonyms for participants and vague description for actual place in which they do researchò (Esterberg 2002:53-54).

Terre Blanche, Durrheim and Painter (2006:76-77) note that ñsocial scientists are expected to observe the highest level of scientific and professional integrityò. Therefore, social scientific researchers should ensure that they do not falsify and/or plagiarise other peopleôs work. The researcher must also avoid abusing research participants by taking advantage of their research position or acting in any other way that can compromise the researcherôs objectivity. ñCommitting plagiarism, falsification and fabrication of data constitute unethical conductò (Ngulube 2005b:49 cited from Coetzee 2003:119). The University of South Africaôs (UNISA) general information calendar of masterôs and doctorôs degree (2009:14) also outlined some ethical clearance requirements for UNISA research students to avoid plagiarism. The ethical clearance requires that UNISA student researchers declare the contents of their dissertations/theses as their ñown work and that all the sources that they have used or quoted have been indicated and acknowledged by means of complete referencesò in submission for dissertations examination. This researcher adhered to these requirements.

Furthermore, UNISA promotes four international moral principles of ethics for the university researchers, which are autonomy, beneficence, non-malfeasance and justice. The four moral ethics principles were introduced with the aim of protecting the rights and dignity of research participants and to make sure the research benefits the community involved. The principles also seek to prevent any harm to participants and ensure fairness in terms of risks and benefits to participants. The policy also lists and explains ten general ethics principles that need to be followed by UNISA researchers. These ten general ethics principles are (1) essential and relevance, (2) maximisation of public interest and of social justice, (3) competence, ability, and

commitment to research, (4) respect for and protection of participantsô rights, (5) informed and non-coerced consent, (6) respect for cultural differences, (7) justice, fairness and objectivity, (8) integrity, transparency and accountability, (9) risk minimisation and (10) non-exploitation. In the general ethics principles, it is emphasised that research should benefit the society and the researcher must be professional and qualified. The general ethics principles also state that dignity, privacy and confidentiality of participants should be properly considered by researcher, who must also avoid coercion of participants. The researcher needs to be honest, fair and transparent. Abuse of position or knowledge for personal power/gain is discouraged. The researcher is also expected to properly acknowledge all contributions by all other participants in the study. Where possible, the researcher must give feedback to the community of the population of the study (University of South Africa 2007:9-17). The policy also covers issues regarding informed consent, non-disclosure of all information, vulnerable participants and consent relating to gatekeepers.

1.8. DEFINITION OF KEY CONCEPTS

It is necessary to define important concepts utilised mostly in the study. This definition of the key concepts gives a better understanding to learners who are beginners in the field of records management as well as the professionals in the field (Yusuf and Chell 2005:28).

1.8.1. RECORDS

Records are recorded information, regardless of physical form or characteristics, storage media or condition of use like cards, correspondence, disks, maps, memoranda, microfilm, papers, photographs, recordings, reports, tapes, writings and other data, information or documentary material (Minnesota Statutes, section 138.17, subd.1). According to the National Archives and Records Service of South Africa (2006), records refer to recorded information, regardless of form, whether electronic or paper-based or medium, like cassette, disc and document. It can also be defined as a transaction preserved to be used as evidence in future due to the nature of information it contains.

1.8.2. RECORDS MANAGEMENT

Records management refers to the management or control of records in different formats, which are hard-copy files, correspondence, disks, maps, memoranda, microfilm, papers, photographs, recordings, reports and tapes. This ensures that records are easily accessible, retrievable and properly classified. Webster, Hare and Julie (1999:285) cite the definition of records management from Ricks and Gow (1988:20) as ñthe systematic control of recorded information from creation to final disposalò. Kennedy and Schauder (1998:8) define records management as ñan organizational function of managing records to meet operational business needs, accountability requirements and community expectationsò. According to Taylor (1996:11); Kemoni and Ngulube (2008:297), records management is defined as the unit of the organisation assigned with the function of managing records in order to ensure that the organisation is able to comply with business operational needs, meet community needs and properly account to the citizens.

1.8.3. ELECTRONIC RECORDS

Electronic records refer to records that are dependable on relevant machines for access or reading, that is computer hardware and software such as e-mails, database and word processing (Tafor 2003:72). To Duranti (1999:152) components of electronic records are not limited to medium, content and action. The major difference between e-records and traditional paper records is that its components do not physically exist but are kept in different parts of the system. According to the National Archives and Records Service of South Africa (2006), electronic records refer to ñinformation which is generated electronically and stored by means of a computer technologyò. ñElectronic records are the evidence, in digital form, of transactions undertaken by individuals or by organizationsò (McDonald 2006). An electronic record is an intangible soft record created, managed and shared through the usage of an ICT system.

1.8.4. MEDICAL RECORDS

A medical record is the type of record generated at the health care institution during the process of treating patients as the hospital clients. It is also known as a Personal Health Record (PHR) and is usually characterised by, amongst others, the nature and source of information contained. It is

defined as ñpatients; managed health recordsò (Clarke and Meiris 2006:5). When generated electronically, this type of records is called electronic medical records (EMRs) or e-health records (EHRs). EMRs or EHRs are defined as ña longitudinal collection of electronic health information about individual patient and populationò (Rawabdeh 2007:522).

1.8.5. RECORDS DISPOSAL

Records disposal is the process whereby the organisation, through its records manager, destroys/erases ephemeral records or transfers archival valued records to an archival institution for permanent safe keeping. According to the National Archives and Records Service of South Africa (2006), records disposal refers to ñthe action of either destroying/deleting a record or transferring it into archival custodyò. Adelaide University Records and Archives Management (2004:30) defines records disposal as ñthe process of determining the final fate of recordsò.

1.8.6. RECORDS RETENTION

According to the National Archives and Records Service of South Africa (2006) records retention is the length of time set for retaining records before disposal by the government body. Records retention is the records disposal (destruction or transfer to archive custody) time frame set by the organisation. The records manager sets the period for keeping different types of its records, based on different records values or use such as administrative, legal, research, historic and financial values.

1.8.7. RECORDS APPRAISAL

According to the National Archives and Records Service of South Africa (2006), records appraisal is the process used to determine the value of records, which is a disposal plan before the government body decides on/plans the need to preserve ñeach records or series of recordsò. The Government of South Australia (2003:8) and the United Statesõ (US) National Archives and Records Administration (2007), defines records appraisal as a process whereby certain relevant

criteria are used to evaluate records on whether their value or use can be considered permanent or temporary in nature.

1.8.8. ARCHIVES

The National Archives of South Africa Act No. 43 of 1996, as amended, defines archives as ñrecords in the custody of an archives repositoryò. Kasetsart University Archives (2010) cited in the Fine Art Department (1999) define archives as all original documents considered valuable to preserve in public and private sectors offices that are usually called archive materials. Archives refer to a place or location or a building where information materials of a historical value (records) are kept. Such records are usually used for accountability, compliance, transparency and verification of the past administrative processes.

1.8.9. E-HEALTH

Rawabdeh (2007:518) highlighted from (Della, 2001; Oh et al., 2005; and, Hardey, 2005) that ñeò in the e-health stands for many things other than ñelectronicò per se, such as ñefficiency, enhancing quality; evidence based; empowerment; encouragement; education; enabling; extending; ethics; and equityò which also serve to characterise e-health. Administratively, E-health is the health services rendered to citizens of the country through the use of technology. Neuhauser and Kreps (2003:12); Khoja, Scott, Mohsin, Ishaq and Casebeer (2008:79-80) define e-health as the usage of modern information and communication technology to improve health care services. Eysenbach (2002) cited in Rawabdeh (2007:518) states that:

> E-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state of mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology.

1.8.10. SERVICE DELIVERY

Mdluli (2008) defines service delivery as the overall name for every activity performed to render quick and satisfying service, and to respond and resolve community or citizen problems. In a simple definition, service delivery refers to the service delivered or that needs to be delivered by the government to its citizens with the aim of meeting their living needs, right demands or expectations. An example of services delivered by government includes, but is not limited, to health/medical, water, routes, education and social services.

1.9. RESEARCH METHODOLOGY

The research methodology covered the procedure used in conducting the research project. The research procedure entails the population, sampling method, instrumentations, data processing and treatment of statistics because, without all these, there is no research (Ngulube 2005a:128). Welman and Kruger (2001:46) and Ngulube (2005a:129) state that population entails object, group, organisation and human products exposed to a certain condition.

The population of this study was sampled through the probability sampling method known as stratified sampling. This sampling method involved grouping or separating participants into non-overlapping groups according to their districts, hospitals and field of work. The researcher then applied simple random sampling within the grouped population for each institution (Burton *et al* 2005:104). The researcher also applied the non-probability sampling method, known as the purposive sampling method, for qualitative data collection. Purposive sampling assists in identifying and involving the key participants out of the entire population who have better knowledge, understanding and information about the matter being studied. This depends on the researcherôs knowledge about the participants in question (Kumar 2005: 179; Leedy and Ormrod 2005). ñPurposive sampling is a non-parametric sampling technique in which the researcher purposively identifies respondents as source of dataò (Wamundila 2008:25).

In sampling the population, the researcher followed the guidance of Seaberg (1988); Neuman (2000:217); Grinnell and Williams (1990) as cited by Ngulube (2005a:134) that a minimum of

10% of the sample, especially for a large population, is sufficient to extract valid and reliable data from. Welman and Kruger (2001:64) argue that in sampling ñthe smaller the total population, a relatively large sample should be used to ensure satisfactory resultsò, but the lower the total population of the unit the lesser the percentage out of the total sample. The sample of the study was drawn from 40 hospitals in Limpopo. In this study, out of 100% of the total sample, the researcher sampled 74% records management staff and 26% information management staff.

Furthermore, this study used a questionnaire as the main data collection instrument with minimal support of observation and interviews to clarify responses. Mouton (2002:110) emphasises that several methods and techniques of data collection should be used in order to accomplish good results with empirical and epistemological outcomes. The researcher used both qualitative data analysis and quantitative data analysis methods. In quantitative data analysis, data was presented with the use of tables and graphs while qualitative data was presented through narratives, explanations and descriptions. According to Terre Blanche, Durrheim and Painter (2006:52) the aim of data analysis is ñto transform information or data into an answer to the original research questionò. Data analysis can be done in either a qualitative or quantitative way.

1.10. ORGANISATION OF THE THESIS

The organisation of the thesis shows how chapters were arranged in the dissertation and defines the scope to be covered by each chapter. This research is reported in six chapters as follows:

CHAPTER 1: BACKGROUND OF THE STUDY

This chapter covers the background to the study, research problem, research purpose, research objectives, research questions, justification of the study and the significance of the study. It also gives definitions of key terms, ethical considerations and an outline of the dissertation.

CHAPTER 2: CONTEXTUAL OVERVIEW OF RECORDS MANAGEMENT AND ELECTRONIC RECORDS

This chapter gives an overview of records management. It covers related studies in records management. The topics covered include the purpose of records management, electronic records

management, electronic document management, legislative framework governing records management in South Africa, electronic records disaster management planning, records management education, introduction of IT in records management and training, as well as the different processes of records management existing in the public sector.

CHAPTER 3: RESEARCH METHODOLOGY

This chapter outlines the studyôs research design. It also includes the population of the study, sampling methods, data collection methods, data analysis and limitation of the study.

CHAPTER 4: PRESENTATION OF THE FINDINGS OF THE STUDY

This chapter focuses on the outcomes or the results of the research.

CHAPTER 5: INTERPRETATION OF THE FINDINGS

The researcher interprets the findings of the study in this chapter.

CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This concludes the study and recommends solutions based on the findings of the research.

1.11. SUMMARY

In summary, this chapter provided an introduction to the study. It gave the reader the context of the dissertation. It discussed the background of the study, problem statement, purpose of the study, objectives of the study, research questions, and justification of the study as well as the significance of the study. It also provided an outline of the dissertation according to the chapters and described the content of each chapter.

Chapter 2 provides an overview of related literature in records management. It covers the contextual overview of records management and electronic records in organisational operation. This includes related studies in records management such as the purpose of records management, electronic records management, electronic document management and legislative framework governing records management in South Africa.

CHAPTER 2

CONTEXTUAL OVERVIEW OF RECORDS MANAGEMENT AND ELECTRONIC RECORDS

2.1. INTRODUCTION

The previous chapter introduced the reader to the study. This chapter reviews the literature relating to this study. Marshall and Rossman (2006:42) explain that a literature review is a ñthoughtful and logical discussion of related literature which builds a logical framework for the research and locates it within a tradition of enquiry and context of related studiesò. The literature review covers related studies in records management with reference to the purpose of records management, electronic records management, electronic document management, legislative framework governing records management in South Africa, electronic records disaster management planning, records management education, introduction of IT in records management, training and the different processes of records management that are available in the public sector. The literature review also relates proper records management to the improvement of service delivery since proper records keeping improves business administration in any organisation.

2.2. THE BENEFIT OF PROPER RECORDS MANAGEMENT IN THE PUBLIC SECTOR

Organisations or government bodies that manage their records properly are rewarded with several benefits. These benefits include, but are not limited to, easy retrieval and access to records, ability to prevent and track fraud and corruption, ease to follow informed problem-solving and decision-making and the protection of organisations against legal charges/claims (litigations). The organisation is also able to comply with pieces of legislation as well as professional administration and accountability. Gerntholtz, van Heerden and Vine (2007:26) underscore that EMRs make records management even better since it enables a quicker and cheaper clinical documents compilation, patient summaries formulation, information retrieval

and diverse clinical information audits. Bhana (2008:7) states that record keeping is an enabler since, without it, things like auditing and financial management will not be possible. Records can be used to support business activities, decision-making and accountability. Proper records management assists the organisation in preserving well-organised records in their business. This is due to the fact that well-organised records

- enable an organisation to find the right information easily and comprehensively;
- enable the organisation to perform its functions successfully and efficiently and in an accountable manner;
- support the business, legal and accountability requirements of the organisation;
- ensure the conduct of business in an orderly, efficient and accountable manner;
- ensure the consistent delivery of services;
- provide continuity in service delivery when staff leave;
- support and document policy formation and administrative decision-making;
- provide continuity in the event of a disaster;
- protect the interests of the organisation and the rights of employees, clients and present and future stakeholders;
- support and document the organisationôs activities, development and achievements;
- provide evidence of business in the context of cultural activity and contribute to the cultural identity and collective memory of the nation (National Archives and Records Service of South Africa 2007:1).

2.2.1. ACCOUNTABILITY

According to Thurston (2005) and Bhana (2008:3) government accountability is an initiative that needs to be supported by an availability of reliable and accessible information. It is with proper, effective and efficient records management in the public sector that the government body is able to properly account as informed by available and accessible records. This is because if records are properly managed, accessibility also becomes easy and on time for the accounting officer to prepare and be ready to account. For example, the head of the health institution can use medical records to account to the citizen about a complaint in a certain health service that would have been allegedly rendered improperly. S/he can also use medical

records in accounting to the provincial Department of Health, and the provincial department can also account to the national Department of Health as their superiors. In hospitals, cases relating to maternal death, operations, child delivery (like assisted delivery and caesareans) and still birth usually raise a worrying concern in the citizens when the patient is not fine. So the hospital needs to convince them in order to satisfy citizens as to what steps were taken in diagnosing, prescribing and treating these patients.

2.2.2. EASY RETRIEVAL AND ACCESS

Thurston (2005) and Iwhiwhu (2005:348) underscore that reliable, timely and accessible records should make available information about administrative actions, such as resources received, committed or spent resources, which facilitate and simplify accountability. Properly managed records are filed according to the filing plan or system. Retrieval is a matter of minutes, instead of hours. This is because records are easily identified by the file/reference number on the filing plan and then retrieved from the filing cabinets/shelves as there will be no misfiling if properly managed. Properly managed e-records with no capturing errors can simply be searched on the e-records management system. This can be done by punching the reference number, subject, keyword or any other options of the record required as programmed and created by the system, on the keyboard and then accessing the e-document on the screen. For example, when the doctor is treating a follow-up patient s/he will need medical records to check the medical history of the patient before commencing with the follow-up treatment or any new consultation. In order to save time, the doctor must have quick access to the records to avoid long patient waiting times for the health services. This can only be possible if the records are properly managed in the hospital. Thurston (2005) states that ineffective records management leads to files being piled in different offices and corridors, as a result of dumping difficult personnel to the records management unit and lack of continuous training, lack of policies and procedures and standards. Ngoepe (2004:3-4) stressed that good record keeping saves time since there is no hassle when searching for information. Records alteration and access are easily traced through an audit trail and records are easily disposed off as per relevant legislative framework, such as National Archives Act and Provincial Archives Act.

2.2.3. ADMINISTRATIVE GOVERNANCE

Records are also kept for administrative, historic and archival values of certain records (Chachage and Ngulube 2006:2). The organisation also needs to come up with a mechanism to check its compliance with policies and procedures for better administration. This mechanism should cover the records management system audit to hold non-complying members accountable (Chinyemba and Ngulube 2005). ñSound information and records management demonstrates compliance with rulesò (Willis 2005:93). Information is a key for the organisation to effectively manage its business since it provides guidance for decision-making and accountability. This is because records provide a corporate memory to depend on. Introduction and proper practice of proper records management will ensure sustainable and good governance of the organisation since it documents decisions and organisational activities (Ngoepe 2004:2-3; Man 2005:23).

Furthermore, Ngoepe (2004:2-3), cited in the Auditor-Generalôs report (No. 86 of 2001) states that hospitals in Mpumalanga, Gauteng and North West had to cancel millions of rand owed by patients during the financial years from 1994 to 1999. Proper records management also makes administrative governance in the organisation very easy. This is because it is with the availability of records that monitoring and evaluation of performance in different units of the organisation becomes easy and possible. It makes it easy for the leaders and management to identify mistakes, poor performance, good performance and improved performance of the past administrative activities. This may eventually lead to possible corrections and improvement. For example, the medical committee, clinical manager or the head of the hospital may plan to monitor whether doctors and nurses follow guidelines in hospital clinical and nursing policies. These policies might cover patientsô diagnosis, prescriptions and treatment. They can always check the content of medical records against the policies approved to mandate the hospitals. Rampfumedzi (2006:17) argues that clinical improvement, progress or deterioration of the mother can be judged by using accurate records created during labour.

2.2.4. PREVENTION AND TRACKING OF FRAUD AND CORRUPTION

An anticorruption effort is one of the initiatives introduced to enhance economic performance, increase accountability and strengthen civil society which depends on proper records keeping. Fraud and corruption can jeopardise the bright future of many organisations and weaken service delivery in most government departments. One of the key tools in preventing and tracking fraud and corruption is proper records management. If properly managed, records can be used to investigate and prove fraud and corruption, and to carry out meaningful audits and review government actions. It is mostly with reliable, authentic and accurate records that an organisation or government entity can track and charge a person responsible for activities considered as fraud and corruption. However, without complete records, everything might be considered allegations which are difficult to prove. Poor records management creates an opportunity to commit fraud and corruption (Bhana 2008:3; Thurston 2005; Kemoni and Ngulube 2008:298; Ngoepe 2004:3 cited Health Service circular 1999:9). Sound records management is therefore necessary to ñroot out corruptions and malpracticesò (Wamukoya and Mutula 2005b:73). For example, patientsô records must be able to tell which doctor the patient consulted, when, which medicine was prescribed for the patient and how the patient was treated by which clinician or doctor.

2.2.5. PROBLEM-SOLVING AND DECISION-MAKING

The other major reason for effective records management is to ensure successful problem-solving and decision-making. Management of an organisation or government department can use information contained in records to solve certain specific problems and make an informed decision. This can only be successful if records are properly managed for easy retrieval and accessibility. Ngoepe (2004:2) and Thurston (2005) state that in the absence of functional records management, decisions are made without full information since decision-makers would be lacking the required details for an informed decision. This opens opportunities for corruption or collusion between organisational staff. For example, Rampfumedzi (2006:17) states that midwifesô decisions about womenôs care need to be recorded and properly preserved for future reference and assessment. State Records of South Australia (2003:6) show

that official government records from the past enable decision-making for the government as ñinterested parties are able to learn what has happened in the pastò.

2.2.6. PROTECTING ORGANISATIONS AGAINST LEGAL CHARGES/CLAIMS (LITIGATIONS)

According to the Promotion of Administrative Justice Act (Act No. 3 of 2000) any citizen who feels that s/he was not administratively treated lawfully, reasonably and fairly has the right to request reasons about administrative action in a written form to the accountable government body. The response must be provided within 90 days to the affected citizen. ñSound information and records management underpin due processò (Willis 2005:93). Ngoepe (2004:1-8) underscores that a government body creates and keeps records to prove, in future that, their administrative action to citizens was lawful, fair and reasonable and thus avoid blame or litigation. When the organisation is litigated with allegations of poor service delivery, which negatively affected members of the public, it is mostly through records that the government body gives account and is protected against the charges. If proper records management were practiced in that government body, records about the service rendered may be retrieved and used as evidence about the steps followed in rendering alleged service. Rampfumedzi (2006:17); Liyanage, Thyagarajan and Khemka (2006:190) assert that clear and accurate midwife records are a vital tool as a legal document to respond to forthcoming litigations. For example, one of the patients operated on in a public health institution might become worse after failing to properly follow treatment at home as prescribed by the doctor. The patient might eventually blame and litigate the doctor or the institution. The major proof to protect the doctor and the institution or prove allegations wrong or right are the authentic medical records. This is only possible if records are properly managed. State Records of South Australia (2003:6) note that official records contain and keep the legal obligations of the government agencies, and policy implementation actions taken by the agencies.

2.2.7. COMPLIANCE WITH PIECES OF LEGISLATION

Records assist the organisation with reliable and legal evidence of decisions and actions (Bhana 2008:3). ñSound information and records management is demanded by numerous statutory and common law requirementsò (Willis 2005:94). Chachage and Ngulube (2006:2) argue that one of the major reasons for the business to keep records as they generate them during their daily business operations is to comply with legal requirements as well as to protect the stakeholdersô rights. Ngoepe (2004:7) states that sound records keeping was enforced by the government through the passing of acts, such as the Public Finance Management Act (No. 1 of 1999), the Promotion of Access to Information Act (No. 2 of 2000) and the Electronic Communication and Transaction Act (No. 25 of 2002). Rampfumedzi (2006:17) underscores that nurses should keep accurate and complete records as required by the South African Nursing Council.

2.2.8. ENSURING PROFESSIONAL ADMINISTRATION AND ACCOUNTABILITY

The other major reason for keeping records is to use them as ñevidence of accountability and transparency of business to the stakeholdersò (Chachage and Ngulube 2006:2) because sound records management is important and necessary for any organisation (Willis 2005:91; Wamukoya and Mutula 2005b:74). Good public service management is the end product of a sound records management, because government administration and decision-making depends much on access to information (Ngoepe 2004:1). This is because the government bodies always opt to make an informed decision for effective administration to easily account for such administrative actions.

2.3. THE PURPOSE OF RECORDS MANAGEMENT IN THE PUBLIC SECTOR

In many other organisational business tasks or work activities, records management is introduced for certain purposes. It, among other purposes, ensures availability of relevant and timely information. Relevant and timely information will always be available if records are properly managed. Records management is also there to improve compliance with legal and

regulatory requirements and community expectations. The improvement of knowledge sharing, retention and access to organisational memory will also be guaranteed. Furthermore, it will ensure better management of risks with the availability of evidence. The records will provide evidence on organisational actions and decisions taken. Proper records keeping will also decrease storage, material and labour costs (Man 2005:23; Swan; Cunningham; Robertson 2002: 79; Carvalho 2001:177). This is because proper records management includes appraisal, retention and disposal which eventually eliminate ephemeral records that are no longer useful to the organisation. Disposal will also reduce the workload for records management officials.

Furthermore, Willis (2005:86-87), underlines that with a sound and proper information and records management system, the government will have the ability to comply with the six key government requirements, which are transparency, accountability, due process, administrative compliance, statutory and common law as well as the information security. Any organisationôs records management practice will comply with almost all of these government business requirements, thus resulting in improved service delivery for that organisation or department. Therefore, proper information and records management is predicated on established records management models.

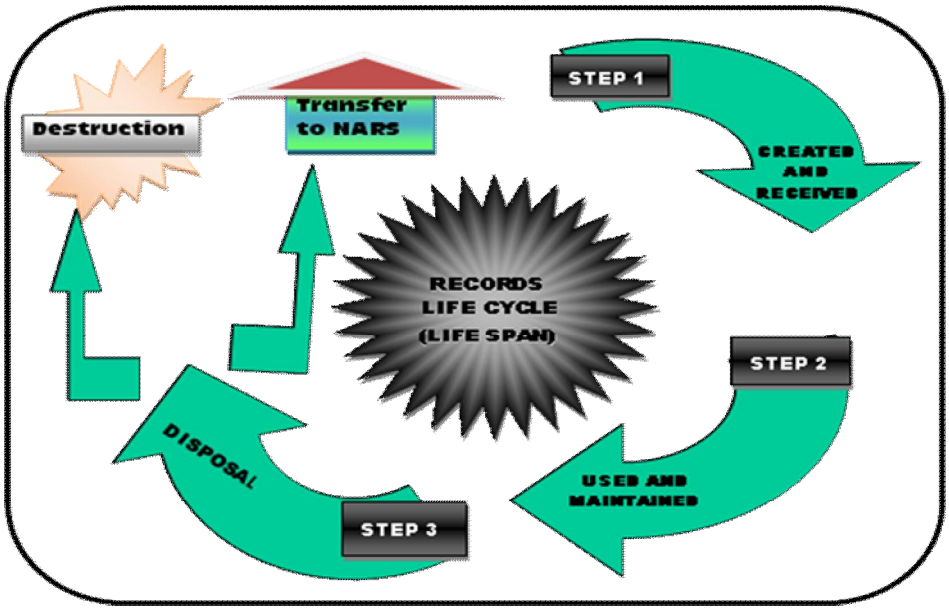
2.4. RECORDS MANAGEMENT MODELS

There are several models of records management, such as records life cycle and records continuum. The records continuum model entails all activities involved in administration and the management of records throughout their lifespan, from creation to disposal during the business transaction and communication. According to Makhura (2005:43); Bantin (2009:5); Chachage and Ngulube (2006:4-5); Yusof and Chell (2000:135), the records continuum model is about continuous management of records, from the moment records are created and maintained until they are disposed. It is about the ñcontinuous processò of records management as the business processes continue. This happens as a result of records documenting information about the business process or activities. Therefore, records are created during the business process. The continuum model also gives guidance on relevant vital records to be captured for a certain function or activity, the system and procedure. It

helps to ensure proper capturing and maintenance of records for effective and efficient preservation and easy access to records. It also gives guidance on the process before the creation of records when the records keeping system is designed or created. It is adding value to the records life cycle with the ICT concept, which is about electronic records management. This can also be applicable to patientsô records for effective management, easier and quicker access to records when rendering health services to patients.

On the other hand, ñrecords life cycle is the core concept in the field of records managementò (Chachage and Ngulube 2006:3). It illustrates and discusses the life span of any records in any format, whether it is paper based or electronic, from creation to disposal. According to the National Archives and Records Service of South Africa (2004: 44), a records life cycle has three major steps as on Figure 1.

Figure 2.1: Records life cycle



1. **Creation and receiving**

This is the first stage of the records life cycle. It is the stage during which the records are born in the process of business administration and received by the family of the records management unit. In this stage organisational business administration officers or employees

create records in different formats during their daily business activities. This process of creating records happens when officials discharge their daily administrative duties. Records management officers or employees eventually receive records to properly manage them (National Archives and Records Service of South Africa 2004: 44; National Archives and Records Service of South Africa 2007: 51-52). For example, the patientôs medical records are created during patient consultation and treatment, and prescriptions given by nurses and doctors at the hospital. Eventually, records are received by the hospitalôs records management unit from the different consultation rooms and wards for proper keeping.

2. **Maintenance and use**

This is the second stage of a records life cycle. It is the stage in which records are maintained by the records manager and records management clerks. Records are also used by government officials and stakeholders at this stage (National Archives and Records Service of South Africa 2004: 44; National Archives and Records Service of South Africa 2007: 51-52). For example, when patients have further consultation or follow-up visits, the doctor will request the file created during the previous consultation from the records management unit. This is because the file contains records or information about the previous consultation, treatment and prescriptions. The doctor also needs the file to update it with information related to the current consultation, treatment and prescription. The doctor will use the file and return it to the records management unit for filing and maintenance. The file will be maintained by filing it in the right storage place and shelf as classified for easy future retrieval. It will also be protected against exposure to dangerous hazards like water, fire, rough handling, dust, ultraviolet rays, humid temperature, insects, rodents, vandalism and theft (National Archives and Records Service of South Africa 2004; National Archives and Records Service of South Africa 2007). This will ensure that the quality of the records is maintained throughout its lifespan until such time as it has to be disposed off.

3. **Disposal**

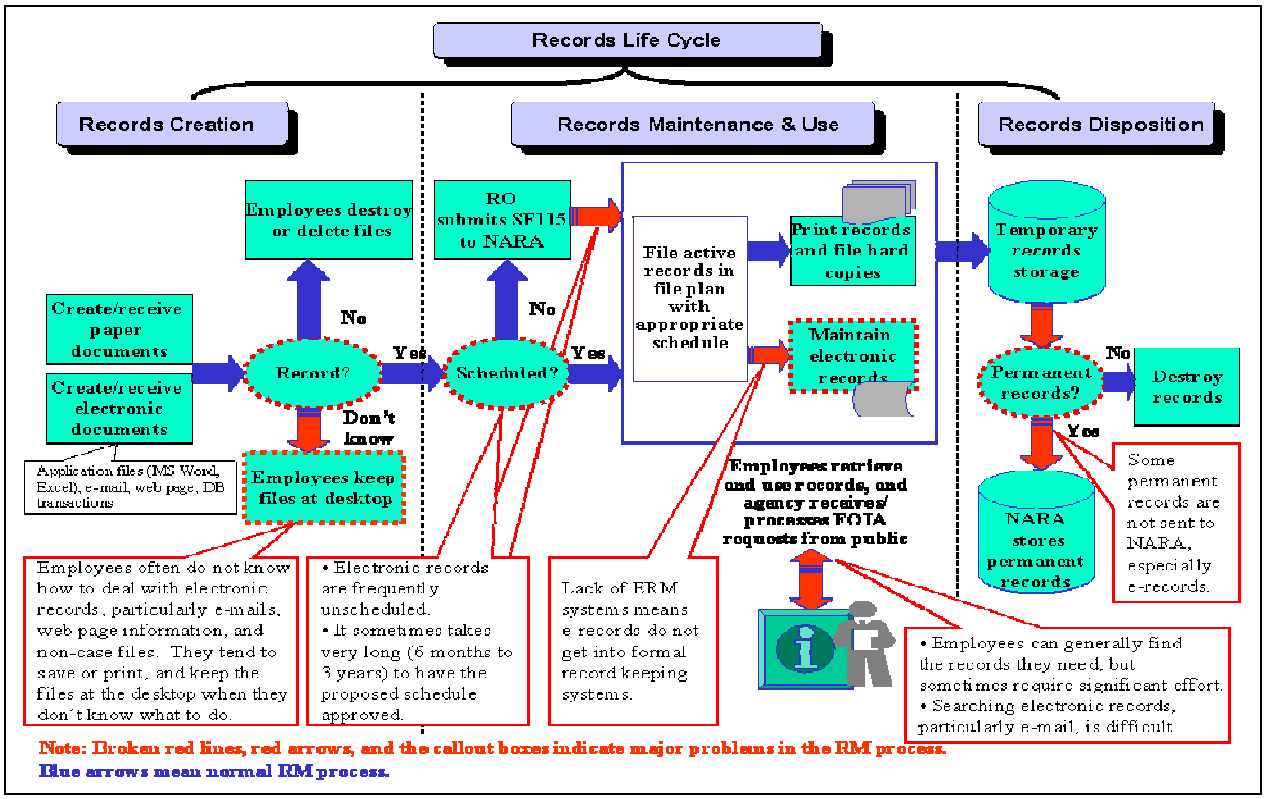
Disposal is the third step in a recordôs life cycle in which the life of the record is leading towards its end. At this stage, records are appraised to determine their retention value using

records disposal schedules. This leads to either the preservation or destruction of the record, depending on the value of the record (National Archives and Records Service of South Africa 2004: 44; National Archives and Records Service of South Africa 2007: 51-52). For example, the hospital will decide which records should be kept permanently and which ones would be kept for short period. The decision normally depends on the type of record value, such as administrative, legal, financial and research values. Usually, legal and research values are permanent values, whereas finance and administrative values are for short-term preservation of records. The hospital may decide that medical records for deceased patients must be retained for five years from the year of the death of a patient.

Furthermore, records with a permanent value to the institution are transferred to the National Archives of South Africa for permanent archiving, preservation and use. Records with short-term value are destroyed within a certain period as per the disposal plan. When the retention dates of these records are reached, permission will be applied from the National Archives of South Africa for their destruction (National Archives and Records Service of South Africa 2004: 44; National Archives and Records Service of South Africa 2007: 51-52). Nevertheless, it is worth noting that both the records continuum model and records life cycle model are significant and applicable to the management of records to be created for the process of e-health service.

Figure 2.2 illustrates how the records life span may be challenged or interfered with. The challenges and interference are illustrated from the first stage of creation until the last stage before records are disposed of in different areas of the process (U.S. National Archives and Records Administration 2008). These problems may also be experienced with the patientôs medical records in the hospitals.

Figure 2.2: Records life cycle and major problem areas (U.S. National Archives and Records Administration 2008).



2.5. INTRODUCTION OF INFORMATION TECHNOLOGY (IT) IN RECORDS MANAGEMENT

Initially, IT was introduced with the purpose of ensuring paperless offices or minimal paper usage in the business and government administration (Granath, Alariksson and Axelsson 2004: 31-32). It is only a few organisations that moved to a fully paperless business by re-engineering their business processes through the adoption of electronic business operation. This is done by imaging and cataloguing all paper records and managing them using a corporate database. Paperless business is about eliminating paper-based practice and introducing an electronic business practice environment which is effective and efficient (Raas 1999:127). The introduction of IT resources, such as computer-based records, clinical information systems and telemedicine can help to improve the quality of public service. It can also minimise costs and ensure easy access to health care services (Davidson 2000:196 citing

the US Office of Technology Assessment 1995). ñThere is no choice between paper and digital storage ï the digital environment is already hereò (Granath, Alariksson and Axelsson 2004: 31-32). In concurrence with the above, Tsai and Bond (2007:136) state that electronic documentation and the need to use electronic records methods became necessary after the introduction of computer technology. However, Valtonen (2005: 179) argues that in a society where information is generated seriously and the working environment is mostly digital, records keeping and archiving of records face huge challenges. This leads to a situation where records managers operate in a multidimensional environment in terms of document creation structures, work-flow procedures and enterprise control. Hence, the introduction of ICT can be the best remedy that will ensure effective service delivery in the public health sector.

However, e-records are managed with the use of information technology ñand it needs to be integrated into the business process of the organizationò (Johare 2006:2). In records management, IT can be introduced in two different related ways in business and government administration. These are electronic records management (ERM) and electronic document management (EDM). The main difference in this regard is that an EDM system involves a reactive e-records management strategy and an ERM system involves a proactive e-records management strategy. The EDM system is reactive in the sense that it is created in a paper-based format and thereafter converted into digital records by means of a scanner or microfilm to meet the challenges of a geographical space for storage. With the ERM system, the records are created digitally, maintained and used digitally until disposal. Together, these two types of digital records may be centralised into one electronic system for access and use by the end-users and stakeholders (Granath, Alariksson and Axelsson 2004: 31-32).

Nevertheless, several challenges may be experienced in introducing the new technology. The introduction of the new technology might pose some training challenges. Employees might be afraid of the new changes and this should be taken into consideration because, usually, learning the new operational ways can be tough. People should be trained on how to use the system and how they are going to benefit from the new system (Johnson and Bowen 2005: 135-136). In introducing a new way of managing records, the legislative framework or law

should be considered first because working against the law may lead to several challenges and problems (Granath, Alariksson and Axelsson 2004: 31-32).

Furthermore, Benfell (2002:94) explained some of the IT challenges that should be prevented in electronic records management, such as unintentional destruction/alteration by users or administrators, unauthorised retrieval and saving in other personal repositories like PC hardware or e-mails. Johnson and Bowen (2005: 135-136) also point out that the issue of trust should be considered in introducing EDRMS for security reasons, hence there should be a risk analysis to avoid fraudulent actions through the system.

2.6. MANAGING ELECTRONIC RECORDS

Electronic records should be preserved in such a way that its form, retrieval, reliability and authenticity, as evidence of a particular activity, are not subject to change, bearing in mind the safety of the records (Lin, Ramaiah and Wal 2003: 118-119; Irons 2006:106). For example, if the information in the medical records is changed, it will eventually be useless or misleading to clinicians and nurses during patient follow-up visits. That in itself is a health risk since the doctor may repeat the same prescription or treatment conducted during the first consultation.

However, IT is a good tool that can be utilised in smoothening access to records and information. The East and Southern Africa Regional Branch of the International Council on Archives (ESARBICA) are still far behind with the adoption of IT for records management. Kenya and South Africa are good examples of lack of records management automation. This may be because computation of archival services requires the purchasing of hardware, software, training, consultancy, networking, system maintenance, user-friendly system identification, records security measures to prevent unauthorised access and virus prevention against data corruption (Mazikana 1999 in Kemoni, Wamukoya and Kiplangôat 2003:40). Looking at the IT requirements listed above, the implementation of records management automation is not easily affordable (Kitching 1991 cited by Kemoni, Wamokoya and Kiplangôat 2003:40). Stephens (2000), as cited in Lin, Ramaiah and Wal (2003:118), expressed that electronic records are now received in a large number of archives. Due to the size some of these records are now loosing value as a result of its age, which is round about

15-20 years. This shows a very serious need to strengthen effective and efficient management of electronic records for easy retrieval and access to records.

2.7. THE NATURE/CHARACTERISTICS OF A DEPENDABLE RECORDS

Like many other creatures, records also have certain characteristics that can be used to identify it. One of the reasons for records management is to maintain all the recordsô, including medical records, characteristics as listed below. The major characteristics of records include authenticity, reliability, integrity and usability. These characteristics are discussed below:

2.7.1. AUTHENTICITY

Trustworthy records must be authentic by character. In order for the records to be considered authentic, they must be in the mode that it was created to be, and should be created and sent by the right person at the right time. The organisation should create and implement policies and procedures that will regulate records creation, receipt, transmission, maintenance and disposal. This will contribute to the authenticity of records. It will assist the organisation in ensuring that the creators of records are authorised and identifiable to prevent unauthorised addition, alteration, deletion, use and concealment of records by unknown people (ISO 15489-1 2001; Lin, Kamaiah and Wal 2003:118). Thus, electronic records need to be properly managed in order for them to be authentic. This makes them usable for investigations (Thurston 2005; Irons 2006:106). However, the authenticity of electronic records relies on the right data, right retrieval process and correctly executed processes (Lin, Kamaiah and Wal 2003:118).

2.7.2. RELIABILITY

Reliable records should be truthful in nature. The recordsô content must communicate or reflect exact, full and accurate transactions, activities or facts that represent clearly what happened during the process of transactions or activities (ISO 15489-1 2001; Irons 2006:109; Duranti 1999:154). This will ensure that records are dependable in any administrative and strategic decisions. The records should be created by relevant knowledgeable people or

business process instruments. That is the person or business instrument used for business transactions at the time of the business transaction or incident that led to the creation of the record or soon afterwards (ISO 15489-1 2001; Duranti 1999:154). To ensure reliability of e-records, they must be compiled according to the set standard format and template. It must be processed following approved work flow, set accessibility privilege, and design system audit trail to monitor access and use of records (Duranti 1999:154). Reliable records must have context and structure as to who was the creator, how it was created and for what reason (State Records New South Wale 2004; Cowan and Haslam 2006:268). It is worth noting that the reliability of electronic records depends much on the proper management of electronic systems (Thurston 2005).

2.7.3. INTEGRITY

The records with integrity must be complete and without any alteration. In order to prevent unauthorised records alteration, the records policies and procedure should address issues relating to alteration. The policies and procedures should give guidance on the types of addition or annotation to be allowed to records after creation. This guidance must cover reasons for alteration and who is authorised to do it. All authorised records annotation, alteration, addition or deletion must be clear to ensure that they are traceable (ISO 15489-1 2001).

2.7.4. USABILITY

The records that are usable should be locatable, retrievable and interpretable for its effective business use. The records must be capable of presenting or representing the business transaction or activity that led to its creation. It must contain information that can bring an understanding of what, when and how the business activity or transaction that led to its existence or creation was conducted (ISO 15489-1 2001; Irons 2006:109).

2.8. ELECTRONIC RECORDS MANAGEMENT

The government is now becoming aware that working with the old manual system does not improve their services. People are now addicted to electronic or online services (Sinclair 2002:103). Governments in most countries are taking advantage of technology to handle large volumes of records. They use the new technology to improve their business transactions (Tafor 2003:72 citing Ngulube 2001). This is because electronic records enable individual users to access quality, timely, effective and efficient records. It enables the organisation to complete its work quicker, with less effort, with quality, less money and in compliance with laws and regulations. It is evident that electronic records can also assist in the improvement of service delivery in the public health sector. The functionality of an ERDMS should be considered from its reliability and backup for disaster recovery as well as the ability to manage those records, whether paper, electronic or multimedia (Johnson and Bowen 2005: 134; Tafor 2003:75; Ojo 2009:99).

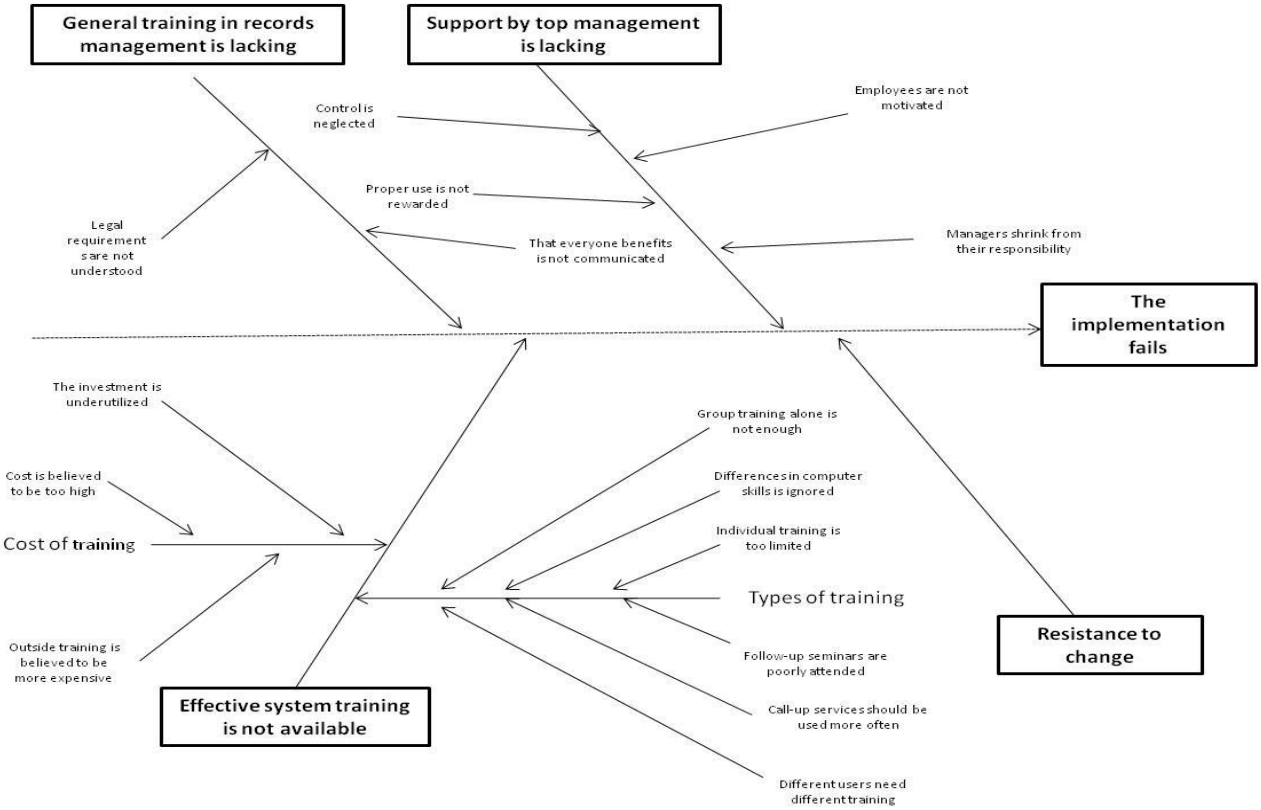
Furthermore, Sinclair (2002: 104) states that a knowledge economy relies on information and most of the government services are based on information. This leads to the need for faster and more effective access to accurate information. This is supported by Mnjama (2003:99) and Mnjama (2005:461) underscoring that Kenyaôs electronic records improved the image of registry. An electronic registry is a means of information management and work-flow control that ensures authenticity, evidence and integrity in electronic records (Kikki 2000:152; Tough and Moss 2003:24).

Electronic records management also leads to the creation of a fully automated records management. Sullivan (2006:51) argues that hard-copy records can also be converted from paper to digital, with electronic format known as the PDF (Portable Document Format). The advantage of PDF is that its visual image is maintained, usable and accessible to many generations at any capacity and distance and has high visual appearance. PDF pages are logically organised and can also be kept permanently. This can help integrate paper-based patient records in the public health to avoid different formats. In support of the above, Gunnlaugsdottir (2008: 22) argues that the main reason for electronic records management is

to capture and manage records in different formats and media for their entire lifespan, as guided by organisational records management principles. Raas (1999:117) supports the above through his explanation of the electronic records keeping system called TRIM. This system is used to manage all electronic records, regardless of form or medium. TRIM is designed to manage scanned records, word documents, e-mail records as well as the physical records, which include paper records. This assists to integrate the processing of all types of records in an organisation and thus ensure central records management.

The study conducted by Gunnlaugsdottir (2008:33-34) concludes that lack of management support, lack of general training in records management, lack of effective system training to employees and resistance to change are the causes of failure to implement an electronic records management system, as illustrated in figure 2.3.

Figure 2.3: Cause and effect as to why the implementation of ERMS can fail (Gunnlaugsdottir 2008:33-34)



Furthermore, eastern and southern African countries face several challenges with regard to the capturing and preservation of electronic records (Wamukoya and Mutula 2005b: 70; Mnjama 2005:458-459 cite Mnjama and Wamukoya 2004). There are no systems for opening, tracking and indexing files. Government must ensure the safety of their records because it is their property (Ngulube and Tafor 2006:59-60). These challenges entail lack of records management plan, inadequate knowledge about the importance of records management for organisational efficiency and accountability. The other challenges include lack of records handling coordination and responsibility, no legislation, no policies and procedures, lack of central ability to manage records and understaffing of the records management unit. There usually are no budget for records management, no records security and access control, no records retention and disposal policy, and no records movement control techniques (Wamukoya and Mutula 2005b:70; Mnjama 2005:458-459 cite Mnjama and Wamukoya 2004),. Furthermore, there is lack of training, legal and regulatory tools (Nengomasha 2003:66), as well as lack of ICT, political will, infrastructure and not enough human resources (Ojo 2009:95). All the above can undermine the overall service delivery in any department. For example, in the health department it might not be possible for patients to be treated without a file because the doctor might need to check their health history.

On the other hand, Wamukoya and Mutula (2005: 70) cites t Akotia (2000)ôs case study about the management of financial records in the Government of Uganda, in the Ministry of Finance. The study concluded that ICT was taken as a very important tool to improve service delivery in the whole government. The study further outlined that the ministry does not have knowledge about the electronic records programme fundamental elements.

Nevertheless, Keakopa (2007) conducted a study on electronic records management policies, procedures and guidelines in Namibia, Botswana and South Africa. The study identified that South Africa already has available electronic records management guidelines, procedures and policies. It was also recommended that South Africa be used as a role model by other countries. These guidelines, procedures and policies can be used by the South African health institutions to manage their records to ensure successful improvement of service delivery in their health institutions through the effective management of their electronic records.

However, ICT-dependent government services lead to the creation and handling of electronic records. Electronic records are not easy to handle and they need ñspecial care and expertiseò. The organisation must make sure that they lay a good foundation before adoption of the new technology in implementing e-records. This will avoid chaotic situations that can lead to more chaos (Tafor 2003:73-75). If proper care is not taken seriously, records can easily disappear (Ojo 2009:99). It is for these reasons that ñin a digital environment where there are no physical strongrooms information professionals can no longer claim a monopoly of custodianshipò (Currall and Moss 2008:69). This means information and records management professionals and ICT professionals will always be inter-dependent on each other.

It is very important that records management professionals come together with ICT professionals, including the records creators, archivists and administrators, to ensure proper planning. This will ensure the successful implementation of electronic records management in the public sector (Gunnlaugsdottir 2008:34; Nengomasha 2003:66; Currall and Moss 2008:69; Johare 2006:2). It is because of the reasons stated by Ngulube and Tafor (2006:69) that the overwhelming challenge of archivists and records managers in Africa is a ñlong-term preservation and managementò of digital records and records converted from paper to electronic form by means of scanning and other ICT devices. The major problems include, but are not limited to, machine dependable accessibility, obsolete technological capacity, ease of duplication and possibilities for amendment of information with little or no sign of changes, organisational commitment, limited resources and expertise, growth in ICT, poor leadership and management, telecommunication facilities and electricity. In the sub-Saharan Africa many countries lack resources, expertise and electronic media management facilities which led their automation to a very poor condition (Tafor 2003:73-4; Ngulube and Tafor 2006:69). Sometimes if the department is not proactive, dependency of e-records on changing technology and fragile media results in records being missing or lost (Thurston 2005).

Hence, development of information technology needs hardware recourses such as mainframe, personal computers and networks to succeed (International Council of Archives (ICA) 1997 cited by Tafor 2003:72). Tafor (2003:72) further cites examples of technology from

Kowlowitz and Kelly (1997) such as intranet, e-mail, Electronic Data Interchange (EDI), e-commerce, data imaging and word processing which will help to ensure paperless business transaction. Therefore, technological change can affect the way in which records are created, managed and used for legal and business requirements.

There are several solutions to deal with e-records challenges and problems. One of the key solutions is that government should have rules that indicate what types of records qualified to be kept in the system, responsibility for capturing and retrieval of records in the system, records usage, retention period and method (Tafor 2003:73-4 cited InterPARES Project 2001). People must have effective plans to manage electronic records. This will assist in avoiding duplications and breaches on security or access control, which ensures that records are not deleted or accessed without authority. All these challenges can be addressed or prevented through the establishment and implementation of an effective records management policy (King1997:657). A proper records management programme is guided by policies, rules and procedures to ensure an environment that is conducive to proper records management (Chinyemba and Ngulube 2005). Singapore is a good example of success; since 1990 the country has been enjoying the end products of electronic filing systems, such as readily accessible information and records to handle the court cases (Thurston 2005). This situation and requirements are also applicable to public health medical records.

2.8.1. ELECTRONIC RECORDS MANAGEMENT IN THE PUBLIC SECTOR

Records management is very important for the public sector since it serves as an important tool for good business governance and efficient administration. Records provide information for improved planning and decision-making. Records also provide evidence for government accountability and transparency, and are often subject to specific legal requirements. In government bodies, records document what is done, when, why and also provide evidence of communications, decisions and actions. In the process, some of the records that the government officers make will be retained as national and provincial archives. They will eventually become part of South Africa's documentary heritage (Bhana 2008:3-7; Ngoepe 2004:1-3; Man 2005:23; Willis 2005:94; Chachage and Ngulube 2006:2).

Kemoni, Wamokoya and Kiplangôat (2003:40) argue that the main problem in the archival repositories is the non-utilisation of information technology to ensure a smooth running of the records management administration. They cite Mutitiôs (1999) observation that IT helps archivists to improve their information services by providing faster access to and usage of data. According to Cowan (2000: 179), the movement or improvement of clinical records administration from paper based to electronic is very fast and very successful. It however, seems to be difficult to achieve some targets due to difficulties in some stages. Gerntholtz, Van Heerden and Vine (2007:26) argue that with electronic medical records it is faster to compile clinical documents which are filed automatically. The formulation of a patientôs summary on referrals, retrieval of information as and auditing of clinical information are also fast. The adoption of electronic medical records was very slow because it needed a change in the operational ways of doctors and more training is also needed for effectiveness of the new system.

Thurston (2005) argues that technological improvement is developing faster than the skills and infrastructure development. There is a need for more training and education in government. The government should consider the records mediaôs instability, obsolete hardware, hardware incompatibility, software, data format, storage media, lack of metadata, context of information; clearly assign responsibility and long-term records preservation resources in implementing e-records management.

2.8.2. ELECTRONIC DOCUMENT MANAGEMENT AND PAPER-BASED RECORDS MANAGEMENT

Document processing is a core in business processes since it is the main source of information when it comes to long-term accountability, authenticity and confidentiality. EDM includes the conversion of paper-based records or documents into digital documents. Records of paper documents such as photos, plans, microfiche, maps and drawings are converted into digital documents. These kinds of records can be converted using IT resources such as fax to PDF conversion and several types of scanners. The scanners used include high-speed scanners

which are usually used for scanning very large volumes of paper, wide format scanners used for scanning large drawings, photo scanners, negative scanners, and microfiche scanners which are used to convert microfiche to digital documents (Klischewski 2006:34-35).

> Traditional paper-based records management systems have limited utility and application to the implementation of e-government. However, ERDMSs can help to promote e-government by ensuring electronic records that document the governmentôs interaction with the public are soundly managed and accessible (Ann 2003: 5).

It is a great advantage to integrate or merge both the ERM System with the EDMS that will reduce duplication of document inventories, document profiling or meta-data, systems and support requirements. This can also minimise capital investments and human resource to support separate EDMS and ERMS needs (Barry 2001).

> Documentation refers not only to documents produced but also those actions intended to capture the relation between the activity é and the documents produced thereby é the metadata of why, where, when, how and who conducted the examination and wrote the protocolò (Valtonen 2005: 181)

2.8.3. E-HEALTH AND RECORDS MANAGEMENT

The types of records created by health institutions are called electronic medical records (EMR) or e-health records (EHR). EMR or EHR is defined as ña longitudinal collection of electronic health information about individual patients and populationò (Rawabdeh 2007:522). Rawabdeh (2007:522) also emphasises that in order to improve the quality of care of paper records and electronic records, the two should be combined into one system. Khoja, Scott, Mohsin, Ishaq and Casebeer (2008:79-80) describe e-health as the process of rendering health services through Information and Communication Technology (ICT). The World Health Organization (WHO) sees e-health as cost-effective and secured health services. E-health includes health-related services such as health care, surveillance, literature, education, knowledge and research. This will eventually lead to the generation and management of e-records in the organisation.

Furthermore, paper records can be accessed by only one person at a time. Electronic records, unlike paper records, can be accessed by many people from different offices at the same time. This may give room for telephonic discussion regarding the same record (Johnson and Bowen 2005: 138) which shows increased user communication (Tsai and Bond 2007:136). Tsai and Bond (2007:136) discovered that in electronic medical records there are reduced paperwork, saved costs, in-time access, faster data searches, increased physician efficiency and data accuracy. This can help to ensure effective and efficient service delivery in the public health sector. The study conducted by Cauldwell et al. (2007:157-158) on the impact of electronic patient records on work flow shows that the introduction of patient access to electronic health care records system improved the length of consultation and administrative process in the UK, London-based surgeries.

Furthermore, Mozambique benefited from the sharing of medical records, laboratory results, treatment protocols and radiographic information after linking hospitals from three different cities, Maputo, Beira and Nampula. The same system was used by Senegal with value-added functions, which allowed professionals to discuss the medical status from their respective hospitals through the videoconferencing (Ojo 2009:96).

> ICT can be a useful tools and resources in the depleted African health system if there is the political will and technical expertise to support them. ICT facilitates the application of telemedicine, which cané improve hospital administration (Ojo 2009:96).

However, e-health enables health service providers to, amongst others, intensify competition and information management. It also makes it easy to monitor patients properly and increase the quality and pace of medical service. It is a good interactive medium for information within patients with the same conditions and their medical practitioners (Rawabdeh 2007:517; Adams and Bal 2009:35; Akeh and Morfaw 2007; Harland and Bath 2007:208; Neuhauser and Kreps 2003:13). E-health can address psychological factors such as change, improve and promote interaction and participation, avail relevant detailed information and improve multiple media

channels (Neuhauser and Kreps 2003:13). E-health is a necessity for a successful improvement of the public health service to citizens.

However, there are several challenges in e-health. E-health barriers in Sub-Saharan Africa entail political, legal, economic, socio-cultural and technical categories. The political category covers ñleadership and vision, political will, self-interest, corruption, low expectancy of governmental organisationsò (Akeh and Morfaw 2007). The legal barriers may also be against the adoption and use of ICTs for health services. As cited from WITSA (2006), most governments pass laws that prevent the usage of technology ñe.g. regulations may require health care providers to maintain patientôs records in a paper-based formatò. Economic barriers entail limited financial resources. Other barriers are lack of trained professionals, digital divide, and shortage of medical personnel, resistance to change by some doctors, technophobia, and patients willing to always be closer to the doctor for safety of their information (Akeh and Morfaw 2007). Legal and regulatory issues also seem to be challenging in e-health like privacy, licensing, reimbursement policies, health care delivery difficulties as a result of technological limitation (Rawabdeh 2007:517).

Looking at the solutions, Akeh and Morfaw (2007) argue that, in order to successfully deal with all these barriers, approved legislation must be amended. This will assist in reducing taxes on ICT equipment, introduce change management in the public sector to overhaul the public service and harshly punish corruption by law. One way to fund this is to use embezzled funds for e-health projects and development of e-health experts. To solve economic barriers government must develop infrastructure, alleviate poverty and obtain assistance from donor organisations. Socio-cultural barriers need education and digital division solutions by introducing the use of ICT in public services.

> It is important to identify the first and potential barriers. Examine their nature, the causes of the barriers and which of these barriers are the most problematic. Governments, the civil society and, organisations should concentrate on educating citizens in Sub-Saharan Africa. Education has the potential to eliminate most of the barriers to e-health in the region. It will empower citizens of the region, create employment, provide e-health

experts, reduce resistance to change, bridge the digital divide and produce upright citizens (Akeh and Morfaw 2007).

Furthermore, in order to fully control or regulate e-health, there is a need for ethical guidelines, advanced training for e-providers, instate online medicine or therapy, education for potential online providers, patient-clinician relationship, privacy and security and internet legalities. E-health can be implemented in four categories as medical equipment and supplies, health insurance, medication and clinical services. The medical equipment and supplies are for shopping online, health insurance for service payments/claims, medication for prescription and clinical services for diagnosis, treatment and continuous care management (Rawabdeh 2007:518-519 cited from Christensen et al 2000).

However, information published on the web needs to be quality assured using prescribed quality assessment tools to avoid misleading web-dependent patients and keep their trust on the website. The medical and informatics communities must help patients to get reliable information on the web. Quality assessment tools also need to be examined for validity and reliability (Harland and Bath 2007:209; Adams and Bal 2009:35). E-health has a lot of risks and benefits, such as unexpectedly fast-growing population, citizen knowledge and skills and health status gaps. That is why it is important for the government to assess its readiness in terms of the status. The assessment should cover the side of government, health institutions and users or citizen. This must be done before adoption of ICT health services to identify the success (Khoja, Scott, Mohsin, Ishaq and Casebeer 2008:79-80).

Furthermore, when the organisation conducts an e-health readiness assessment, they should consider the appropriateness of technology, affordability, capacity and relevancy of content, integration, socio-cultural factors, trust, legal and regulatory framework and political willingness. This may also assist in solving the digital divide. In implementing e-health, a task team must conduct a needs analysis, status quo dissatisfaction, identification of relevant key stakeholders and communication with management, implementation and evaluation plan (Khoja, Scott, Mohsin, Ishaq and Casebeer 2008:79-80). The readiness assessment must cover the beliefs or expectations of the potential users of the new medical service technology and its

impact on the use and attitudes. The attitudes, environment type, behaviour, intentions and interrelationships of the potential users may be corrected by means of ñformal authority and directivesò. Self-service medical technology must be tested to ensure reliability, effectiveness and success by satisfaction of the end-users (Lanseng and Andreassen 2007: 395-396).

2.9. RECORDS MANAGEMENT EDUCATION AND TRAINING

A qualified records management staff ensures that the organisationôs records management work is carried out efficiently (Chinyemba and Ngulube 2005). People need to be capacitated through training and education with the skills, knowledge and ability to establish the necessary records keeping infrastructure. This will ensure compliance with accountability and service delivery as required by the citizen (Johare 2006:2). The knowledge required should cover records and archival functions, professional and contextual knowledge. The records and archival function scope should cover the management of active and terminated records, such as classifying, scheduling their retention, and protecting them. The other part of the scope should be appraisal and archival processes which include accessing, arranging and describing records. The scope of professional knowledge could cover history, records and cultural memory, ethics and value of the profession. The scope for contextual knowledge should cover, amongst others, administrative history, professional elements of law, social, cultural, legal and financial systems, information system and management of digital records (Katuu 2009:133).

However, government does not prioritise the training of staff for records management guidelines and tools, thus it fails to ensure that the staff are successfully complying with legal and organisational requirements for effective records management (Sinclair 2002:104). A lot of staff managing records in the Sub-Saharan countries are not capable of managing digital records professionally. This will be a permanent challenge as long as these officials are not capacitated. The government must communicate with educational institutions to ensure a relevant and enabling educational system in the field of e-records and e-government (Ngulube 2007:7). Government does not have enough knowledge of how to manage electronic records, because even the officials engaged in creating and receiving these records are uncertain about the importance of those records to the government body. The IT managers also promote the

usage of IT in creating and exchanging information, but little is thought about preservation of these records (Wamukoya and Mutula 2005a:72-74 cite IRMT 2003).

However, the National Archive and Records Service of South Africa offer a four-day records management course at their headquarters in Pretoria, which teaches the basics of records management. The scope of the course only covers records-related legislation, the role of the National Archives and Service, the records managerôs duties, national records management policy, good record keeping practices needs, identification and care for different records, compilation of classifications systems and records disposal. A certificate is offered at the end of the course. The workshop entails evaluation techniques such as group discussion sessions, practical exercises and class tests. The course is designed to cover only records managers, senior administrative officials, training officials, work study officials and registry heads (National Archives and Records Service of South Africa http://www.national.archives.gov.za/). Electronic records management is not covered in this course. The National Archives and Records Services of South Africa (NARSSA) needs to review their training scope and curriculum to cover e-records management. In ESARBICA countries there is a movement from paper-based records to electronic records. The main challenge is that there is no attention to capability building in terms of professional handling of electronic records through training of staff (Ngulube and Tafor 2006:58).

Furthermore, in other African countries, such as Zimbabwe, the registry staff is offered two weeksô compulsory training conducted at the public service training centre known as the Highlands Training Centre and Elangeni Training Centre. The course does not include the records life-cycle process, but instead covers registry procedures, mail management, records classification systems and supervisory skills. At the end of the course there is no continuous in-house training (Ngulube 2000:164). Nengomashaôs (2009:116) survey outcomes revealed that the implementation of a records management programme in Namibia was hampered by ólack of trained records management professionalsô. The National Archive of Namibia offers two to five daysô informal courses in records management for registry clerks and officers.

This is a bad situation because, in an organisation where the staff competency and skills are not developed, the survival of the organisation is not assured. Qualified and well-trained staff will lead the organisation to an advanced stage in terms of operation, growth and quality of work (King 1997:658). Wamukoya and Mutula (2005:72-74) cite IRMT (2003) note that the introduction of the new technology poses a challenge that records and archive management staff should be trained and retrained for the new skills and competencies for effective operation in the new technology. This will enable the government to comply with accountability and defeat corruption and malpractices. The staff should be equipped with competencies and skills which include, but are not limited to, records management, information management and technology. The skills that are specifically required in electronic records management include creation, capturing, classifying, indexing, storing, retrieving, tracking, appraising, preserving, archiving and disposing.

According to Part V of the National Archives and Records Service of South Africa Regulations (2002), the official designated as the records manager of a governmental body in terms of section 13(5) of the Act shall be in possession of an appropriate university or technikon qualification, and/or have appropriate professional experience; have successfully completed the National Archives' Records Management Course; possess a thorough knowledge of the body's organizational structure, functions and records system; and be responsible for promoting the effective, efficient and accountable management of the body's records and ensuring, by inspections and other means, the body's compliance with the Act and all other relevant legislation.

The pace of technological advancement in records management is more than the skills and infrastructure development in South Africa (Thurston 2005). Thurston (2005) further states that Ecuador introduced a guideline on how to manage records throughout its life span and an electronic network that ensures the sharing of that information. The sad part was lack of the national archivesô involvement and that nothing has been done regarding staff training. The public health institution department must also consider training and education as a priority in implementing the e-records management system.

2.10. LEGISLATIVE FRAMEWORK GOVERNING MEDICAL RECORDS MANAGEMENT IN THE PUBLIC HEALTH SECTOR OF SOUTH AFRICA

The South African government introduced a legislative framework to govern business administration in both public and private sectors. Records management is also introduced and emphasised through these legislation with the aim to pave a way to confirm or prove compliance to procedures and standards requirements. Almost all legislative frameworks have sections that specifically address the need to properly preserve records and how to manage records. The main purpose is to ensure that people account for their administrative actions in their business or services.

2.10.1. THE CONSTITUTION OF SOUTH AFRICA

Section 195 of the Constitution of South Africa (Act No. 108 of 1996) focuses on the basic values and principles governing public administration. This section emphasises effective, economical and efficient use of resources, the provision of timely, accessible and accurate information. It also stipulates that public administration must be accountable. Marutha and Ngulube (2010:7) underscore that compliance with all the requirements of this act needs a proper records management and without it there will be no compliance. This is because without the availability of records, there will be no timely access to accurate information since information is only found inside records. Therefore, without it there will be no proper accountability for public administration. This is also the case with patient administration and medical records management in the health institution. The medical doctors and nurses can use medical records to account for facts in cases of litigation or complaints about their previous services. They can prove their administrative actions as good or wrong basing on records preserved during service rendering. For example, they will answer on whether the doctor gave the right medication or prescription and/or whether s/he gave the correct diagnosis according to hospital clinical procedure. This can usually be conducted during maternal death or medical expenditure accountability.

2.10.2. THE NATIONAL ARCHIVES AND RECORDS SERVICE OF SOUTH AFRICA ACT (ACT. NO. 43 OF 1996 AS AMENDED)

According to section 3, the government appointed the National Archivist with the aim of ensuring proper preservation of valuable public and private records for continuous use by the public and the state. The National Archivist is also liable for ensuring that public records are properly managed and taken care of. The other main responsibility assigned to the National Archivist is to maintain a national automated archival information retrieval system. S/he is also charged with the responsibility of assisting, supporting, setting of standards for, and providing guidelines and encouraging archival and records management activities. This gives the opportunity to the public health sector to rely on the National Archives for assistance and support in terms of guidelines and standards (Marutha and Ngulube 2010:7; National Archives and Records Service of South Africa Act. No. 43 of 1996 as amended).

Furthermore, Section 13 stipulates that ñSubject to the provisions of this Act, the National Archivist shall be charged with the proper management and care of public records in the custody of governmental bodiesò. It also emphasises that records can only be disposed of if the government body is issued with a written disposal authorisation by the National Archives and Records Service of South Africa. A good example of records disposal is when there is a transferring of records to the archives repository or when records are destroyed or erased records if they are electronic. The other responsibility of the National Archivist is to approve the records classification system, records microfilming or reproduction of records to electronic format and the introduction of the electronic system to be used for records management in any government body. It sounds worth noting that the National Archives needs to be fully involved in or notified of any new development in terms of records management. In the health institution, the department will have to give approval and guidance from the National Archives of South Africa whenever they develop new records systems or improve the existing records system.

2.10.3. THE NATIONAL ARCHIVES AND RECORDS SERVICE OF SOUTH AFRICA REGULATIONS

Part V of the regulations states that the head of the government body must ensure that records receive proper physical care and have effective security measures in place. S/he must also ensure that records are managed according to policies and legislation. S/he must communicate information relating to records management in their department when required to the National Archives. Marutha and Ngulube (2010:8) state that in order to ensure the necessary care, records must be managed in relation to directives and instructions of the National Archives and Records Service in the government body.

However, this regulation also gives a guide for issues and procedures about records appraisal, disposal and damage to records. It states that either the National Archivist or the head of the government body can initiate public records appraisal. The government body must not dispose of any record in any way before obtaining a disposal authority to transfer records to an archives repository or to destroy them. The records manager must supervise the destruction of records, if disposal is authorised in the form of destruction. If not exempted by the National Archivist, a destruction certificate must be submitted to the National Archivist in a prescribed format as completion of disposal. The head of the government body must take responsibility to report to the National Archives any damage, loss or unauthorised disposal of records with an immediate effect.

Furthermore, the regulation also gives a guide in terms of records classification, microfilming and conversion to electronic record. It also states that the government body must ensure that their records classification system and/or its amendments are approved by the National Archives before they can even consider using it. The body must also report through appropriate procedures to the National Archives when intending to implement records microfilming or electronic records management system.

2.10.4. THE PUBLIC FINANCE MANAGEMENT ACT (ACT. NO. 1 OF 1999)

The Public Finance Management Act **(**PFMA) was introduced ñto regulate financial management in the public service and to prevent corruptionò (National Archives and Records Service of South Africa 2006:2). Marutha and Ngulube (2010:9) state that the PFMA is used to make sure that human or financial resources are properly managed in government institutions. Proper records management is used to identify proper or improper management of the resources to eventually maintain or correct the status. They also note that to confirm proper management of the resources in health institutions, medical records can also be used. Resources in health institutions include, but are not limited to, prescribed medications as well as doctors and nurses as human resources.

However, the major objective of this act is to ensure transparent, accountable and sound management of resources in the government institutions (Public Finance Management Act No. 1 of 1999 sec. 2:8). It is also used to give directives to the public institution to ñkeep full and proper records of the financial affairsò for accountability by the accounting officer of that government body. Section 36(2) of the PFMA, states that the HOD of a constitutional institution is an accounting officer, whose role is ñto keep full and proper records of the financial affairs of the departmenté in accordance with prescribed norms and standardsò. Ngoepe (2004:8) underscores that sound records management and complete records enable senior managers to present reliable and accurate financial statements to the Auditor-General. Section 50(29) of the Act also states that ñthe accounting authority for a public entity must exercise the duty of utmost care to ensure reasonable protection of the assets and records of the public entityò.

2.10.5. THE PROMOTION OF ACCESS TO INFORMATION ACT (ACT. NO. 2 OF 2000)

Ngoepe (2004:8) highlights that the Promotion of Access to Information Act (PAIA) promotes the need for sound records management. The purpose of passing the PAIA was to promote and enforce open access to information in possession of government entities or institutions. The main aim is to ensure the protection of peopleôs rights. For example, patients in the public

health sector have the right of access to information to their medical records. In order for health institutions to be ready for the future demand of access or use they must ensure a proper management of their medical records (Marutha and Ngulube 2010:10).

The National Archives and Records Service of South Africa (2006:3) also listed that PAIA was introduced with the purpose of:

- promoting transparency, accountability and effective governance by empowering and educating the public to understand and exercise their rights;
- understanding the functions and operation of public bodies; and
- to effectively scrutinise and participate in decision-making by public bodies that affect their rights.

However, Section 25 of the act states that the information officer of the public institutions must respond to information requested within 30 days of receipt of the request. This is regardless of whether the information is granted or denied. Marutha and Ngulube (2010:10) argue that this can result in a requester complaint as they have to wait for 30 days to get answers to their request. To ensure a timely and quicker retrieval of records requested in the public health sector, proper records management must be exercised. This will assist in avoiding records management barriers like misfiling and missing files. Proper records keeping will result in a proper file tracking system in an organisation.

Moreover, it is not acceptable that governmental bodies can deny public access to information or records because the record is in an electronic format. It is the governmental bodyôs responsibility to make sure that those records is always available, accessible and complete. This can be possible with the assurance that proper management of electronic records is applied in their institution. It is encouraged that in electronic records management a proper records keeping systems and documentation for disposal are done as authorised (National Archives and Records Service of South Africa 2006:3).

2.10.6. THE PROMOTION OF ADMINISTRATIVE JUSTICE ACT (ACT. NO. 3 OF 2000) (PAJA)

The Promotion of Administrative Justice Act (PAJA) was introduced to bring about a ñlawful, reasonable and fairò administrative action and also to ensure the proper documentation of these actions in accordance with section 33 of the South African Constitution (1996). According to Section 5, ñany person whose rights have been materially and adversely affected by an administrative actioné may request the administrator é to furnish written reasonsé ò It stipulates that reasons for administrative actions should be furnished within 90 days after receiving the request, or else it should be presumed that the administrative action was taken without good reason (Promotion of Administrative Justice Act No. 3 of 2000).

However, the act also gives anyone who is a victim of the public administrative actions the right to demand written reasons for these actions. If the administrative official or institution fails to provide written reasons, this may lead to a conclusion that the administrative actions were not fair, reasonable nor lawful and he/she can be confronted with legal action. According to the example by Marutha and Ngulube (2010:11), the above situation might happen when information about the enquired action is documented in an email message that is not properly managed or is destroyed without authorisation. If the citizen does not receive positive or satisfying response he/she may end up taking legal actions against the administrator in charge or his/her governmental body. In order to prevent such a situation, the heads of government bodies must ensure that, before destroying any record including an email, they have a written disposal authority issued by the National Archives and Records Service. This protects the government body should it be required that they provide reason for or proof of administrative actions in any situation where the records are properly destroyed with authority (National Archives and Records Service of South Africa 2006:3).

Records may also not be available for retrieval when it is required due to an ineffective records management system, misfiling or missing records; that is not a good enough reason for the citizen/complainant or victim of the administrative action. For example, in a health institution maternal death is normal occurrence. The family of the deceased might complain

that the doctors and nurses never followed the right administrative procedures when assisting the deceased in her delivery process. He/she might need something to prove and be convinced that proper procedures had been followed and the death occurred because of something else other than clinical and nursing actions. The saviour is the medical records because every action, whether a diagnosis, prescription, treatment, payment/bill and personal details, is contained in the medical records. Patients may also complain about wrong prescriptions, treatments and diagnoses although they have no expertise in the clinical exercise (Marutha and Ngulube 2010:11).

2.10.7. THE ELECTRONIC COMMUNICATIONS AND TRANSACTIONS ACT (ACT. NO. 25 OF 2002) (ECT)

The Electronic Communications and Transactions Act (ECT) were introduced with the reason to legalise, facilitate and regulate electronic communications and transactions to ensure a move to electronic service delivery. It seeks to ensure that electronic communication and transaction records are admissible by building a reliance on them. The act promotes the use, creation and acceptance of electronic communication and transaction records.

The act states that data messages are legally admissible records, provided that their authenticity and reliability, as true evidence of a transaction, can be proven beyond any doubt. The evidential weight of electronic records (including emails) depends, amongst others, on the reliability of the manner in which the originator and the receiver managed the messages. Should bodies not have a properly enforced records management and email policy and a reliable and secure record keeping system, they run the risk that the evidential weight of their electronic records (including emails) might be diminished (National Archives of South Africa 2006:3).

However, this act promotes authentic and reliable electronic transactions and communication records/data messages creation. It stipulates that ñrules of evidence in legal proceedings must not be denied the admissibility of data messages as evidenceò (Electronic Communications and Transactions Act No. 25 of 2002 Sec. 15)

2.10.8. THE NATIONAL HEALTH ACT (ACT NO. 61 OF 2003)

The main aim of the National Health Act is to bring about uniformity and direction in the health service practice of the country, as stipulated and mandated in the constitution and other laws at different levels of service delivery (National Health Act No. 61 of 2003:2). The act states that the person accountable for the health service institution must ensure that records relating to health services are created and maintained at that health institution for further service delivery, as mandated by the National Archives and Records Service of South Africa Act (Act No. 43 of 1996) and the PAIA. It further emphasises that health information concerning different patients must always be kept confidential, unless if required by law or if the owner of the information gives written consent to disclose his/her information. The health worker is only allowed to disclose the information as required to the work as a scope of his/her work. According to Section 17 of the act, the person working in the health institution responsible for medical records must put in place effective security measures to ensure access control in preventing unauthorised access to personal records and medical records filing custody/building:

> Any person who fails to perform a duty imposed on themé falsifies any record by adding to or deleting or changing any information contained in that record; creates, changes or destroys a record without authority to do so; fails to create or change a record when properly required to do so; provides false information with the intent that it be included in a record without authority, copies any part of a record without authority; connects the personal identification elements of a userôs record with any element of that record that concerns the userôs condition, treatment or history; gains unauthorized access to a record or record-keeping system, including intercepting information being transmitted from one person, or one part of a record-keeping system to another without authority, connects any part of a computer or other electronic system on which records are kept to any other computer or other electronic system; or any terminal or other installation connected to or forming part of any other computer or other electronic system; or without authority, modifies or impairs the operation of any part of the operating system of a computer or other electronic system on which a userôs records are

kept; or any part of the programme used to record, store, retrieve or display information on a computer or other electronic system on which a userôs records are kept, commits an offence and is liable on conviction to a fine or to imprisonment for a period not exceeding one year or to both a fine and such imprisonment (National Health Act No. 61 of 2003).

2.11. THE ROLE OF RECORDS MANAGEMENT IN PROMOTING BATHO PELE PRINCIPLES AND IMPROVING SERVICE DELIVERY

Mullon (2004) states that South Africa introduced the eight Batho Pele principles with the main purpose of transforming public service and improve service delivery to all parts of the country. Records management assists with the assurance that relevant records and information are kept safe and accessible when required or requested. An efficient records management is a cornerstone of the implementation of all of these eight principles. The eight Batho Pele principles are consultation, service standard, access, courtesy, information, openness and transparency, redress and value for money. The relationship of each principle to records management is summarised below:

2.11.1. CONSULTATION

It is vital to involve and empower public people in decision-making in an organisation (Capel, Childs, Banwell and Heaford 2007:244). According to Mullon (2004) the only way to ensure proper consultation is through the establishment and maintenance of an effective records management programme because it needs availability of up-to-date and accurate information. Marutha and Ngulube (2010:21) underscore that it is required that government institutions and entities consult with the public and its stakeholders in a situation where new changes or a new service is proposed. The consultation can only be properly conducted with the availability of authentic and reliable records. This means that proper records must be kept during the planning and processing of recommendations and approval by the higher level bodies. Reliable records will also enable a proper revision for more information before facing the public for proposals discussion.

2.11.2. SERVICE STANDARD

Mullon (2004) argues that proper records keeping will enable the officials to render public service of the same standards across the board if they have access to and common understanding of standards processes and deliverables expected of them. Marutha and Ngulube (2010:21) state that a well-improved service standard to every citizen can only be achieved with the implementation of proper records management as a very important tool. Records about the way in which services were and are rendered to citizen currently, and clientsô complaints and praises must be properly kept. Regular reference to these records will help the department to improve or keep the standards as encouraged or discouraged by the citizen.

2.11.3. ACCESS

Mullon (2004) highlighted that records about different types of government accessible services must be kept for the frontline officials to provide access to the public or even use them as guidance. Marutha and Ngulube (2010:22) argue that proper records keeping are a key for the government body to open access to information and other services. Information or records about services rendered by any government department or entity must be readily available in all the government departments to ensure that departments guide each otherôs clients effectively and correctly without difficulties. This will facilitate cross-reference of citizens from one department or entity to another. That will also depend on the service required by the citizen at that time. Bhana (2008:3) brings to attention that poor records control has bad consequences for all citizens. It is usually due to a lack of information that the citizens are misinformed or misled.

2.11.4. COURTESY

Mullon (2004) states verbatim that ñrecords management and access to information are critical to courteous serviceò. Lack of appropriate information and tools to render the services usually cause rudeness and bad behaviour that are eventually associated with the institution (Mullon

2004). Almost all services rendered by the government are highly dependent on records. This implies that government bodies need to have a proper records keeping system to always satisfy clients and keep them smiling. Lack of proper records preservation will lead to difficult records retrieval, which eventually results in a client waiting too long for the service. The end-result of this will be citizen complaints about poor service and long waiting times for the service. The communication between the service supplier and the client will be harsh and that will negatively affect courtesy value of the service to the client (Marutha and Ngulube 2010:23). Bhana (2008:3-4); Kemoni and Ngulube (2008:297) underscore that poor records keeping can lead the organisation to risks such as poor organisational reputation, non-legal compliance, financial and information loss.

2.11.5. INFORMATION

Mullon (2004) is of the belief that ñgovernment departments need systems in place to take care of the secure capture, storage and retrieval of informationò. Proper records keeping will enable the government body to comply with the public rights of access to information as stipulated by PAIA and PAJA. According to PAIA and PAJA the public has the right of access to any information in the public departments. The information may be administrative, historic or research related (Chachage and Ngulube 2006:2; Marutha and Ngulube 2010:22). Thurston (2005) state that access to information is one of the government initiatives to improve economic performance and accountability, but these rely much on availability of accurate evidence. According to Ngoepe (2004:1) government needs access to information when conducting their administrative activities. For example, the process of conducting an audit of the organisation is very simple, but with the difficulty to retrieve or gain access to records it becomes so difficult and risky (Bhana 2008:2)

2.11.6. OPENNESS AND TRANSPARENCY

Mullon (2004) argues that government needs to come up with a mechanism that will help to gather data about and from different government departmentsô databases or custodies for presentation to the public in a relevant format. Marutha and Ngulube (2010:22) further elaborate that records that are properly preserved will be authentic, accurate, reliable,

accessible, retrievable and trustworthy to enable the government bodies to comply with openness and transparency. Transparency and openness are usually proven with tangible proof that convince and satisfy the client that what the official is communicating is true. The preserved records will also help for reference purposes in the process of assisting clients. This is because government officials might not have all the information at hand. For example, the social grants guiding documents and policies may be used to prove that the client does not qualify for an old age grant because he/she is still 29 years old. This is because some citizens might think it is the officialôs decision not to give the service to them. ñSound information and records management deliver transparencyò (Willis 2005:90). Lipchak (2002:13) in Ngoepe (2004:1); Wamukoya and Mutula (2005:74) underscore that in a democratic society, transparency and accountability compliance is achieved only through the provision of access to information to the public and that can only be achieved through sound records keeping. This is because the citizens want to know what and how things have been done in the government.

2.11.7. REDRESS

Mullon (2004) is of the opinion that effective records management that has an audit trail will facilitate easy tracing of the origin and the cause of the problem. This will simplify responses, explanations and apologies to the affected citizens. Marutha and Ngulube (2010:23) argue that problems or dissatisfactions or complains about the service to the citizen also require information about the origin of the problem and service they are complaining about. Redressing problems or dissatisfactions/complains is not easy or possible without organisational proper recordkeeping. In a situation where records are properly kept the redresser will easily refer from the records about how the issue started by who, when, why and how far it was in terms of redressing. The records will also cater for information about how the matter was tackled before to avoid using the already failed strategies. The information preserved will assist the organisation in the planning and preparation to improve its services as suggested by the citizens.

2.11.8. VALUE FOR MONEY

According to Mullon (2004), records management helps to ñreduce operational costs, save space, eliminate data duplication and clutter by ensuring that only needed information is storedò. Marutha and Ngulube (2010:23) underscore that centralisation of records management activities and preservation ensures that government bodies comply with the principle of value for money by avoiding duplication of efforts. This is because it saves a lot of time and energy for different organisational offices to do similar things at the same time. Time is money in any organisation. Centralised records management and preservation also assists government bodies to prevent fraud and corruption by the records creators.

2.12. RECORDS DISASTER MANAGEMENT PLANNING AND ELECTRONIC RECORDS

Disaster refers to unexpected and highly destructive dangerous incidents that lead to organisational records and information not being accessible or available, and thus have a negative impact on the business process continuity. This can be defeated by making available a document that guides staff on the procedures to prevent and prepare for disasters. The document must also have steps to be used in responding to or recovering from a disaster. This important document is known as the disaster plan. People responsible for records management such as archivists seem to be ignorant to disaster preparedness. The organisation needs to be prepared for documents protection in any disaster. An organisation that is well prepared for disaster is able to efficiently and quickly face any emergency that might be dangerous to staff, documents and building. It also helps to protect records against theft, deliberate or unintentional damage and destruction (Ngulube 2003a:58).

However, a disaster plan is one of the must-haves in any records management system. The organisation should conduct a risk assessment as a foundation for creating a disaster plan for their business records. This will help the organisation to identify and analyse the possible risks and the possible control measures and tools to prevent or fight the disaster when it happens. The control measures to fight or prevent disaster include, but are not limited to, the fire extinguishers, and emergency telephone numbers for the police and fire unit (Chachage and

Ngulube 2006:13; Ngulube 2003a:60). Ngulube (2003a:60-64) underscores that in most instances disasters take the form of water damage, fire damage, theft and vandalism that seriously damage the records.

Furthermore, the damage done by fire is the most serious of all. In order to prevent fire, termites, rats and mice must be checked regularly since they can damage electricity wires. Slates and tiles can be used for roofing to resist fire. Fire-detection technology that is regularly tested and maintained should be used with an alarm system that is directly connected to a 24-hour security or fire department. Fire-suppression equipment such as an automatic fire suppression system and handheld fire extinguishers should also be made available in a functional condition. The most popular fire-suppression systems are carbon dioxide (CO_2) gas systems, dry-pipe sprinkler, wet pipe sprinkler system, and micromist or water-mist systems (Ngulube 2003a:60-62).

On the other hand, water damage may result from leaking roofs, gutters and drains, water pipes, steam pipes, lavatories, mechanical air conditioning equipments, hurricanes, tornadoes and floods. In order to prevent water damage, water and steam pipes in the records retention unit should be avoided. No records should be kept directly on the floor. They must be lifted from the floor at least four inches. Futhremore, there should be no kitchen or reservoir above the records storage and no sewage and water pipes crossing throughout the records retention unit. Water sensing alarms connected to the locally monitored security system can also be used to detect any water leaks. Checking of gutters, roofs and drainage must also be conducted regularly and large trees next to the building should be avoided (Ngulube 2003a:62-63).

The other records disaster threats are theft and vandalism. In order to prevent this type of disaster, a simple lock or advanced security system may be used to safeguard the records. The perimeter instrument alarm system connected directly to the local police station or local 24-hour monitoring security should be installed. The organisation might opt for one entrance/exit point for all staff and clients to avoid back doors and, if possible, those entrances have security guards at all times. All other doors should be installed with alarm systems to detect any unauthorised access to records custody. All windows should be closed/locked/sealed where air

conditioners are installed for staff working inside the records retention unit. The keys for doors of the records storage should be properly managed. The organisation must come up with a clear policy on access control as to who is permitted and who is not permitted in different storage areas. Access to the records storage areas by people other than records management officials, such as researchers, should be done under supervision. Records custody visitors should not be allowed to enter with their bags, large folders and personal books, but only with a paper and pen. All employees working with records should be vetted for security of records (Ngulube 2003a:63).

For electronic records, in addition to the disaster threats and preventive measures discussed in the preceding paragraphs, one has to also think about the technology itself. Disaster in electronic records may also arise in the form of computer virus, obsolescence of technology, digital media fragility, unforeseen future life of technology, deletion or alteration of information/records, and hacking of the computer. In order to deal with these disasters in e-records the same measures discussed above should be applied additional to the technical virus, file alteration and deletion preventive measures (Ngulube 2003a: 64).

Furthermore, Ngulube (2003a:59) underscores that a disaster plan minimises disruption of normal operation and economic impact of disaster, ensure trained personnel on emergency procedures and provide for smooth restoration of services. The disaster recovery plan can be categorised into three major phases as follows:

1) Phase 1: Before the disaster

   Phase one is mostly about planning for the disaster before it occurs. This is the phase dealing with preparation and prevention mechanisms for the disaster. It deals with identification of measures to be implemented to reduce or remove danger. It also deals with identifying resources, materials, services and procedures to be used should the disaster occur. These procedures include, setting up fire extinguishers, alarms and detectors, and training records management staff.

2) Phase 2: During the disaster

   Phase two is all about the actions to be taken during the disaster. It is a reactive phase of the plan in response to the disaster when it happens. It will describe procedure to respond to disaster in order to quickly and efficiently minimise damage. For example, trained records management staff use fire extinguishers during fire disaster.

3) Phase 3: After the disaster

   Phase three describes the procedures to be followed in recovering from an already happened disaster. This includes recovering from disaster damage to materials, records and buildings (Ngulube 2003a:59). For example, drying wet files and using backup files to replace the damaged records.

Nengomasha (2009:117); Chachage and Ngulube (2006:14) also recommend that duplicate copies of vital records be kept at an off-site storage. This will help to backup if original files are affected. According to Chester (2006:64) and Nengomasha (2009:118) reliability of the electronic records archive system should regularly be tested and maintained after being constructed. Duplicate copies or a backup system is a necessity since records storage media, whether magnetic or optical technology could fail or become obsolete. It is clear that the health institutions also need a disaster management and recovery plan for their medical records in order to survive their health business even after any type of the disaster like fire, water, vandalism and theft.

2.13. APPRAISAL, RETENTION AND DISPOSAL OF RECORDS

Keeping all government records permanently is very costly in terms of space, money and staff. The cost will also cover cataloguing, maintenance, migration and accessibility of all preserved records (State Records of South Australia 2003:7; Sims 2002:10; Currall and Moss 2008:70).
The electronic records preservation will require continuous maintenance of specialised equipment to read ñolder-style electronic materialé on-going regeneration of stored records in new formatsò (State Records of South Australia 2003:7). It is really unrealistic to keep all state-generated records permanently (State Records of South Australia 2003:7). The electronic

records system must be capable of preventing users from accidentally destroying files. It should have a built-in control to trigger retention schedule and disposal for certain records based on a certain date or dates. It should guide the records manager on the files for disposal (Raas 1999:118). The process of disposal includes actions like records appraisal, sentencing, destruction or transfer of records to the National Archive Repository. In appraising records, we identify ongoing value of records; sentencing is about application and implementation of the disposal authority from the National Archives and Records Service (NARS). Records are then destroyed or transferred to NARS depending on their different values (State Records New South Wale 2004; Granath, Alariksson and Axelsson 2004:30).

However, ña key element in the management of records by NARS is the control of records destruction across government bodiesò (Ngoepe 2004:6). It is worth noting that any records management function should focus much on the records retention and disposition since they are ófundamental to effective and efficient records managementô. In this case records growth will be controlled, legislation for records retention will be complied with and risks for financial liabilities and litigation will be reduced (Chachage and Ngulube 2006:12). The records inventory should be developed, appraisal guidelines should be created and the retention schedule should be informed by the records inventory list developed. This will help to show individual recordsô retention period (Chachage and Ngulube 2006:14). The retention period for each record of the organisation depends on the organisational decision as guided by relevant procedure guides and policy documents whether internal or external (Yusuf and Chell 2000:137). Retention of health records is usually too lengthy to cover clinical claims and complains (Cowan and Haslam 2006:265)

2.14. PUBLIC HEALTH SERVICES AND RECORDS MANAGEMENT PRACTICE

Like many other government departments, the health department also creates and uses their records during their regular daily work of rendering the health service to the citizens. The major reason for sound records keeping and improving to the electronic mode of records keeping in the health institution is to ensure improved patient care in the hospitals (Davidson 2000:200).

2.14.1. PUBLIC HEALTH RECORDS CREATION AND USE

The fundamental reason to manage records is to ensure the proper keeping of information that is to be used as evidence to prove that the organisation is operating as mandated. This is because records are the foundation for easy accountability, compliance with legislation, procedures and developing organisational memory (Chinyemba and Ngulube 2005). In health institutions the patientsô records are written by hand, typed in narratives, descriptive, or charted in medical terminology as long as other people will be able to read it and get the message. The information must be accurate and usable for decision-making (Davidson 2000:199; Tsai and Bond 2007:136; Rampfumedzi 2006:18-19 cited Booyens 2001:153). The disadvantage of handwritten medical records is that it could be illegible, incomplete, not well organised and could sacrifice the quality of care. The medical records assist the organisation with information about the treatment history and individual care experience that is regularly updated as the patient consult further. It is used for decision-making in the future course of treatment. Electronic medical records have several benefits such as minimum paperwork, maximum communication with users, low medical errors, low costs, timely access to information, accurate data and high physical efficiency (Tsai and Bond 2007:136).

Furthermore, the records should be protected from being erased and the use of correctional fluid should be prohibited. The correct way of correcting medical records is drawing one single line through the incorrect entry and the responsible person should sign next to it (Rampfumedzi 2006:18-19 cited Booyens 2001:153). This will help to maintain recordsô reliability, authenticity, integrity, accuracy and completeness. Cowan (2000:181) underscores that most of the problems experienced with medical records include usage of colour ink which fades or makes poor photocopies, inadequate clinical information noted, less consent and patient details, lack of clinical intervention time and date and no information on decision communication with patients and relatives. These leads to poor accountability for litigations, disciplinary matters, audits and risk management.

Furthermore, Tsai and Bond (2007:136) cited six levels of medical records sophistication from Dudman (2000), which are as follows:

1) **Level 1**

   This is the basic level and it covers organisational administrative function support. At this level the independent system of the department is used to administer patients.

2) **Level 2**

   This level also covers functions of level 1, but it includes master patientsô index integration.

3) **Level 3**

   It entails availability of real practical clinical support like electronic clinical orders, results reporting, prescribing, and multi-professional integrated care pathways.

4) **Level 4**

   This level has everything covered by level 3, but also has electronic access to knowledge bases, embedded guidelines, electronic alert, and expert system support.

5) **Level 5**

   In this level all functions under level 4 are covered, plus specific clinical models and document imaging.

6) **Level 6**

   This is the most advanced level. It covers, amongst others, the telemedicine and multimedia applications like picture archiving and communication system.

However, the records created in public health institutions include bed statistics, daily returns, day and night handover, nursing records and medical records (Davidson 2000:199-200; Booyens 2001:153 cited in Rampfumedzi 2006:18-19), patient information leaflets, handover books and records, maternity records and out of hours records (Cowan and Haslam 2006:266-267). The bed statistics are created and preserved to provide information about bed occupancy in different wards, patientsô conditions and discharges so that administrative staff knows which beds are available for new admissions. The daily returns are created and preserved to keep a written report about patientsôadmissions, discharges, deaths and transfers. This helps to inform the day/evening shifting staff, administrative staff and management about the current condition for patients in different wards (Davidson 2000:199-200; Rampfumedzi 2006:18-19 cited Booyens 2001:153).

Furthermore, day and night handover records are created during the formal shifting handover reporting to the nurse to check in for work. This is for him/her to know and understand the condition of each patient he/she will be nursing and what happened before he/she took over. The nursing records are ówritten nursing communicationô that make all nurses aware of each patientôs background regarding what was done and what is outstanding. This type of records also assists in planning for patientsô needs. Medical records creation usually document the doctorôs delegations, admissions, treatment of patients, investigations to be conducted by the doctor and the care necessary at home, if there is any need (Rampfumedzi 2006:18-19 cited Booyens 2001:153; Matthews and Whelan 1993:33-34).

The parent-held records contain baby developmental information, immunisation details and milestones achieved. The refrigeration and freezer records/charts contain laboratory and equipment records (Cowan and Haslam 2006:266). To Davidson (2000:197-200) medical records are categorised into genre, such as nursesô notes, patient demographic data, physicians orders, progress reports, laboratory test results, pathology reports, radiology reports and images. The records are created based on observation, interpretation of data, treatment plans and patients outcomes. This document evidence of patient experience, outcomes and health service received at the hospital.

2.14.2. SERVICES RENDERED BY THE LIMPOPO DEPARTMENT OF HEALTH AND SOCIAL DEVELOPMENT

The Limpopo Department of Health and Social Development is divided into four service branches, namely health services, social development services, government information and financial management (Limpopo Department of Health and Social Development 2004:7). The health services are managed by the senior general manager who is accountable for the Chief Directorates: Districts Hospitals, Provincial Hospitals, the Polokwane Mankwemg Hospital complex and District Health Services. The social development services are managed by a senior general manager who is accountable for Chief Directorates: Social Welfare Services, Social Works Services, Community Development and Support and Population Development and Demographic Trends. Both health and social development services are rendered at the

health institutions. Finance services are run by the Chief Financial Officer (CFO) accountable for the Chief Directorates: Corporate Services; Financial Management and Strategic Management Services. The Government Information Technology Office (GITO) is managed by the general manager and it entails risk management, information technology, records and information management directorates (Limpopo Department of Health and Social Development 2004:6).

This study is interested in the health services and government information branches because they render health services and records management, respectively, and records management affects health services directly. The core business of the health branch entails:

- HIV and AIDS, STIs and TB, other communicable and diseases of lifestyle.
- Districts health services and primary health care services.
- Emergency medical services.
- Logistical support services (including pharmaceuticals).
- Infrastructure development (including hospital revitalisation, clinic upgrading and maintenance).
- Legislation, governance, organisational development and quality improvement.
- Human resources development and management.
- Communication, collaboration and participation.
- Tertiary service development.
- Revenue generation (Limpopo Department of Health and Social Development 2004:7).

The overall service rendered by the Department of Health is health or medical, nursing and clinical care service to the citizens. The Limpopo Department of Health strives to improve its health service by prevention and control of the spreading of HIV/AIDS, STI and TB; integrating mother, child and woman health service; improving the status of nutrition; and rendering emergency medical services (EMS), equitable access to health care, quality patient care and tertiary level health service. The other strategies to improve health service are: training of health professionals; developing and implementing capital upgrade and building programme for health facilities; and the provision of good financial, administrative, human resource management, planning, development, labour relations and operational support. The

department also plans to improve devolution to district health services, improve occupational health, prevent and control communicable diseases, oral health services, as well as services the aged and chronically diseased. In order for the department to succeed in improving the above services, they require, amongst others, support for infrastructure and technology, demographic and health data for planning and information, and developing and managing a Health Information System (HIS). The department is challenged by, amongst others, the implementation of fraud prevention and risk management plan, as required by the PFMA and overall security management in terms of Minimum Information Security Standard (MISS) (Limpopo Department of Health and Social Development 2006b; Limpopo Department of Health and Social Development 2006a: 21-26; Limpopo Department of Health and Social Development 2008:1-51).

However, the department plans to prioritise on governance improvement and provincial health system management, records management and information system, administration support service strengthening, preparation and implementation of legislation, fraud prevention and risk management plan implementation. The other priorities are human resource planning, development and management and planning, budgeting and monitoring and evaluation. The department will develop its organisation by implementing a performance management system effectively, building staff capacity, reviewing, and re-engineering systems and structures continuously. The service delivery will be improved using Batho Pele principles, the patient rights charter and the coordination of service standards and the citizenôs report. Monitoring and evaluation will be conducted quarterly, half-yearly and annually. Health technology will be implemented with the use of an HIS and tele-health and physical facilities will be planned and maintained (Limpopo Department of Health and Social Development 2006b; Limpopo Department of Health and Social Development 2006a:27-28; Limpopo Department of Health and Social Development 2008:1-51).

2.14.3. AN OVERVIEW OF RECORDS MANAGEMENT IN THE LIMPOPO DEPARTMENT OF HEALTH

Records management needs to be treated as an organisational asset, just like human resources, financial resources and other properties, to facilitate organisational day-to-day administrative processes with less or no cost and stress. Records management can be used to support the core functions, managers and external clients of the organisation (Klischewski 2006:36; King 1997:656). This is why the Limpopo Department of Healthôs standards emphasise on records keeping that improve notes on patientsô treatment, which should be written in patient files after each treatment and reports should be compiled for relevant parties (Limpopo Department of Health and Social Development 2004:100). In so doing, the health institution will be entirely creating medical records for the institution and the Department of Health.

However, the Limpopo Department of Health has as one of its strategic objectives ñto develop and maintain reliable information management system for the departmentô. They aim is to achieve this strategic objective through the management of records and archives, collection and dissemination of health and social development information, improvement of the quality of data and establishing information resource centre for the department. In the 2004/2005 financial year the department had only 19% hospitals with fully functional registries and with 20% registries utilising the filing plans. The department planned to reach 100% fully functional registries and utilisation of the file plans by the year 2009 and 2011. The Department of Public Service Administrationôs (DPSA) best practice model was only implemented at the provincial office and was planned to be 100% implemented in all institutions by the year 2009 and 2011. During the planning in the 2004/2005 financial year only 20% of the records management officials had undergone the basic archive and records management course. The department aims to train 100% of the records management staff for the basic archive and records management (Limpopo Department of Health and Social Development 2006b; Limpopo Department of Health and Social Development 2006a:42; Limpopo Department of Health and Social Development 2008:1-51).

Furthermore, the other records management-related strategic objective by the department is to develop and maintain a reliable electronic information management solution. This was planned for achievement through ensuring the quality of IT support services for all business units and the availability of IT resources and IT delivery mechanism. The target of the department was to have 100% hospitals with functional network infrastructure and provincial health information system (PHIS) (Limpopo Department of Health and Social Development 2006b; Limpopo Department of Health and Social Development 2006b:42-43; Limpopo Department of Health and Social Development 2008:1-51).

The successful achievement of the above strategic objectives will help the department to achieve some of their measurable objectives. These measurable objectives are, amongst others, to conduct compliance inspection, security threat assessment, conduct investigations on reported fraud and corruptions cases, management of litigations, monitoring and evaluation of strategic and management plans, providing efficient expenditure and financial planning and economical and transparent system. The other measurable objectives of the department that need to be supported by sound records management include the strengthening of the peer review programme, improving patient satisfaction, and ensuring compliance with national norms and standards (Limpopo Department of Health and Social Development 2006b; Limpopo Department of Health and Social Development 2006a:30-62; Limpopo Department of Health and Social Development 2008:1-51). This is because the achievement of all of the above objectives is highly dependent on accurate records.

The department has a five year strategic direction plan on health administration. The plan includes availing and disseminating accurate information to stakeholders and fully complying with the National Archives guidelines in terms of records management, improved patient waiting time to two hours, and improved functionality of telemedicine. The department also set standards for records and information management (Limpopo Department of Health and Social Development 2004:13-28). This will assist the department because poor records keeping results in missing and lost files and documents and the result is ñdelayed service to citizens and poor image of the public serviceò (Kemoni and Ngulube 2008:297). The quality of health care service may be improved by ensuring less customer input, such as time, efforts,

and emotional energy (Lanseng and Andreassen 2007:396). The standards set by the department to ensure proper records management entails the following:

- All paper and electronic records are managed in line with the National Archives guidelines by March 2006.
- Archive for head office is functional by end of March 2006.
- A records management audit conducted yearly.
- Availability of manual in all the 11 languages by end of June 2005(Limpopo Department of Health and Social Development 2004:13-28).

The standards set to ensure that information is made available in the quickest manner according to the request include the following:

- Conduct inspection to monitor the proper implementation and maintenance of patient files and welfare files monthly.
- Files of new employees are opened within a date of date of appointment.
- Relevant documents that serve as proof of changes of processes of an employee are filed within one day of date of receipt (Limpopo Department of Health and Social Development 2004:13-28).

2.15. SUMMARY

In summary, this chapter gave an overview of related literature in records management. It covered the contextual overview of records management and electronic records in an organisational operation. It gave the reader an overview of what has already been researched in the field of study and the opinions and findings from other researchers in the field. It discusses the purpose of records management in the public sector, records management models, the introduction of IT in records management, electronic records management and e-health and records management. The other literature reviewed in this study focuses on records access and preservation, records management education and training, legislative framework governing medical records. The legislative frameworks discussed are the Constitution of the Republic of South Africa (Act No. 108 of 1996), National Health Act (Act No. 61 of 2003), Public Finance Management Act (1 of 1999), National Archives and Records Service Act (No. 43 of 1996), National Archives and

Records Service of South Africa Regulation, Promotion of Access to Information Act (Act No. 2 of 2000), Promotion of Administrative Justice Act (Act No. 3 of 2000) and Electronic Communication and Transaction Act (Act No. 25 of 2002). Literature was also reviewed to determine the benefit of proper records management, the nature or characteristics of a dependable record, and role of records management in promoting Batho Pele principles. The Batho Pele principles discussed entail consultation, service standard, access, courtesy, information, openness and transparency, redress and value for money. Literature about public sector records management practice, e-records disaster management planning, appraisal, retention and disposal of records was also reviewed. The chapter also gave an overview of records management in the Limpopo Department of Health in South Africa. Moreover, the next chapter gives the reader an overview of how the study was conducted. It covered the research methodology, research design, population of the study, sample frame, sample size, sampling procedure, data collection methods and techniques and data analysis method.

CHAPTER 3
RESEARCH METHODOLOGY

3.1. INTRODUCTION

The previous chapter discussed literature relating to the study. It covered related studies in records management which relate to the purpose of records management, electronic records management, electronic document management, legislative framework governing records management in South Africa, electronic records disaster management planning, records management education, introduction of IT in records management, training and different processes of records management in the public sector and the role of records in improving service delivery. This chapter takes the reader through the methodology applied in conducting this study. The scientific study research methodology brings about the paradigms used. It entails the paradigms and design of the research, population sampled and studied, sampling methods used as well as the data collection methods and instruments. I concur with Ngulube (2005a:128) that the research procedure is all about the population, sampling method, instrumentations, data processing and treatment of statistics where necessary because without some of these there would be no research.

3.2. RESEARCH METHODOLOGY

There are several research methods that are applied in conducting the scientific research. The research methods can either be identified or distinguished as quantitative method or qualitative method. In this study, the researcher used the mixed research method. That is, the researcher used both quantitative and qualitative methods (Myers 1997; Creswell 1994; Johnson and Christensen 2004; Fidel 2008). Certain problems and challenges for certain research topics need a combination of both methods by their nature to ensure validity of the results or findings (Bryman 1988:173; Cohen, Manion and Morrison 2000:112). The mixed method improved the quality of the research by minimising biases, limitations and weaknesses. This is because the disadvantages of one method was closed by the advantages of the other and vice versa (Johnson and Christensen 2004; Matveev 2002; Creswell 2003).The rationale for using the qualitative research methodology is that it explores information in the form of quality, such as

explanations, descriptions and narratives (Fidel 2008:265; Gorman and Clayton 1997:28). The qualitative research method gave participants an opportunity to give their thoughts, interpretations and understanding by describing and explaining the situation in their environment. It concentrated much on the context of what is studied to provide an understanding of the political, social, psychological, economical and cultural condition of the environment under the study (Anderson and Arsenault 1998:119-134). A qualitative research study does not lead the researcher to statistical results or procedure but rather the findings relate to lives, experience, behaviour, emotions and feelings, organisational functioning and social movement, and still some of the information would also used for statistical purposes based on census and background (Strauss and Corbin 1998: 11). The qualitative method was used to view the experience of the participants about the condition or problem being studied and explored the reasons for their kind of response to the situation (Creswell 1994:2).

The quantitative research method explored and measured the situation basing on statistical information such as how many people supported or did not support certain issues or statements and interpret the results (Fidel 2008; Creswell 1994; Powell 1997; Matveev 2002). According to Terre Blanche, Durrheim and Painter (2006:138) ñdata are basic material with research work. It comes from observation and can take a form of number (numeric or quantitative data) or language (qualitative data)ò.

3.3. RESEARCH DESIGN

A research design is an action plan for the research conducted. It covers the population or sample studied, design type ï whether exploratory or correlational or experimental or descriptive, data collection duration and reliability and validity of threats (Hernon and Schwartz 2009:1). This study was conducted as an exploratory survey. A research design is used to give a guideline about how cheap, simply and economically the data would be collected and analysed in relation to the purpose of the research. In other words, it offers the researcher the simplest and most affordable way of conducting a research beforehand (Terre Blanche, Durrheim and Painter 2006: 34). The design of the research depends on its questions and the data, to give a way for questions and data connections and show the tools and

procedures relevant for use in answering the research questions. This primary procedural plan includes five major characteristics, which are the strategy used, conceptual framework, study population and subject, as well as the tools and procedure adopted for data collection and analysis (Punch 2006:48).

Therefore, the research design answers to the questions regarding the followed research strategy, research framework, population provided data, data collection procedure, and data analysis methods. Bless, Smith and Kagee (2006:71) define a research design as ñthe specification of the most adequate operationsò conducted with the aim to test a particular hypothesis under the study or to answer the research questions.

3.3.1. POPULATION

ñOne of the major steps in survey designs is to define the population before collecting the sampleò (Ngulube 2005a:46). The population is a group of elements sharing the same sentiment. It is a large pool from which our sampling elements are drawn and to which the researcher generalised the findings. The study might focus on an organisation or institution but what the researcher is interested in is the people belonging to that organisation (Black 1999:111; Babbie, Haley and Zaino 2003:112; Ngulube 2005a:129; Welman and Kruger 2001:46). ñTheoretically speaking, population encompasses all the elements that make up our unit of analysisò (Terre Blanche, Durrheim and Painter 2006: 133). Welman and Kruger (2001:46) and Ngulube (2005a:129) stated that population entails object, group, organisation, human products exposed to a certain condition, and that was the condition under this research. In most cases the data is collected from the victims of the problem by the researcher. Lewis and Ritchie (2003:49) argue that in selecting a research setting and population, the researcher depends on the research question and existing literature to identify a population which is in a position to provide relevant, rich and comprehensive information.

The population of this study was drawn from two hospital units within the Limpopo Province of South Africa. The hospital units targeted were the Records Management Unit and the Information Management Unit. These units were relevant because they use patientsô files on a

daily basis to discharge their duties. The population was drawn from the hospitals detailed in Appendix 1.

3.3.2. SAMPLE FRAME

The sampling frame provides information required about the selection of the samples. It also provides a detailed foundation where the research sample can be drawn, and for a population that is enough for a high quality selection of the participants (Lewis and Ritchie 2003:88; Johnson and Christensen 2004:197). In other words:

> Sampling frame is a complete list on which each unit of analysis is mentioned only once. Unless such a sampling frame is borne in mind, it is impossible to judge the representativeness of the obtained sample properly (Welman and Kruger 2001:47-48).

Welman and Kruger (2001:47-48) underscore that the sampled participants served as representatives of the whole population, which is the sampling frame because they are considered to be the entire population. The population representatives also differ in terms of the knowledge or capacity in the provision of information about the problem being investigated and the way it affects them. Individual representatives within the same population understood the same issues differently because they provided different opinions and displayed different knowledge about the same issues or problems. As noted by Fowler (2002:14) and Ngulube (2005a:134), the sample frame is capable of limiting the possibility of generalising the population. Johnson and Christensen (2004:193) argue that the sample frame assists in ensuring the validity of the research results.

The researcher arranged a list of all categories of the identified population of the study to facilitate a random selection of individual participants. This is known as sample framing (Leedy and Ormond 2005:183). The population of this study was located in hospitals within the five districts of the Limpopo Province of South Africa. Each hospital uses MS Office Excel spreadsheets (called staff establishment). The staff establishments list all employees of the institution, according to their units and position/level or designation. The staff

establishment spreadsheets were also used to stratify and randomly select employees from different levels in the records management unit and information management unit to participate in this study (Powell and Connaway 2004: 100). This study is framed according to Appendix 1.

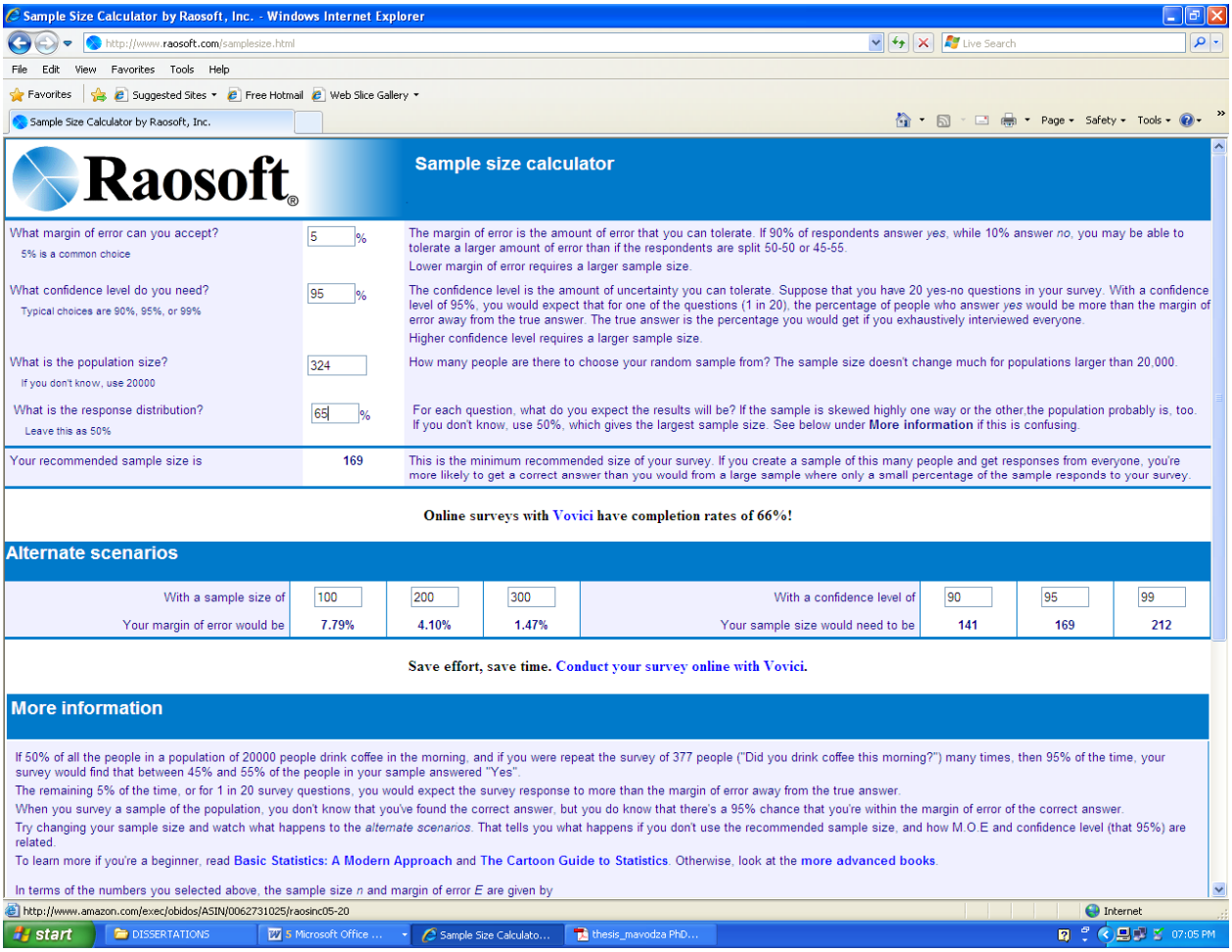
3.3.3. SAMPLE SIZE

The sample size entails the number of participants chosen from the whole population. The researcher focused on the population of the study when drawing a sample. The selected members or part of the entire population is called the sample (Bless and Higson-Smith 2000:84; Rowley 2002:19; Ngulube 2005a:130; Nachmias and Nachmias 1996:201). The sample drawn made a sample size. ñThere are no rules for sampling sizeò (Ngulube 2005a:130). The results of the study may be affected by the sample size and plan in terms of the type, level and generalisation of the study conclusion. A small sample reduces readersô interest to use the results and a large number of the sample gives confidence to the results, although it can be very expensive to handle. The sampling method determines the validity and reliability of the research conclusion (Ngulube 2005a:132-134; Marshal and Rossman 1995). Leedy (1997:211) underscores that sampling is not necessary for a population that is not more than 100. Terre Blanche, Durrheim and Painter (2006:49) underline that in a research where the number of sampled participants is too little; it is not advisable to use random sampling because that sample may not be representative enough for the entire population of the study. This is also the case with a large number of sampled participants in non-random sampling.

The sampling method, discussed under sampling procedure, was used because it helped to save time, money and energy. Thus the researcher avoided moving around from office to office collecting data from all the people throughout the whole country (Nachmias and Nachmias 1996:201; Miles and Huberman 1994:27 in Punch 2006:50). Seaberg (1988); Neuman (2000:217); Grinnell and Williams (1990) in Ngulube (2005a:134) underscore that a minimum of 10% of the sample, especially for a large population, is good enough to draw a valid and reliable data. In this study, out of 100% (324) of the total population of the study, the researcher sampled a total sample of 65% (210). From the 100% (210) of the total sample, the

records management sample was 74% (155) and the information management sample was 26% (55). The number of the sample was guided by the representation of each category out of a total of 324 members of staff employed in hospitals in the Limpopo Province. This difference in sample per category resulted from the fact that the records management category had a greater total population of 258 (79%) and the information management category had lesser total population of 66 (21%). Sixty-five per cent (65%) of the population was accounted for by 210 participants. The sample was drawn, as illustrated in Table 3.1, using the sampling procedure described in the next section. The researcher used the Raosoft sample size calculator available on (http://www.raosoft.com/samplesize.html) to calculate confidential level and margin of error, as in Figure 3.1. Using the Raosoft sample size calculator, out of the total population of 324, the total sample of 210 made a confidential level of more than 95% and less than 4,10% margin of error.

Figure 3.1: Raosoft sample-size calculator (http://www.raosoft.com/samplesize.html)



Welman and Kruger (2001:64); Onwuegbuzie, Jiao and Bostick (2004: 107) argue that in sampling ñthe smaller the total population, the relatively larger the sample should be to ensure satisfactory resultsò, but the lower the total population of the unit the lesser the percentage out of the total sample. This helps to minimise the standard error. Appendix 1 illustrates sampling in both numbers and percentages to clarify the fact above. The sample was drawn from the way the records management units administer the records and the information management units use records for statistics every day. Table 3.1 gives details of the sample sizes per district. The data was compiled from Appendix 1.

Table 3.1: Sample size per stratum per district

DISTRICT	**RECORDS MANAGEMENT**	**INFORMATION MANAGEMENT**
Waterberg District	31	11
Vhembe District	31	11
Sekhukhune District	31	11
Capricorn District	31	11
Mopani District	31	11
Totals	155	55
Grant total	210	

The study was initially targeted to cover six units of the hospitals, namely

- Records management
- Information management
- Patient administration
- Medical doctors
- Nurses
- Chief executive officers

A validity and reliability study for the questionnaire was conducted. The result of the study was that only information and records management units are relevant to participate in the study, especially for the completion of the questionnaire, because the content is only relevant for information and records management participants. The study then changed the whole

focus to information and records management units in the hospitals of Limpopo in five districts, and the questionnaire was also amended to be in line with the change.

3.3.4. SAMPLING PROCEDURES

Sampling is ñthe selection of research participants from an entire population, and involves decision about which people, setting, events, behaviour, and/or social process to observeò (Terre Blanche, Durrheim and Painter 2006:49). Selected participants participated as representatives of the whole population. Eventually the researcher generalised the findings of the whole research as if it was drawn from the whole population (Slater, 1990: 40; Terre Blanche, Durrheim and Painter 2006:49; Johnson and Christensen 2004:197; Mouton 2002:110; Hernon and Schwartz 2009:1). In conducting sampling, the population was clearly defined and the sample was systematically drawn (Mouton 2002:110; Hernon and Schwartz 2009:1) to avoid studying every person who is doing anything within the whole geographical area (Nachmias and Nachmias 1996:201; Miles and Huberman 1994:27 in Punch 2006:50).

The sampling procedure was the foundation of the study and the population characteristic was ñfully discussedò (Ngulube 2005b:46). The researcher used the probability sampling method known as the stratified random sampling for quantitative data collection. It was used to select people based on random procedure and this sampling was used by grouping or separating participants into non-overlapping groups according to their districts and fields of work (see table 3.1 and Appendix 1). The researcher then applied simple random within the grouped population in each institution (Zou 2006:1; Fuller 1993:1; Johnson and Christensen 2004:207; Burton, Croce, Masri, Bartholomew and Yefremian 2005:104). It is with stratified sampling that standard errors were reduced as this technique controls variance proportions (Sapsford 1999:70). This is because all the units or categories of the population were covered in the sample.

> Stratified random sampling is a technique used to improve the accuracy of survey results, or to lower the cost of a survey without losing accuracy. With a properly designed sample, the total number of survey contacts can sometimes be reduced by more than

50%, compared to simpler plans, without losing any accuracy in the results. The technique is often used in the preparing of random samples for large quantitative surveys (Fuller 1993:1).

Furthermore, the researcher also applied the non-probability sampling method known as the purposive sampling method for qualitative data collection. Purposive sampling assists to identify and involve key participants out of the entire population who have better knowledge, understanding and information about the matter being studied. This depends on the researcherôs knowledge about the participants in question (Kumar 2005: 179; Leedy and Ormrod 2005). ñPurposive sampling is a non-parametric sampling technique in which the researcher purposively identifies respondents as source of dataò (Wamundila 2008:25). In this study the researcher identified Information and Records managers and/or overall supervisors/heads of the Information and records management unit in the hospitals as the key participants to take part in the interview and observation data collection process.

3.4. DATA COLLECTION METHODS (INCLUDING INSTRUMENTS)

The data collection method is all about the procedures, techniques and tools used when collecting data from the sampled participants. Data collection comprises qualitative and quantitative methods. Ngulube (2005a:130) relates the quantitative method with statistical and mathematical techniques. He relates the qualitative approach to a deep study of individuals and small groups of the population. Punch (2006: 50) explained that quantitative data can be collected by counting and scaling of both strategies. On the other hand, qualitative data can be gained by asking and watching, or combining some of the three activities. For example, these are done through observation, interviews or reading documentations. Quantitative data may be collected using instruments such as questionnaires, standardised measuring instruments, ad hoc measuring scales or observation schedules.

However, in this study both qualitative and quantitative data collection techniques were applied. This is because the qualitative method helped to explain the understanding and interest of the population and the quantitative method helped to confirm the respondentsô

understanding of the outcomes of the study. Both methods explored the answers to the research questions. The qualitative research methodology was used because it assists the researcher to collect data related to quality, such as the explanatory, descriptive and narrative information. The researcher also used the quantitative research method, which entails information on statistical details on how many people supported or did not support certain issues or statements. According to Fidel (2008:265) this is a mixed method research which covers both the qualitative and quantitative approach. Fidel (2008:265), citing Tashakkori and Creswell (2007:4), defines the mixed method research as a method of research where the researcher uses both the qualitative and quantitative approach in collecting, analysing and integrating data and he/she drew a conclusion in the same study to improve the quality of the research by minimizing biases, limitations and weaknesses.

Hence, Mouton (2002:110) emphasises that several methods and techniques of data collection can be used in order to accomplish empirical and epistemological outcomes. In collecting data, the researcher mostly used a questionnaire with little employment of interviews and observation. The reason for using more than one type of instrument is that both instruments have different advantages. The disadvantages of one instrument are the advantage of the other, which means one technique closed gaps for the other and vice versa. Bless and Smith (2000:108) also gives some of the advantages and disadvantages of both interviews and questionnaires that are listed below.

3.4.1. AN INTERVIEW

An interview is a method of data collection, which is explained as a dialogue between two or more people. It is also a special case of social interaction. It involves direct contact with a participant who is asked to answer questions relating to the research problem (Bless and Smith 2000:108). According to Lewis and Ritchie (2003:111), key questions in semi-structured interviews are asked in the same way for all participants and are usually followed by some limited follow-up questions for further information or clarity depending on the response.

However, the interview was conducted with the aim to support or ask follow-up questions from the observation schedule for each of the hospitals. See Appendix 1 for the names of hospitals interviewed in the different districts. The observation was conducted in addition to the interviews on the same schedule, which is named the Observation Schedule. ñIn research, the use of various methods to collect the same data or triangulation is highly commendableé For example, Ngulubeôs study used questionnaire as the key source of data supplemented by interviews and observationò (Ngoepe 2008:25 cited Nachmias and Nachmias 1996:226).

The researcher sampled one key participant per hospital to take part in an interview while conducting the observation. The participants sampled purposively from the records management unit are records managers or records management supervising officials in cases where there are no managers for a certain hospital. This is because the identified participant knows much about the information required. The researcher used the purposive sampling method in order to obtain relevant participants for the interviews. They were key participants used as a source of quality data out of the entire population (Wamundila 2008; Leedy and Ormrod 2005).

The reasons for using the interview method are:

(a) An interview gives the participants an immediate chance to clarify themselves directly to the researcher.
(b) It helps to overcome misunderstanding and misinterpretation of words or questions. As a result, the answers given are clear.
(c) It reduces the chance of participant planning about lying in their response.
(d) It allows for the provision of more information, as there is no limited space as in the questionnaire or observation schedule.
(e) It enables the researcher to pose follow-up questions based on what the participants have said. The interviewer can also ask the respondent for explanations concerning some of the answers.
(f) Its presence many enhance comprehensiveness and objectivity in the recording of information.

(g) It facilitates the elimination of unnecessary questions and the reformulation of ambiguous ones.

(h) It also allows for the discovery of new aspects of the problem by exploring in detail the explanations supplied by respondents. It can be administered to respondents who cannot read or write.

(i) The interviewers can ensure that all items on the questionnaire or observation schedule have been considered and that respondents did not omit difficult questions. The interviewer can reassure respondents and encourage them to persevere (Bless and Smith 2000:108).

The most disadvantageous part of the interview is that:

(a) The researcher is forced to interview the participants one by one and, after that, write down all responses down. Interviewers have to spend a certain number of hours interviewing each participant separately and they may also have to travel extensively to reach respondents. This is time and energy consuming and expensive too. One way of reducing the costs associated with this technique is to conduct interviews over the telephone, which was also the case with this study.

(b) It can cause interviewed people to refrain from expressing their real opinions or true feelings.

(c) Improper recording of answers can result in incomplete and biased information.

(d) If the interviewers are not competent they may introduce bias, because recording the comments of participants is a delicate matter owing to the great variety of answers and their complexity.

(e) The presence of an interviewer can be perceived as a handicap as far as anonymity and respect for the private life of the interviewee are concerned.

(f) The respondents may be embarrassed by questions from the interviewer which touch on confidential and private issues, whereas they would answer more freely and honestly if left alone to fill the questionnaire.

(g) Issues like social status, sex and age of the interviewer may affect the respondentôs answers, for example, female interviewers may collect more and better results from female respondents than male interviewers on topics involving sexual practices and birth control (Bless and Smith 2000:108).

3.4.2. THE QUESTIONNAIRE

The questionnaire is characterised by categories of several structured questions which usually include some open-ended questions that are used for collecting data to learn about a populationôs characteristics, attitudes and beliefs. The question items in questionnaires were examined and tested to check for bias , sequential order , clarify validity, and determine usefulness and reliability (Marshall and Rossman 2006:125). Questionnaires are in fashion because they are simple to compile and mostly used in research (Black 1999:37).

> Questionnaire is a statistical study of a sample population by asking questions about age, income, opinions, and other aspects of people's lives, a questionnaire is a set of questions used to gather information in a surveyò (Mavodza 2010:110).

However, respondents are mostly lazy to thoroughly read questions that are too long and this ensures that they eventually give inaccurate responses or information as they usually do not read all of the questions (Mavodza 2010:115). A questionnaire was compiled in such a way that it is short with simple, clear and unambiguous language. The wording in the questionnaire did not give clues about results preferred or desired. It was also consistent. The researcher simplified the respondentsô task by providing clear instructions. The questionnaire was clear, attractive and looked professional. Furthermore, the questionnaire pre-test was conducted to make sure that everything was clear to ensure reliable results (Leedy and Ormrod 2005:191). The questionnaire pre-test is discussed in detail under item 3.4.3 below. Mavodza (2010:111) cites Hewitt (1991: 167) in verbatim on the issue that sometimes questionnaires ñare so poorly conceived and executed that participation not only wastes the time of the respondent, but contributes to the production of inaccurate and misleading researchò. The rationale behind questionnaire pre-test is

> ñto make sure questions are well understood by the respondents; the layout is clear, including use of a font that is easy to read; easy and interesting questions are at the beginning; questions build upon each otheré A higher response rate enhances the reliability and validity of the resultsò (Mavodza 2010:111-112).

The questionnaire was structured in such a way that it covers both open-ended questions and closed-ended questions. According to Mavodza (2010: 112-114), the use of a closed-ended questionnaire enables respondents to select ñresponses from a list of choicesò using yes or no and/or selecting from multiple-choice answers. Some questions were designed using a Likert scale frame to measure respondentsô attitudes (Kumar 2005: 144; Powell and Connaway 2004). Examples of the Likert scale frame are questions that require respondents to choose answers from strongly agree, agree, neutral, disagree, and strongly disagree with the set statement (Mavodza 2010:117). In open-ended questions, respondents use their own words in the answers. Powell and Connaway (2004: 128) underscore that open-ended questions keep respondents free from limitation of answers when answering questions. Mavodza (2010:113) also cites OôSullivan, Rassel and Berner (2008)ôs assertions that open-ended question ñhelps to avoid biases é and gives respondents the chance to elaborate on responsesò.

The reason why the researcher preferred to use the questionnaire is that:

(a) questionnaires give participants time to plan and think about good answers.
(b) they keep valid and consistent information, which the researcher can refer back to when analysing data.
(c) they can be used without direct personal contact with respondents.
(d) they may be completed by respondents themselves without the assistance of an interviewer (Bless and Smith 2000:108).

As other data collection techniques, questionnaires have their own disadvantages because:

(a) it takes a lot of time for a researcher to compile questions and distribute questionnaires as well as collecting them.
(b) they are useless for those who are illiterate.
(c) they are also costly in terms of materials to be used, such as computer or typewriter, printer, pages for printing and files to carry those questionnaires to the participants (Bless and Smith 2000:108)

3.4.3. VALIDITY AND RELIABILITY OF THE DATA COLLECTION TOOLS

Both the qualitative and quantitative data collection tools were tested for their reliability and validity before they were practically applied (Hernon and Schwartz 2009:73). Mavodza (2010:94) underscores that believability or credibility of the findings of the study depend on its validity, which also refers to its interference and conclusion strength. According to Ngulube (2005a:135) and Ngulube (2005b:48) who cites Babbie and Mouton (2001:119), when the researcher constructs and evaluates instruments, they should consider their reliability and validity. He further sensitised researchers that research without validating is valueless to the communityôs knowledge improvement. There should be internal validity testing for instrumentations, selection bias and non-response.

The quantitative tools were tested for their reliability in terms of consistency on outcomes and the qualitative tools were tested for credibility, transferability, dependability and conformability, as cited by the U.S. General Accounting Office (1990:76). ñPre-testing questionnaire and interviews schedules is one of the tools that may be used for content validityò (Ngulube 2005a:136). The validity of the tools was also checked in terms of their ability to generalise the population and accurately determine what the researcher planned to measure. In testing reliability, pretest and internal consistency were used and validity was done through content validity to measure representativeness, criterion-related validity to ñpredict the future outcomesò and ñdiagnose the current subjectò, construct validity and internal validity. This sought to ensure high quality in the data collection tools of the research.

Moreover, in conducting the validity check forty (40) questionnaires (see Appendix 3) and observation schedules (see Appendix 4) were distributed with the checklist (see Appendix 5) to different institutions (one participant per institution) with a request to receive them back within two (2) weeks. After two weeks, the researcher received feedback from 28 pretest inputs. After receiving the pretest feedback, the researcher had to amend some of the typing errors identified and exclude some of the targeted population group categories, such as doctors, nurses, patient administration clerks and chief executive officers. This was because in most of the input on the feedback it was raised that the researcher would never get many or

good answers from that group category as they do not know anything about most of the answers required. The best way was to cover only two categories, namely information management and records management. This was done with the aim of getting the best results out of the study.

3.5. DATA ANALYSIS AND PRESENTATION

According to Terre Blanche, Durrheim and Painter (2006:52) the aim of data analysis is ñto transform information or data into an answer to the original research questionò. Data analysis determines the meaning of the data collected (Johnson and Christensen 2004:500). It was used to arrange the information in the study in a logical manner by means of categorising data, examining data bits according to their relevancy in the study, synthesising the results and eventually generalising the findings (Leedy and Ormrod 2005). Taylor, Powel, Renner (2003) and Bryne (2001) in Wamundila (2008: 105) also shared the same sentiment. Data analysis has to do with steps such as reduction, display, transformation, correlation, consolidation, comparison, and integration of data (Johnson and Onwuegbuzie 2007: 22 in Mavodza 2010:126). Ngulube (2005a:138) states that data analysis can help the researcher to understand the social process operation. He further explained that knowledge of data analysis may help the researcher to better interpret, conclude and make recommendations regarding the study. As cited from Smithson (2000: 52), Ngulube (2005a:138) and read in the findings of Ngulubeôs (2005b:48), a survey of thesis tables, charts, graphs and statistical summaries were popularly used in research data analysis. This was the case with this study. He also states that figures and graphs are good other than word descriptions in the identification of a relationship to variables.

Data analysis can be done in either a qualitative or quantitative way. The quantitative method was used to analyse the statistical data. The qualitative method was used to identify ideas or arguments about the problem under investigation (Terre Blanche, Durrheim and Painter 2006:52). Since this study used mixed methods to collect data, both qualitative and quantitative data was incorporated, consolidated, compared and integrated (Creswell 2003: 217; Creswell, Plano and Clark 2007). According to Mavodza (2010:240-250) citing Greene (2007: 144) and Bazeley (2009) a mixed data analysis method assists to clean the data and ensure valid responses review, sound methodology and variability and range indicators.

According to Bless and Smith (2000:137) data is analysed to detect the consistency of respondents through the data pattern, like the consistent covariance of two or more variables. The researcher used a descriptive and inferential statistical method to analyse quantitative data and for the qualitative data techniques designed. These two data analysis methods played a collective role towards a proper and effective data analysis and eventual construction of the necessary research findings.

In supporting the above statements, Punch (2006:52), emphasised that quantitative data analysis entails statistics collected through a well-established and documented collection tool. Lewis and Ritchie (2003:3) outline that the qualitative approach includes the naturalistic and interpretative technique to give an understanding of the meaning attached to the situation, such as values, decisions, beliefs and actions, being studied. Mouton (2002: 111) is of the opinion that the process of analysing data involves pattern and theme identification from the data and eventually certain conclusions would be considered as the outcome of the study, but that should also be logical and be drawn from the empirical evidence for it to be considered valid.

The researcher used both qualitative data analysis and quantitative data analysis. Most of the researchers use software such as SPSS® data analysis software to analyse quantitative data (Jones 2007 in Wamundila 2008:106). Microsoft Word ® can also be applied for the analysis of qualitative data as was also the case with Wamundilaôs (2008:106) study. That was not the case with this study however. Here, the manual data analysis was established by creating a tally sheet from the questionnaire questions and design. The process was such that when completed questionnaires were returned regularly from participants to the researcher, they would be captured onto the tally sheet immediately. After the questionnaire tally capturing, tallies were counted/calculated on the sheet for each question and the total number was written as total number of respondents for each answer on each question. The calculated figures were then captured into the MS Excel® Spread-sheet database that was also designed in line with the questionnaire. On the spread-sheet database the researcher then formulated spread-sheet-based calculation for total figures from the tally sheet for conversion into percentages in the separate columns. The researcher finally developed graphs from the spread-sheet database and then copied them to Chapter 4 of the MS Word® document for proper analysis.

Quantitative data analysis resulted in the presentation of data in tables and graphs while qualitative data analysis meant the construction of analytical narratives, explanations and descriptions. Analysing data in a table form made it easier for the researcher to interpret the data. The researcher thereafter gave meaning to the tables and the graphs used for data analysis. According to Fidel (2008:269) the end-product of the qualitative method is text that includes image and drawing, while a quantitative method output numbers as outcomes of analysis. Both methods support each other without any demarcation. ñQuantitative and qualitative approaches are used to address different aspects of the research problem, in order that a fuller picture might be developed and can be regarded as complementaryò (Mavodza cited verbatim from Woolley 2009: 8).

3.6. EVALUATION OF THE RESEARCH METHODOLOGY

In this study, a mixed research methods consisting of both quantitative and qualitative methods was applied. As a result, a mixed method of analysis was applied too. Like in many other scientific studies, the researcher experienced quite a large number of challenges in conducting this study. The first challenge was about the geographical area of the study, coupled with the communication network. The geographical areas were too far apart from each other. This made it very difficult for the circulation of questionnaires, observation schedule and/or visit for interviews or observation purposes. Worse still, the email accounts of the sampled employees were also not functional at that time as the Limpopo Department of Health was busy making changes and moving email addresses from Northern Province (****@dhw.norprov.gov.za*) to Limpopo Province (****@dhsd.limpopo.gov.za*) since the province had changed its name. The researcher tried to communicate with hospitals telephonically, but forwarding the necessary documents or collection tools was not possible.

However, the researcher resolved this challenge by approaching the provincial department of Health Information and Records Management sub-directorate. This resulted in the acting records manager and acting senior manager assisting in distributing the data collection tool to hospitals when they were holding official meetings with the hospital records and information

management officials for other departmental issues/needs. The researcher was also lucky to get a new job offer in one of the regional hospitals in the Limpopo Province, effective from 1 April 2011 as an information and records manager. Initially, the researcher worked as a records manager in the Bloemfontein South African Social Security Agency (SASSA) Free State Region, which was very far from the place of study. The move to the new post made the distribution and facilitation of data collection tools easier because whenever the provincial office called a meeting for information and records management from all the hospitals the researcher had to be part of it. This made it easier to communicate the significance of the study for the department and records management officials in general.

The data collection tools were eventually distributed at one of the provincial meetings to records and information management officials from different hospitals. The meeting delegates were requested, by the meeting facilitator, to allocate questionnaires to sampled officials in their respective institutions and, after completing them, return them to the province for the researcher to collect them in bulk. Several follow-ups were also done in different meetings preceding the one used for circulation of collection tools. Though in some of the hospitals there was some resistance to support the study, the research received much support from the provincial office. The support was offered because of the studyôs objective to assist the department in improving the state of patientsô records management in the hospitals. The observation was also coupled with or supported by the telephonic interview with the records managers in different hospitals in the province.

The other challenge experienced was with regard to returning the collection tools from different hospitals. Very few hospitals gave feedback within two weeks; others took a month and some even longer than a month to return. Several follow-ups were made through telephonic and provincial gatherings for most of the hospitals. Some of the questionnaires were not returned at all. Out of 210 (100%) questionnaires distributed only 162 (77%) were returned and 48 (23%) were not returned. Some of them were returned but not fully completed. Some were returned without being completed at all, but these were very few and the researcher marked them as not returned because what had to be returned was data or information. The reason for the failure to return might be due to the level of literacy,

especially information literacy, as most of the records management officials are matriculants and some are not even matriculated. The low level of literacy also ensures that participants lacked interest in the study as they did not see its need, use or importance. In fact, they just saw it as a new work overload. The other reason is that the geographical distance made it impossible for the researcher to collect them personally.

Nevertheless, the mixed method made the work simple for the researcher as the two methods backed up each other and thus made the findings of this study reliable and trustworthy. The quality of the research is improved since the mixed method minimised biases, limitations and weaknesses to close the loophole for each of the methods (Fidel 2008:269; Mouton 2002:110; Bless and Smith 2000:108).

3.7. SUMMARY

In summary, this chapter discussed the research methodology applied in conducting this study. The discussion covered the plan on the method used when conducting this study. The research plan discussed entails the design of the research, population sampled and studied, sampling methods as well as the data collection methods and instruments. This is because the research procedure is all about the population, sampling method, instrumentations, data processing and treatment of statistics because without all these there is no research (Ngulube 2005a:128). The population of this study was sampled using stratified random sampling and purposive sampling techniques. Since this study used a mixed method, quantitative data and qualitative data were collected and analysed using mixed data collection and analysis techniques, namely quantitative data collection tools and qualitative data collection tools. The data collection instruments used was validated questionnaires with addition of observation and interview. The next chapter presents the findings of the study. This is where the researcher report the outcomes or the results of the study to the readers. It is more about explaining and illustrating to the reader, the data collected from the population of the study as sampled. This is done in the form of tables, figures and graphs.

CHAPTER 4
PRESENTATION OF THE FINDINGS OF THE STUDY

4.1. INTRODUCTION

The previous chapter discussed the research methodology used in conducting the study. It covered the mixed method used in conducting this study, design of the research, population sampled, sampling methods, data collection methods and instruments. The population of this study was sampled using stratified random sampling and purposive sampling techniques. Since this study used a mixed method, quantitative data and qualitative data were collected and analysed using mixed data collection and analysis techniques.

However, this chapter presents the findings of the study. It gives a report about the outcomes or the results of the study to the readers. It explains and illustrates to the reader the data collected from the population of the study as sampled. This is done in the form of tables, figures and graphs. The chapter presents the findings from the questionnaire and the findings from the observation schedule.

4.2. QUESTIONNAIRE FINDINGS

The questionnaire was designed in accordance with the objectives of the study and circulated to Limpopo Department of Health hospital officials in Records Management and Information Management Units. As per the sample, the researcher distributed 155 questionnaires to records management officials and only 113 (72%) were received back. This means that only 42 (28%) questionnaires to records management officials were never returned to the researcher. On the other hand, 55 questionnaires were distributed to information management officials working in the hospitals and the researcher received feedback from 49 (90%). Only six (10%) of the questionnaires sent to information management officials were never returned to the researcher. This means that a total of 210 (100%) questionnaires, as per the total sample of the study, were distributed and a total response/feedback of 162 (77%) was received back by the researcher. In total, 48 (23%) questionnaires were never returned to the researcher for the entire sample distribution. The unreturned questionnaires also included questionnaires that were returned totally blank or uncompleted. The survey questionnaire was categorised into five categories.

The five categories of the questionnaire entails (1) Institutional and staff data, (2) Capacity, skills and training, (3) State of records management, (4) E-health readiness and (5) Policies and procedures.

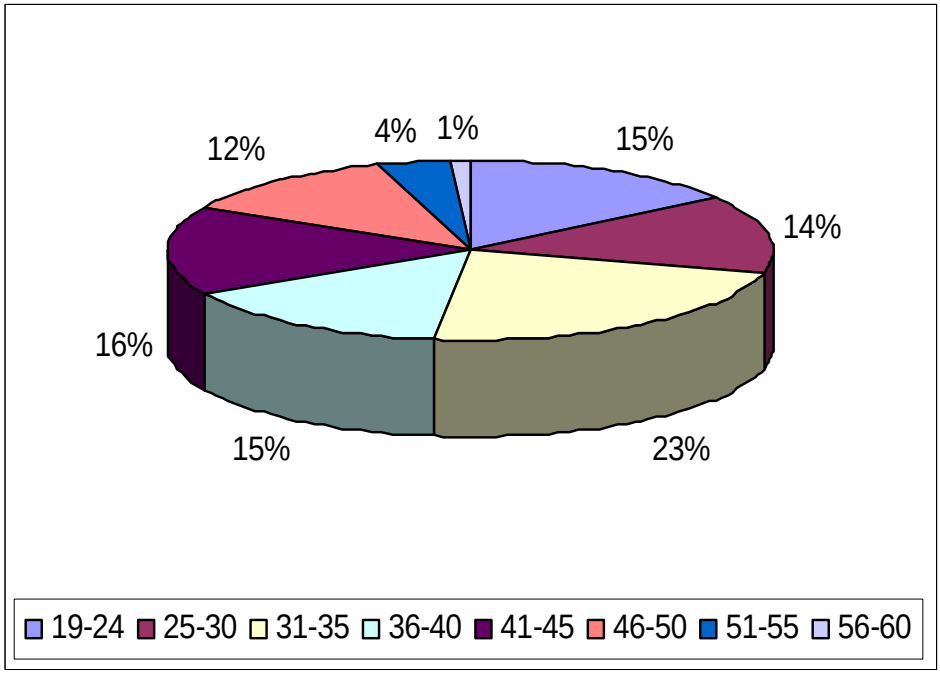
4.2.1. INSTITUTIONAL AND STAFF DATA

It was the researcherôs interest to also know about respondentsô age group, gender, districts and units of work.

4.2.1.1.Respondentsô age groups

The age group of respondents who participated in the survey questionnaire was 24 (15%) between 19-24 years, 22 (14%) between 25-30 years, 38 (23%) between 31-35 years, 25 (15%) between 36-40 years, 26 (16%) between 41-45 years, 19 (12%) between 46-50 years, six (4%) between 51-55 years and two (1%) between 56-60 years. Figure 4.1 illustrates respondentsô age groups.

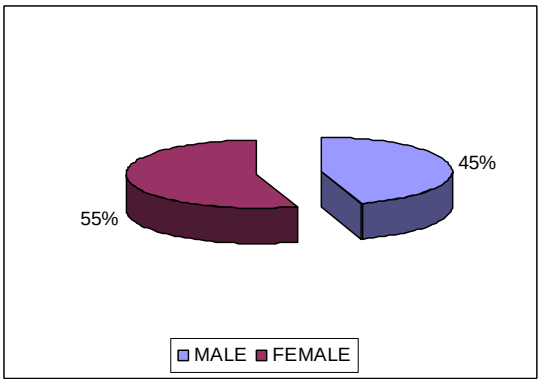
Figure 4.1: Respondents age groups



4.2.1.2. Respondents per gender

Figure 4.2 below summarises the number of respondents by their gender. It indicates that 73 (45%) of the respondents were male and 89 (55%) were female. Figure 4.2 illustrates respondents per gender.

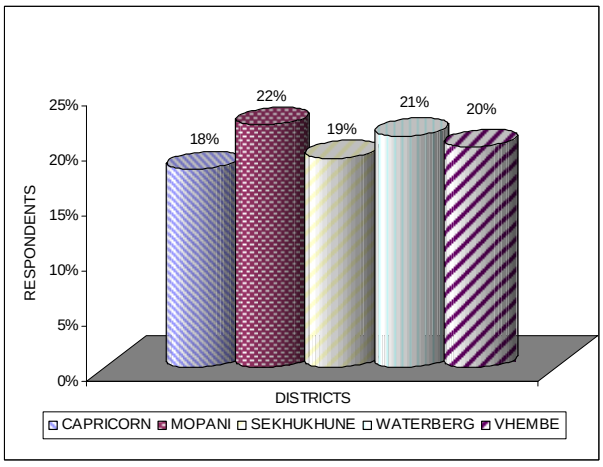
Figure 4.2: Respondents per gender



4.2.1.3. Respondents per district

According to Figure 4.3, 29 (18%) respondents were from the Capricorn district, 36 (22%) from the Mopani district, 30 (19%) from the Sekhukhune district, 34 (21%) from the Waterberg district and 33 (20%) from the Vhembe district. Figure 4.3 illustrates respondents per district.

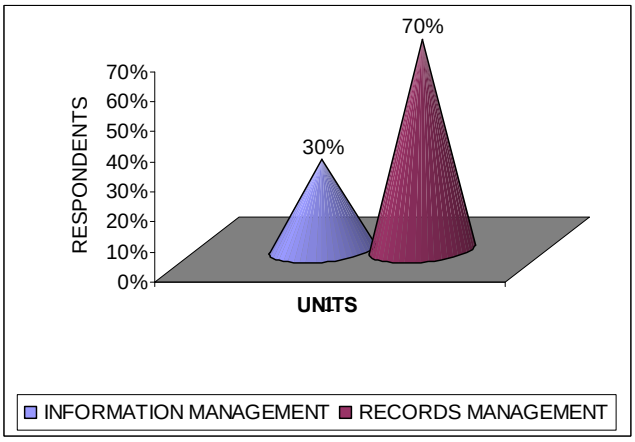
Figure 4.3: Respondents per district



4.2.1.4.Respondents per unit

Figure 4.4 illustrates that the respondents who participated were from information management units and records management units as the rest of the units accounted for zero respondents. The reason for this is that it was revealed after the questionnaire pre-test that only information and records management units are relevant and the rest were excluded. The respondents from information management units were 49 (30%) and 113 (70%) respondents were from records management units.

Figure 4.4: Respondents per unit



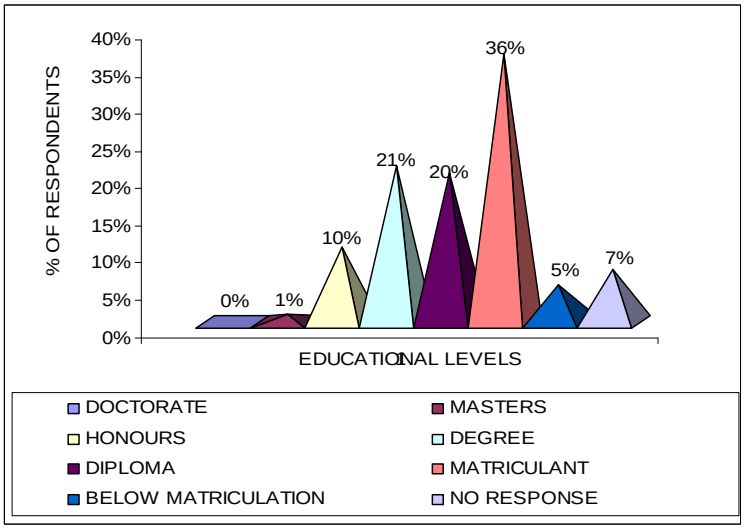
4.2.2. CAPACITY, SKILLS AND TRAINING

In this item the researcher wanted to establish the level and need for staff capacity, skills and training in records management at the hospital level, which is where health services are rendered directly to clients/citizens. The questions asked in this item include staffôs educational levels and fields, post levels, job titles, length of work experience and records management experience, knowledge of records and its examples, attendance and conduction of records management training, records management training competency levels and duration if conducted and electronic records management knowledge and training.

4.2.2.1. Respondentsô educational levels

The educational level of respondents show that none of the respondents had a doctorate, two (1%) had masterôs degrees, 16 (10%) had honours degrees, 34 (21%) had a bachelor degrees, 32 (20%) had diplomas, 58 (36%) were matriculated and eight (5%) had a qualification lower than a matric certificate. On the other hand, 12(7%) of the respondents never responded to the question. Figure 4.5 illustrates the respondentsô educational level.

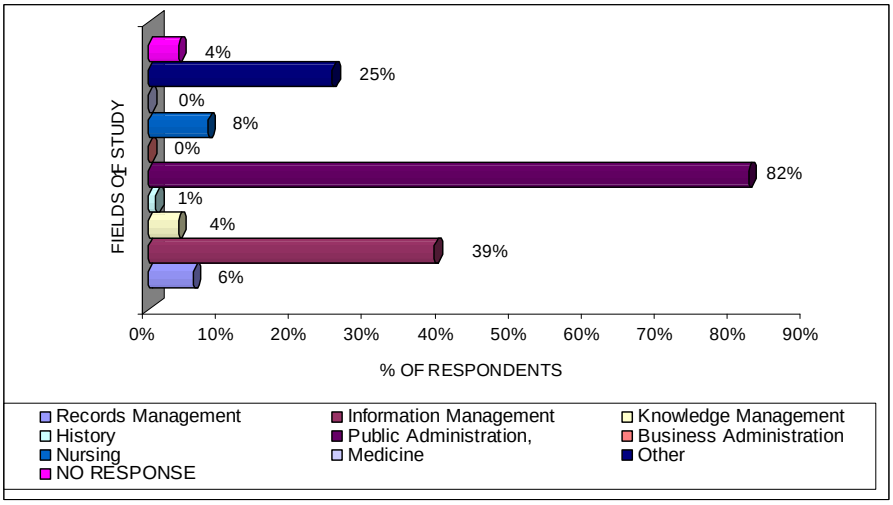
Figure 4.5: Respondentsô educational levels



4.2.2.2. Respondentsô post-matriculation educational fields of study

An examination of the educational fields of study shows that nine (6%) respondents studied records management, 63 (39%) studied information management, seven (4%) knowledge management, two (1%) studied history, 134 (82%) studied public administration, 13 (8%) studied nursing and 41 (25%) studied other courses not listed, such as human resources, ICT and financial management. On the other hand, six (4%) respondents never answered this question. Figure 4.6 illustrates the respondentsô post-matriculation educational fields of study.

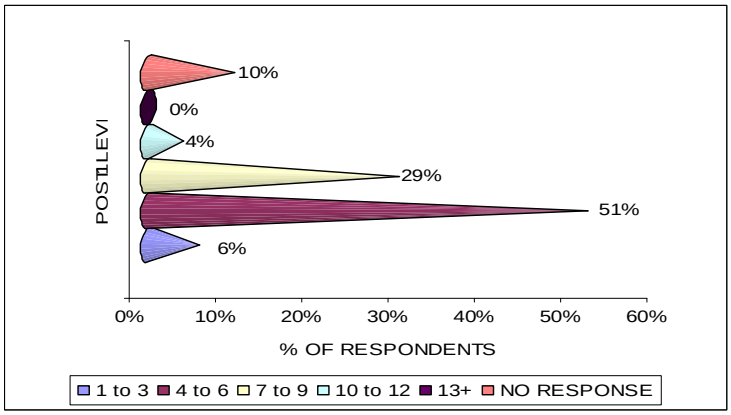
Figure 4.6: Respondentsô post-matriculation educational fields of study



4.2.2.3. Respondentsô post levels

The post levels of respondents were nine (6%) for levels 1-3, 82 (51%) for levels 4-6, 47 (29%) for levels 7-9, seven (4%) for levels 10-12, and 17 (10%) of the respondents never responded to this question. Figure 4.7 illustrates the respondentsô post levels.

Figure 4.7: Respondents post levels

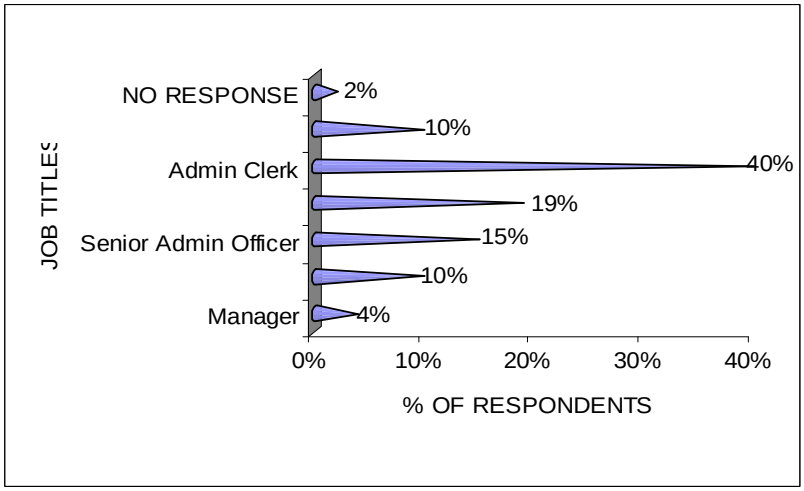


4.2.2.4. Respondents per job title (designation)

The job titles for the respondents were seven (4%) managers, 17 (10%) deputy managers, 23 (15%) senior admin officers, 31 (19%) administrative officers, 64 (40%) administration clerks,

and 16 (10%) stated other designations not listed. The other represented chief information officers and information officers as they were not listed in the options. On the other hand, four (2%) respondents never answered the question. Figure 4.8 illustrates respondents per job title (designation).

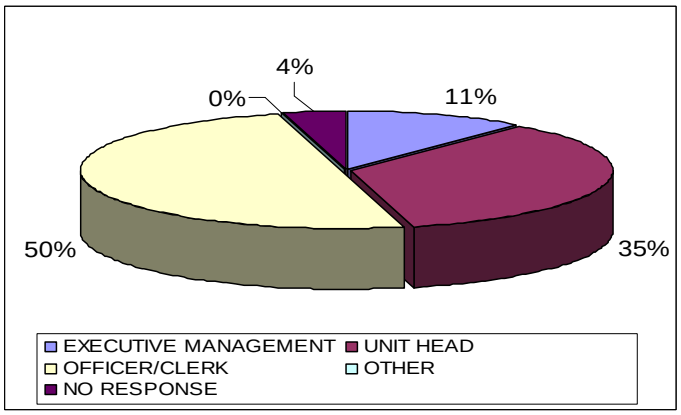
Figure 4.8: Respondents per job title (designation)



4.2.2.5. Respondentsô level of position at work

The level of respondentsô positions were 18 (11%) executive management, 56 (35%) unit head, 82 (50%) officer/clerk and six (4%) never responded to the question. Figure 4.9 illustrates the respondentsô level of position at work.

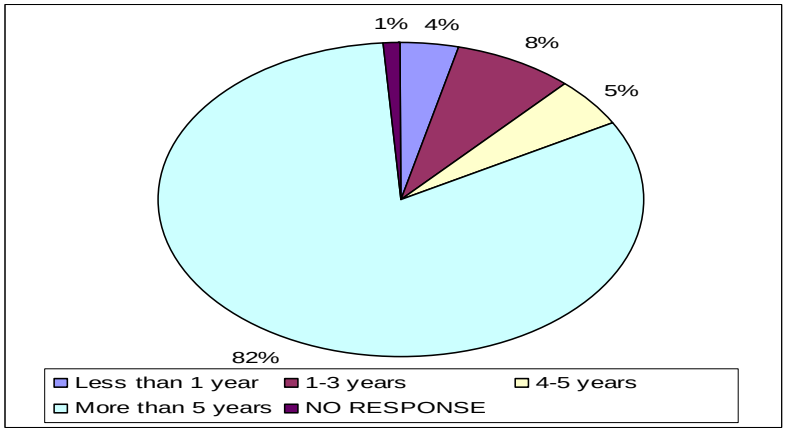
Figure 4.9: Respondentsô level of position at work



4.2.2.6. Respondentsô length of service in the current position

According to Figure 4.10, the service of respondents in their current position was six (4%) less than one year, 13 (8%) 1-3 years, eight (5%) 4-5 years and 133 (82%) more than five years. On the other hand, two (1%) never responded the question. Figure 4.10 illustrates the respondentsô length of service in the current position.

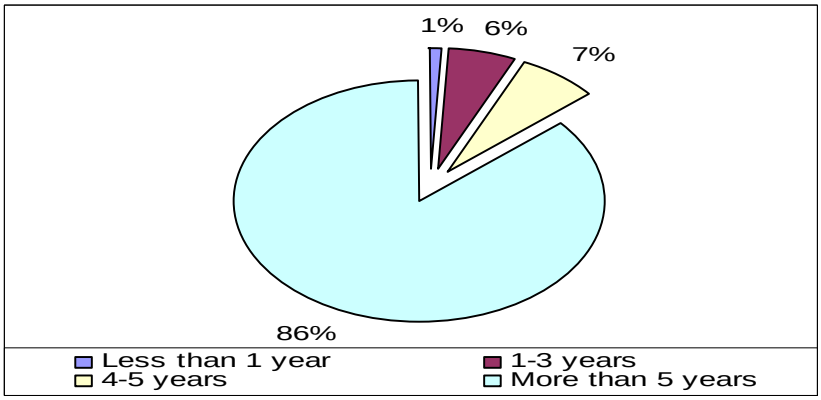
Figure 4.10: Respondentsô length of service in the current position



4.2.2.7.Respondentsô length of experience in the current field of work specialisation

Figure 4.11 illustrates that the experience of respondents in their current field of work specialisation was two (1%) less than one year, nine 9(6%) 1-3 years, 12 (7%) 4-5 years and 139 (86%) more than five years.

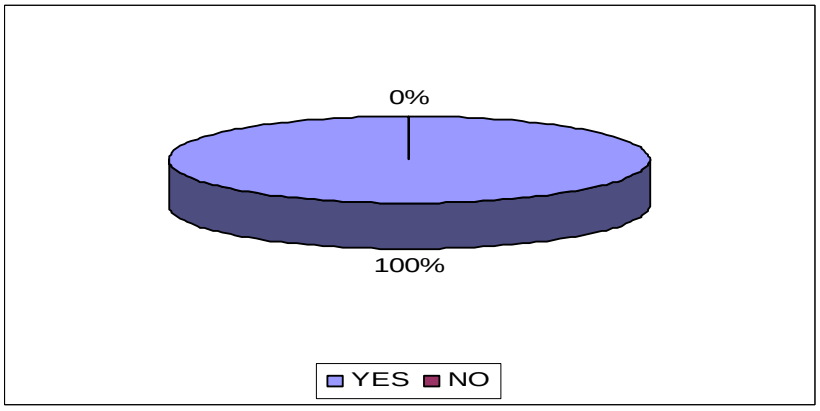
Figure 4.11: Respondentsô length of experience in the current field of work specialisation



4.2.2.8.The meaning of record

Figure 4.12 shows that out of all respondents, 162 (100%) knew the meaning of records.

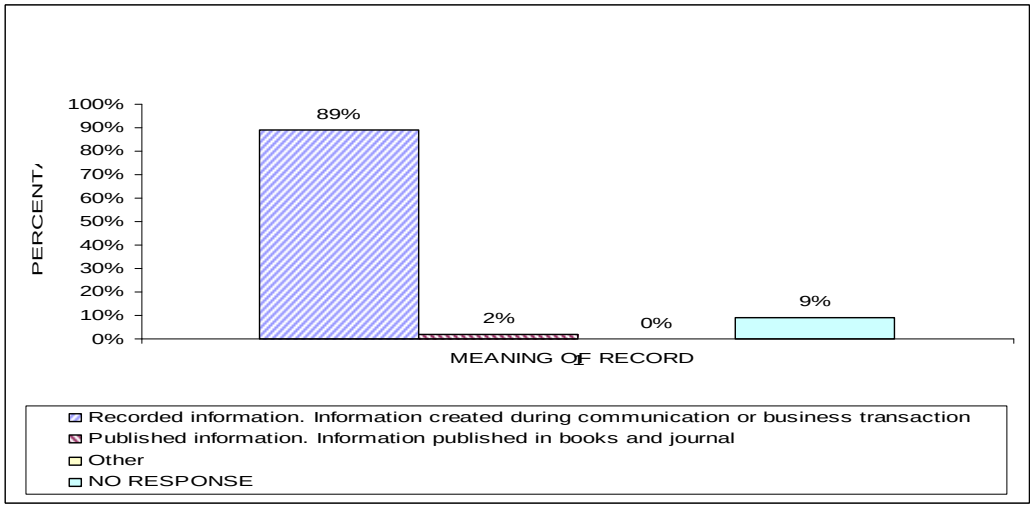
Figure 4.12: The meaning of records



4.2.2.9.The knowledge about the meaning of records

Figure 4.13 shows that 144 (89%) respondents regarded records as recorded information and/or information created during communication or business transaction, four (2%) see records as published information, and Information published in books and journal and 14 (9%) respondents never responded.

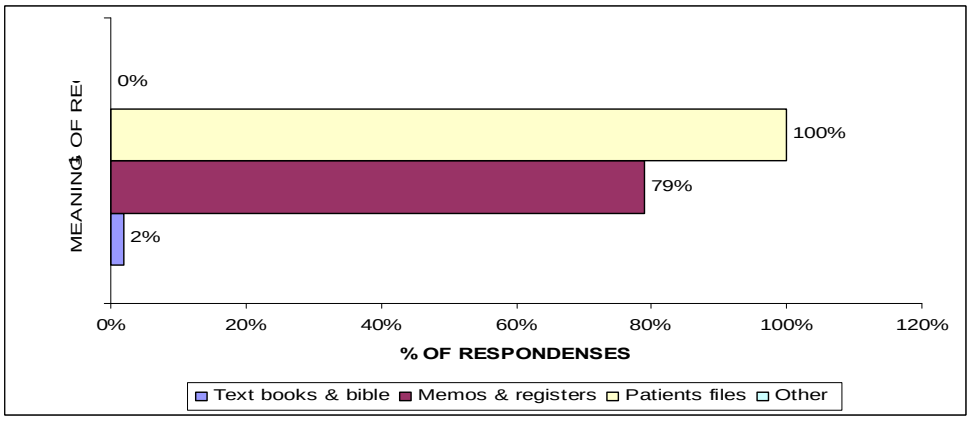
Figure 4.13: Knowledge about the meaning of records



4.2.2.10. A good example of records

Respondents were also requested to choose what they regarded as a good example of records. Figure 4.14 illustrates that four (2%) chose text books and the bible, 128 (79%) chose memos and registers and 162 (100%) chose patientsô files.

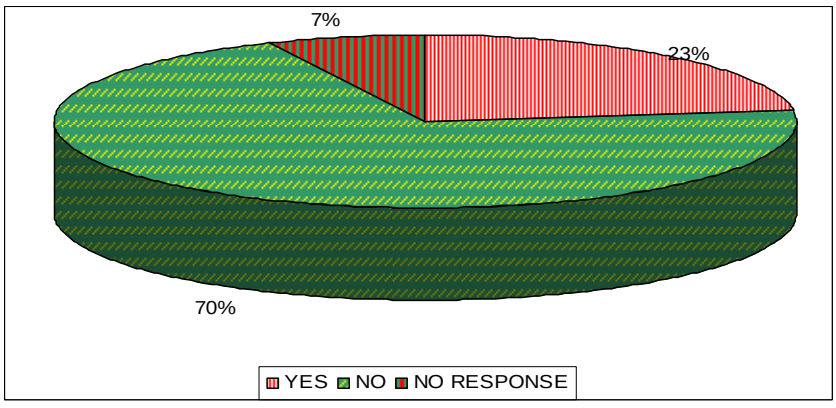
Figure 4.14: A good example of records



4.2.2.11. Formal records management training

According to the illustration in Figure 4.15, 113 (70) respondents have never attended formal records management training and 38 (23%) said they attended formal records management training. On the other hand, 11 (7%) never responded to the question. Figure 4.15 illustrates formal records management training.

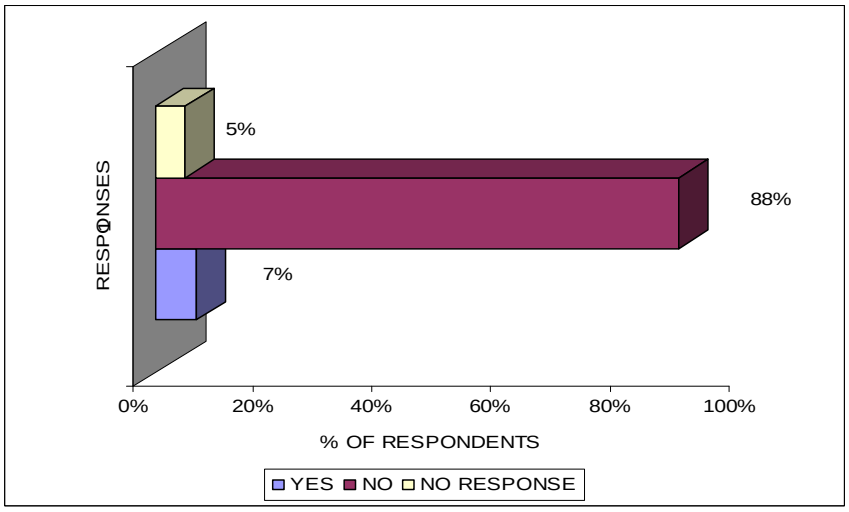
Figure 4.15: Formal records management training



4.2.2.12. Any formal records management training offered to records management staff in the institution

Figure 4.16 indicates that 12 (7%) respondents stated that formal records management training was offered to records management staff in their institutions and 142 (88%) claim that no formal records management training was offered to records management staff in their institutions. They only received internal informal workshops. On the other hand, eight (5%) never responded to the question.

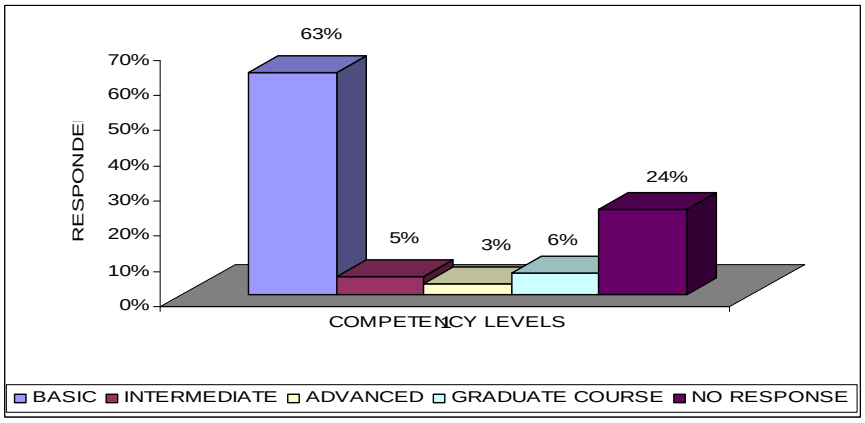
Figure 4.16: Formal records management training offered to records management staff in the institution



4.2.2.13. Competency levels for records management training if offered to staff

Respondents were requested to state their competency levels in any records management training offered to records management staff in their institutions. On the one hand, 103 (63%) stated that the training competency was at the basic level, seven (5%) stated it was at the intermediate level, five (3%) stated it was at an advanced level and nine (6%) it was graduate level. On the other hand, 28 (24%) never responded. Figure 4.17 illustrates competency levels for records management training.

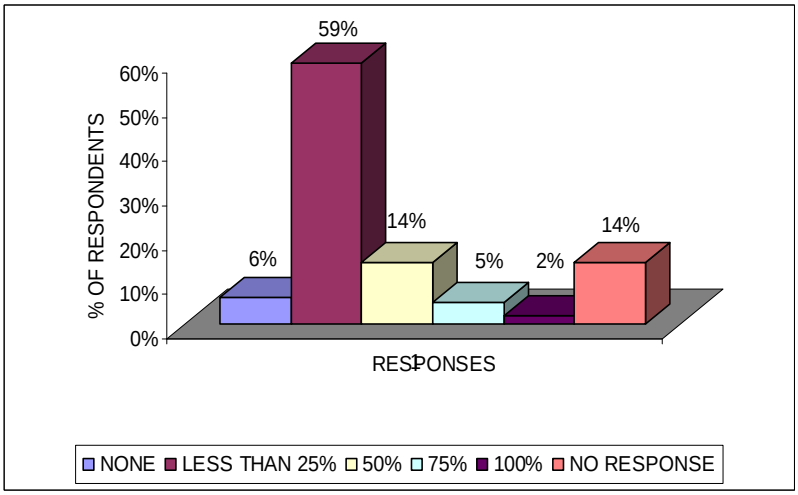
Figure 4.17: Competency levels for records management training



4.2.2.14. Percentage of records management staff trained for records management

The respondents stated that certain percentages of officials were trained in records management. Out of all respondents, 10 (6%) stated that none of the officials were trained in records management, 96 (59%) stated that less than 25% were trained, 23 (14%) stated that 50% were trained, eight (5%) stated 75% of staff were trained and only three (2%) stated that 100% records management staff were trained in records management. In this question 22 (14%) respondents never answered. Figure 4.18 illustrates the percentage of records management staff that was trained for records management.

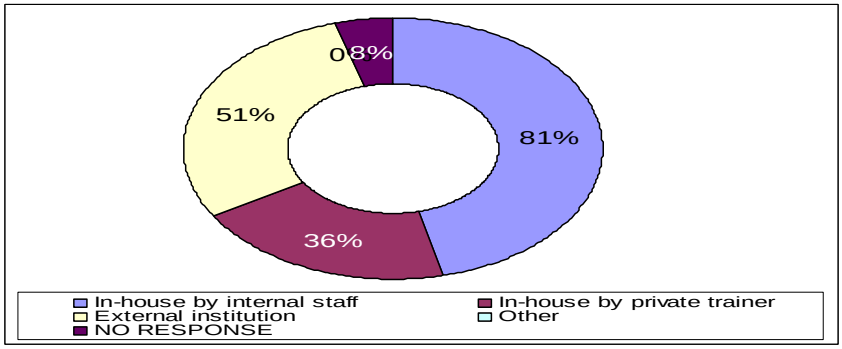
Figure 4.18: Percentage of records management staff trained in records management



4.2.2.15. The kind of training offered to records management staff

Respondents were also requested to state the kind of training that was offered in their institutions. Out of all respondents, 132 (81%) stated that the training was offered in-house by internal staff, 58 (36%) stated that it was conducted in-house by a private trainer, 82 (51%) stated that the training was conducted by an external institution and 13 (8%) never responded the question. Figure 4.19 illustrates the kind of training offered to records management staff.

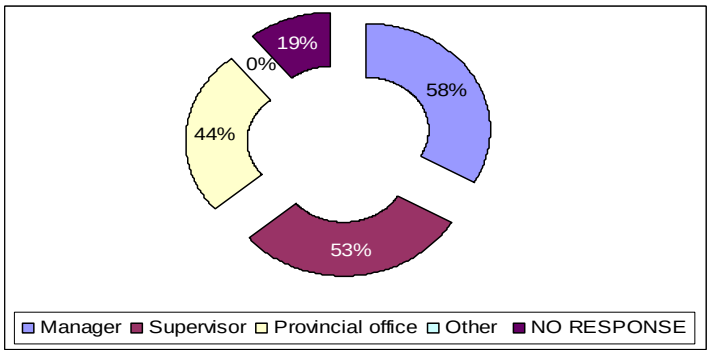
Figure 4.19: The Kind of training offered to records management staff



4.2.2.16. Internal staff offered in-house training for records management

Respondents stated that the training was conducted in-house by internal staff, 94 (58%) stated it was conducted by the manager, 86 (53%) by the supervisor, 72 (44%) stated that the provincial office conducted the training and 31 (19%) never answered the question. Figure 4.20 illustrates the forms internal staff offered in-house training for records management.

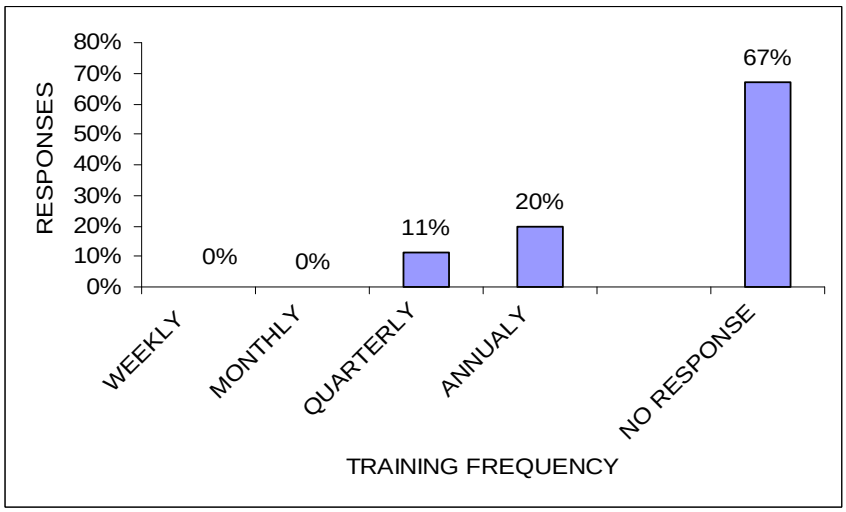
Figure 4.20: Internal staff offered in-house training for records management



4.2.2.17. Frequency of in-house training

The researcher wanted to find out how often the in-house training is conducted. Out of all respondents, 17 (11%) responded that the training was conducted quarterly and 32 (20%) selected that it is conducted annually. On the other hand, 113 (67%) never responded to the question. Figure 4.21 below illustrates frequency of in-house training.

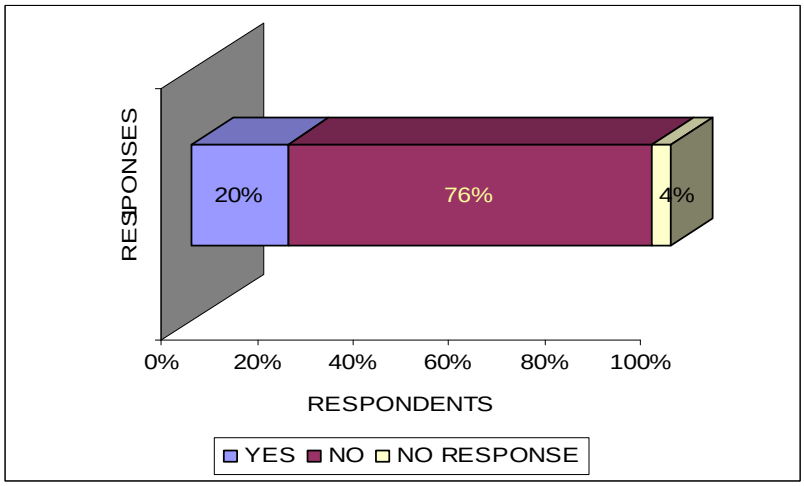
Figure 4.21: Frequency of in-house training



4.2.2.18. Scope of electronic records management in the records management course/training

The researcher also checked with respondents whether electronic records management was covered in the training conducted for records management staff. Out of all respondents, 32 (20%) responded that electronic records management was covered in the course and 123 (76%) responded with ôNoô. Seven (4%) respondents never responded to this question. Figure 4.22 illustrates electronic records managementôs scope in the records management course/training.

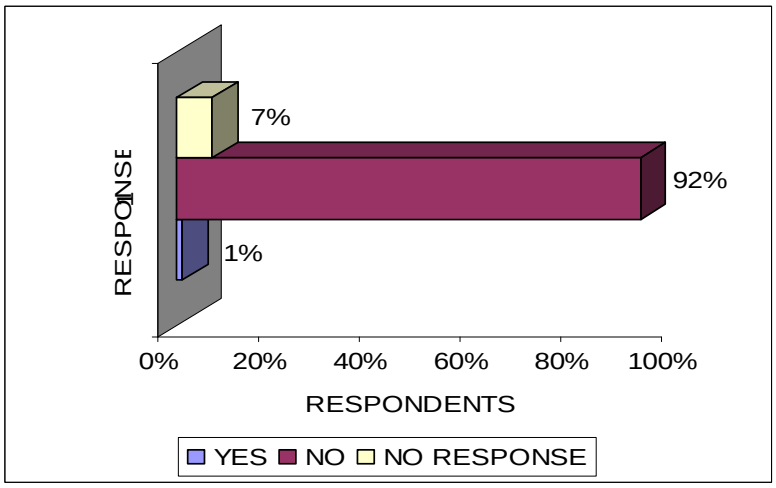
Figure 4.22: Electronic records managementôs scope in the records management course/training



4.2.2.19. Electronic records management course/training to records management staff

Out of all respondents the following responded that no electronic records management covered in the records management training, two (1%) stated that a separate course/training for electronic records management was offered. On the other hand, 138 (92%) responded that no separate course/training for electronic records management was offered and 11 (7%) never responded to the question. Figure 4.23 illustrates electronic records management course/training to records management staff.

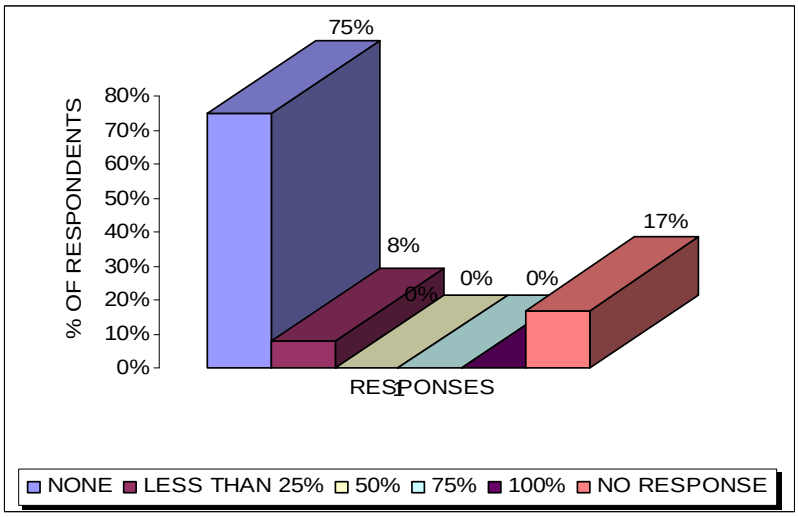
Figure 4.23: Electronic records management course/training to records management staff



4.2.2.20. Percentage of records management staff trained in electronic records management

In this question, 121 (75%) replied that none of the officials in records management were trained in electronic records management and 13 (8%) replied that less than 25%, and 28 (17%) respondents never answered this question. Figure 4.24 illustrates the percentage of records management staff trained on electronic records management.

Figure 4.24: Percentage of records management staff trained on electronic records management



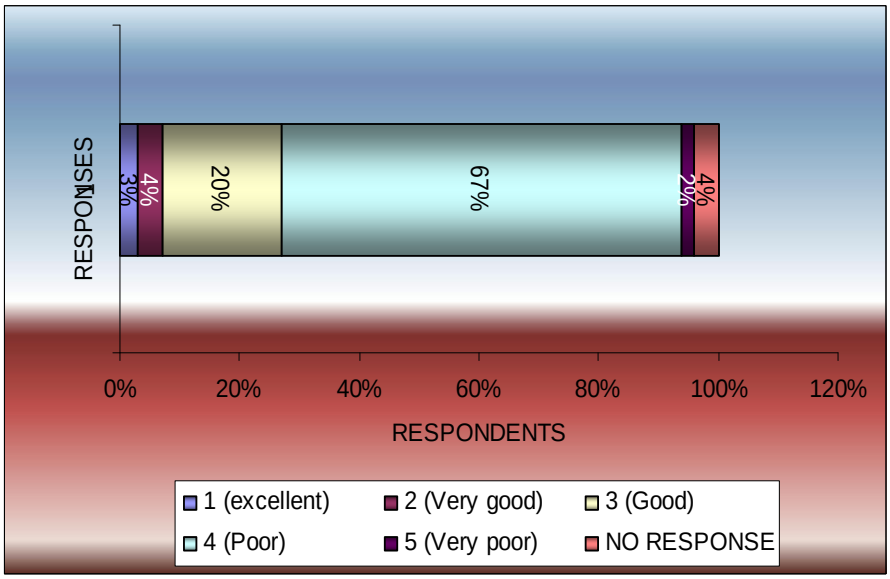
4.2.2.21. The duration of both records management and electronic records management courses/trainings offered in the institution

The researcher also wanted to know the duration of training, for both records management and electronic records management. With regard to records management, 6(4%) responded that the training duration was one day, 42 (26%) stated the training took 1-2 weeks and 114 (70%) never replied to the question. In addition, with regard to electronic records management training, none of the respondents selected whether the duration was one day, 1-2 weeks, 1-3 months, 3-6 months, or even 1-2 years and that shows that 162 (100%) never answered this question.

4.2.2.22. The rate of respondentsô knowledge about electronic records management in general

The researcher also wanted to check the level of the respondentsô general knowledge of electronic records management. Out of all respondents, five (3%) stated that they are excellent with electronic records knowledge, seven (4%) stated very good, 32 (20%) stated good, 109 (67%) stated poor and only three (2%) stated that they are very poor. Finally, six (4%) never answered this question. Figure 4.25 illustrates the rate of respondentsô knowledge about electronic records management.

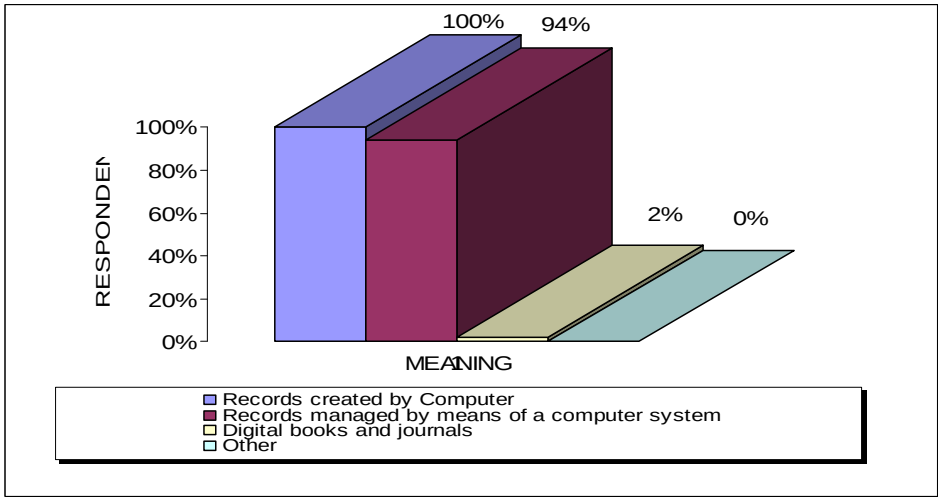
Figure 4.25: The rate of respondentsô knowledge about electronic records management



4.2.2.23. The meaning of electronic records

The respondents were also requested to state what they thought was the meaning of electronic records. Out of all respondents, 162 (100%) selected that electronic records are records created by a computer, 153 (94%) stated that they are records managed by means of a computer system and four (2%) said electronic records are also defined as digital books and journals. Figure 4.26 illustrates the meaning of electronic records.

Figure 4.26: The meaning of electronic records



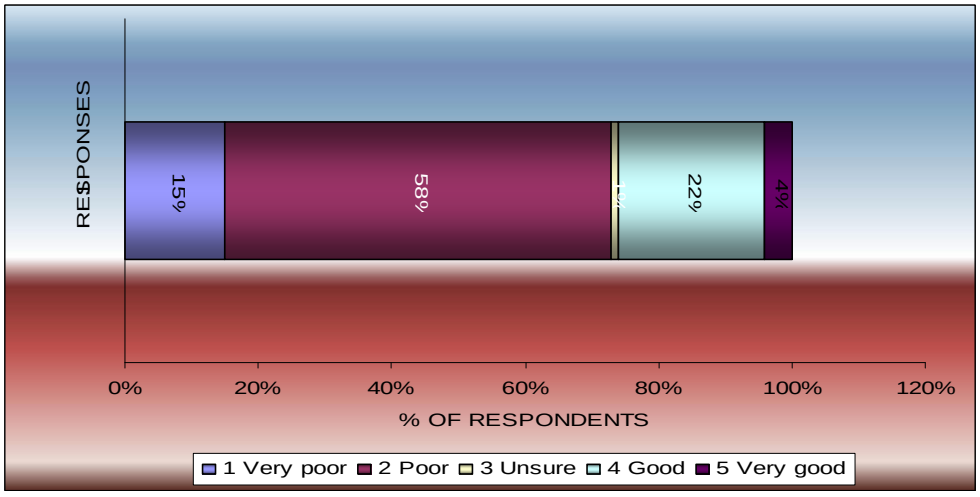
4.2.3. STATE OF RECORDS MANAGEMENT

This item aimed at establishing the current state of records management in the Limpopo Department of Health hospitals. The questions involved a general rating of the state of records management and the causes of the current state whether good or bad. They also rated staff vacancies, staff turnover, resources availability, management support, functionality of records management programmes, staff competency and skills and consideration of the value of records, availability of budget and range of the amount for records management, method of records management whether manual or electronic, turnaround time for medical records retrieval, patients waiting time, and records usage and frequency of requests. Other questions related to the details covered in both the paper and electronic records of the patientsô medical records, availability of records disposal plan and authority, disposal retention periods, possibilities of integrating electronic records management system and electronic document management systems in one and document tracking system type. The other questions were about the best method that can help to keep e-records and e-records advantages/significant in keeping patients records, administrative problems for records management and solutions, the need for e-records and its negative impacts, patients medical records stakeholders/clients and timeframe for paper-based medical records returning.

4.2.3.1. Rate of the state of records management in the institutions

Respondents were requested to rate the state of records management in their institutions. Out of all respondents, 24 (15%) responded that the state of records management in their institutions was very poor, 94 (58%) stated that it was poor, two (1%) were unsure about the state, 36 (22%) said it was a good state, six (4%) said the state of records in their institutions was very good. Those who have chosen unsure, poor and very poor pointed out that at times records are requested in bulk and this resulted in lengthy retrievals, too much paperwork, no proper filing/archiving system, poor planning, organisation and supervision and an unexplainable loss of files. They also pointed out that there was a lack of filing space, , lack of experienced officials, records management is undermined division, centralised little budget and that records management is a new thing in the hospital. Figure 4.27 illustrates the rate of the state of records management in the institution.

Figure 4.27: Rate of the state of records management in the institution



4.2.3.2. The causes of the current state of records management in the institutions

Respondents were also requested to give their opinion about the cause of each state of records management after they would had chosen very good, good, unsure or poor. Respondents who gave an opinion were only those who have chosen poor and very poor and respondents who have chosen very good, good and unsure never gave any opinion. The following are opinions

given by respondents about what might be the causes of the poor or very poor status of records management:

- Lack of good organisation and disciplinary measures for involved staff.
- No proper filing system in place.
- No properly designated staff.
- Lack of capacity, skills and training.
- Lack of administrative leadership and individual official dedication.
- Usage of manual records management.
- Lack of filing space that lead to a mixture of files in their different statuses like death and motor vehicle accident (MVA).
- Lots of staff not familiar with records management who are also new to the field of records management, that is lack of records management experienced staff.
- Poor infrastructure.
- Centralisation of little budget amounts.
- Poor planning.
- Lack of end-usersô consultation when planning systems and administration
- Shortage of staff.

4.2.3.3.The rate of records management status in terms of specific activities

Participants were requested to rate the status of records management on the basis of staff vacancy rate, staff turnover, resources availability, management support, records management programmes functionality, staff competency and skills, records value consideration and other. In terms of vacancy rate, Table 4.1 illustrates that three (%2) respondents stated that it is less than 25%, 33 (20%) stated it is between 26%-50%, 83 (51%) stated between 51%-75% and 21 (13%) between 76%-100%, and 22 (14%) respondents never responded.

In terms of staff turnover, the researcher wanted to explore the number of records management officials that the department was losing in the institutions. Table 4.1 illustrates that on this question, 14 (9%) respondents stated that staff turnover was less than 25%, 36 (22%) stated it

was between 26%-50%, 62 (38%) stated it was between 51%-75% and 39 (24%) stated between 76%-100%, and 11 (7%) respondents never responded to the question.

On the other hand, resource availability was also rated to check how much the records management is equipped for administration. Table 4.1 illustrates that 75 (46%) respondents stated that availability of resources for records administration was less than 25%, 56 (35%) stated it was between 26%-50%, 14 (9%) stated it was between 51%-75% and 11 (7%) stated between 76%-100%, and six (4%) respondents never answered to the question.

The research also wanted to establish the extent of management support for records management in the hospitals. Table 4.1 illustrates that from all respondents, 53 (33%) stated that management support for records administration in the hospital was less than 25%, 84 (52%) stated that it was between 26%-50%, six (4%) stated it was between 51%-75% and one (1%) stated between 76%-100%, and 18(11%) respondents never answered.

Participants also rated the state of records management programme in terms of functionality in the hospitals. Table 4.1 illustrates that out of all respondents, 21 (13%) stated that the records management functionality in the hospital was less than 25%, 65 (40%) stated it was between 26%-50%, 45 (28%) stated it was between 51%-75%, five (3%) stated between 76%-100%, and 26(16%) respondents never answered the question.

However, respondents were also requested to rate staff competency and skills. Table 4.2 illustrates that 81 (50%) respondents stated that staff competency and skills in the hospital were less than 25%, 45 (28%) stated it was between 26%-50%, 23 (14%) stated it was between 51%-75% and six (4%) stated between 76%-100%, and seven (4%) of the respondents never answered the question.

Furthermore, the researcher wanted to check how much the value of records was considered to be in the hospitals. Table 4.1 illustrates that 73 (45%) of the respondents rated that consideration of the records value in the hospital was less than 25%, 40 (25%) stated it was

between 26%-50%, 14 (9%) stated it was between 51%-75% and three (2%) stated it was between 76%-100%, and 32 (19) respondents never replied to the question.

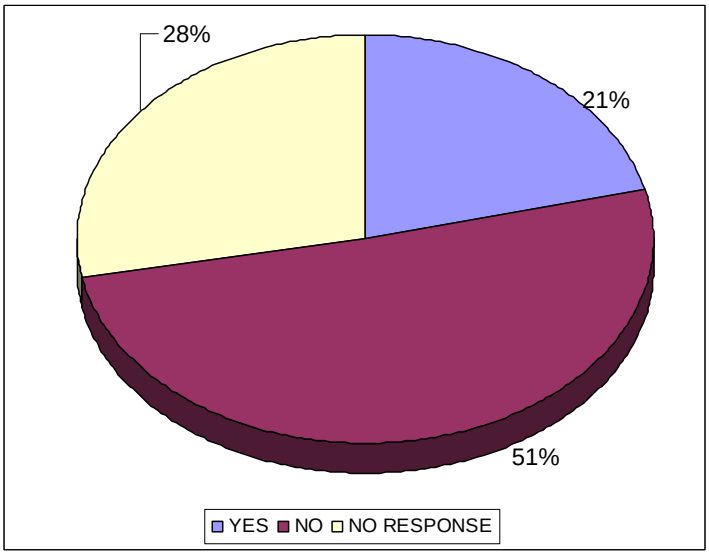
Table 4.1: The rate of records management status in terms of certain activities

COMPETENCY	LESS THAN 25%	26%-50%	51%-75%	76%-100%	NO RESPONSE
1. Staff vacancy rate	2%	20%	51%	13%	14%
2. Staff turnover	9%	22%	38%	24%	7%
3. Resources availability	46%	35%	9%	7%	4%
4. Management support	33%	52%	4%	1%	11%
5. Functionality of records management programme	13%	40%	28%	3%	16%
6. Staff competency and skills	50%	28%	14%	4%	4%
7. Consideration of the value of records	45%	25%	9%	2%	19%

4.2.3.4.Availability of any budget specifically dedicated to records management

Respondents were also requested to respond if the hospital had any budget specifically dedicated to records management. Out of all the respondents, 82 (51%) responded that there was no budget specifically dedicated to records management and 34 (21%) stated that there was a budget specifically dedicated to records management in the hospital. 46 (28%) never responded to the question. Figure 4.28 illustrates availability of any budget specifically dedicated to records management.

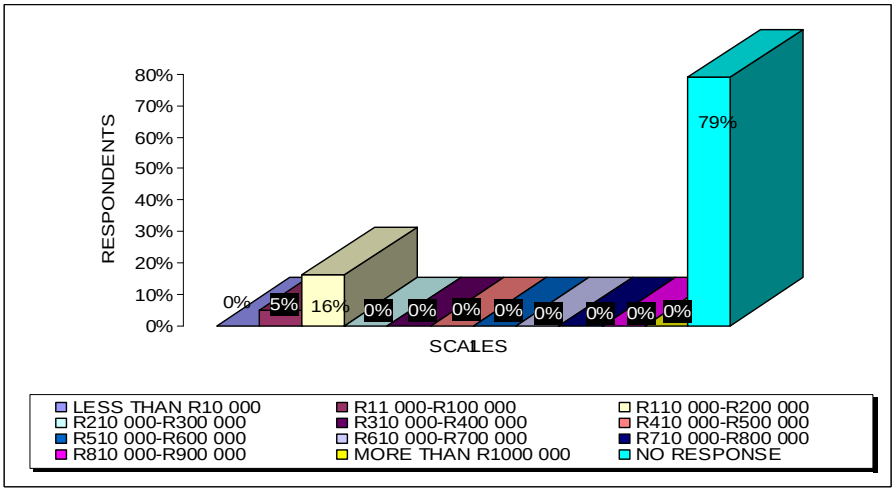
Figure 4.28: Availability of any budget specifically dedicated to records management



4.2.3.5.The scale of the amount of budget allocated for records management

Out of all the respondents that stated that there was a budget specifically dedicated to records management in the hospital, eight (5%) stated that the budget ranged between R11 000-R100 000, 26 (16%) stated it was between R110 000-R200 000 and 128 (79%) of respondents, stated that there was no budget specifically dedicated to records management and 82 (51%) never responded to the question. Figure 4.29 illustrates the scale of the amount of budget allocated for records management.

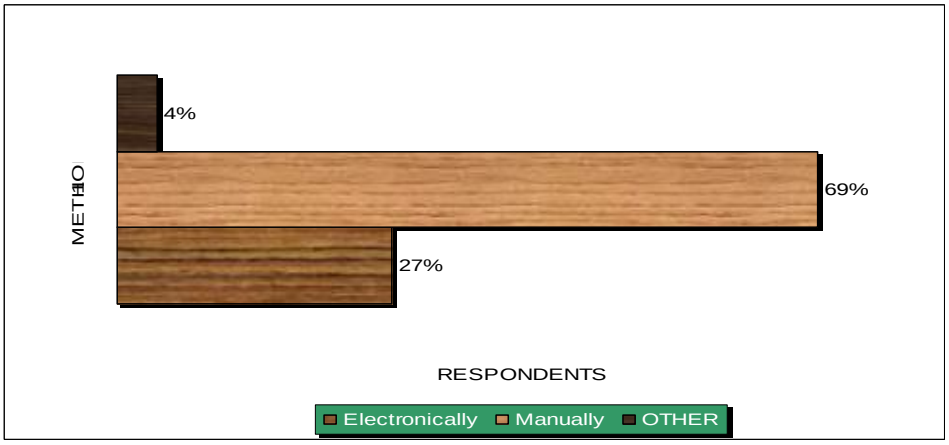
Figure 4.29: The scale of the amount of budget allocated for records management



4.2.3.6.The current method of patient records management in the institutions

The researcher wanted to establish whether hospitals manage their records electronically, manually or use other unknown methods. In this regard, 44 (27%) stated that patient records were managed electronically in the hospital, 111 (69%) stated that it was done manually and seven (4%) replied ótherô because both electronic and manual methods were used simultaneously; this means a mixed records management methods. Figure 4.30 illustrates the current method of patientsô records management in the institutions.

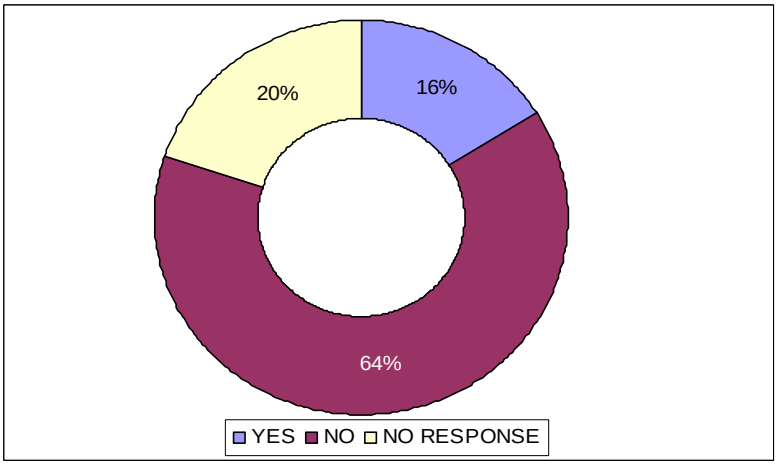
Figure 4.30: The current method of patientsô records management in the institutions



4.2.3.7.Availability of patient medical records retrieval turnaround time norm/target

The researcher also wanted to find out if the department has a turnaround time in retrieving patient medical records in the hospitals. Out of all respondents, 26 (16%) said they did have a norm and 104 (64%) said they did not have a norm for patient medical records retrieval, and 32 (20%) never answered the question. Figure 4.31 illustrates the availability of patientsô medical records retrieval turnaround time norm/target.

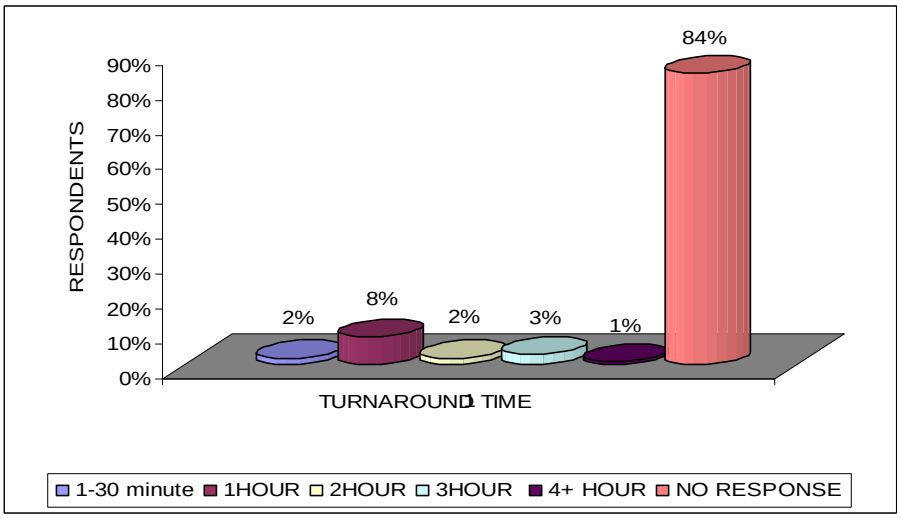
Figure 4.31: Availability of patientsô medical records retrieval turnaround time norm/target



4.2.3.8.The record retrieval turnaround time norm/target

The researcher also established the turnaround time norm/target if these were set/available. Out of all the respondents who said that they had a turnaround time in the hospital, four (2%) stated that the turnaround time norm was 1-30 minute, 14 (8%) stated 1 hour, three (2%) stated 2 hours, four (3%) stated 3 hours, one (1%) stated it is more than 4 hours and 136 (84%) including 104 (64%) respondents who said there are no record retrieval turnaround time norm/target in the hospital never responded to the question. Figure 4.32 illustrates the record retrieval turnaround time norm/target.

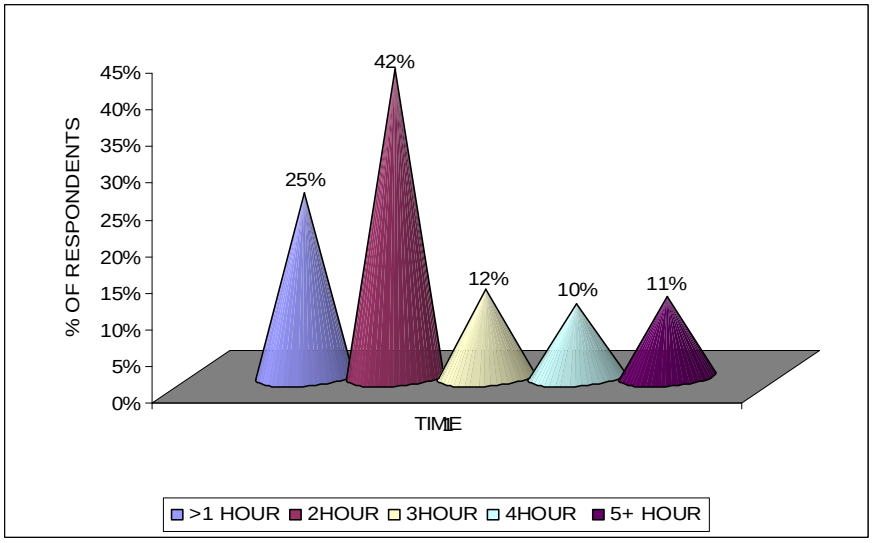
Figure 4.32: The record retrieval turnaround time norm/target



4.2.3.9.The length of time for retrieval of patient records

The researcher wanted to establish whether the institutions had a norm for the turnaround time for patient records retrieval. According to Figure 4.33, 41 (25%) stated that it took less than 1 hour to retrieve a patient file, 68 (42%) stated 2 hours, 19 (12%) stated 3 hour, 16 (10%) stated 4 hours, and 18 (11%) stated that it took more than five hours (5+ hours).

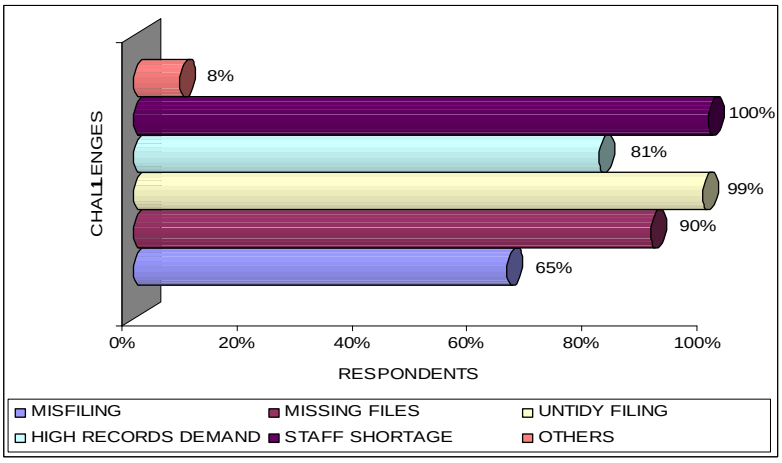
Figure 4.33: The length of time for retrieval of patient records



4.2.3.10. The challenges leading officials to exceed the turnaround time norm/target in retrieving patientsô records

The respondents also stated the reasons or challenges that might be causing the long or lengthy turnaround time and the exceeding of the set turnaround time norm. Of all the respondents, 105 (65%) chose misfiling as the cause of a lengthy turnaround time for records retrieval, 146 (90%) stated missing files, 161 (99%) stated untidy filing, 132 (81%) stated high records demand as a cause, 162 (100%) stated staff shortage and 13 (8%) stated other reasons, such as incompetent officials coming from other units, lack of integrated patients records administration that makes files scattered. Figure 4.34 illustrates the challenges leading officials to exceed the patientsô retrieval turnaround time norm/target.

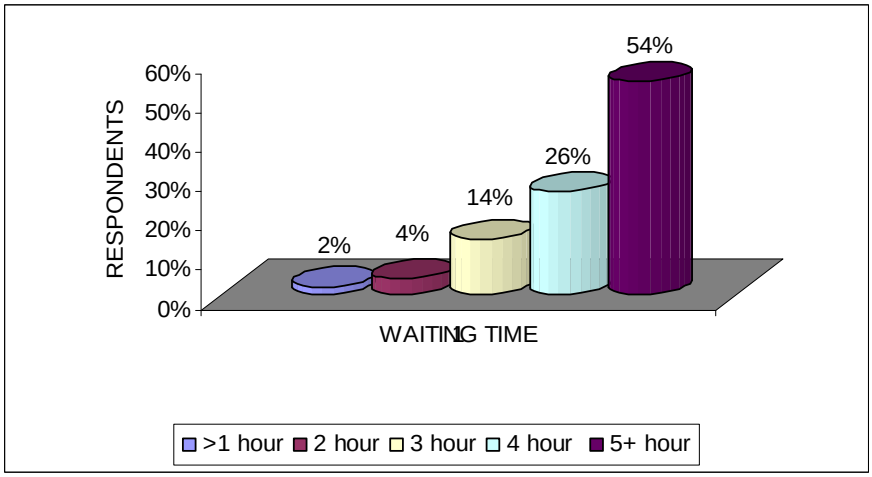
Figure 4.34: The challenges leading officials to exceed the patientsô retrieval turnaround time norm/target



4.2.3.11. Patient waiting time for the entire health service

The respondents also stated how long the patients waited in the hospital for the entire health service. Out of all respondents, four (2%) stated that patients waited for less than 1 hour for the entire health service, seven (4%) stated 2 hours, 22 (14%) stated three hours, 42 (26%) stated four hours, and 87 (54%) stated more than 5 hours (5+ hours). Figure 4.35 illustrates patient waiting time for the entire health service.

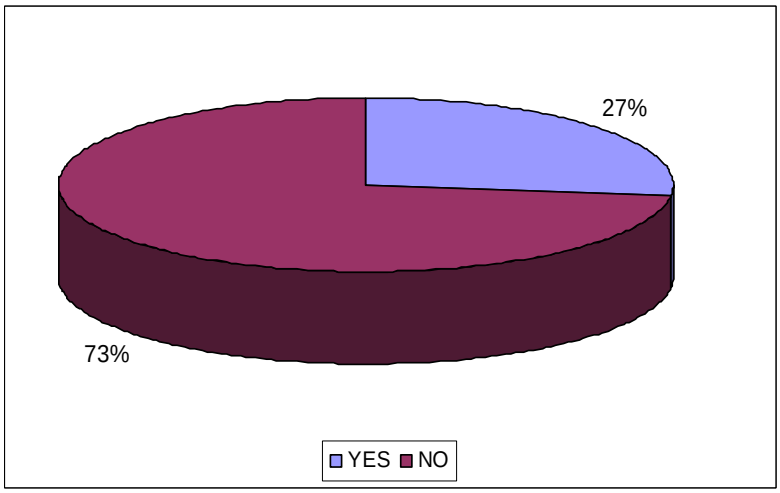
Figure 4.35: Patient waiting time for the entire health service



4.2.3.12. All patients details covered by the electronic records management system

Out of all respondents, 43 (27%) stated that yes all details about patients, such as prescriptions, diagnosis and personal details, were covered on the records management system because the system has all functionalities to cover all patients details. On the other side 119 (73%) said that not all details were covered on the records management system because the institutions only capture personal and financial details of the patients. The reasons given were that the system has a space to cover all the details but the hospital officials decided not to use those functionalities, and poor records administration. Figure 4.36 illustrates all patientsô details covered by the electronic records management system or not.

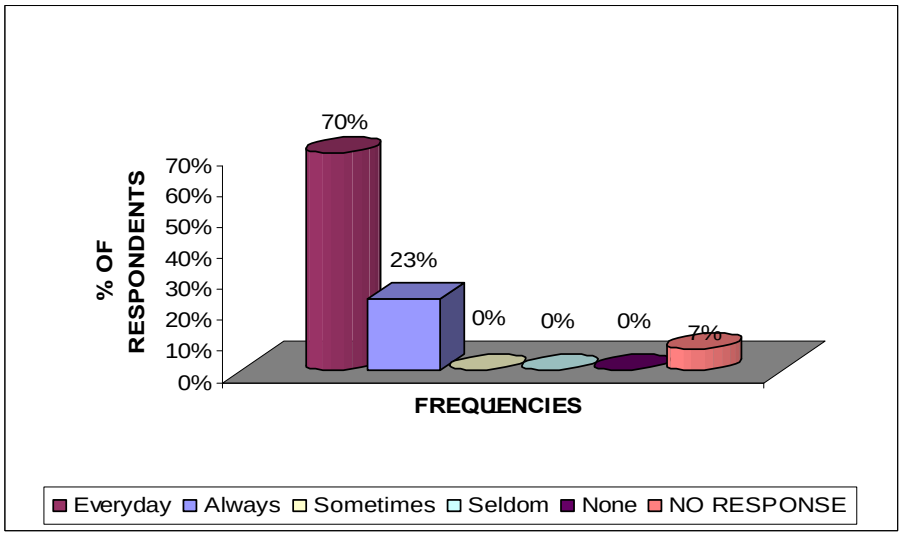
Figure 4.36: All patientsô details covered by the electronic records management system or not



4.2.3.13. Frequency of electronic records utilisation

In terms of electronic records usage, 114 (70%) stated it is utilised everyday, 38 (23%) stated they are used always and 10 (7%) respondents never responded to the question. Figure 4.37 illustrates the frequency of electronic records utilisation.

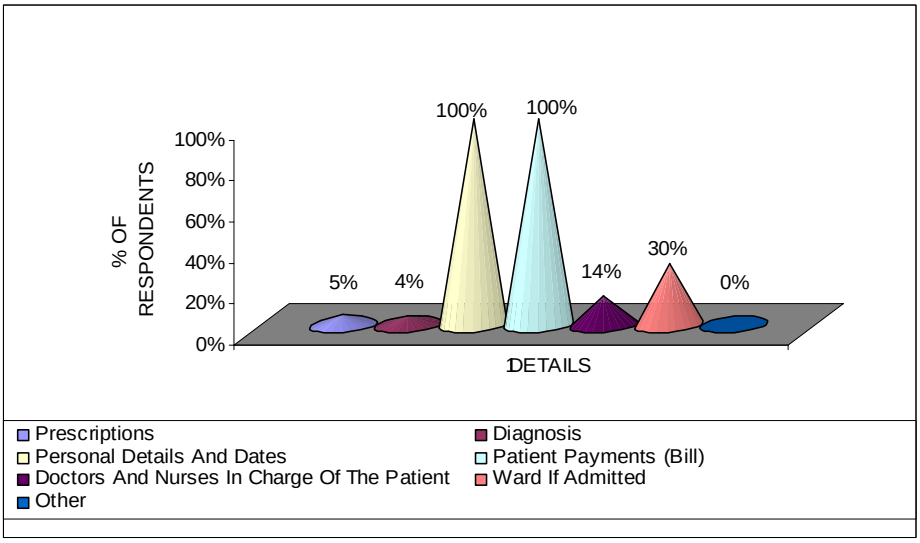
Figure 4.37: Frequency of electronic records utilisation



4.2.3.14. Details about the patients covered in the electronic records system

According to Figure 4.38, respondents were also requested to state the patientsô details covered in the electronic records system. Out of all the respondents, eight (5%) stated prescriptions, seven (4%) stated diagnosis, 162 (100%) stated patients personal details and dates, 162(100%) stated patient payments (bill) and 23 (14%) stated the wards if patients are admitted. Figure 4.38 illustrates patient details covered in the electronic records system.

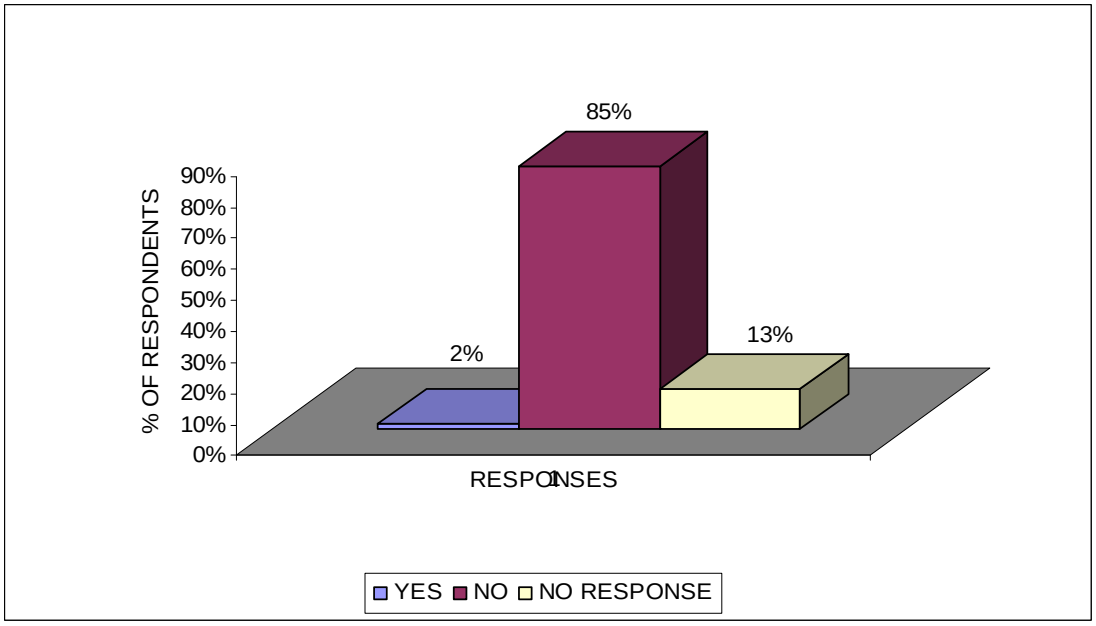
Figure 4.38: Patients details covered in the electronic records system



4.2.3.15. Availability of disposal authority for electronic records

When respondents were requested to confirm availability of disposal authority for electronic records, three (2%) stated yes it is available and 137 (85%) stated it is not available, and 22 (13%) never responded to the question. Figure 4.39 illustrates electronic records disposal authority availability.

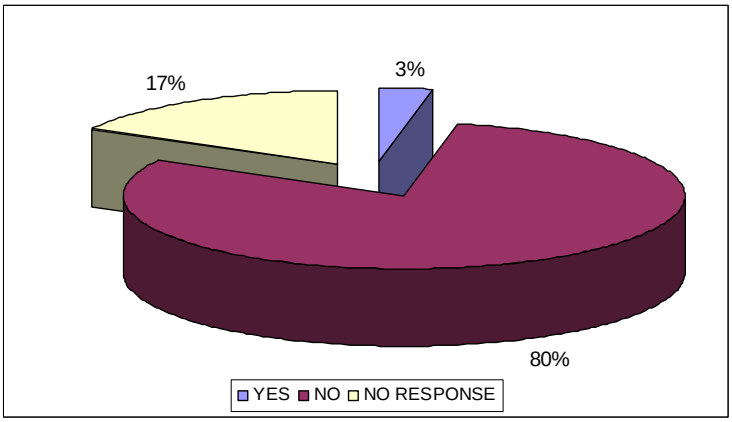
Figure 4.39: Electronic records disposal authority availability



4.2.3.16. Availability of a disposal plan for e-records in the institutions

The respondents also confirmed whether the disposal plan for e-records is available or not. In this regard, five (3%) confirmed that it is available and 129 (80%) stated that they do not have a disposal plan for e-records in the institutions. In addition, 28 (17%) never responded to the question. Figure 4.40 illustrates the availability of e-records disposal plan in the institutions

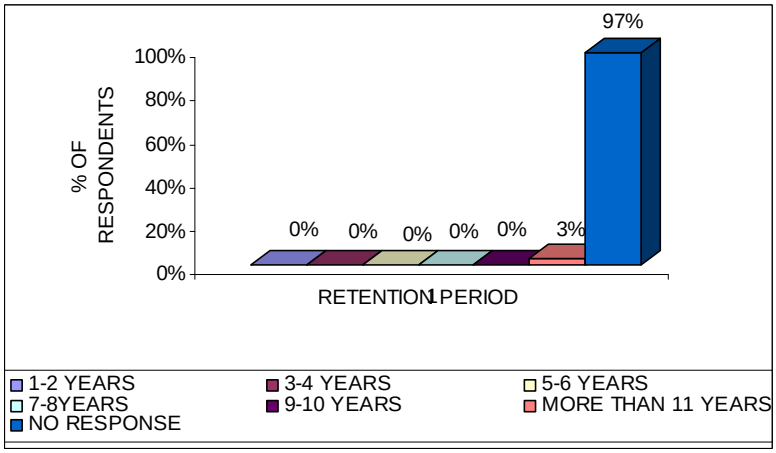
Figure 4.40: Availability of an e-records disposal plan in the institutions



4.2.3.17. Retention period for electronic records

This item was responded to by the five respondents who confirmed that they have an electronic records disposal plan. All five (3%) respondents stated that they retain electronic records more than 11 years and 157 (97%) of the respondents including 129 (80%) stated that they do not have a disposal plan for e-records in the institutions never answered this question respectively. Figure 4.41 indicates the electronic records retention period.

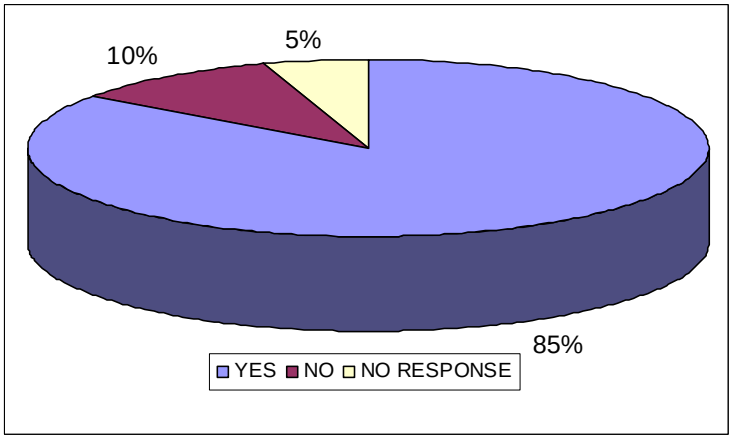
Figure 4.41: Electronic records retention period



4.2.3.18. Scanning and integration of both ERMS and EDMS necessity and possibility

The researcher also wanted to establish whether the respondents support or see the necessity of scanning and integrating both ERMS and EDMS in one. Out of all the respondents, 137 (85%) stated that it is necessary and important to eliminate most of the paper records management challenges, such as lack of enough filing space, misfiling, and records sharing. However, 16 (10%) stated that it is not necessary to scan and integrate and nine (5%) never responded to the question. Figure 4.42 illustrates scanning and integration of ERMS and EDMS as a necessity or possibility.

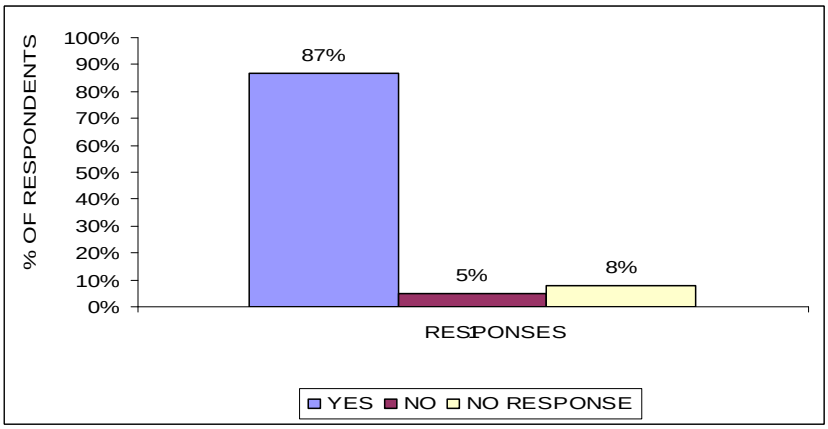
Figure 4.42: Scanning and integration of both ERMS and EDMS necessity and possibility



4.2.3.19. Availability of the document tracking system for manually managed records to control its movement

Respondents also confirmed whether or not the hospital is using the document tracking system to control movement if documents were managed manually. Out of all the respondents, 141 (87%) confirmed that their hospitals were using the document tracking system to control its movement and eight (5%) stated no document tracking system were used. On the other hand, 13 (8%) never responded. Figure 4.43 illustrates the availability of the document tracking system for manually managed records to control its movement.

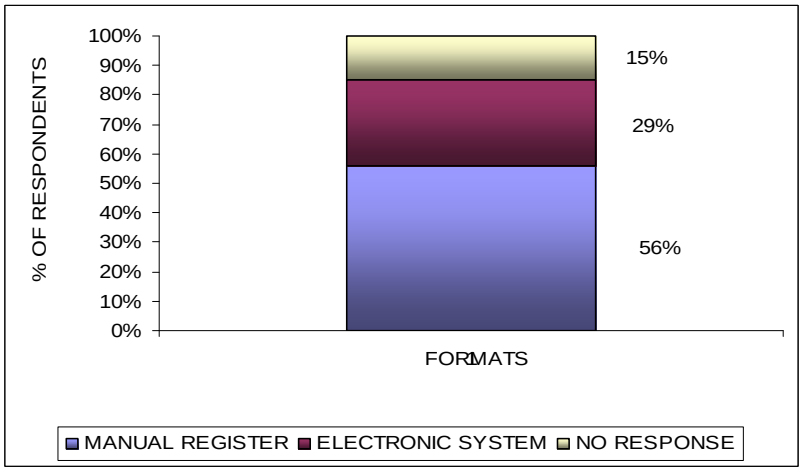
Figure 4.43: Availability of the document tracking system for manually managed records to control its movement



4.2.3.20. Document tracking system type/format

In confirming the records tracking system, 92 (56%) reported that the tracking system used is manual registers and 46 (29%) stated that records movement is tracked using an electronic system. However, 24 (15%) respondents never answered the question. Figure 4.44 illustrates types/formats of document tracking system.

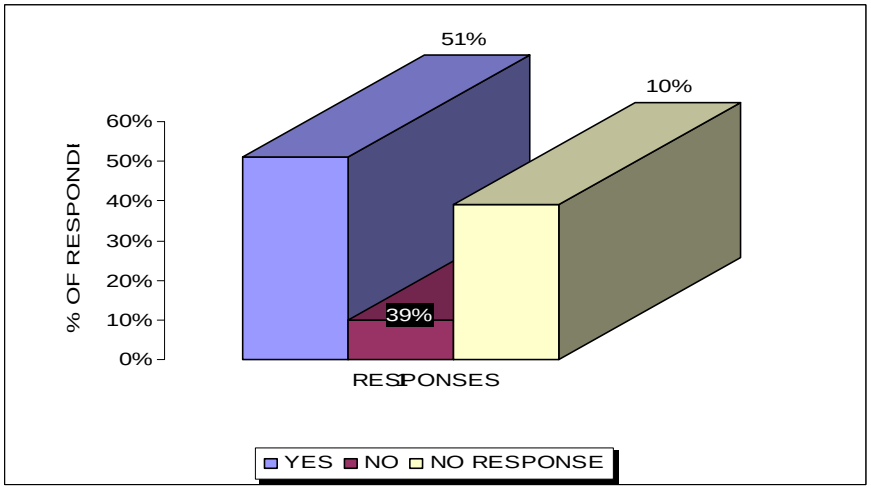
Figure 4.44: Types/formats of document tracking system



4.2.3.21. Necessity for the institution to capture and keep patients records electronically

In confirming necessity for the hospitals to keep patient records electronically, 82 (51%) respondents answered that it was necessary and 17 (10%) answered that it was not necessary; 63 (39%) never responded to this question. Figure 4.45 illustrates responses on the necessity for the institutions to capture and keep patients records electronically.

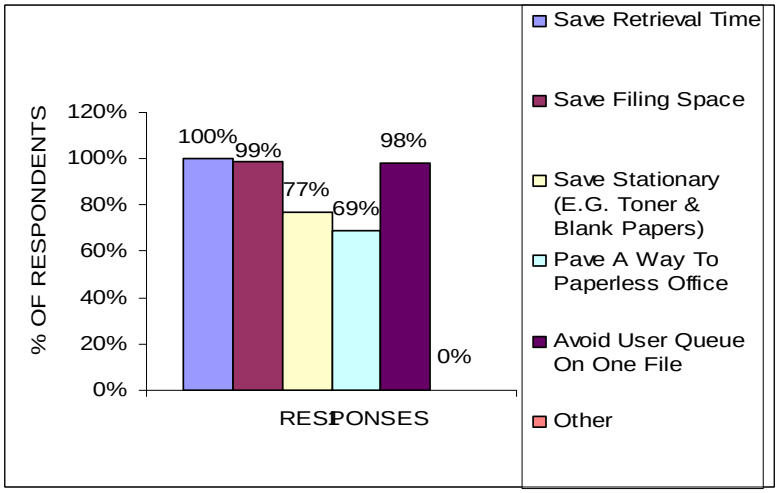
Figure 4.45: Necessity for the institution to capture and keep patients records electronically



4.2.3.22. Electronic records management assistance in improving business processes

Respondents also stated how electronic records management can help the institution to improve on its business processes. Out of all the respondents, 162 (100%) stated that it would save retrieval time, 161 (99%) stated that it would save filing space, 124 (77%) stated that it would save stationery like toner and blank papers, 112 (69%) stated that it would pave the way to a paperless office and 158 (98%) stated that it would avoid user queuing on one file. Figure 4.46 illustrates electronic records management assistance in improving business processes.

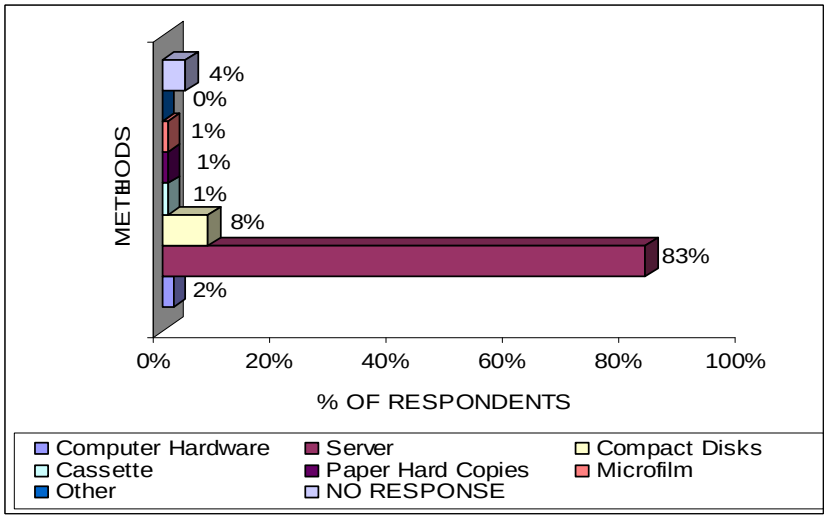
Figure 4.46: Electronic records management assistance in improving business processes



4.2.3.23. The best methods for keeping patients records

Respondents were also requested to state the preferred methods for keeping of patients records. According to Figure 4.47, three (2%) respondents prefer computer hardware, 135 (83%) preferred a server, 12 (8%) preferred compact disks (CDs), two (1%) preferred cassettes, one (1%) preferred hard copies and two (1%) preferred microfilm. However, seven (4%) respondents did not provide any answers.

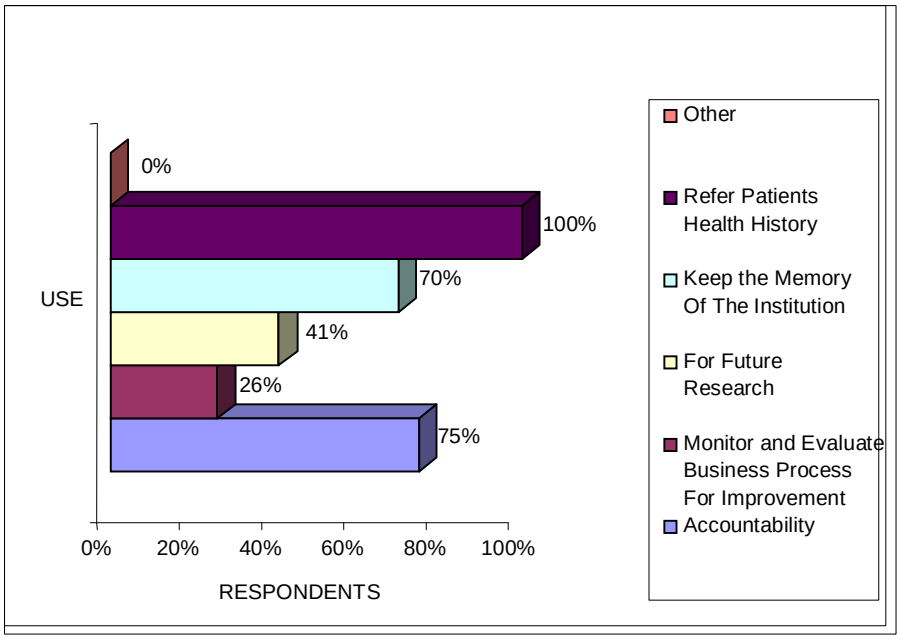
Figure 4.47: The best methods for keeping patients records



4.2.3.24. The use of electronic records

Looking at the use of electronic records, 122 (75%) stated that patients records were used for accountability, 42 (26%) stated that they were used to monitor and evaluate and improve business processes , 67 (41%) stated that they are used for future research, 113 (70%) stated that they keep the memory of the institution and 162 (100%) stated that patients records are used to refer to patientsô health histories . Figure 4.48 illustrates the use of electronic records.

Figure 4.48: The use of electronic records

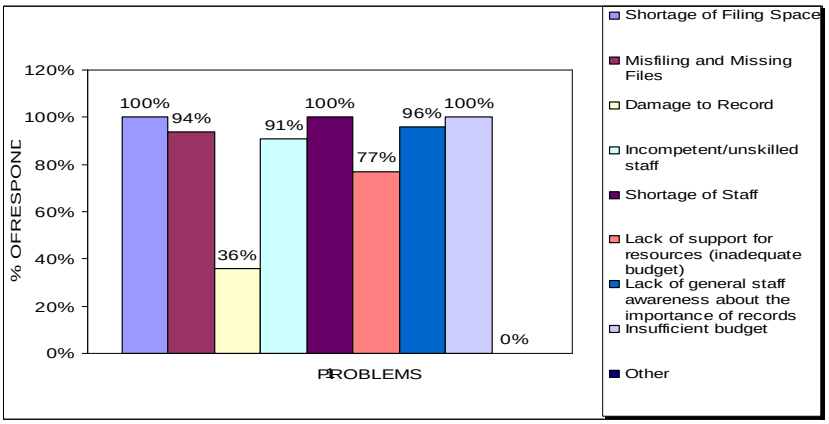


4.2.3.25. The most serious administrative problems for records management in the institution today

Respondents were also expected to state the most serious administrative problems for records management in their institutions to date. Of the rest of respondents, 162 (100%) stated shortage of filing space, as the main problem, 153 (94%) stated misfiling and missing files, 59 (36%) stated damage to records, 148 (91%) stated incompetent/unskilled staff, 162 (100%) stated shortages of staff, 124 (77%) stated lack of support for resources (inadequate budget), 156 (96%) stated lack of general staff awareness about the importance of records and 162

(100%) stated insufficient budgets. Figure 4.49 illustrates the most serious administrative problems for records management in the institution today.

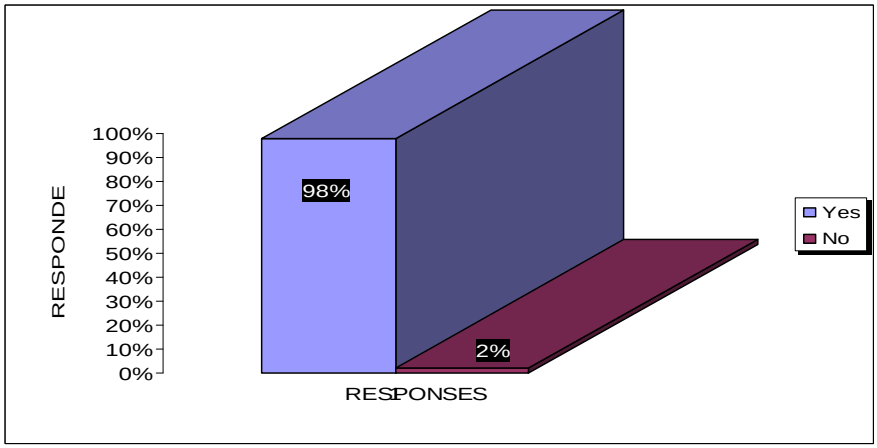
Figure 4.49: The most serious administrative problems for records management in the institution today



4.2.3.26. The ability of electronic records management to minimise the problems

Out of all the respondents, 159 (98%) think that electronic records management can minimise some of the problems like shortage of filing space, missing and misfiling, damage to records, shortage of staff and three (2%) think electronic records management cannot minimise the problems. Figure 4.50 illustrates the ability of electronic records to minimise problems.

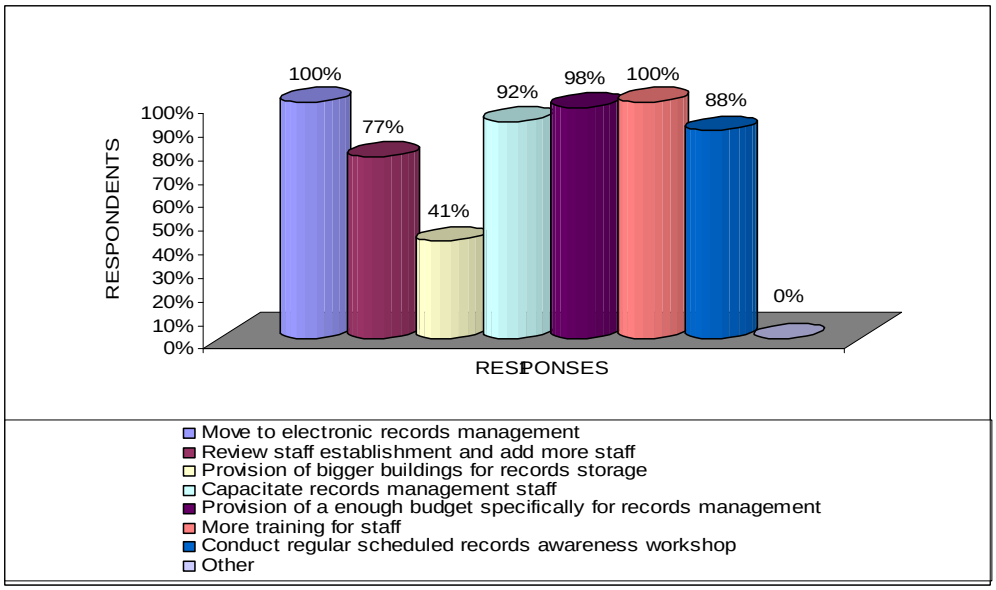
Figure 4.50: The electronic records management problem minimisation ability



4.2.3.27. Other relevant solutions for records management problems

Respondents were also requested to identify, on the listed answers, what could suitably solve problems experienced in records management in the departmental hospitals. Out of all respondents, 162 (100%) identified moving to electronic records management as a solution, 124 (77%) identified reviewing staff establishment and adding more staff, 66 (41%) identified providing bigger buildings for records storage, 149 (92%) identified capacitating records management staff, 158 (98%) identified providing sufficient budgets specifically for records management, 162 (100%) identified more training for staff and 142 (88%) identified conducting regular scheduled records awareness workshop. Figure 4.51 illustrates recommended solutions for records management problems.

Figure 4.51: Recommended solutions for records management problems

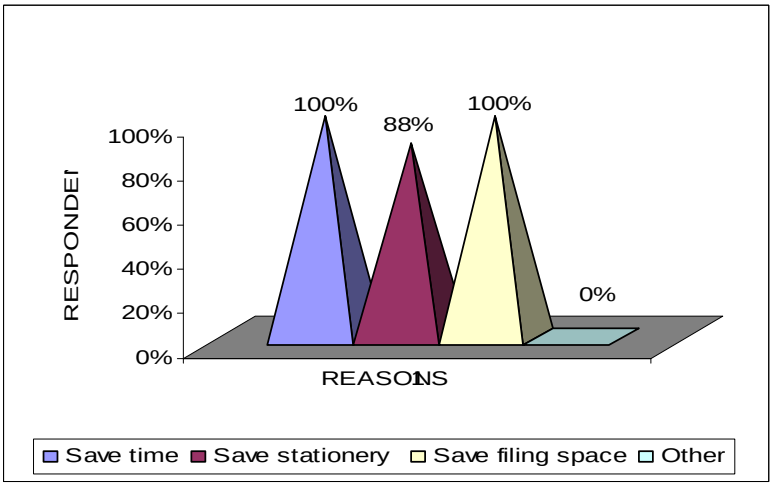


4.2.3.28. Reasons to have an electronic records management system in the institution

The respondents also stated their reasons for having or needing an electronic records management system in their institution. Out of all respondents, 162 (100%) stated that it is important to save time, 143 (88%) to save stationery and 162 (100%) to save filing space.

Figure 4.52 illustrates the reason why it is important to have an electronic records management system in the institution.

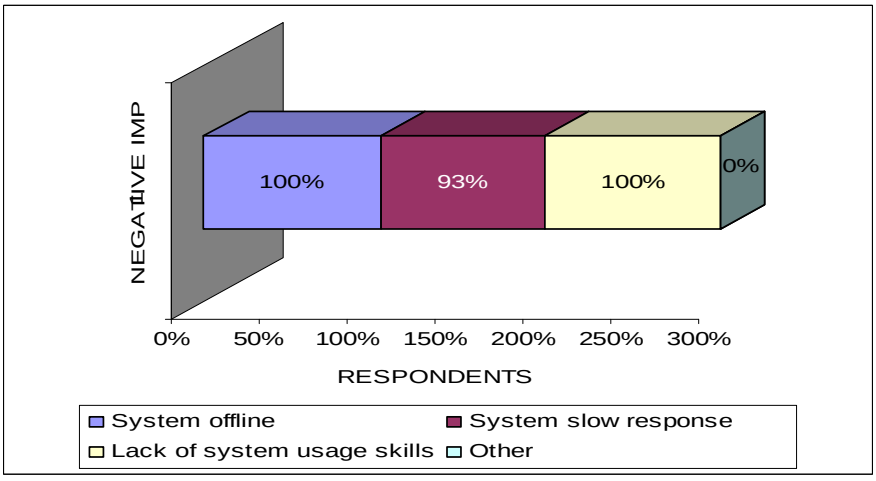
Figure 4.52: Reasons to have an electronic records management system in the institution



4.2.3.29. Negative impact of electronic records on business processes

Respondents also stated the negative impact of electronic records management on business processes. Out of all respondents, 162 (100%) stated that system offline may be a negative impact, 151 (93%) stated system slow responses and 162 (100%) stated lack of system usage skills. Figure 4.53 illustrates negative impact of electronic records management on the business processes.

Figure 4.53: Negative impact of electronic records management on the business processes



4.2.3.30. The rate of electronic records management improvement to service delivery from excellent to very poor

The respondents were also requested to rate how electronic records management can improve service delivery. In terms of electronic records management improving business process, 93 (57%) stated excellent, 46 (28%) very good, 17 (11%) good, five (3%) stated poor and one (1%) stated very poor. In consideration of the quality of service, 84 (53%) stated excellent, 43 (26%) very good, 28 (17%) good, three (2%) poor and four (2%) very poor.

In the case of electronic records management for the improvement of file retrieval time, 103 (64%) stated excellent, 31 (19%) very good, 11 (7%) good, nine (5%) poor and eight (5%) very poor. In terms of patient waiting time, 74 (48%) stated excellent, 44 (28%) very good, 28 (18%) good, six (4%) poor and three (2%) stated very poor.

The respondentsô views in relation to customer satisfaction were that 73 (45%) stated excellent, 58 (36%) very good, 21 (13%) good, six (4%) poor and four (2%) very poor. On improving compliance with policies and norms, 70 (43%) stated excellent, 47 (29%) very good, 36 (22%) good, seven (4%) poor and two (2%) very poor. The responses on the improvement of job satisfaction were that 83 (51%) stated excellent, 34 (22%) very good, 34 (21%) good, six (4%) poor, and four (2%) very poor. Table 4.2 outlines the rate of electronic records management improvement to service delivery.

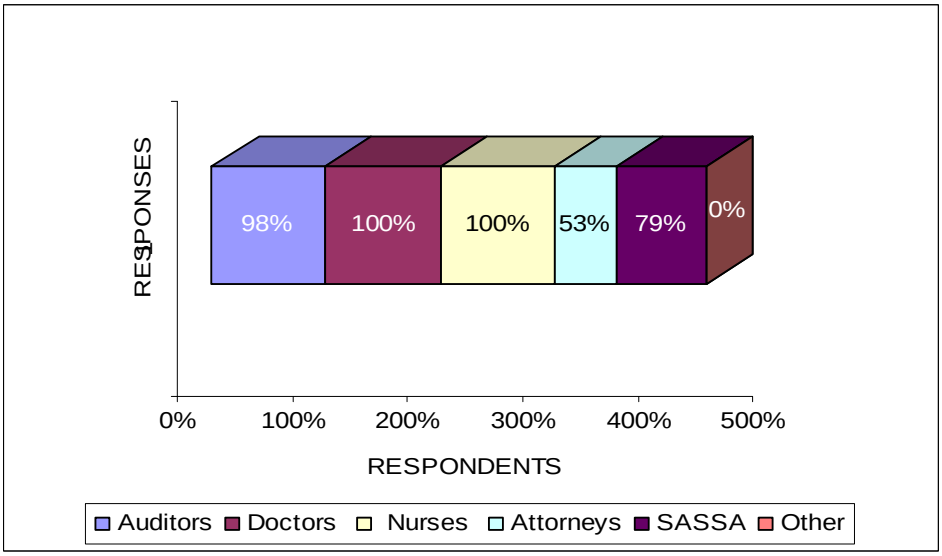
Table 4.2: The rate of electronic records management improvement to service delivery

ITEM RATED	1 (excellent)	2 (Very good)	3 (Good)	4 (Poor)	5 (Very poor)
1. Improved business processes	57%	28%	11%	3%	1%
2. Quality of service	53%	26%	17%	2%	2%
3. File retrieval time	64%	19%	7%	5%	5%
4. Patient waiting time	48%	28%	18%	4%	2%
5. Customer satisfaction	45%	36%	13%	4%	2%
6. Compliance to policies and norms	43%	29%	22%	4%	2%
7. Job satisfaction	51%	22%	21%	4%	2%

4.2.3.31. Stakeholders/ clients for records

When the researcher enquired from respondents about existing stakeholders/clients, 158 (98%) stated auditors, 162 (100%) stated doctors, 162 (100%) stated nurses, 86 (53%) stated attorneys and 128 (79%) stated the South African Social Security Agency (SASSA). Figure 4.54 illustrates stakeholders/clients for records.

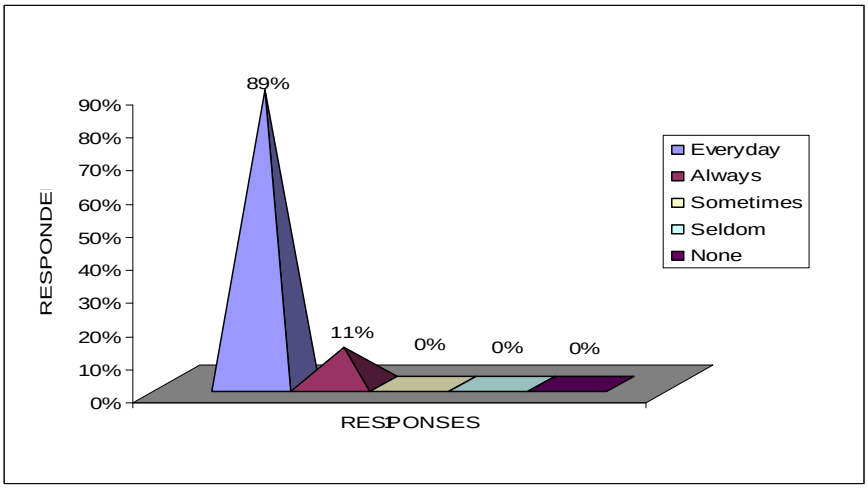
Figure 4.54: Stakeholders/clients for records



4.2.3.32. Frequency of records retrieval for official usage

The researched wanted to establish how often the retrieval of records in the institution for official use is. Out of all respondents, 144 (89%) stated records are retrieved every day for official use and 18 (11%) stated always. Figure 4.55 below illustrates the frequency of records retrieval for official usage.

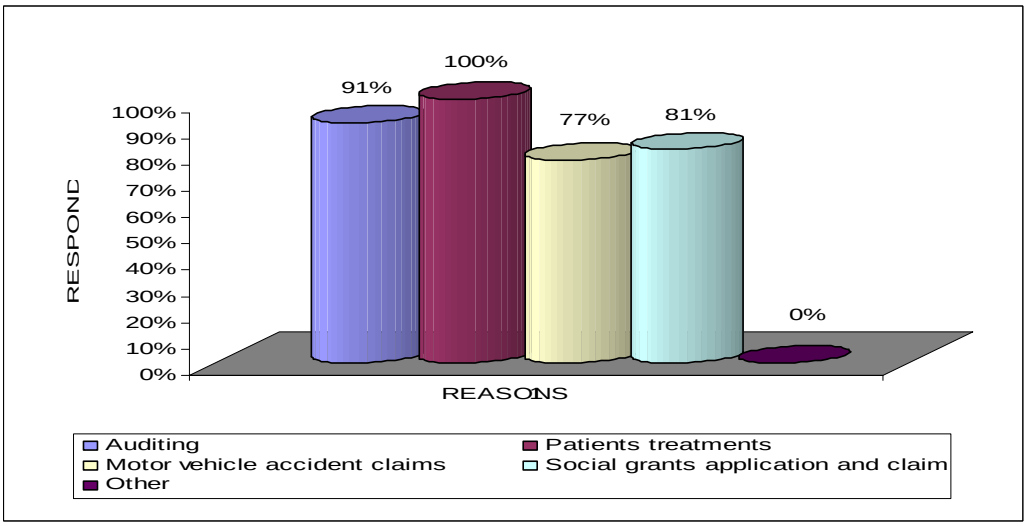
Figure 4.55: Frequency of records retrieval for official usage



4.2.3.33. Reasons for usual records request

The researcher also enquired from respondents what the normal reasons are for records requested by stakeholders in the hospitals. In responding to that question, 148 (91%) stated auditing as a reason, 162 (100%) stated patient treatment, 124 (77%) stated motor vehicle accident claims and 132 (81%) stated social grants application. Figure 4.56 shows usual records request reason.

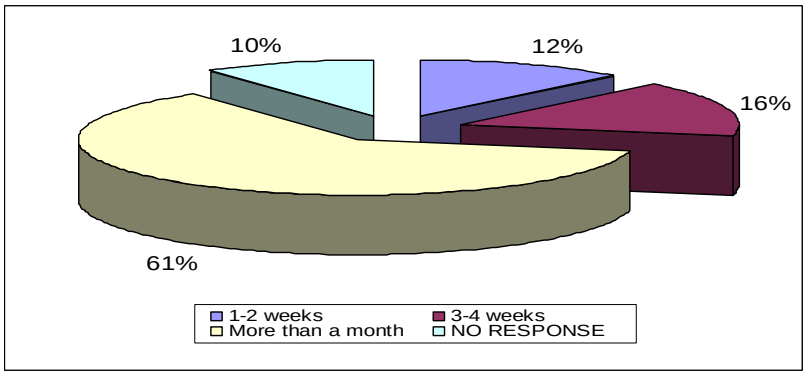
Figure 4.56: Usual records request reason



4.2.3.34. Time frame for the returning of the paper-based files, if original files are issued to clients

On enquiring what the time frame for the returning of the paper-based files is, if original files are issued to clients, 20 (12%) stated 1-2 weeks, 26 (16%) stated 3-4 weeks and 99 (61%) stated that files are returned after more than a month. However, 17 (10%) never answered the question. Figure 4.57 illustrates the time frames for the returning the paper-based files.

Figure 4.57: Timeframe for the returning of the paper-based files



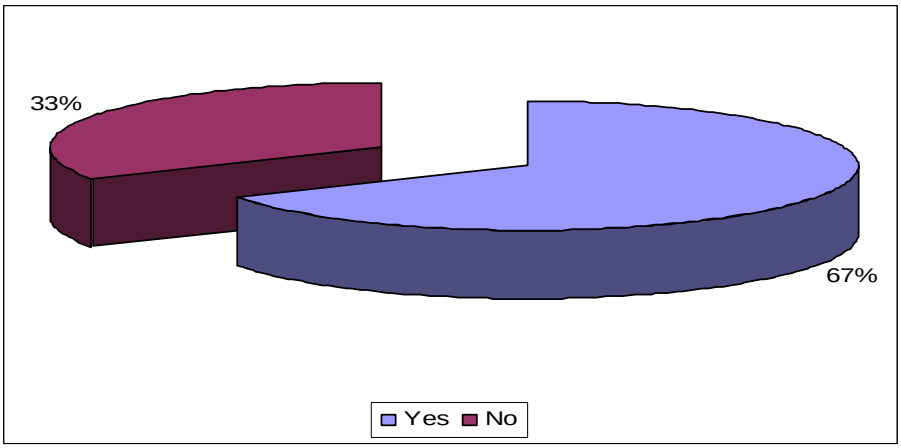
4.2.4. E-HEALTH READINESS

This item aimed at establishing whether the Limpopo Department of Health is ready for the e-health system implementation in the province for e-health services. The questions asked about knowledge on e-health and its meaning, e-health indicators, implementation and functionality of e-health, e-health functionality/implementation challenges, problems and solutions, e-health readiness, staff capacity for e-health, availability of infrastructures and other resources for e-health, and the need and improvements that e-health can bring to the department.

4.2.4.1. Knowledge of the meaning of e-health

The researcher also wanted to establish if respondents understood or knew what e-health is all about and its meaning. Out of all the respondents, 108 (67%) expressed that they knew what e-health means and 54 (33%) said they did not understand what it means. Figure 4.58 illustrates knowledge of the meaning of e-health.

Figure 4.58: Knowledge of the meaning of e-health



4.2.4.2.The meaning of e-health

When the researcher established the meaning of e-health from the respondents, 162 (100%) stated that e-health is an electronic health service and 152 (94%) stated that it refers to health service rendered through information communication technology (ICT). Table 4.3 illustrates e-health meaning.

Table 4.3: E-health meaning

E-HEALTH MEANING	RESPONDENTS
1. Electronic health service	100%
2. Health service rendered through Information Communication Technology	94%

4.2.4.3. The indicators of e-health readiness

The respondents were also requested to choose what they thought or knew as the indicators of e-health. Out of the rest of the respondents, 159 (98%) chose user information access, communication, e-learning and monitoring, 78 (48%) chose patient monitoring, task generating and reminding system, 151 (93%) chose clinical/encounter data, 61 (38%) chose system-generated tasks and calendar and 94 (58%) chose automated clinical and administrative reminder. Table 4.4 tabulates e-health readiness indicators.

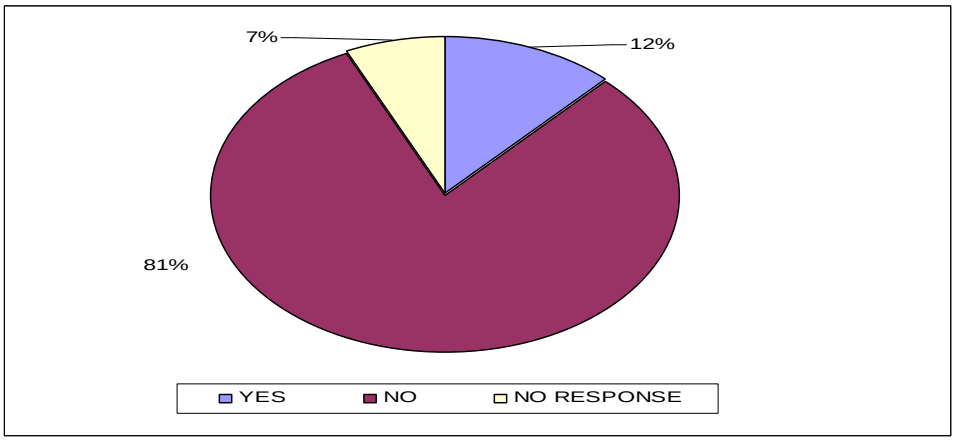
Table 4.4: E-health readiness indicators

E-HEALTH INDICATORS	% OF RESPONDENTS
1. User information access, communication, e-learning and monitoring	98
2. Patient monitoring, task generating and reminding system	48
3. Clinical/ encounter data	93
4. System generated tasks and calendar	38
5. Automated clinical and administrative reminder	58

4.2.4.4. Implementation of e-health in the institution

The researcher wanted to establish if the Department of Health has already implemented e-health in the institutions. Out of all the respondents, 19 (12%) stated yes and 132 (81%) stated that the Department of Health had not yet implemented e-health in the institutions. On the other hand, 11 (7%) never answered the question. Figure 4.59 illustrates the implementation of e-health in the institutions.

Figure 4.59: Implementation of e-health in the institutions

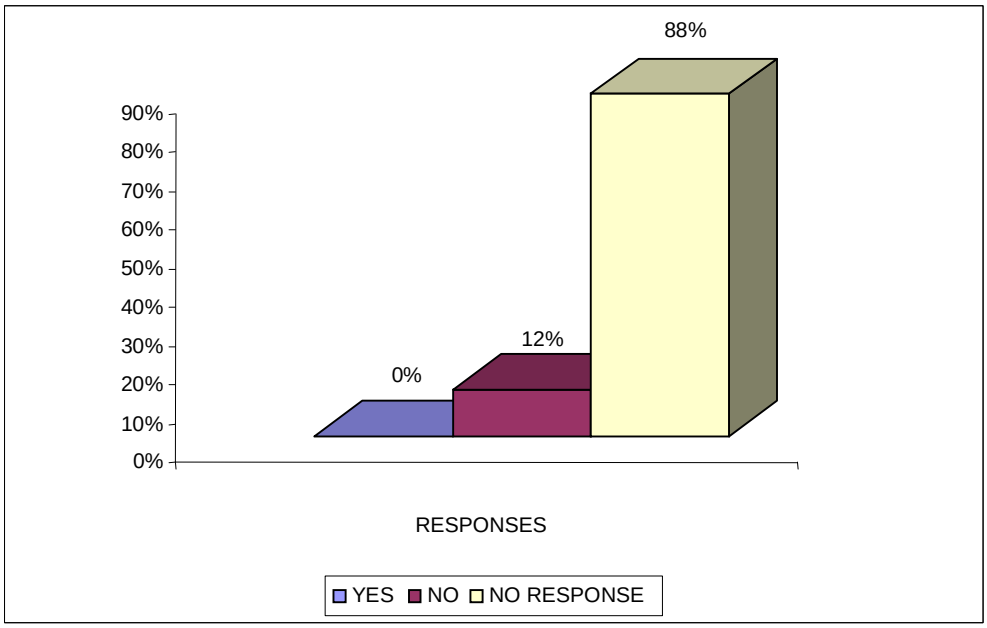


4.2.4.5. Functionality of e-health systems in the institutions

On enquiring whether e-health, if implemented, is fully functional, 19 (12%) stated that it was not fully functional. These figures are for those respondents who replied that e-health has already been implemented in the Department of Health. On the other hand, 143 (88%), including 132 (81%) respondents who stated that the Department of Health has not yet been

implemented e-health in the institutions, never responded to this question respectively. Figure 4.60 illustrates e-health system functionality in the institutions.

Figure 4.60: E-health system functionality in the institutions



4.2.4.6. The challenge or problems for the departments for not implementing e-health

The respondents were also requested to give their opinion about the challenges or problems faced and the reasons making departments not having implemented e-health yet. The respondents stated that the following might be the challenges or problems:

- Lack of resources.
- Lack of enough computers and poor ICT resources.
- Reluctance by officials to use the system fully and the slow retrieval of files due to the manual records management systems.
- Lack of professionals/experts in health information technology.
- Lack of training.
- Lack of information and knowledge.
- No budget/funds for records management provided.
- Little centralised budget.

4.2.4.7. Ensuring a fully functional e-health system

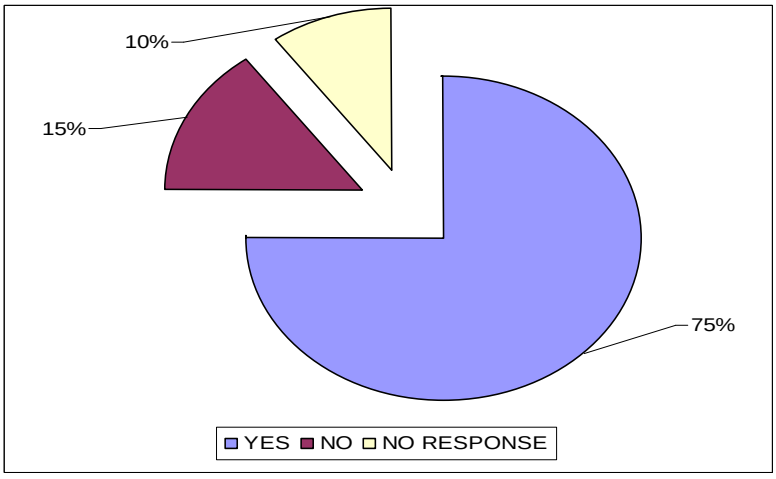
Respondents, who stated that e-health is available but not fully functional, were requested to give their opinion about what they thought could n be done to make it fully functional. Respondents recommended the following to ensure that e-health is fully functional:

- Continuous training.
- Frequent supervision over the utilisation of the system by health, nursing and information personnel.
- Purchasing of more resources and computers.
- Employing and/or developing experts in health information technology.

4.2.4.8. Department of Healthôs e-health readiness

Out of all the respondents, 122 (75%) stated that the Department of Health was ready for implementation of e-health and 23 (15%) stated that the department was not ready for the implementation of e-health. However, 17 (10%) never answered the question. Figure 4.61 illustrates the Department of Healthôs e-health readiness.

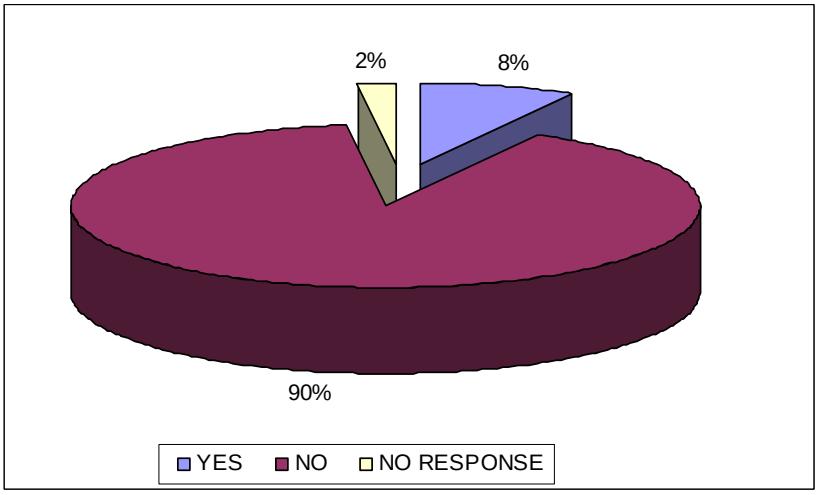
Figure 4.61: Department of Healthôs e-health readiness



4.2.4.9. Availability of capacity for e-health in terms of training, skills and staff

The researcher checked if capacity, in terms of basic things like training, skills and staff for handling or implementing e-health were available. Out of all respondents, 13 (8%) stated yes and 145 (90%) stated that there was no reasonable capacity for the department to handle e-health. In addition, four (2%) respondents never answered the question. Figure 4.62 illustrates the availability of capacity for e-health in terms of training, skills and staff.

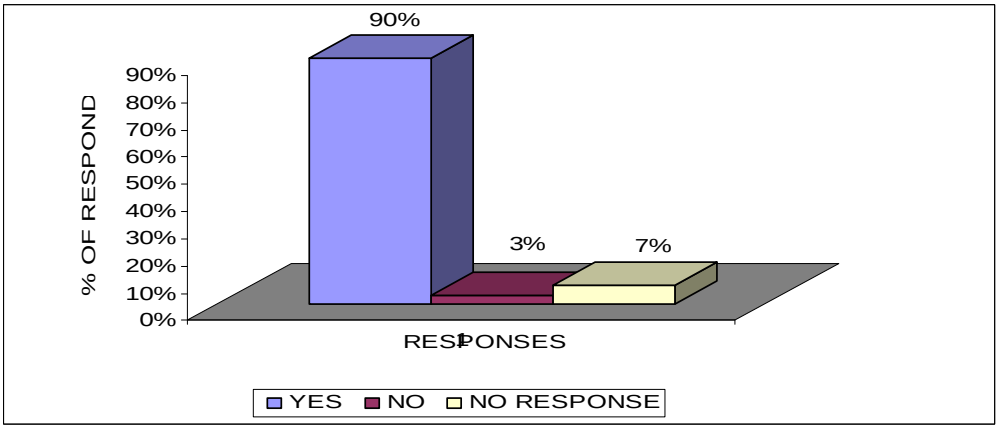
Figure 4.62: Availability of capacity for e-health in terms of training, skills and staff



4.2.4.10. Availability of the necessary infrastructure, resources and equipments, such as telecommunications networks and computers, for e-health

The researcherôs query on the availability of the necessary infrastructure, resources and equipment such as telecommunications networks and computers for e-health was met with 146 (90%) responding that the resources are available and five (3%) said they were not available. The researcher received no response from 11 (7%) respondents. Figure 4.63 illustrates reasonable availability of the necessary infrastructure, resources and equipment, such as telecommunications networks and computers, for e-health.

Figure 4.63: Availability of the necessary infrastructure, resources and equipments, such as telecommunications networks and computers, for e-health



4.2.4.11. The rate of availability of certain infrastructure/resources

The researcher also established the extent of availability of the key resources, such as computers, telecommunication networks, ICT staff capacity, staff capacity and patient internet and email access, necessary for the implementation of e-health. In terms of computers, Table 4.5 illustrates that 40 (25%) stated 25% available, 69 (43%) stated 50% available, 46 (28%) stated 75% available and seven (4%) stated 100% available.

In terms of telecommunication networks, Table 4.5 indicates that 12 (7%) of the respondents stated totally not available, 43 (27%) stated 25% available, 33 (20%) stated 50% available, 21 (13%) stated 75% available and 19 (12%) stated 100% available. On the other hand, 34 (21%) never answered the question. For the ICT staff capacity, 18 (11%) stated totally not available, 82 (51%) stated 25% available, 36 (22%) stated 50% available, 13 (8%) stated 75% available and five (3%) stated 100% available; and eight (5%) never answered the question.

Responses on the availability of staff capacity/complement in Table 4.5, 16 (10%) stated that totally not available, 58 (36%) stated 25% available, 28 (17%) stated 50% available, 21 (13%) stated 75% available and eight (5%) stated 100% available; and 31 (19%) never answered the question. In terms of patient internet and email access on Table 4.5, 159 (98%) respondents

stated totally not available and three (2%) never answered the question. Table 4.5 tabulates the rate of availability of certain infrastructure/resources.

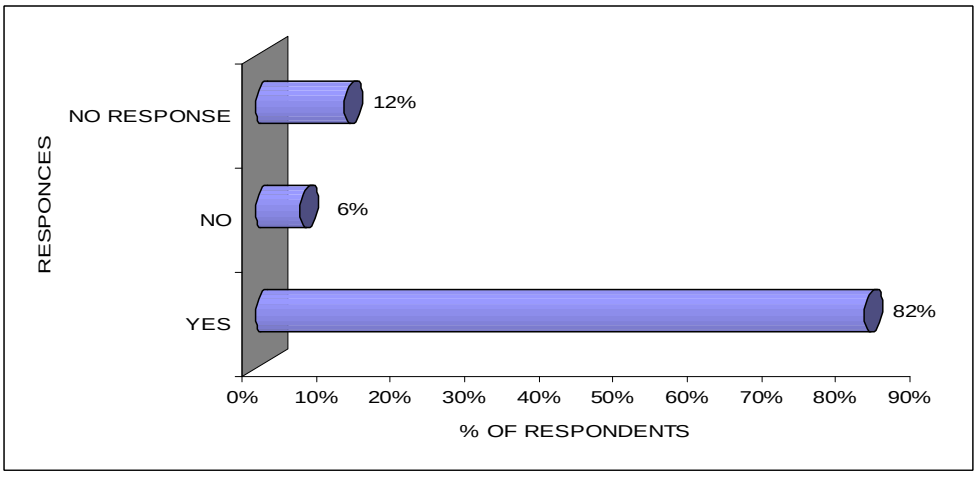
Table 4.5: The rate of availability of certain infrastructure/resources

Infrastructure/Resources	Totally not available	25% available	50% available	75% available	100% available	% of No response
1. Computers	-	25%	43%	28%	4%	-
2. Telecommunication networks	7%	27%	20%	13%	12%	21
3. ICT staff capacity	11%	51%	22%	8%	3%	5
4. Staff capacity	10%	36%	17%	13%	5%	19
5. Patient internet and email access	9%	-	-	-	-	2

4.2.4.12. E-healthôs likelihood to improve services delivery in the hospitals

The researcher also checked with participants whether they think e-health is more likely to improve service delivery in the hospital. Out of all respondents, 133(82%) respondents stated yes and 10 (6%) said no e-health is not more likely to improve service delivery in the hospitals. On the other hand, 19 (12%) never responded to the question. Figure 4.64 illustrates e-healthôs likelihood to improve services delivery in the hospitals.

Figure 4.64: E-healthôs likelihood to improve services delivery in the hospitals



4.2.4.13. Improvements that e-health can bring to the hospitals

Out of all respondents who said they believed that e-health was likely to improve the delivery of services in the hospitals, 152 (100%) stated that it would lead to faster service to patients, 55 (36%) stated it would improve self-service to patients on the PC, 68 (45%) said it would assist with improved communication between patients and clinicians, 152 (100%) stated it would minimise patient waiting time, 71 (47%) stated it would build confidence in clinicians, 152 (100%) stated e-health would increase the patient satisfaction rate, 112 (74%) stated that it would bring about a quick retrieval of medical records and information, 144 (95%) stated that it would bring about an electronic records system. Table 4.6 tabled improvements that e-health can bring in the hospitals.

Table 4.6: Improvement that e-health can bring in the hospitals

E-HEALTH IMPROVEMENTS	RESPONDENTS
1. Fast service to patient	100%
2. Self-service to patients on the PC	36%
3. Improved communication between patients and clinicians	45%
4. Minimise patients waiting time	100%
5. Build confidence to clinicians	47%
6. Increase patient satisfaction rate	100%
7. Quick retrieval of medical records and information	74%
8. Bring about electronic records system	95%

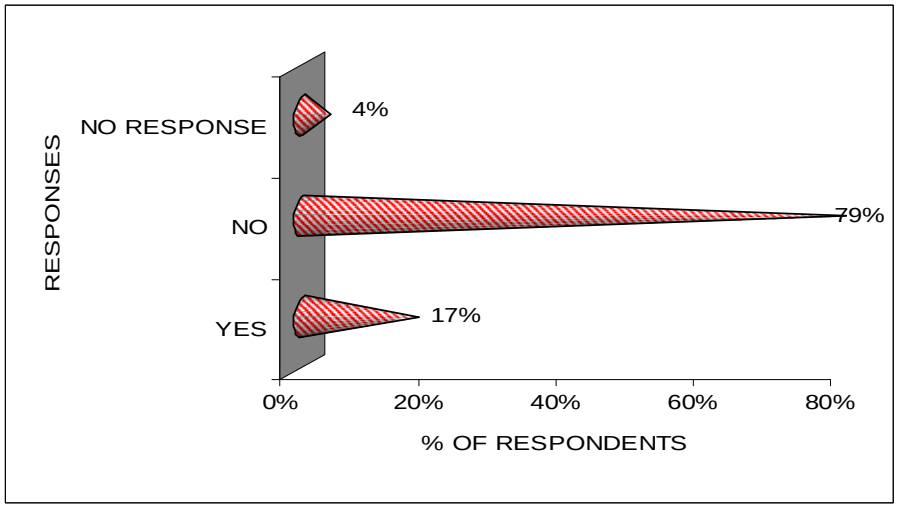
4.2.5. POLICIES AND PROCEDURES

This section aimed at addressing the issue of availability, knowledge and implementation of policies and procedures in the Limpopo Department of Health. The questions in this section covered knowledge about records management legislative framework, policies, procedures, norms and standards; whether these policies and legislation cover electronic records management, training on policies and procedures; if available, responsibility for implementation of a functional records management programme in the hospitals and the solution to ensure that effective records management is successfully established in the hospitals.

4.2.5.1. Knowledge about any legislative framework governing electronic records management in South Africa

The researcher wanted to establish if the participants knew about any legislative framework governing electronic records management in South Africa. Of all the respondents, 28 (17%) stated yes and 128 (79%) said they did not know about any of those legislative frameworks. No answer was received from six (4%) respondents. Figure 4.65 illustrates knowledge about any legislative framework governing electronic records management in South Africa.

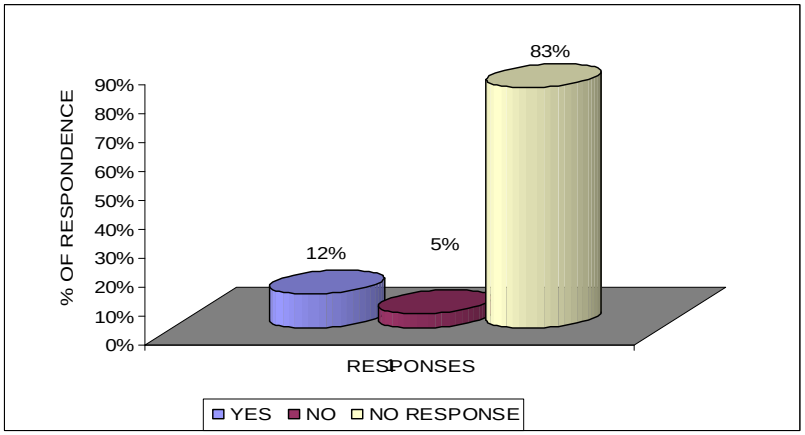
Figure 4.65: Knowledge about any legislative framework governing electronic records management in South Africa



4.2.5.2. Electronic records management scope coverage in the legislative framework governing records management in South Africa

Of those respondents, 19 (12%) stated yes, the legislative framework they know also covers electronic records management in South Africa and nine (5%) said they did not cover electronic records management in South Africa. On the other hand, 134 (83%) respondents which includes 128 (79%) respondents who said they did not know about any of the legislative frameworks and six (4%) never responded to that question. Figure 4.66 illustrates electronic records management in the legislative framework governing records management in South Africa.

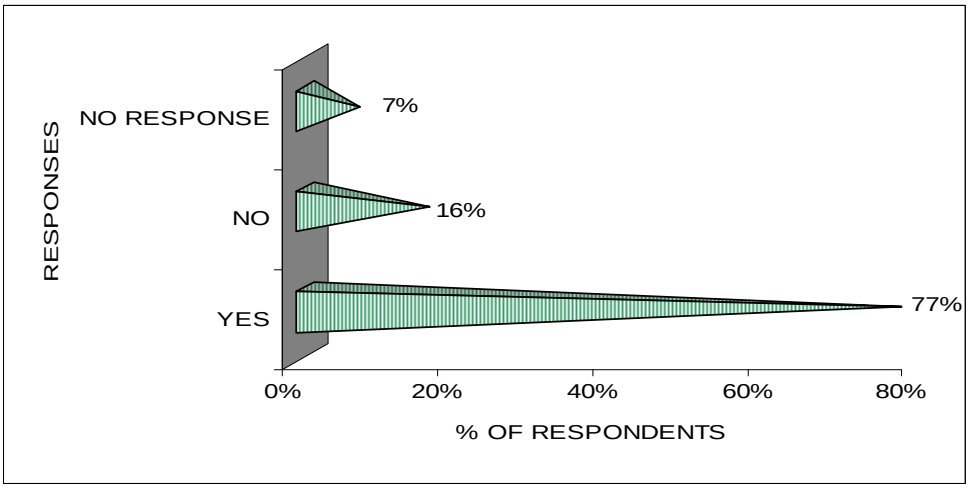
Figure 4.66: Electronic records management in the legislative framework governing records management in South Africa



4.2.5.3. Knowledge about any policy, procedures, norms and standards for records management in the institution

The respondents were also asked if they knew of any policy, procedures, norms and standards for records management in their institution. Out of all respondents, 124 (77%) responded yes and 26 (16%) responded no; and 12 (7%) never answered the question. Figure 4.67 illustrates knowledge about any policy, procedures, norms and standards for records management in the institution.

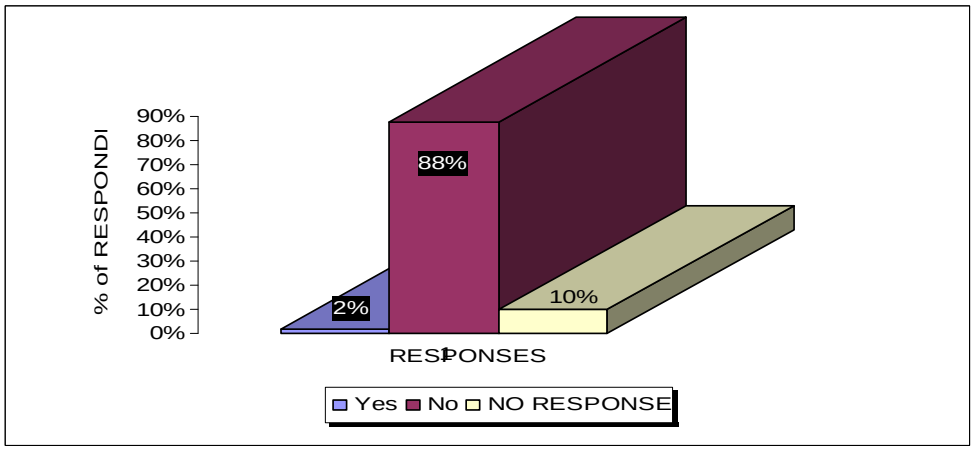
Figure 4.67: Knowledge about any policy, procedures, norms and standards for records management in the institution



4.2.5.4. Coverage of electronic records management scope in the policy, procedures, norms and standards

Of those who responded on whether they knew of any policy, procedures, norms and standards for records management in their institution, four (2%) stated that yes the policy covers electronic records management and 142 (88%) state that no it does not cover electronic records management. On the other hand, 16 (10%) never answered the question. Figure 4.68 illustrates coverage of electronic records management scope in the policy, procedures, norms and standards.

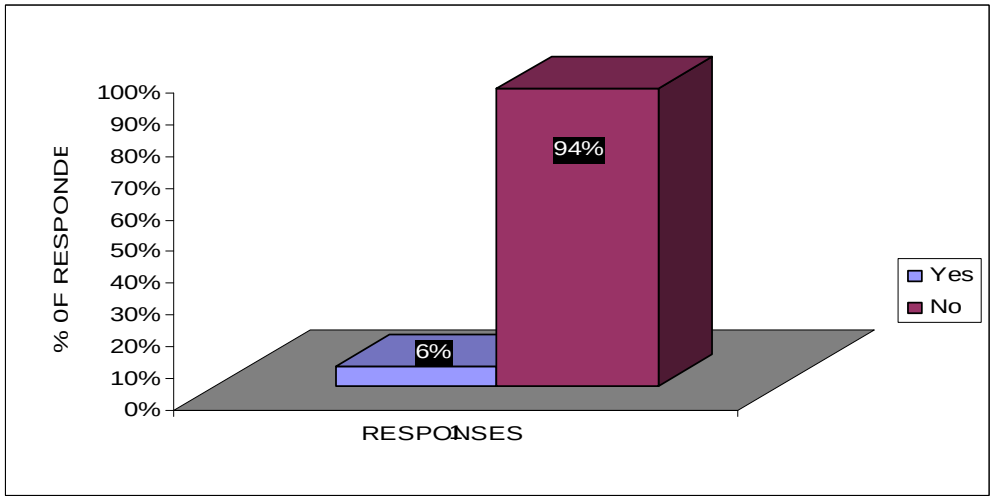
Figure 4.68: Coverage of electronic records management scope in the policy, procedures, norms and standards



4.2.5.5. Attendance of training/workshops on policies, procedures, norms and standards for managing records

Of those respondents who stated that they have policies, procedures, norms and standards for managing records in their institution, eight (6%) stated that they had training or workshops on policies, procedures, norms and standards for managing records and 124 (94%) said they had never had any training on policies, procedures, norms and standards for managing records in their institution. Figure 4.69 illustrates training/workshops on policies, procedures, norms and standards for managing records.

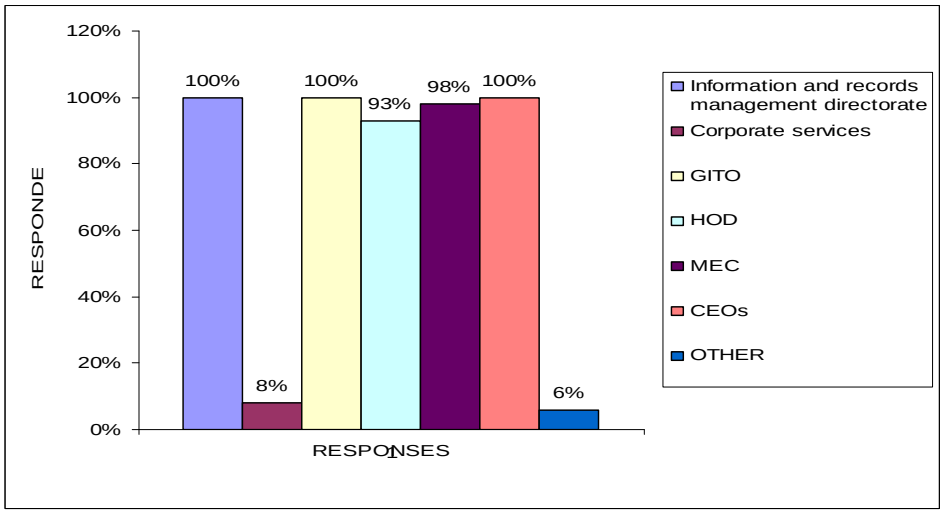
Figure 4.69: Training/workshops on policies, procedures, norms and standards for managing records



4.2.5.6. Responsibility for the introduction and implementation of functional records management for the institution

The researcher also wanted to establish from respondents whose responsibility the introduction and implementation of the functional record management in the institution is. Out of all respondents, 162 (100%) stated that responsibility lies with the information and records management directorate, 13 (8%) stated corporate services, 162 (100%) stated GITO, 150 (93%) stated the HOD is responsible, 158 (98%) stated the MEC, 162 (100%) stated that it is the responsibility of the hospital CEO and nine (6%) stated other for the national Department of Health, directors and minister. Figure 4.70 illustrates the responsibility for the introduction and implementation of the functional records management for the institution.

Figure 4.70: Responsibility for the introduction and implementation of the functional records management for the institution



4.2.5.7. Ensuring the successful effective records management establishment in the institution

Respondents were also requested to give their opinion about what can be done to make sure effective records management is successfully established in the institutions. The following were recommended by respondents to ensure successful effective records management establishment in the institutions:

- Conduction of awareness training, workshops and meetings
- Monitoring and auditing of the system
- Records management, staff training and workshops
- Train staff on legislation and policies
- Introducing electronic filing systems and training staff
- Monitoring of available policy, systems and constant supervision
- Providing computers and other resources
- Motivating staff and explaining to them the importance of paper records
- Recruiting and appointing qualified records management staff
- Ensuring more space for filing and optimal filing system
- Employing well-trained qualified records managers and more junior staff
- Hiring records manager as a critical staff

- Consulting end-users when planning system and administration
- Implementing e-health

4.2.5.8. Ensuring a functional records management in the institution

The respondents were requested to give their opinion about what they thought can be done to make sure records management is functional in their institutions. They stated that, in order for records management to be functional in the institutions, the following should be considered:

- Introducing or improving electronic records management system
- Developing staff in terms of capacity and complement
- Ensuring strong supervision
- In-service education and training
- Records management staff training and workshops
- Thorough scrutiny of newly incoming staff
- Providing resources and computers
- Appointment of qualified records management staff when recruiting
- Employing a well-trained qualified records manager and more junior staff
- Ensuring more space for filing and optimal filing system
- Records manager must be hired as a critical post
- Consulting end-users when planning system and administration
- Implementing e-health

4.3. OBSERVATION AND INTERVIEW FINDINGS

The researcher observed and interviewed some of the records management officials to establish the physical state of records management in the hospitals. The observation and interviews were conducted at 40 hospitals of the Limpopo Department of Health. The observations were also backed with the interviews due to the challenging geographical location of the hospitals. In this case, the process was that the observer was established in the particular hospital that is to be observed, especially records manager. The person was requested to observe in line with the checklist in the researcherôs hands. The researcher also

asked questions and recorded them in the checklist according to the observerôs responses. The other nearby hospitals were visited for observation and interview purposes and to follow up on the return of distributed questionnaires. The observations schedules were used as a checklist to establish and record status on issues like access control measures, security measures for records, records keeping and retrieval, records keeping control measures and availability of telecommunication network and related ICT equipments. The interviews were used to clarify and confirm the observed situation.

4.3.1. ACCESS CONTROL MEASURES

In this item the researcher wanted to establish if the hospitals had any control measures in place for access to records and custody through observation and interview. The checklist covered availability of entrance counter, signs indicating prohibition of unauthorised access and user access to records procedure/method.

a) Registry entrance counter

The observation shows that in most hospitals, the patientsô medical registry counter was available and the interviewee indicated that it assisted in controlling access to the filing storages. Still, there were only few hospitals that did not have a registry counter at the filing storage entrance and the reason from the one interviewee was that their working room was separate from the filing room. He further stated that the doors of filing rooms were planned and expected to be closed when the storage was not in use. Out of the 40 (100%) hospitals, 39 (97, 5%) had counters and officials had filing in the same rooms and only one (2, 5%) did not have a counter at the filing room entrance as it was at the separate service desk.

b) Unauthorised access sign

The signs to show that access was only for authorised people were only available in certain hospitals and those who had them were of bad quality. The signs were man-made ordinary papers that were pasted on the door. Out of the 40 (100%) hospitals, only 23 (57,5%) hospitals had unauthorised access prohibition signs to the filing storages and registries and 17 (42,5%) did not have those signs attached to their filing room door/entrances. Twenty-seven (27)

interviewees stated lack of resources and budget as the major cause of using low quality signage and also for not having them in some of the hospitals.

c) Users access to records/files

Access to the records and records custody of patient files was controlled by the records management staff. Patients were issued files at the counter for consultation. Police and third-party/claiming agent (e.g. attorneys) accessed records through the finance revenue unit. The revenue unit and any other internal staff also accessed records through the records management authority and provision. This was the same practice with all the 40 (100%) hospitals in the province. Sixteen (16) interviewees stated that police and a third-party/claiming agent accessed records through the finance revenue unit since some of them had to pay for access to copies, and they were external. They further stated that patients are assisted at the counter to prevent them from accessing records of other patients on the shelves and interfering with administrative system.

4.3.2. MEASURES FOR RECORDS SECURITY

In this section the researcher established the availability of the disaster preparedness plans, fire fighting equipment and techniques, water/floods fighting equipment and techniques, theft and vandalism preventive measures and availability and functionality of air conditions and temperature control.

a) Disaster preparedness plan

The observation revealed that the department did not have a disaster preparedness plan for patientsô records in the hospitals. In this case, all 40 (100%) hospitals did not have disaster preparedness plans. Twenty-four (24) interviewees stated that lack of capacity and qualified records managers was the main reason why they did not have the disaster preparedness plan in the hospital.

b) Fire fighting equipment and techniques

The only available fire fighting tools for records in the hospitals were the powder and not carbon dioxide fire extinguishers. In all 40 (100%) hospitals observed, the fire fighting equipment used was powder and water fire extinguishers. Twenty-one (21) interviewees were doubtful that lack of knowledge for records requirements during purchasing might be the reason for availing this kind of fire extinguishers, because they were not involved in the purchasing process.

c) Water fighting equipment and techniques

The hospital did not have water fighting equipment for the possible floods in the patientsô records storages. All the observed 40 (100%) hospitals did not have any water disaster fighting equipment or techniques. Twelve (12) interviewees stated that they were not aware of the need or necessity for water fighting equipment and techniques. This might be due to lack of a disaster preparedness plan since the plan outlines everything necessary for the preparedness towards any type of disaster, including water.

d) Theft and vandalism preventive measures

In terms of fighting and protecting patientsô files from theft and vandalism, the hospitals had lockable storages, security officers at the gate, and some also had counters at the storage entrances and officials working at the counter. The filing storages were full and untidy. All 40 (100%) hospitals observed had common challenges and used common preventive measures against theft and vandalism as listed above. Eight (8) interviewees stated that the storage places and offices were always locked when not in use and people receive permission before entering the offices and filing custodies. They also stated that the major challenge was the infrastructure; particularly the storages which were too small. The storage places were very small and files were increasing at a supersonic speed and that caused a lot of misfiling and missing files. Therefore, bigger buildings, specifically assigned for records keeping, were required.

e) Air conditioning and temperature

In terms of controlling the temperature in the filing places for patient records, some of the hospitals had air conditioners but they did not set them to the set required temperature of 18-20^{o}c. In some of the hospitals air conditioners were available but not functional or maintained. In all 40 (100%) hospitals observed 18 (45%) had air conditioners installed in their filing rooms and 22 (55%) did not have air conditioners. The other disappointing part was that 11 interviewees stated that the air conditioners which were available were not effectively utilised for filing custody temperature maintenance, which is to keep the custody rooms at 20^{o}c since some were switched off or turned on hot during winter and some were not even functional. They further stated that this was because some of the filing rooms were also used as a registry office and officials were not coping with cold weather conditions in the office.

4.3.3. RECORDS KEEPING AND RETRIEVAL

The researcher also established the records keeping and retrieval status and methods in the hospitals. In doing so, the interview and observation checklist covered, amongst others, the state/kind of filing shelves, covers and boxes, file/records classification and filing system and filing space available.

a) Filing shelves, covers and boxes

The hospitals were using mobile cabinets. Interviewees stated that, due to lack of enough filing storage places, some of the patient files were kept in old storage places with wooden shelves surrounding the wall of the small rooms. Some files, especially the old files, were not filed but randomly kept in small untidy rooms. Though the file covers that were used were good, the hospitals did not use similar file covers for patient files in terms of design and size. They used plastic boxes for keeping the files sorted, although some of the files were not in boxes. Seventeen (17) interviewees stated that the reason was lack of key resources, budget and standardisation in administration. In this case all 40 (100%) hospitals had common challenges as discussed above.

b) File/records classification and filing system

Patient files were classified and filed using alpha-numeric numbers generated by the system, E-HIS Patient Administration system, which used two alphabetic and seven numeric figures. Eighteen (18) interviewees stated that the two alphabetic figures abbreviate the name of the hospital and the numbers represent the details of the individual patient. They further stated that classification was produced in two different filing numbers in which one represented the province and the other the health facility (hospital). In all 40 (100%) hospitals file/records classification and filing systems were common, but differed on the abbreviations.

c) Filing space

Lack of filing storage was a key challenge for patient records in almost all hospitals in the province. In most of the hospitals, old patient records were just packed in an old, unused and untidy rooms or garages. Some of those records were not properly handled as there were no air conditioners, cleaning and necessary security measures for such storages. Shortage of filing space was a great challenge in all 40 (100%) hospitals. Eighteen (18) interviewees stated lack of suitably assigned records keeping buildings, general records management resources, staff capacity and budget for records management projects as the causes.

4.3.4. RECORDS KEEPING CONTROL MEASURES

This item established records keeping control measures in the hospitals for patient records by checking and clarifying access to and availability of policies, procedures, norms, standards and legislative framework.

a) Policies, procedure, norms and standards

The only policies and procedures available in the hospitals were for overall records management in the department. Seven interviewees stated that the department was planning to create policies and procedures specifically focused on patient records, because such records were special and had different implications and difficulties. The situation observed was common for 40 (100%) of the hospitals.

b) Access and application of legislative framework

Copies of the relevant act for records management were not made available to officials. Thirteen (13) interviewees did not even know about any relevant act for records management. They did not know which act they followed when they operated. Twenty-seven (27) interviewees stated that they were never provided with any training and/or copies on such acts. Out of the 40 (100%) hospitals, only managers/sectional heads in six (15%) hospitals could access the acts on their desktops and/or internet, but no hard copy was available and 34 (85%) could not access it.

4.3.5. TELECOMMUNICATION NETWORK AVAILABILITY

In this section availability of telecommunication networks was established through the observations of access or availability of internet and intranet, teleconferencing, videoconferencing, computer hardware, e-records system and server.

a) Internet and intranet connection

Almost all the hospitals had access to internet and intranet though some of the officials, especially records management officials, did not have access. The situation was the same in all 40 (100%) hospitals. Six (6) interviewees stated that they were undermined since they were working with records and four stated that it was due to lack of resources and they would be connected in the near future as currently access to internet and intranet is only available to other sections which are critically in need of it.

b) Telephone conferencing

Records management officials were provided with landline telephones at their workstations, but the researcher was informed by three interviewees that telephone conferencing had been phased out with the introduction of videoconferencing long ago. The situation was the same in all 40 (100%) hospitals.

c) Video conferencing

The video conferencing equipment was installed in all four regional hospitals and provincial hospitals in the province. Four interviewees stated that they were used for meetings with people in different districts. They further stated that during meetings of this nature, all hospital representatives would meet at each regional hospital within each district and communicate using videoconferencing. In all 40 (100%) hospitals, only six (15%) hospitals had video conferencing systems used by all other hospitals in the particular district. The six hospitals that had installed video conferencing equipment were the regional and/or provincial hospitals located strategically in five different districts of the province of Limpopo.

d) Computer hardware

Computer hardware was available in the most necessary offices and all patient records management officials had computer workstations. Thirteen (13) interviewees stated that not all records managers had access to internet and e-mail. Eight (8) interviewees further stated that the computers they were using varied since some were new and some old with low processing capacity. Thirteen (13) interviewees stated lack of enough budgets to replace the poor processing computers. The situation observed was common to all 40 (100%) hospitals.

e) E-records system

As it was also observed, eighteen (18) interviewees stated that electronic records were half done because only the personal details of patients, financial statements (billing) and officials who assisted the patients were captured, but information about patient treatment, diagnosis and prescription was not captured on the system. However, the paper records were the ones covering the entire scope of the patientsô consultation and treatment record. Nine of the interviewees also stated that staff, especially doctors and nurses, were reluctant to change and that is why they did not want to use the system for their administration of patients. The situation observed was common to all 40 (100%) hospitals.

f) E-records server

All the hospitals had patient records management system servers. Three (3) interviewees confirmed that they did not have a disaster backup for recovery if records were to be affected

by fire, water and even viruses. For viruses they use the antivirus program, Symantec endpoint protection. The situation observed was common to all 40 (100%) hospitals.

4.4. SUMMARY

In summary, this chapter presented the findings of the study from questionnaires and observation supplemented by the interviews. Telephonic interviews were conducted with the observer at institutional level to write what was observed and pose follow-up questions for the situation, while in some institutions the observation was conducted personally by the researcher while clarifying the information using interviews for some of the things observed. In the next chapter, Chapter five, the researcher will interpret the findings of this study. The interpretations and discussion were conducted in line with the objectives of the study.

CHAPTER 5
INTERPRETATION OF THE FINDINGS OF THE STUDY

5.1. INTRODUCTION

The previous chapter presented the findings of the study. This chapter interprets and discusses the findings of the study as presented in Chapter 4. The interpretation and discussion were done in line with the objectives and questions of this study in relation to the data presented in Chapter 4 and literature reviewed in Chapter 2. This also served as an attempt to answer the research questions. This study was introduced with the eight objectives listed in Chapter 1 that were also discussed in the interpretation of the findings of the study in this chapter. The eight objectives of the study are the following:

- To establish how electronic records were managed in the public health sector of the Limpopo Province in South Africa.
- To determine the state of records management that hampers service delivery in the public health sector of South Africa in the Limpopo Province.
- To find out the major causes of missing files that hamper service delivery in the public health sector.
- To explore awareness in the public health sector about e- records and e-health.
- To explore the availability of the necessary infrastructure such as telecommunication networks and other ICT network connection facilities for e-health and e-records, to avoid digital division.
- To determine the availability of capacity for e-health and e-records in terms of human resources.
- To identify existing guideline documents like policies and legislative framework governing e-records.
- To make recommendations for improvement of records management and e-health readiness.

5.2. ELECTRONIC RECORDS MANAGEMENT IN THE PUBLIC HEALTH SECTOR

The first objective of this study was to establish whether and how electronic records were managed in the public health sector of the Limpopo Province in South Africa. The literature reviewed in Chapter 2 stated that the government was aware of the fact that working with the old manual system did not improve their services as people were used to online services (Sinclair 2002:103). The Department of Health did not fully take advantage of technology to handle a large volume of their records. They did not maximally use the new technology to improve their business transactions (Tafor 2003:72 cited byNgulube 2001). It was due to the above reasons that electronic records failed to enable individual users to access quality, timely, effective and efficient records to improve service delivery in the public health sector. It was not fully able to complete the organisationõs work quicker with little effort, with quality, less costs and with compliance with law and regulations (Johnson and Bowen 2005: 134; Tafor 2003:75; Ojo 2009:99).

5.2.1. Knowledge and understanding

Looking at the electronic records management knowledge on the officials dealing with records and information management, the reviewed literature stated that various staff managing records in the Sub-Saharan countries were not capable of managing digital records professionally. This was not exclusive to the Limpopo Department of Health and this will be a permanent challenge as long as these officials are not capacitated (Ngulube 2007:7). The officials engaged in creating and receiving these records were uncertain about the importance and administration of those records in the government body (Wamukoya and Mutula 2005a:72-74 cite IRMT 2003). Although respondents appeared to understand the meaning of electronic records management, the survey indicated that 67% of the respondents stated that they had a poor knowledge of electronic records management. The understanding was proven by 100% respondents who stated that electronic records were created by computers and 94% who stated that records managed by means of a computer system. Their challenge seems to be lack of knowledge about managing it.

5.2.2. Electronic records management system

The literature reviewed shows that Kemoni, Wamokoya and Kiplangôat (2003:40) argue that the main problem in the archival repositories was non-utilisation of information technology to ensure the smooth running of the records management administration. They further cite Mutitiôs (1999) observation that IT helps archivists to improve their information services by providing faster access to and usage of data. The electronic records system in the hospitals was not fully effective for records management. The survey indicated that 73% of the respondents stated that the system used for electronic records management in hospitals did not cover all patient details, but only captured the personal and financial details of the patients. The reasons given were that the system had space to cover all the details but the hospital officials decided not to use those other functionalities and this resulted in poor records administration. It will be an advantage for the system to cover all the details of the patient records, because 70% of the respondents stated that the electronic system was utilised every day, usually to check personal and financial details of the patients only. If the officials captured every detail onto the system it may enable the hospital to rely fully on the electronic records system for every detail/information about the patient. This would be unlike an electronic system covering patientsô personal details, dates and patientsô payments (bill) per se as stated by 100% respondents. The system did not cover prescriptions, diagnoses and wards for patients admitted as rated by 5%, 4% and 14% of the respondents, respectively. The results were also the same with observation conducted. The hospitals used the patient administration system called E-HIS (Electronic Health Information System). The observation also reported that in all 40 (100%) hospitals electronic records were half done. The paper records were the ones covering the entire scope of the patientsô consultation and treatment, which was the only information on patientsô record.

5.2.3. ERMS and EDMS integration

The literature reviewed also emphasised that it is a great advantage to integrate or merge both the ERMS with EDMS to reduce duplication of document inventories, document profiling or metadata, systems and support requirements. This may also minimise capital investments and

human resources to support separate EDMS and ERMS needs (Barry 2001). There is a necessity for scanning and integrating both ERMS and EDMS in the hospitals as supported by 85% respondents in the survey. They stated that it was necessary and important since it would eliminate most of the paper records management challenges, such as lack of enough filing space, misfiling, and records sharing.

5.2.4. Electronic records disposal

According to the literature reviewed in Chapter 2, keeping all government records permanently is very costly in terms of space, money and staff (State Records of South Australia 2003:7; Sims 2002:10; Currall and Moss 2008:70); this is also unrealistic (State Records of South Australia 2003:7). Apart from disposal, the electronic records system must be able to prevent users from accidentally destroying files. It should have a built-in control to trigger the retention schedule and disposal for certain records based on certain date(s). It should guide the records manager on the files for disposal (Raas 1999:118). The process of disposal is discharged following actions like record appraisal, sentencing, destruction or transfer of records to the National Archive Repository. In appraising records, we identify the ongoing value of records; sentencing is about application and implementation of the disposal authority from NARS. Records are then destroyed or transferred to NARS depending on their different values (State Records New South Wale 2004 and Granath, Alariksson and Axelsson 2004:30). According to the National Archives and Records Service of South Africa (Act No. 43 of 1996 as amended) records can only be disposed of if the government body is issued with a written disposal authorisation by the National Archives and Records Service of South Africa. The National Archives and Records Service of South Africaôs regulation states that the government body must not dispose of any record in any way before obtaining disposal authority, whether it is transfer to an archives repository or destruction. It is encouraged that in electronic records management a proper record keeping systems and documentation of disposal was done as authorised (National Archives and Records Service of South Africa 2006:3). The survey indicated that 85% of the respondents stated that disposal authority for electronic records was not available, while 80% stated that they did not have a disposal plan for e-records in the institutions. The records inventory was not developed, an appraisal guideline was not created,

and retention schedule informed by the records inventory list was not developed. This would have assisted in showing the individual records retention period (Chachage and Ngulube 2006:14).

5.2.5. Electronic records keeping

The literature in Chapter 2 shows that Mullon (2004) is of the idea that ñgovernment departments need systems in place to take care of the secure capture, storage and retrieval of informationò. The government should consider the records mediaôs instability, obsolescence, hardware incompatibility, software, data format, storage media, lack of metadata, context of information, clearly assigned responsibility and long-term records preservation resources in implementing e-records management (Thurston 2005). For proper and safer electronic records keeping 83% of the respondents preferred the server to be used as the electronic records storage. In so doing, records would be kept safe for several reasons such as accountability (75%), keeping the memory of the institution (70%) and referring for patientsô health history (100%). The observation revealed that all 40 hospitals had patientsô records management system servers, but they did not have a disaster backup for recovery, should that be affected by disasters, such as fire and water. For viruses they used the antivirus, Symantec endpoint protection.

5.2.6. Inappropriate electronic records management and capacity

The literature reviewed in Chapter 2 underscored that the Eastern and Southern African countries had several challenges with regard to capturing and preservation of electronic records. These challenges entailed lack of records management plans, inadequate knowledge about the importance of records management for organisational efficiency and accountability. Some other challenges included lack of records handling coordination and responsibility, no legislation, no policies and procedures, lack of central ability to manage records, understaffing on records management unit. There was also no budget for records management, poor records security and access control, no records retention and disposal policy, and no records movement control techniques. In many countries of the ESARBICA there were no systems for opening,

tracking and indexing files. Africaôs development is still hindered by, amongst others, lack of ICT, illiteracy, politics and poor infrastructure (Wamukoya and Mutula 2005b: 70; Mnjama 2005:458-459 cite Mnjama and Wamukoya 2004; Nengomasha 2003:66; Ojo 2009:95; Ngulube and Tafor 2006:59-60). The study conducted by Gunnlaugsdottir (2008:33-34) concludes that lack of management support, lack of general training in records management, lack of effective system training to employees and resistance to change were the causes of failure in implementing electronic records management system.

Most of these challenges were not exclusive to the Limpopo Department of Health hospitals. The survey shows that 100% of the respondents stated shortage of filing space, 94% stated misfiling and missing files, 91% stated incompetent/unskilled staff, 100% stated shortage of staff, 77% stated lack of support for resources, 96% stated lack of general staff awareness about the importance of records and 100% stated insufficient budget as the major problems.

5.2.7. Electronic record management resources availability and functionality

In order to ensure timely and quicker retrieval of records in response to records requests in the public health sector, proper records management must be exercised. This will assist in avoiding records management barriers like misfiling and missing files. Proper records keeping will result in a proper file tracking system in an organisation (Marutha and Ngulube 2010:10). It is encouraged that in electronic records management, proper records keeping systems and documentation of disposal be done as authorised (National Archives and Records Service of South Africa 2006:3). Like in many countries of the ESARBICA, Limpopo hospitals did not have proper systems for opening, tracking and indexing files (Ngulube and Tafor 2006:59-60). The survey reported that 87% respondents confirmed that the hospitals were using the records tracking system, but 56% of the respondents stated that the tracking systems that were used were in the form of manual registers. Out of this situation, 51% had a desire for the hospitals to keep patient records electronically.

5.2.8. Advantages of electronic records management

Electronic records management is important and necessary in the hospitals. The survey reported that 100% of the respondents stated that electronic records management will save retrieval time, 99% stated that it will save filing space, 77% stated it will save stationery like toner and blank papers, 69% stated it will pave a way to paperless offices, and 98% stated it will assist in avoiding user queuing for one file. This can be a great contribution to business processes improvement on organisational business.

The literature reviewed in Chapter 2 underscores that the disadvantage of the handwritten medical records is that it might be illegible, incomplete, not well organised and could sacrifice the quality of care. Electronic medical records have several benefits, such as minimum paperwork, maximum communication with users, low medical errors, low costs, timely access to information, accurate data and high physical efficiency (Tsai and Bond 2007:136). The survey revealed that out of all the respondents, 98% thought that electronic records management can minimise some of the problems like shortage of filing space, missing and misfiling, damage to records, and shortage of staff. Looking at the specific solution to the problems discussed above, the survey revealed several alternative solutions, such as moving to electronic records management as a solution (100% respondents), reviewing staff establishment and adding more staff (77%), capacitating records management staff (92%) and providing enough budget specifically for records management (98%), more training for staff (100%), and conducting regular scheduled records awareness workshop (88%).

Electronic records management can improve service delivery in the institutions. According to the survey, 96% respondents rated that electronic records management can improve business processes, file retrieval time and the quality of service, 95% rated that it will also improve patient waiting time and 94% rated that it will improve customer satisfaction, compliance with policies and norms, and improve job satisfaction. Looking at the readiness for e-records management, the observation discovered that the computer hardware, server and network line were available at all 40 (100%) hospitals in the most necessary offices and all patient records management officials had computer workstations although their conditions differed.

5.2.9. Electronic records management-major challenges

The literature reviewed also highlighted that sometimes, if the department is not proactive, dependency on e-records in a changing technology and fragile media results in records missing or getting lost (Thurston 2005). Several challenges may be experienced in introducing the new technology and it might also pose some training challenges. . The issue of employees afraid of the new changes should also be taken into account because usually change is a painful learning process. People should be trained on how to use the system and how to get benefits out of the new system (Johnson and Bowen 2005: 135-136). The results of the survey also stated that electronic records, although necessary, might also bring several challenges, such as system offline and lack of system usage skills as stated by 100% respondents and system slow response stated by 93% of the respondents.

However, the literature advised that government should have rules to indicate what types of records qualified to be kept on the system, responsibility for capturing and retrieval of records in the system, records usage, retention period and method (Tafor 2003:73-4 cited InterPARES Project 2001). People must have effective plans to manage electronic records. This would assist in avoiding duplication, lack of security or access control to ensure that records are not deleted or accessed without authority. All these challenges can be addressed or prevented through the establishment and implementation of an effective records management policy (King1997:657). A proper records management programme is guided by policies, rules and procedures to ensure an environment conducive to proper records management (Chinyemba and Ngulube 2005).

5.3. THE STATE OF RECORDS MANAGEMENT IN THE PUBLIC HEALTH SECTOR OF SOUTH AFRICA IN LIMPOPO PROVINCE

The second objective of the study was to determine the state of records management in relation to service delivery in the public health sector of South Africa in the Limpopo Province. Records can be used to support business activities, decision-making and accountability. Proper records management assists the organisation in preserving well-organized records in their

business. National Archives and Records Service of South Africa (2007:1) underscores that well-organised records:

- enable an organisation to find the right information easily and comprehensively;
- enable the organisation to perform its functions successfully and efficiently and in an accountable manner;
- support the business, legal and accountability requirements of the organisation;
- ensure the conduct of business in an orderly, efficient and accountable manner;
- ensure the consistent delivery of services;
- provide continuity in service delivery when staff leave the organisation;
- support and document policy formation and administrative decision-making;
- provide continuity in the event of a disaster;
- protect the interests of the organisation and the rights of employees, clients and present and future stakeholders;
- support and document the organisationôs activities, development and achievements;
- provide evidence of business in the context of cultural activity and contribute to the cultural identity and collective memory of the nation.

5.3.1. The state and improvement plans

The literature in Chapter 2 states that in the 2004/2005 financial year the Limpopo Department of Health had only 19% of the hospitals that had fully functional registries and 20% of these registries utilised the filing plans. The department planned to reach 100% fully functional registries and utilisation of the file plans by the years 2009 and 2011. The DPSAôs best practice model was only implemented/practiced at the provincial office and was planned to be 100% implemented in all institutions by the year 2009 and 2011. During the planning for the 2004/2005 financial year only 20% of the records management officials were trained in basic archiving and records management. The department aims to train 100% of the records management staff for the basic archive and records management (Limpopo Department of Health and Social Development 2006b, Limpopo Department of Health and Social Development 2006a:42 and Limpopo Department of Health and Social Development 2008:1-51).

Sound records management ensures sustainable good governance of the organisation since it documents decisions and organisational activities (Ngoepe 2004:2-3; Man 2005:23). The state of records management in the hospitals was not good. The survey reported that 73% of the respondents indicated that the state of records management in their institutions was poor as confirmed. They also pointed out that at times records were requested in bulk and that made it lengthy to retrieve and resulted in too much paperwork, no proper filing/archiving system, as well as poor planning, organisation and supervision. Furthermore, many files were lost for no known reason; there was a lack of filing space and of experienced officials, the undermining of records management and little centralised budget. The following are specific opinions given by respondents as the causes of poor status of records management in the hospitals:

- Lack of good organisation and disciplinary measures for involved staff.
- No proper filing system in place.
- No properly designated staff.
- Lack of capacity, skills and training.
- Lack of administrative leadership and individual official dedication.
- Usage of manual records management.
- Lack of filing space which leads to a mixture of files in their different status like death and MVAs.
- Many staff members not familiar with records management, who are also new to the field of records management and that is lack of records management experienced staff.
- Poor infrastructure.
- Little centralised budget.
- Poor planning.
- Lack of end user consultation when planning systems and administration.
- Shortage of staff.

5.3.2. Records administration resources and support

In sub-Saharan Africa many countries experience the challenge of lack of support for resources, expertise and electronic media management facilities, which led their automation to a very poor

condition (Ngulube and Tafor 2006:69). This was not exclusive for the Limpopo Department of Health since the hospitals faced the challenges related to vacant posts, administrative resources, management support, records management programme functionality, staff competency and skills, records value consideration and budget. The survey revealed that the vacancy rate for records management was between 51%-75% as rated by 51% respondents. The staff turnover was also between 51%-75% as stated by 38% respondents. Availability of records management administrative resources was less than 25% as 46% respondents rated it. Management support for records management programmes in the hospitals was also between 26%-50% as confirmed by 52% respondents. This led the records management programme functionality in the hospitals to between 26%-50% functional as rated by 40% respondents. Staff competency and skills for records management were less than 25% as rated by 50% respondents. Consideration for the value of records in the hospitals was also less than 25% consideration as rated by 45% respondents. Table 4.2 in Chapter 4 illustrates figures discussed in this paragraph. An examination of the records management budget shows that the hospitals were not budgeting specifically for records management programmes as stated by 51% respondents on Figure 4.28.

5.3.3. The mode of records management, retrieval and access

Bhana (2008:3-4), Kemoni and Ngulube (2008:297) underscore that poor records keeping can lead the organisation to risks such as poor organisational reputation, non-legal compliance, financial loss and information loss. Mullon (2004) was of the idea that ñgovernment departments need systems in place to take care of the secure capture, storage and retrieval of informationò. Thurston (2005) underscores that access to information was one of the government initiatives to improve economic performance and accountability, but these rely much on availability of accurate evidence. Marutha and Ngulube (2010:10) argue that timely and quicker retrieval of records in response to records request confirms proper records management exercise. Proper records keeping result in a proper file tracking system in an organisation.

> Records may also not be available for retrieval when it is required due to ineffective records management system, misfiling or missing records and that is not a good reason to

the citizen/ complainant or victim of the administrative action (Marutha and Ngulube 2010:11).

Government bodies need to have a proper records keeping system to always satisfy clients. The lack of proper records preservation leads to difficult records retrieval, which eventually results in a client waiting too long for the service. The end result of this will be citizen complaints about poor service and long waiting times for the service (Marutha and Ngulube 2010:23). The survey reported that the records were mostly managed manually in the hospitals as stated by 69% respondents. Using the manual records management is hectic and also affects retrieval turnaround time. The hospitals did not have the turnaround time norm for patient records retrieval as confirmed by 64% respondents, but it usually took around a maximum of 2 hours as stated by 42% respondents. The major reasons for taking long in retrieving patients records were misfiling (65% respondents), missing files (90%), untidy filing (99%), high records demand (81%), staff shortage (100%) and other reasons, such as incompetent officials coming from other units, lack of integrated patients records administration that makes files scattered (8%). Long turnaround times also affected patientsô waiting time for the health service. This was confirmed by 54% respondents who stated that in the hospital patient waiting time was more than 5 hours (5+ hours) for the entire service.

5.3.4. Electronic medical records and records system

The literature reviewed proved that only few organisations had moved to fully paperless business by re-engineering their business processes through the adoption of electronic ways of business operation. This is done by imaging and cataloguing all paper records and managers using a corporate database. This ensures elimination of paper-based practice and the introduction of an electronic business practice environment which is effective and efficient (Raas 1999:127). An introduction of IT resources, such as computer-based records, clinical information system and telemedicine, can help to improve public service quality. It can also minimise costs and ensure easy access to health care services (Davidson 2000:196 citing the US Office of Technology Assessment 1995). Granath, Alariksson and Axelsson (2004: 31-32) were correct when they pointed out that ñthere is no choice between paper and digital storage ï

the digital environment is already hereò. An introduction of ICT can be the best remedy to ensure effective service delivery in the public health sector.

Kemoni, Wamokoya and Kiplangôat (2003:40) argue that the main problem in the archival repositories is the non-utilisation of information technology. Electronic medical records were not fully maintained in the Limpopo provincial hospitals since the electronic system was not fully utilised to cover all the details of patients for electronic medical records. The survey indicated that 73% of the respondents said not all details of the patients were covered on the records management system. The institutions only captured personal and financial details of the patients as supported by 100% respondents. Details about prescriptions, diagnoses and treatment were not covered. The reason given was that the system only had space to cover all the details, but the hospital officials decided not to use those functionalities. The electronic records were used every day as stated by 70% of the respondents and that shows an advantage if the system can cover and provide all the details/information/records about the patients. Patient records were used for accountability (75%), to monitor and evaluate business process (26%), for future research (41%), to keep the memory of the institution (70%) and to refer for patientsô health history (100%). The other current stakeholders/clients for patientsô records in the hospitals were auditors (98%), doctors (100%), nurses (100%), attorneys (53%), and SASSA (79%). The records retrieval frequency was every day (89%) for several reasons such as auditing (91%), patient treatment (100%), motor vehicle accident claims (77%), and social grants applications and claims (81%).

5.3.5. Retention and disposal

However, ña key element in the management of records is the control of records destruction across government bodiesò (Ngoepe 2004:6). It is worth noting that any records management function should focus much on the records retention and disposition since they were ófundamental to effective and efficient records managementô. In this case records growth will be controlled, legislation for records retention will be complied with and risks for financial liabilities and litigation will be reduced (Chachage and Ngulube 2006:12). The records inventory should be developed, appraisal guidelines should be created, and retention schedules

should be informed by the records inventory list developed. This will help to show individuals the records retention period (Chachage and Ngulube 2006:14). The retention period for the disposal of the organisationôs record depends on the organisational decision as guided by relevant procedure guides and policy documents whether internal or external (Yusuf and Chell 2000:137). Retention of health records was usually too lengthy to cover clinical claims and complains (Cowan and Haslam 2006:265). Electronic records were also not properly or fully managed in the Limpopo hospitals. This was proven by 85% of the respondents who stated that disposal authority was not available and 80% who stated that they had no disposal plan for electronic records as in Figure 4.40. The most serious administrative problems for records management in the hospitals as in Figure 4.47 can be resolved using, amongst others, proper retention, disposal and training, namely:

- Shortage of filing space (100%)
- Misfiling and missing files (94%)
- Damage to record (36%)
- Incompetent/unskilled staff (91%)
- Shortage of staff (100%)
- Lack of support for resources (inadequate budget) (77%)
- Lack of general staff awareness about the importance of records (96%)
- Insufficient budget (100%)

5.3.6. The file tracking system

The hospitals in Limpopo contribute to the condition that South Africa is one of the many countries of the ESARBICA that does not have systems for opening, tracking and indexing files to ensure their safety as their significant property (Ngulube and Tafor 2006:59-60). The survey confirmed that hospitals managed patientsô records manually. According to the survey, 87% of respondents stated that hospitals were using the document tracking system to control its movement and the tracking system used was manual registers, as stated by 56% respondents.

5.3.7. Policies, procedures and legislative framework governing records management

Records management challenges can be addressed or prevented through the establishment and implementation of an effective records management policy (King1997:657). This is due to the point that a proper records management programme is guided by policies, rules and procedures to ensure an environment conducive to proper records management (Chinyemba and Ngulube 2005). The majority of records management officials in the hospitals were not familiar with legislative framework governing records since 79% of the respondents pointed out that they did not know about any legislative frameworks governing records management. Although the observation discovered that the existing policy was not specific for patient records management, at least 77% of the respondents stated that they knew the policy, procedures, norms and standards for records management in their institution. The policy also did not cover electronic records management (88%) and the officials never received training in the existing records policy (94%).

5.3.8. Access to records

According to Section 17 of the National Health Act (Act No. 61 of 2003), a person working in a health institutionôs section responsible for medical records must put in place effective security measures to ensure access control in prevent unauthorised access to personal records and medical records filing custody/building. Some of the reasons for poor records management were poor records security, access control and lack of records movement control techniques (Wamukoya and Mutula 2005b: 70; Mnjama 2005:458-459 cite Mnjama and Wamukoya 2004). In the hospitals there were basic records access control measures. The observation discovered that for access control, patientsô records storage places in 39 (97,5%) hospitals had counters to prevent clients from accessing records storage and shelves, and 23 (57,5%) hospitals had unauthorised access prohibition signs to the filing storages and registries. Access to the records and records custody for patient files was controlled by the records management staff. Patients were issued with files at the counter for consultation. Police and third-party/claiming agent (e.g. attorneys) accessed records through the finance revenue unit since

some of them had to pay for access to copies. The revenue unit and any other internal staff also accessed records through the records management unit authority and provision.

5.3.9. Records disaster prevention and recovery

Literature reviewed highlighted that people responsible for records management seem to be ignorant of disaster preparedness in order to be ready for any danger or disaster that might damage or destroy records. The organisation needs to be prepared for any disaster for document protection. An organisation that is well prepared for disaster is able to efficiently and quickly face any emergency that might be dangerous to staff, documents and building. The disaster plan minimises disruption of normal operations and the economic impact of disaster, ensures trained personnel on emergency procedures and provide for smooth restoration of services (Ngulube 2003a:58-59). However, a disaster plan is one of a crucial requirement in any records management programme to ensure organisational readiness to meet emergencies. The control measures to fight or prevent disaster may include, but may not be limited to, the fire extinguishers, emergency telephone numbers for the police and fire unit (Chachage and Ngulube 2006:13; Ngulube 2003a:60). The functionality of the Electronic Record and Document Management System should be considered from its reliability and backup for disaster recovery (Johnson and Bowen 2005: 134; Tafor 2003:75; Ojo 2009:99).

The hospitals lacked records disaster preventive measures. The observation reported no availability of disaster preparedness plan for patient records, usage of powder fire extinguishers instead of carbon dioxide and no water disaster fighting equipment. At least for theft and vandalism, the hospitals had the lockable storages, security officers at the gate and counters at the storage entrances and officials working at the counter. The major risk was that filing storages were full and untidy. In terms of temperature control, only 18(45%) had air conditioners installed in their filing storage places and 22 (55%) did not have the air conditioners. The other disappointing part was that the air conditioners which were available were not effectively utilised for the filing custody temperature maintenance to keep the custody at 18^{o}c to 20^{o}c as guided by NARS. Some were switched off or turned on hot during winter and

some were not even functional. This was a high risk as the files/records may be damaged by high heat and humidity.

5.3.10. Risks involved in records management

Bhana (2008:3-4); Kemoni and Ngulube (2008:297) underscore that poor records keeping can lead an organisation to risks, such as poor organisational reputation, non-legal compliance, financial loss and information loss. The hospitalsô patient records were also at high risk of missing or being damaged due to lack of enough filing space as observed. Though the observation reported availability and usage of good mobile cabinets, file covers and boxes, these good records keeping resources may be damaged due to untidy, congested and overloaded files as a result of lack of enough space for filing. The hospitals were also running the risk of officials operating on their own devices because they lacked policies that specifically address patient records management. The only available records management policy was general and dwelled much on the paper-based records management. Policies and other relevant legislation were not presented to relevant officials based on its applications for proper records keeping.

5.3.11. Readiness to e-records management

When the organisation conducts readiness assessments for e-health and e-records they should cover, amongst others, appropriateness of technology, affordability, capacity, relevance of content, integration, socio-cultural factors, trust, legal and regulatory framework and the political willingness. This may also assist in solving digital division (Khoja, Scott, Mohsin, Ishaq and Casebeer 2008:79-80). In terms of telecommunication that will assist to improve or move to electronic records management and also apply e-health, the hospitals were ready. This is because the observation shows that all the hospitals had reasonable access to the internet, intranet, computer hardware, and e-records system, videoconferencing equipment in each district and telephones as well as patient e-records servers in each hospital.

5.4. THE MAJOR CAUSES OF MISSING FILES IN THE PUBLIC HEALTH SECTOR OF SOUTH AFRICA IN LIMPOPO PROVINCE

The third objective of the study was to find out the major causes of missing files which hampers service delivery in the public health sector. There were several contributors to missing files for records managed in the hospitals.

5.4.1. Education, training and knowledge

Qualified records management staff in an organisation ensures that records management work is carried out efficiently (Chinyemba and Ngulube 2005). People need to be capacitated through training and education with the skills, knowledge and ability to establish the necessary records keeping infrastructure. This will ensure compliance with accountability and service delivery as required by the citizens (Johare 2006:2). The knowledge required should cover records and archival functions, professional and contextual knowledge. The records and archival function scope should cover management of active and terminated records such as classifying, scheduling their retention, and protecting them. The other part of the scope should be appraisal and archival processes which include accessioning, arranging and describing records. The scope of professional knowledge may cover history, records and cultural memory, ethics and value of the profession. The scope of contextual knowledge should cover, amongst others, administrative history, professional elements of law, social, cultural, legal and financial systems, information system and management of digital records (Katuu 2009:133). Lack of education and training may also contribute to missing files, especially if records management is not an interesting career for some of the officials. The survey revealed that 36% of the respondents were matriculants and 5% had a qualification lower than matric. It also reported that 82% had public administration qualifications, 39% had information management qualifications and 25% studied other courses not listed, such as human resources. At least, in terms of experience, 82% of the respondents had more than five years of current position experience and 86% had more than five years of records management experience. The survey also discovered that 100% of the respondents were confident about their knowledge of the meaning of records. They stated that records mean recorded information and/or information

created during communication or business transaction (89%). The examples of records mentioned were memos and registers (79%) and patient files (100%).

Lack of training in records management can be seen as a contributing factor to missing files. In an organisation where the staff competency and skills are not developed, the survival of the organisation is not assured. Qualified and well-trained staff will lead the organisation to an advanced stage of operation, growth and quality of work (King 1997:658). The survey indicated that 70% of the respondents had never attended formal records management training and 88% claimed that no formal records management training was offered to records management staff in their institutions. If the training was offered as stated by 63%, the competency level of the training was basic. According to 59% of the respondents less than 25% of records management officials were trained in records management. The training was also offered in-house by internal staff as confirmed by 81% of the respondents and 51% also stated that the training was conducted by an external institution. It looks like the training conducted never covered the majority of the staff, unless if it was affected by a high staff turnover of between 51% and 75% as stated by 38% of the respondents. The officials may leave the employ of the organisation after training, as then they would be marketable when they have skills and knowledge.

5.4.2. Management and administration

The literature reviewed in Chapter 2 stated that the Eastern and Southern African countries had several challenges with regard to the capturing and preservation of electronic records. These challenges include a lack of records management plan, inadequate knowledge about the importance of records management for organisational efficiency and a lack of accountability. The other challenges include a lack of records handling coordination and responsibility, no legislation, no policies and procedures, lack of central ability to manage records, understaffing of records management unit. There was also poor records security and access control, no budget for records management, no records retention and disposal policy, and no records movement control techniques. All these challenges can decimally challenge the overall service delivery in any department (Wamukoya and Mutula 2005b: 70; Mnjama 2005:458-459 cite

Mnjama and Wamukoya 2004). Most of these management and administrative challenges were also applicable to hospitals in the Limpopo Province of South Africa.

Poor records keeping results in missing and lost files and documents lead to ñdelayed service to citizens and poor image of the public serviceò (Kemoni and Ngulube 2008:297). The poor state of records management can also contribute to missing files in hospitals. The state of records management in the hospitals was poor as stated by 58% of the respondents. The reasons for this were, amongst others, too much paperwork, no proper filing/archiving system, poor planning, organisation and supervision, many files were lost with no known reason, lack of filing space, lack of experienced officials, records management was undermined by division and little centralised budget. The following were opinions given by respondents, about what might be the causes of the poor state of records management in the hospitals that results in records missing and misfiled:

- Lack of good organisation and disciplinary measures for involved staff.
- No proper filing system in place.
- No properly designated staff.
- Lack of capacity, skills and training.
- Lack of administrative leadership and individual official dedication.
- Usage of manual records management.
- Lack of filing space, which leads to a mixture of files in their different status like death and MVAs.
- Lot of staff not familiar with records management who are also new to the field of records management, that is lack of records management experienced staff.
- Poor infrastructure.
- Little centralised budget.
- Poor planning.
- Lack of end users consultation when planning system and administration.
- Shortage of staff.

5.4.3. Staff, resources and support

In the literature review in Chapter 2, Ojo (2009:95) states that development in Africa is still blocked by lack of ICT, illiteracy, politics, poor infrastructure and human resources. Ngulube and Tafor (2006:69) also underscore that the major problems include organisational commitment, limited resources and expertise, growth in ICT, poor leadership and management and telecommunication facilities. In the sub-Saharan Africa many countries experience a lack of support for resources, expertise and electronic media management facilities which leads their automation to a very poor condition (Ngulube and Tafor 2006:69). Bhana (2008:3) emphasised that poor records control has bad consequences for all citizens since it was usually due to lack of information that the citizens are misinformed or misled. This was not exclusive to Limpopo hospitals.

The challenges that contribute to missing files in the hospitals were staff vacancy rate, staff turnover, resources availability, management support, records management programmes functionality, staff competency and skills, records value consideration which, according to the survey, were more than 50% lacking. Manual records keeping, as stated by 69% of the respondents, especially for a large volume of patient records, also led the missing of most records. The missing files were caused by, amongst others, misfiling (65%), untidy filing (99%), high records demand (81%) and staff shortage (100%). Other reasons were incompetent/unskilled staff (91%), damage to records (36%) lack of general staff awareness about the importance of records (96%) and insufficient budget (100%). It was also affected by lack of support for resources (77%) to support records management programmes. Poor records tracking may also lead to records going missing. The hospitals were using the manual file tracking system as stated by 87% respondents.

5.4.4. Policies, procedures and file out of registry control measures

The literature in Chapter 2 highlights that paper records, unlike electronic records, can be accessed by only one person at a time (Johnson and Bowen 2005: 138). Marutha and Ngulube (2010:10) argue that to ensure a timely and quicker retrieval of records in response to a records

request in the public health sector, proper records management must be exercised. This will avoid records management barriers, such as misfiling and missing files. Proper records keeping will result in a proper file tracking system in an organisation. The hospitals did not have a standard reasonable time frame for the returning of patient records when clients borrow files. The survey reported that 61% of the respondents stated that some files had been returned after more than a month. It was also discovered, from the observation that, the hospitals did not have policy, procedures, norms and standard documents that specifically govern patient records management. The only available policy was for general records management and mostly concentrated on correspondence and other records. Officials were also not properly receiving training on the available general policy, procedures, norms and standard. Out of all the respondents, 94% pointed out that they never got any training in policies, procedures, norms and standards for managing records in their institution. Respondents believed that, amongst others, the problems in records management emanate from lack of awareness training/ workshops/meetings, lack of system monitoring and auditing, no records management staff training and workshops, no training for staff on legislation and policies, unqualified records management staff, no enough space for filing and optimal filing system, no consultation with end users when planning system and administration.

5.4.5. Security and access control

The literature in Chapter 2 shows that the hospitals should establish and implement an effective records management policy to prevent and address challenges like lack of security or access control (King1997:657). This may assist in preventing poor records security, access control and lack of records movement control techniques affecting the eastern and southern African countries. These can avoid heavy challenges to the overall service delivery in the department (Wamukoya and Mutula 2005b: 70; Mnjama 2005:458-459 citing Mnjama and Wamukoya 2004). In addition, the organisation needs to have a disaster preparedness plan document since an organisation that is well-prepared for disaster would be able to efficiently and quickly face any emergency that might be dangerous to staff, documents and building. It also helps to protect records against theft, deliberate or unintentional damage or destruction (Ngulube 2003a:58). Looking at the observation report, the hospitals had basic security measures to

prevent theft and vandalism, such as entrance counter, unauthorised access note/signs and users were also controlled for file/records access. The major challenge and risk was that they did not have a disaster preparedness plan, water-fighting equipment and techniques, suitable fire fighting equipment and techniques. Enough was not done to ensure temperature and humid control since not all hospitals had effectively used air conditioning for temperature in filing custodies, which is setting it at 18-20^{o}c. The hospitals also had good filing cabinets, file covers and boxes that keep filing neat and tidy though shortages of filing space made it difficult for that purpose. The file classification was generated by the E-His patient administration system.

5.5. E- RECORDS AND E-HEALTH AWARENESS

The fourth objective of the study was to explore awareness in the public health sector about e-records and e-health.

5.5.1. E- RECORDS AWARENESS

The literature reviewed in Chapter 2 underscores that the ESARBICA is still far behind in the adoption of IT for records management. Kenya and South Africa are perfect examples of countries lacking records management automation (Mazikana 1999 in Kemoni, Wamukoya; Kiplangôat 2003:40). In terms of definition, electronic records (e-records) were defined in Chapter 1 by the National Archives and Records Service of South Africa (2006) as the ñinformation which is generated electronically and stored by means of a computer technologyò. ñElectronic records are the evidence, in digital form, of transactions undertaken by individuals or by organizationsò (McDonald 2006). The officials in the health institutions were somehow aware of the electronic records, popularly known as e-records, but they were not trained on how to manage it. The survey reported that 100% of the respondents identified moving to electronic records management as a solution for misfiling, missing files, damage to record and shortage of filing space. Respondents selected the meaning of electronic records as records created by a computer (100%) and records managed by means of a computer system (94%). Thurston (2005) argues that technological improvement is developing faster than the skills and infrastructure development. There was a need for more training and education in government. The survey reported that 67% of the respondents stated that they were poor in electronic

records management. On the other hand, 76% of the respondents stated that the training offered to them did not cover the e-records management scope and 96% stated that there was no special training for e-records management. None of the officials in records management were trained in electronic records management, as stated by 75% of the respondents.

However, Sinclair (2002: 104) stated that a knowledge economy relies on information and most of the government services were based on information. This shows a need for faster and more effective access to accurate information. Electronic records enable individual users to access quality, timely, effective and efficient records. It ensures that the organisationôs can be completed quicker and with less effort, with quality, less money and with compliance to law and regulations. Its functionality should be considered from its reliability and backup for disaster recovery as well as the ability to manage those records (Johnson and Bowen 2005: 134, Tafor 2003:75 and Ojo 2009:99). The survey reported that 100% of the respondents understood that moving to electronic records management was a solution to many current records management challenges. Electronic records management will save time (100%), save stationery (88%) and save filing space (100%). Respondents also highlighted challenges with regard to the application of electronic records management such as system offline (100%), system slow response (93%) and lack of system usage skills (100%). Respondents also rated electronic records management as excellent to improve business process (57%), quality of service (53%), file retrieval time (64%), patient waiting time (48%), and customer satisfaction (45%), compliance with policies and norms (43%) and job satisfaction (51%). This means that the officials in the Limpopo hospitals were aware of the electronic records, but they just did not have the skills and competencies to manage it.

5.5.2. E-HEALTH AWARENESS

The concept e-health was defined in Chapter 1 by Neuhauser and Kreps (2003:12); Khoja, Scott, Mohsin, Ishaq and Casebeer (2008:79-80) as the usage of modern information and communication technology, such as the internet, to improve health care services. The literature reviewed in Chapter 2 shows that with e-health, citizens can access health information anywhere, anytime. E-health also makes it easy to monitor patients properly and increase the

quality and pace of medical service. It is a good interactive medium for information within patients with the same conditions and their medical practitioners (Rawabdeh 2007:517; Adams and Bal 2009:35; Akeh and Morfaw 2007; Harland and Bath 2007:208; Neuhauser and Kreps 2003:13). E-health can address, amongst others, psychological factors like mediate change, improve and promote interaction and participation, avail relevant detailed information and improve multiple media channels (Neuhauser and Kreps 2003:13). The survey confirmed that 67% of the respondents knew what e-health means. They identified the meaning of e-health as an electronic health service (100%) and a health service rendered through ICT (94%). The respondents also identified indicators of e-health as follows:

- User information access, communication, e-learning and monitoring (98%).
- Patient monitoring, task generating and reminding system (48%).
- Clinical/encounter data (93%).
- System-generated tasks and calendar (38%).
- Automated clinical and administrative reminder (58%).

Literature in Chapter 2 indicates that the study on the impact of electronic patient records on work flow conducted by Cauldwell et al. (2007:157-158) shows that the introduction of patient access to electronic healthcare records system improved the length of consultation and administrative process in the UK London-based surgeries. The Department of Health had not yet implemented e-health in the institutions (81%), although they were ready for implementation of e-health as stated by 75% of the respondents.

5.6. AVAILABILITY OF THE NECESSARY INFRASTRUCTURE

The fifth objective of this study was to explore the availability of the necessary infrastructure, such as telecommunication networks and other ICT network connection facilities for e-health and e-records, to avoid digital division. The literature in Chapter 2 indicates that computation of archival services needs the purchase of hardware, software, training, consultancy, networking, system maintenance, user-friendly system identification, records security measures to prevent unauthorised access and virus prevention against data corruption (Mazikana 1999 in Kemoni, Wamukoya and Kiplangôat 2003:40). The necessary infrastructure, such as

telecommunication networks and other ICT network connection facilities for e-health and e-records in the hospitals, was available, but was not enough. The survey proved that 90% of the respondents stated that the necessary infrastructure, resources and equipment for e-health, such as telecommunication networks and computers, were available. The availability of computers was 50% available as stated by 43% of the respondents, telecommunication networks was 25% available as stated by 27% of the respondents, ICT staff capacity was 25% available as stated by 51%, staff capacity/complement was 25% available as stated by 36% and patient internet and email access was totally not available as stated by 98% of the respondents as in Table 4.6 in Chapter 4. The observation shows that email and the internet were only accessible to hospital employees. All the hospitals had computers and telecommunication networks.

5.7. AVAILABILITY OF CAPACITY FOR E-HEALTH AND E-RECORDS IN TERMS OF HUMAN RESOURCES

The sixth objective of the study was to determine the availability of capacity for e-health and e-records in terms of human resources.

5.7.1. AVAILABILITY OF CAPACITY FOR E-HEALTH

The literature reviewed in Chapter 2 shows that there were several barriers to e-health implementation that include, but not are limited to, limited financial resources, lack of trained professionals, digital division, shortage of medical personnel, resistance to change by some doctors, technophobia and patients willing to always be closer to the doctor for safety of their information (Akeh and Morfaw 2007). The officials in the health institutions were not yet practicing e-health services and this can confirm the little capacity in handling e-health services to citizens. The survey shows that 81% of the respondents stated that the Department of Health had not yet implemented e-health in the institutions. The respondents stated that lack of e-health implementation emanated from lack of resources, lack of enough computers and poor ICT resources, reluctance to use the system fully by officials, lack of professionals/experts in health information technology, lack of training, lack of information and knowledge and no budget/funds for records management provided. The respondents listed solutions for the

successful implementation of e-health, such as the purchasing of more resources and computers, employing and/or developing experts in health information technology and strengthen training. The hospitals in the province did not have a reasonable capacity to handle e-health, as stated by 90% of the respondents. In terms of other resources, computers were 50% available as stated by 43% of the respondents, telecommunication networks 25% available as per 51% of the respondents, 36% of the respondents stated that staff capacity/complement was 25% available and patient internet and email access was totally not available as stated by 98% of the respondents.

5.7.2. AVAILABILITY OF CAPACITY FOR E-RECORDS

The literature in Chapter 2 indicates that records management staff need to be capacitated through training and education with the skills, knowledge and ability to establish the necessary records keeping infrastructure (Johare 2006:2). This is because qualified records management staff ensures that records management work is carried out efficiently in an organisation (Chinyemba and Ngulube 2005). The hospitals did not have the necessary capacity for management of e-records. Although the officials had long-term records management experience, their experience did not cover e-records as hospitals managed their records manually. A majority of officials in the hospitalsô records management service had more than five yearsô experience, as confirmed from 82% of the respondents. In addition, 86% confirmed that they also had more than five yearsô experience in the current field of work specialisation. Knowledge and skills were still challenging in the hospitals since 70% of the respondents pointed out that they never attended any formal records management training. Out of all respondents, 88% also claimed that no formal records management training was offered to records management staff in their institutions. On the other hand, 59% of the respondents stated that less than 25% of them had been trained and the training competency was at basic level as stated by 63% of the respondents. According to 81% of the respondents the training was offered in-house by internal staff and 76% of the respondents stated that electronic record management was not covered in the trainings conducted. It was also confirmed by 92% of the respondents that no separate course/training for electronic records management was offered and 75% stated that none of the officials in records management were trained in electronic records

management. In terms of knowledge, 67% of the respondents stated that they had poor knowledge on electronic records management in general. Though the participants were not good in electronic records administrative knowledge, respondents appeared to understand the meaning. In selecting the definition, 100% of the respondents selected that electronic records are records created by computers and 94% stated that they are records managed by means of a computer system.

The capacity in the hospitals was affected negatively by, amongst others, staff vacancy rate, staff turnover, resources availability, staff competency and skills, records value consideration. In confirming these, 51% of the respondents stated that the hospital had a vacancy rate of between 51%-75%, 38% of the respondents stated between 51%-75% staff turnover, 46% of the respondents stated less than 25% availability of resources for records administration, 40% of the respondents stated between 26%-50% records management programme functionality, 50% of the respondents stated less than 25% staff competency and skills and 45% of the respondents rated less than 25% consideration for the value for records in the hospital.

On the other hand, a lack of electronic records management capacity was confirmed from the state of the system and details covered by the system. The literature in Chapter 2 underscores that the training scope for contextual knowledge should cover, amongst others, administrative history, profession elements of law, social, cultural, legal and financial systems, information system and management of digital records (Katuu 2009:133). Most of the staff managing records in the sub-Saharan countries are not capable of managing digital records professionally. This will be a permanent challenge as long as these officials are not capacitated. The government must liaise with educational institutions to ensure a relevant and enabling educational system in the field of e-records and e-government (Ngulube 2007:7). In this case, 73% of the respondents stated that the system only covers personal details of the patients and not medical information like prescriptions and treatments. The reason for this was that the system had space to cover all the details, but the hospital officials were not using those functionalities and therefore records were poorly administered. The institutions also did not have disposal authority (85%) and disposal plans (80%) for electronic records. The hospitals

developed and used manual registers as a file tracking system as stated by 56% of the respondents.

5.8. IDENTIFICATION OF EXISTING GUIDELINE DOCUMENTS SUCH AS POLICIES AND LEGISLATIVE FRAMEWORK GOVERNING E-RECORDS

The seventh objective of this study was to identify existing guideline documents, such as policies and legislative framework governing e-records. Thurston (2005) states that ineffective records management lead to files being piled up in different offices and corridors, as a result of moving difficult personnel to the records management unit, lack of continuous training, lack of policies, procedures and standards. They also mentioned lack of records significant awareness, disposal and political will for records protection as the contributing factors. The Eastern and Southern African countries are challenged by a lack of policies and procedures (Wamukoya and Mutula 2005b: 70; Mnjama 2005:458-459 cite Mnjama and Wamukoya 2004). This situation was the same with Limpopo hospitals. The hospitals did not have enough guiding documents towards administration of patient records. 64% of the respondents in the survey stated that they did not have a standard norm for turnaround time in retrieving patient medical records in the hospitals. There was also no disposal plan for e-records available as 80% of the respondents stated. The only available record policy was too general and did not entirely cover patient records management as confirmed by 77% of the respendents. The policy did not cover electronic records management as stated by 88% of the respondents. According to 94% of the respondents, no training was offered on policies, procedures, norms and standards for managing records in their institution. The legislative framework for records management was also not accessible to records management officials since 79% of the respondents did not know those legislative frameworks.

However, the observation also reported that the only policies and procedures that were available in the hospitals were for overall records management in the department. The department was planning to create policies and procedures that are specifically focused on patient records. The reason for that was that patient records were special and had different implications and difficulties for the department and citizens in particular. The situation

observed was common for all 40 (100%) the hospitals. In terms of the availability of relevant acts, copies of the relevant act for records management were not made available to officials since some of the officials did not know about them. They were never provided with training in and/or copies of such acts. Out of the 40 (100%) hospitals only managers/sectional heads in six (15%) hospitals could access the acts on the internet and 34 (85%) could not access it.

5.9. IMPROVEMENT OF RECORDS MANAGEMENT AND E-HEALTH READINESS

The eighth objective of the study was to make recommendations for improvement of records management and e-records readiness.

5.9.1. IMPROVEMENT OF RECORDS MANAGEMENT

There were several records management challenges that needed improvement in the hospitals.

5.9.1.1. Training

As already discussed under item 5.7.2, one of the challenges was the training of staff. The survey reported that 70% of the respondents declared that training at the hospitals was lacking. There was a need for formal records management training, as stated by 81% of the respondents, since only in-house basic workshops were conducted by internal officials as confirmed by 63% of the respondents. There is need for training to cover at least more than 75% of the staff since 59% of the respondents confirmed that less than 25% of staff was trained. There was also a need for electronic records management training as 92% of the respondents said it was never conducted for records management officials and 75% replied that none of the officials in records management were trained on electronic records management. The duration of the course also needs to be reasonable enough to cover more scope as the in-house training conducted was declared by 26% out of 30% respondents as 1-2 weeks.

5.9.1.2. Management and administration

The state of records management in the institution was rated poor by 58% of the respondents because, at times, records were requested in bulk, which makes it lengthy to retrieve, resulted in too much paperwork, no proper filing/archiving system, poor planning, organisation and supervision,. In addition, many files were lost for no known reason and there was a lack of filing space, experienced officials and records management divisions were undermined , just as there was little centralised budget. The following need to be introduced in order to improve the poor state of records in the institutions as recommended by respondents:

- Good organisation and disciplinary measures for involved staff.
- Proper filing systems in place.
- Properly designated staff.
- Improve capacity, skills and training.
- Good administrative leadership and individual official dedication.
- Introducing electronic records management.
- Enough filing space to avoid mixture of files in their different status like death and MVA.
- Improving infrastructure.
- Enough budgeted moneys.
- Good/proper planning
- Efficient end user consultation when planning system and administration.
- Recruiting and filling posts with qualified staff.

The records management programme needs to be improved from manual to electronic as 69% of the respondents confirmed the records management operation was manual. The hospitals need to have a turnaround time norm guide for patient file retrieval; however this was not available according to 64% of the respondents. In the guiding/workflow document, the issue of the time frame for returning of the paper-based files should be addressed as a gap, since 61% of the respondents declared that it was not available.

However, the hospitals should also address serious administrative problems, such as shortage of filing space (100%), misfiling and missing files (94%), damage to record (36%), incompetent/unskilled staff (91%), shortage of staff (100%), lack of support for resources (77%), lack of general staff awareness about the importance of records (96%) and insufficient budget (100%). Electronic records management can assist to minimise some of the problems as stated by 98% of the respondents. Respondents recommended that these problems should be resolved by moving to electronic records management (100%), reviewing staff establishment and adding more staff (77%), providing bigger buildings for records storage (41%), capacitating records management staff (92%), providing enough budget specifically for records management (98%), more training for staff (100%), conducting regular scheduled records awareness workshop (88%). The hospitals need electronic records management to save retrieval time (100%), stationery (88%) and filing space (100%). Electronic records management greatly assists in improving business process (57%), quality of service (57%), file retrieval time (64%), patient waiting time (48%) and customer satisfaction (45%), compliance with policies and norms (43%) and job satisfaction (51%).

5.9.1.3. Staff, resources and support

The hospitals were also suffering from staffing, resources provision and management support. The hospitalsô records management units need to be improved from a 51% to 75% vacancy rate (51%), 51% to 75% staff turnover (38%), less than 25% resources availability (46%), 26% to 50% management support (52%), 26%-50% records management programme functionality (40%), less than 25% staff competency and skills (50%) and less than 25% records value consideration (45%). The records management units need to be provided with the budget specifically dedicated for records management administration as this was not provided for as stated by 51% of the respondents.

5.9.1.4. Records management system

The hospitalsô records management systems need to cover all the details of the patients, such as covering only patientsô personal details and dates (100%) and patient payments (bills) (100%).

The e-records disposal plan needs to be compiled since it was not available (80%) to ensure proper disposal programmes, and disposal authority for electronic records also needs to be applied from the archive, as this was also not available as stated by 85% of the respondents. It was also recommended by 85% of the respondents that it was necessary and important to scan and integrate both ERMS and EDMS in one to eliminate most of the paper records management challenges, such as lack of enough filing space, misfiling and records sharing. The electronic tracking system was also required for improvement since 56% of the respondents confirmed that the hospitals were using manual tracking systems. This was also supported by 51% of the respondentsô recommendation that hospitals should keep patient records electronically. Electronic records keeping will save retrieval time (100%), save filing space (99%), save stationery like toner and blank papers (77%), pave a way to paperless office (69%), and avoid user queuing for one file (98%). It was also recommended by 83% of the respondents that the server can be used for proper electronic records keeping. This was an ideal because the observation also reported that all hospitals in the province had their own servers for patientsô medical systems.

5.9.2. IMPROVEMENT OF E-HEALTH READINESS

There were also several things to address in order to ensure that the hospitals in the Limpopo Department of Health were fully ready for e-health. The majority of employees in records and information posts were matriculants, as stated by 36% of the respondents. The educational field of study for those with tertiary qualifications was public administration, as confirmed by 82% of the respondents.

5.9.2.1. Implementation

The hospitals had not yet implemented e-health, as 81% of the respondents confirmed. The department was unable to implement e-health due to lack of enough computers and poor ICT resources, reluctance by officials to use the system fully and manual records management system which caused slow retrieval of files, lack of professionals/experts in health information technology, lack of training, lack of information and knowledge, an absence of budget/funds

for records management provided and/or little centralised budget. The following were recommended by respondents to ensure that e-health becomes fully functional:

- Continuous training.
- Frequent supervision over the utilisation of the system by health, nursing and information personnel.
- Purchasing of more resources and computers.
- Employing and/or developing experts in health information technology.

5.9.2.2. Readiness

The department had not implemented e-health, but was ready for the implementation thereof, as stated by 75% of the respondents. The department lacked training, skills and staff capacity for handling or implementing e-health (90%), but they had the necessary infrastructure, resources and equipments such as telecommunication networks and computers for e-health (90%). The department had a 50% availability of computers (43%), 25% availability of telecommunication networks (27%), 25% availability of ICT staff capacity (51%), 25% availability of staff capacity/complement (36%), 0% availability of staff patient internet and email access (36%).

5.9.2.3. Service delivery improvement

E-health was more likely to improve service delivery if properly implemented according to 82% of the respondents. Its improvement in service delivery will include fast service to patients (100%), self-service to patients on the computers (36%), communication between patients and clinicians (45%), minimised patient waiting time (100%), build confidence in clinicians (47%), increase patients satisfaction rate (100%), bring about quick retrieval of medical records and information (74%) and bring about electronic records system (95%).

5.9.2.4. Availability of resources

According to the observation report, all the hospitals had internet and intranet connections. They also had access to the phones and videoconferencing equipment installed in all regional

and provincial hospitals. The provincial hospitals are based strategically at all five districts of the province. All hospitals also had a reasonable number of computer hardware available. They also had access to the electronic records system. Electronic records information in the E-HIS system was not complete. This is because not all the information about the patients was captured onto the system. The paper records were the ones covering the entire scope of patient consultation and treatment. All the hospitals also had servers for patient records keeping.

5.10. SUMMARY

In summary, this chapter interpreted the findings of the study presented in chapter 4. In terms of the interpretation, the hospitals in the Limpopo Province of South Africa faced several administrative and management-related challenges. The challenges cover, but are not limited to, high vacancy rate and staff turnover, lack of the necessary skills and competency, insufficient management support, lack of enough resources and infrastructure, as well as the ineffective records system. The hospitals seem to be ready for the implementation of e-health services with the 25% of the resources available for a start. These minimum resources include telecommunication networks, computers and servers. The next chapter presents the summary, conclusion and recommendations of the study which will be discussed based on the objectives of the study.

CHAPTER 6
SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1. INTRODUCTION

The previous chapter interpreted and discussed the findings of the study as presented in Chapter 4. The interpretation and discussion were done in line with the objectives of the study in relation to the data presented in Chapter 4 and the literature reviewed in Chapter 2. This chapter is therefore giving a summary of the findings, conclusion and recommendations of the study. Both the conclusions and recommendations in this chapter were established in line with the problem statement and study objectives discussed in Chapter 1.

6.2. SUMMARY

The summary in this study is presented on the basis of the studyôs objectives, which are:

6.2.1. To establish how electronic records were managed in the public health sector of the Limpopo Province in South Africa.

- The hospitals were not effectively utilising information technology to ensure a smooth running of the records management and administration. This is because the electronic records system did not cover all patient details and as such, was not fully effective for records management purposes.
- The system had a provision to cover all the details, such as patient treatment and prescriptions, but the hospital officials were not using the system for these other administrative purposes.
- The hospital used an electronic system called E-HIS (Electronic Health Information System) every day, but it did not hold enough information.
- The paper records were the ones covering the entire scope of patientsô consultations and treatments, which is all the information on patientsôrecord.
- The hospitals utilised servers as a storage media for electronic records keeping without disaster backup for recovery if affected by disaster.

- The hospitals did not use the ERDMS.
- They found ERDMS a necessity and relevant to their situation or environment to eliminate most of the paper records management challenges, such as lack of enough filing space, misfiling and records sharing.
- The hospitals did not have a disposal plan and disposal authority for e-records and any other type of records.
- Records appraisal, sentencing, destruction or transfer to archive repository was not done in the hospitals.

6.2.2. To determine the state of records management that hampers service delivery in the public health sector of South Africa in Limpopo Province.

- The state of records management in the hospitals was poor, since, at times, records that were requested in bulk took long to retrieve and many files were lost with no known reason. There personnel also suffered from too much paperwork, no proper filing/archiving system, ineffective planning, ineffective organisation and supervision, lack of enough filing space, lack of experienced and skilled officials, undermined records management, poor infrastructure, shortage of staff, little centralised budget and lack of end user consultation when planning records management system and administration.
- The hospitals were also challenged by missing files and misfiling as well as lack of records awareness by staff that deal with and/or use records daily.
- The hospitals were still using the manual registers as their file tracking system, but they saw a need to move toward electronic records management system as a way of improvement.

6.2.3. To find out the major causes of missing files that hamper service delivery in the public health sector.

- The hospitals had basic records access control measures such as counters to prevent unauthorised clients from accessing records storage and shelves.
- Access to the records and custody of patient files was controlled by the records management staff and files were only issued at the counter.

- The hospitals had lockable storage places, security officers at the gate, counters at the storage entrances and officials working at the counter to prevent theft and vandalism.
- The hospitals had no disaster preparedness plan for patient records, used powder fire extinguishers instead of carbon dioxide for firefighting and had no water disaster-fighting equipment.
- The air conditioners which were available were not effectively utilised for the filing custody temperature maintenance of 18oc to 20^{o}c as guided by NARS. This is because some were switched off or turned on hot during winter or were not even functional, which may result in high heat and humid damage to files.
- The hospitalsô patient records were at high risk of going missing or being damaged due to lack of enough filing space.
- They used good mobile cabinets, file covers and boxes, which may be damaged due to untidy, congested and overloaded with files as a result of lack of enough space for filing.

6.2.4. To explore awareness in the public health sector about e- records and e-health.

- The officials in the hospitals knew what e-health means since they identified the meaning of e-health as an electronic health service (100%) and a health service rendered through ICT (94%).
- The respondents also identified indicators of e-health as user information access, communication, e-learning and monitoring (98%), patient monitoring, task-generating and reminding system (48%), clinical/encounter data (93%), system-generated tasks and calendar (38%) and automated clinical and administrative reminder (58%).
- IThe officials were also aware of the electronic records, popularly known as e-records, but they just did not have the skills and competencies to maintain them.
- They identified the meaning of electronic records as records created by computer and records managed by means of a computer system.

6.2.5. To explore the availability of the necessary infrastructure for e-health and e-records.

- The necessary infrastructure for e-health, such as telecommunication networks and other ICT network connection facilities and e-records in the hospitals were available, but they were not enough.
- The availability of computers was 50%, and telecommunication networks, ICT staff capacity, staff capacity/complement had a 25% availability rate and patient internet and email access was totally not available. The email and internet was only accessible to hospital employees.
- All the hospitals had computers and telecommunication networks.

6.2.6. To determine availability of capacity for e-health and e-records in terms of human resources.

- The officials in the health institutions were not yet practicing e-health services and this can confirm lack of or little capacity in handling e-health services.
- The Department of Health had not yet implemented e-health in the institutions (81%) but they were ready for the implementation of e-health, as stated by 75% of the respondents.
- Lack of e-health implementation emanated from lack of resources, lack of computers and poor ICT resources, reluctance to use the system fully by officials, lack of professionals/ experts in health information technology, lack of training, lack of information and knowledge and no budget/funds for records management provided.
- The staff managing records in the hospitals understood, but was not capable of managing digital records professionally since they did not have enough knowledge on how to manage electronic records.
- Officials engaged in creating and receiving records were uncertain about the importance and administration of electronic records.
- In terms of the survey, 70% of the respondents in the hospitals never attended formal records management training and no formal records management training was offered to records management staff in the institutions (88%).

- At least the in-house training, although not conducted regularly, was conducted by the internal staff locally (81%) and the provincial office (51%).
- The training was attended by few (less than 25%) and was at the basic competency level.

6.2.7. To identify existing guideline documents like policies and legislative framework governing e-records.

- The hospitals did not have a standard reasonable time frame for returning patient records when clients borrow files. Some files were often returned after more than a month.
- The hospitals did not have policy, procedures, norms and standard documents that specifically governed patient records management.
- The officials were not exposed to legislative frameworks and policies governing records management.

6.2.8. To make recommendations for improvement of records management and e-health readiness.

- In ensuring that e-health becomes fully functional, the hospitals need continuous training, frequent supervision on the utilisation of the system by clinicians, nursing and information personnel, purchasing of more resources and computers, and employing and/or developing experts in health information technology.
- E-health was more likely to improve service delivery if properly implemented.
- Its improvement to service delivery will include fast service to patients (100%), self-service to patients on computers (36%), communication between patients and clinicians (45%), minimised patient waiting time(100%), better confidence in clinicians (47%), increased patient satisfaction rate (100%), quick retrieval of medical records and information (74%) and an electronic records system (95%).
- The hospitals realised the e-records management had many advantages, such as saving retrieval time, saving filing space, saving stationery , paving the way to paperless offices and avoiding users queuing for one file, low medical errors, low costs, and timely access to information, accurate data and high physical efficiency.

- The hospitals believed that electronic records management can minimise some of the problems including shortage of filing space, missing and misfiling, damage to records, and shortage of staff.
- They understood that electronic records management can improve service delivery in the institutions since it was capable of improving business processes, file retrieval time and the quality of service, patient waiting time and customer satisfaction, compliance to policies, norms and job satisfaction.
- They also recommended other alternative or additional solutions to these problems. The solutions included reviewing staff establishment and adding more staff, capacitating records management staff and providing enough budgeted moneys specifically for records management, more training for staff and conducting regular scheduled records awareness workshop.

6.3. CONCLUSION

Looking at the research problem, health workers in the public health institutions, such as medical doctors and nurses, were usually not able or were struggling to render timely and effective health services to citizens due to lack of effective records management systems. Ineffective records management systems lead to long patient waiting times. As a result, health workers end up failing to render certain services due to the fact that the health history of the patient would not be contained in medical files, which might endanger the patientsô health. At Nkhesani Hospital in the Limpopo Province, South Africa, the doctors could not operate one of the patients because of a lack of patient health background in the file. The file was not accessible and allegedly missing (Chauke 2008:7). ICT or electronic records management systems were not used to ensure easy and fast access to treatment and retrieval of information or records (Ojo 2009:95). The traditional paper records management system caused records managers and clerks to waste a lot of time looking for missing and misfiled records (Robek, Brown and Stephens 1995).

6.3.1. CONCLUSION ABOUT ELECTRONIC RECORDS MANAGEMENT IN THE PUBLIC HEALTH SECTOR

A lot of staff managing records in the hospitals were not capable of managing digital records professionally. Officials engaged in creating and receiving records were uncertain about the importance and administration of electronic records. They understood the meaning of electronic records, but they did not have idea/knowledge/skills/competencies on how to manage it. A majority of them (67%) were not certain about how electronic records must be managed. However, the hospitals were not effectively utilising information technology to ensure the smooth running of the records management administration. There was no advanced system for opening, tracking and indexing files. They were still using the manual registers as their file tracking system. The electronic records system in the hospitals was not fully effective for records management purposes. The system used for electronic records management in hospitals did not cover all patient details, but only captured personal and financial details of the patients. The system had a provision to cover all the details but the hospital officials, such as doctors, nurses, pharmacists and clinical support staff, did not use those system functionalities. Although not capturing enough information, the electronic system was utilised every day to check the personal and financial details of the patients only. Furthermore, the hospitals were not using the ERDMS. Although it had not started yet, they found merging the two systems (ERMS and EDMS) a necessity. The hospitals had servers utilised as a storage medium for electronic records keeping, but they lacked disaster backup for recovery after a disaster like fire and water. They used the antivirus program Symantec endpoint protection. The hospitals did not have a disposal plan and disposal authority for e-records. The hospitals were ready for e-records management since they had computer hardware; server and network lines were available at all 40 (100%) hospitals.

6.3.2. CONCLUSION ABOUT THE STATE OF RECORDS MANAGEMENT IN THE PUBLIC HEALTH SECTOR OF SOUTH AFRICA IN THE LIMPOPO PROVINCE

The hospitals document decisions and organisational activities, but the records created were not properly managed nor considered a priority in planning. The state of records management in the hospitals was not good. At times, records that were requested in bulk took long to retrieve, there

were too much paperwork, no proper filing/archiving system, ineffective planning, ineffective organisation and supervision, many files were lost with no known reasons, lack of enough filing space, lack of experienced and skilled officials, undermined records management unit and little centralised budget. There was also lack of training, lack of administrative leadership, patient records management policies and individual official dedication. A lot of staff were not familiar with records management, non-supportive infrastructure, and lack of end-user consultation when planning the system and administration, and a shortage of staff. The hospitals was also challenged by lack of administrative resources, lack of management support, records management programme functionality, no records value consideration and budget.

The mode of records management was mostly manual in the hospitals. They used e manual registers as a document tracking system to control records movement. The hospitals did not have a turnaround time norm for patient records retrieval and it usually took them around a maximum of two hours to retrieve the records. The major reasons for taking long to retrieve patients records were misfiling, missing files, untidy filing, high records demand, staff shortage and other reasons, such as incompetent officials being moved from other units, lack of integrated patient records administration that scatter files. Electronic records were also not properly or fully managed in the Limpopo hospitals. There was no disposal authority and disposal plan for electronic records in the hospitals. However, there were basic records security and access control measures, such as counter and unauthorised access prohibition signs. Access to the records and records custody places were controlled by the records management staff. Files were issued at the counter for clients. There was no disaster preparedness plan available for patientsô records. The hospital had powder fire extinguishers instead of carbon dioxide and no water disaster-fighting equipment. They had lockable storage places, security officers at the gate and officials working at the counter. The available air conditioners were not effectively utilised for filing custody temperature maintenance. They used good mobile cabinets, file covers and boxes, which may easily be damaged due to untidy, congested and overloaded files, as a result there lacked enough space for filing. The hospitals were also at risk of officials operating on the basis of their thought positions, because they lacked policies specifically addressing patient records management.

6.3.3. CONCLUSION ABOUT THE MAJOR CAUSES OF MISSING FILES IN THE PUBLIC HEALTH SECTOR OF SOUTH AFRICA IN THE LIMPOPO PROVINCE

Looking at the education, training, skills and knowledge, in the hospitals, most of the officials had more than five years of experience in their current position and more than five years of records management experience. The officials were confident about their knowledge on the meaning of records, which they said is indeed recorded information and/or information created during communication or business transaction. The examples of records mentioned were memos, registers and patient files. The majority of officials in the hospitals never attended formal records management training and no formal records management training was offered to records management staff in the institutions. The in-house training, although not conducted regularly, was conducted by the internal staff. The only training that was attended by less than 25% officials was at the basic competency level.

The hospitals were also disturbed by too much paperwork, no proper filing/archiving system, poor planning, organisation and supervision, many files lost with no known reason, lack of filing space, lack of experienced officials, records management division undermined and little centralised budget. The poor state of records management in the hospitals resulted in records going missing and being misfiled. There was also lack of good organisation and disciplinary measures for involved staff, no proper filing system in place and no properly designated staff. A lack of capacity, skills and training, that of administrative leadership and individual official dedication, use of manual records management, lack of filing space, presence of staff not familiar with records management, poor infrastructure, poor planning, lack of end-user consultation when planning the system and administration, and a shortage of staff also led to the poor state of records management.

The manual records keeping, especially for a large volume of patient records, led to the missing of most records. The missing files were caused by, amongst others, misfiling, untidy filing, high records demand and staff shortage. Other reasons were incompetent/unskilled staff, damage to records and lack of general staff awareness about the importance of records and insufficient budget. It was also affected by lack of support for resources to support records management programmes. Poor records tracking system also led to records missing. The hospitals were using the manual file

tracking system. They did not have a standard reasonable time frame for returning patient records when clients borrowed files. Furthermore, some files were returned after more than a month. The hospitals did not have policies, procedures, norms and standard documents that specifically governed patient records management.

6.3.4. CONCLUSION ABOUT E- RECORDS AND E-HEALTH AWARENESS

The officials in the health institutions were aware of the electronic records, popularly known as e-records. Officials were not trained in how to manage electronic records. They viewed electronic records as records created by a computer and records managed by means of a computer system. The officials were poor in electronic records management since the training offered to them did not cover the e-records management scope and there was no special training for e-records management. The officials in the hospitals were aware of the electronic records, but they just did not have the skills and competencies to manage it. Looking at the e-health awareness, the officials in the hospitals knew what e-health meant. The meaning of e-health is indeed an electronic health service and/or health service rendered through ICT. The respondents correctly knew indicators of e-health as user information access, communication, e-learning and monitoring, patient monitoring, task generating and reminding system, clinical/ encounter data, system generated tasks and calendar and automated clinical and administrative reminder.

6.3.5. CONCLUSION ABOUT AVAILABILITY OF THE NECESSARY INFRASTRUCTURE

The hospitals did not have enough infrastructures, such as telecommunication networks and other ICT network connection facilities, for e-health and e-records. The availability of computers was at a 50% rate , telecommunication networks was 25% available, ICT staff capacity was 25% available, staff capacity/complement was 25% available and patient internet and email access was totally not available. The email and internet were only accessible to hospital employees. All the hospitals had computers and telecommunication networks.

6.3.6. CONCLUSION ABOUT AVAILABILITY OF CAPACITY FOR E-HEALTH AND E-RECORDS IN TERMS OF HUMAN RESOURCES

The officials in the health institutions were not yet practicing e-health services. This was a sign of lack of capacity in handling e-health services to citizens in the hospitals. E-health was not yet implemented in the hospitals. The reasons for e-health not being implemented was lack of resources, lack of enough computers and poor ICT resources, reluctance to use the system fully by officials, lack of professionals/experts in health information technology, lack of training, lack of information and knowledge and no budget/funds. The hospitals in the province did not have reasonable capacity to handle e-health. They had a staff capacity/complement of 25%. In terms of e-records, the hospitals did not have the necessary capacity for management of e-records. The officials had long-term records management experience (more than five years), but their experience did not cover e-records. Only less than 25% of the respondents were trained and the training competency was basic level. In the training that was offered in-house by internal staff, electronic records management was not covered. There was also no separate course/training for electronic records management offered to officials. Although the participants were not good in electronic records administrative knowledge, respondents appeared to understand the meaning since they selected records created by computer and records managed by means of a computer system as the meaning.

6.3.7. CONCLUSION ABOUT IDENTIFICATION OF EXISTING GUIDELINE DOCUMENTS LIKE POLICIES AND LEGISLATIVE FRAMEWORK GOVERNING E-RECORDS

The hospitals did not have enough guiding documents for the administration of patient records. They had no standard norm for turnaround times for the retrieval of patient medical records in the hospitals. There was also no disposal plan for e-records. The only available records policy was too general and did not entirely cover patient records management and it also did not cover electronic records management. There were no training offered on the policies, procedures, norms and standards for managing records in their institutions. The legislative frameworks for records management were also not accessible to records management officials. They did not know about any of those legislative frameworks. The department was also planning for the creation of policies

and procedures specifically focused on patient records because such kinds of records were special and had different implications and difficulties.

6.3.8. CONCLUSION ABOUT IMPROVEMENT OF RECORDS MANAGEMENT AND E-HEALTH READINESS

In terms of improving records management, the hospitals needed to have a turnaround time norm for patient file retrieval, policies and procedures for patient records management since were not available. However, the hospitals must also address the shortage of filing space, misfiling and missing files, damage to records, incompetent/unskilled staff, shortage of staff, lack of support for resources, lack of general staff awareness about the importance of records and insufficient budget. Electronic records management can assist to minimise some of the problems. The alternative solutions to these problems include moving to electronic records management, providing, capacitating records management staff, providing enough budget specifically for records management, more training for staff and conducting regular scheduled records awareness workshops. The hospitals need electronic records management to save retrieval time, stationery and filing space. EDRMS can be excellent in improving business processes, quality of service, file retrieval time, patient waiting time, customer satisfaction, compliance with policies and norms, and job satisfaction. The hospitalsô records management units need to be improved in terms of vacancy rate, staff turnover, resources availability, management support, records management programme functionality, staff competency and skills and records value consideration.

The department was ready for the implementation of e-health. E-health will improve service delivery if properly implemented. It will bring improvement to service delivery in terms of fast service to patients, self-service to patients on the computers, communication between patients and clinicians, minimising patient waiting time, building confidence to clinicians, increasing patients satisfaction rate, bringing about quick retrieval of medical records and information and bringing about electronic records system.

6.4. RECOMMENDATIONS

Looking at the problem of the study, records management systems need to be improved to ensure that the health workers in the public health institutions, such as medical doctors and nurses, are not struggling to render timely and effective health service to citizens. Effective records management systems need to be implemented to ensure a reasonable patient waiting time before receiving health services. The system must enable quicker or timely retrieval of records. The health workers need to render health services with the health history of each patient contained in medical files, at all times, as required to avoid rendering a poor health service that might be risky to patientsô health. The traditional paper records management system needs to be limited or avoided to ensure that records managers and clerks are not wasting time looking for missing and misfiled records since that is not productive in any organisation. There is a need for an effective records management program to upgrade the records keeping system for easy and timely retrieval of information, improved office efficiency and productivity (Robek, Brown and Stephens 1995). ICT or electronic records management systems need to be used to ensure easy and fast access to treatment and retrieval of information or records (Ojo 2009:95). In implementing electronic records management systems, the hospitals should consider the records mediaôs instability, obsolescence, hardware incompatibility, software, data format, storage media, lack of metadata, context of information, clearly assigned responsibility and long-term records preservation resources (Thurston 2005).

6.4.1. RECOMMENDATIONS ABOUT ELECTRONIC RECORDS MANAGEMENT IN THE PUBLIC HEALTH SECTOR

The hospitals need to capacitate their records management staff with training, courses and workshops. The records management training, courses and workshops also need to cover the scope about professional management of digital or electronic records (Ngulube 2007:7). People need to be capacitated through training and education with the skills, knowledge and ability to establish the necessary records keeping infrastructure (Johare 2006:2; Wamukoya and Mutula 2005a:72-74 cite IRMT 2003; Chinyemba and Ngulube 2005). Records and archive management staff need to be trained and retrained in the new skills and competencies for effective operation in the new technology. The staff should be equipped with competencies and skills which include, but are not

limited to, records management, information management and technology. The specific required skills in electronic records management includes creation, capturing, classifying, indexing, storing, retrieving, tracking, appraising, preserving, archiving and disposing of records (Wamukoya and Mutula 2005:72-74 cited IRMT 2003).

The hospitals need to fully utilise EDMS to save retrieval time, filing space and stationery, such as toner and printing paper. , This will pave way to paperless offices and avoid users queuing for one file, maximum communication with users, lower medical errors, lower costs, and timely access to information, accurate data and high physical efficiency. They need to do that for business processes improvement; to minimise shortage of filing space, missing and misfiling; and resolve damage to records and shortage of staff. The hospitals need to upgrade and use the existing servers as a storage media for complete electronic patient records keeping. They also need to make available disaster backup for recovery in case it is affected by disasters , such as fire and water. They need to maintain the antivirus used Symantec endpoint protection.

The system used for electronic records management in hospitals need to cover all patient details, instead of only the personal and financial details of the patients. Since the system has a provision to cover all the details, the hospital officials like doctors, nurses, pharmacists and clinical support staff need to use it through those available system functionalities. The systems should be common to all Limpopo Province hospitals and interlinked to communicate with each other. The hospitals need to have a disposal plan and apply for disposal authority of e-records and any other type of records in their institutions. The hospitals need to develop policies specifically focused on patientsô records administration and management. The records officials should also be trained in the policy after creation, together with relevant pieces of legislative framework governing management of patient records. This will ensure that the officials are exposed to legislative frameworks and policies governing patient records management.

6.4.2. RECOMMENDATIONS ABOUT THE STATE OF RECORDS MANAGEMENT IN THE PUBLIC HEALTH SECTOR OF SOUTH AFRICA IN THE LIMPOPO PROVINCE

The state of records management in the hospitals needs to be improved. The improvement should cover the development of a plan for management of bulk records requests that takes long to retrieve, minimise paperwork, ensure proper filing/archiving system, ensure effective planning, effective organisation and supervision, effective files tracking system to avoid lost files without known reason. The hospitals also need to upgrade to an electronic system to resolve lack of enough filing space, employ experienced and skilled officials, prioritise on records management and put more budget for records administration. There is a need to improve on organisation and disciplinary measures, filing system, designated staff and capacity, skills and training, administrative leadership and individual official dedication, usage of manual records management and filing space. The hospitals also need to improve their infrastructure, planning and user consultation when planning records system and administration. In order to ensure progress or improvements in records management, enough staff need to be appointed, administrative resources need to be made available for records administration, the unit needs management support to ensure that records management programmes are functional, staff need to be competent and skilled through development, records need to be considered a valuable asset of the organisation and more/enough budget need to be provided.

However, if the hospitals want to continue with manual records management system, enough filing space should be provided to avoid the risk of files going missing or being damaged. The researcher recommends that the manual mode of records management needs to be changed or demolished in the hospitals. It is hectic with the manual records management as it affects retrieval turnaround time and availability of records. The hospitals needed to have a turnaround time norm for patient records. The electronic records management system need to be introduced to resolve misfiling (65% respondents), missing files (90%), untidy filing (99%), high records demand (81%) and to avoid taking long to retrieve patientsô records. The hospitals need to refrain from sending incompetent officials from other units to the registry so as to avoid long patient waiting time due to the officialsô laziness and incompetency. A policy that is specifically focused on patientsô records management should be developed to guide officials and ensure that they avoid using their discretion or common

sense in administration of patient records. The policy should also cover electronic records management (88%) or, alternatively, a separate policy for electronic patient records management may be developed.

The hospitals need to strengthen their records security and access control measures by means of counters, unauthorised access signs, fire fighting and water fighting equipment. The registry should have a system for issuing and returning files to track its movement, preferably an electronic system. All the clients, whether internal or external, need to gain access to any record through the records manager or a person delegated by the records manager. The hospitals should also install technology to track unauthorised file take-out action, like the one used in the libraries for books. The hospitals need to have in place the records disaster preventive, fighting and recovery measures for any unexpected disaster that might happen without notice. They should develop a disaster preparedness plan and regularly conduct a disaster drill and train staff on the plan. The filing custody places should be equipped with functional air conditioners and these should effectively utilised for temperature control in filing custodies. The disaster plan should also cover electronic records in terms of preventing, fighting and recovering from a computer virus, obsolescence of technology, digital media fragility, unforeseen future life of technology, deletion or alteration of information/records, and hacking into the computer (Ngulube 2003a: 64).

6.4.3. RECOMMENDATIONS ABOUT THE MAJOR CAUSES OF MISSING FILES IN THE PUBLIC HEALTH SECTOR OF SOUTH AFRICA IN THE LIMPOPO PROVINCE

The missing files also contribute much to more patient waiting time or to a situation where nurses and doctors become unable to assist patients. In order to resolve or lead the issue of misfiling and missing files to an end, the hospitals should employ experienced, trained and educated staff and continue training and retraining them in new developments in the field of records management. The in-house training should be conducted and facilitated by the knowledgeable and experienced records manager or records management supervisor. Short-term training courses should also be identified at institutions of higher learning for staff development in a strategic way. They should also liaise with the Provincial and National Archives for guidance and support. Thurston (2005) underscores that effective records management is important to avoid files piling up in different offices and corridors.

Effective records management should be supported by not sending difficult personnel to the records management unit, ensuring continuous training, creating policies, procedures and standards, ensuring that all officials consider records significant and proper disposal. There should also be a political will in the hospitals to support the implementation of effective records management.

The hospitals should adopt and implement an effective records system to minimise too much paper work. The hospitals should fill their vacant posts and come up with a staff retention strategy to prevent high staff turnover. The hospitals should develop and implement a standard reasonable time frame for returning patients records when clients borrow files to prevent files from going missing. They should also develop policies, procedures, norms and standard documents that specifically govern patient records management. The hospitals should maximally strengthen their security measures to avoid file theft, destruction or alteration. As much as they had the basic security measures, they should consider moving to a higher level of security technology, such as card or fingerprint access control and installing surveillance cameras at strategic points of records custodies and registries. They should develop a disaster preparedness plan and provide the necessary disaster-fighting equipment, such as water-fighting equipment and technique and suitable firefighting equipment and techniques. They should also bring about temperature and humidity control measures, such as air conditioners. In records custody places, air conditioners should be set at 18-20^{o}c, as guided by NARS.

6.4.4. RECOMMENDATIONS ABOUT E- RECORDS AND E-HEALTH AWARENESS

Officials in the hospitals were aware of the e-records, but the hospitals should train them in the fundamental concepts, principles and how to manage and administer it to ensure effective implementation. Only after training or appointment of skilled and qualified officials, should the hospitals move to electronic records management. The necessary resources and budget should also be made available to support the implementation process. They should also guard against systems being offline (100%), system slow response (93%) and lack of system usage skills (100%) after moving to electronic records system. Although officials in the hospitals were aware of e-health and its indicators, they need to be trained in the operational activities and its fundamental concepts, principles, management and administration. The department should increase available resources and

services such as training, computers, communication networks, telecommunication and videoconferencing because they were ready for its implementation (75%).

6.4.5. RECOMMENDATIONS ABOUT AVAILABILITY OF THE NECESSARY INFRASTRUCTURE

It is necessary that the hospitals, in support of their provincial department, upgrade or increase the basic resources that are available. Examples of such resources and services include, but are not limited to, telecommunication networks, computers, videoconferencing and servers. Almost all of these resources and services were 25% available. At least they can be increased up to 75% or more for effective and efficient service delivery. Since according to PAIA, patients are not supposed to pay to access their own personal medical records, the hospital may also come up with a technology for patientsô self-service in terms of medical history access. The system could also have a provision for patient/clinician communication online. The patients could be able to create a personal password to use for accessing the records in the system. Alternatively, the current system should be enhanced to provide for such services. This implies that hospitals should have patientsô computer workstations for access or any alternative technology where patientsô records can be accessed.

6.4.6. RECOMMENDATIONS ABOUT AVAILABILITY OF CAPACITY FOR E-HEALTH AND E-RECORDS IN TERMS OF HUMAN RESOURCES

In terms of e-health capacity, the hospitals should capacitate their staff in terms of e-health through training and courses before attempting to implement e-health. Training should be considered to be the first step in the e-health implementation process. They should also consider prioritising employing officials with e-health capability for new intakes. They should ensure that they have enough resources, computers and other ICT resources, officials have capability to use the system fully, professionals/experts in health information technology, training, information and knowledge and budget/funds for e-health. In terms of e-records, the hospitals should also consider capacitating their officials by means of training and formal courses for effective electronic records management. For new appointments they should consider appointing officials with electronic records management background/training or knowledge and understanding in terms of administrative

operation. The hospitals should also come up with the retention strategies after appointment of qualified officials. This will ensure effective administration of electronic records.

6.4.7. RECOMMENDATIONS ABOUT IDENTIFICATION OF EXISTING GUIDELINE DOCUMENTS LIKE POLICIES AND LEGISLATIVE FRAMEWORK GOVERNING E-RECORDS

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

6.4.8. RECOMMENDATIONS ABOUT IMPROVEMENT OF RECORDS MANAGEMENT AND E-HEALTH READINESS

In recommending for records management and e-health improvements, as discussed under other items above, several improvements are needed in the hospitals. Hospitals should consider providing relevant formal training or courses for at least more than 75% officials earmarked for or engaged in the implementation of e-health and e-records. Hospitals should improve the state of records management in the hospitals by ensuring a shorter retrieval turnaround time for proper management of bulk files requests and limit paperwork by introducing proper electronic records system. They should also ensure proper planning, organising and supervision to avoid losing files unnecessarily. They should improve infrastructure and consult end users when planning the system and administration, and they should recruit and fill posts with qualified staff. The hospitals also need to improve their records management systems to be electronic, rather than manual, and should also set a turnaround time for records requested. The electronic records management systems must capture and provide access to all the information/records about the patient. The hospitals should also consider scanning the current paper patient records to electronic documents and integrate them into

the electronic records in one system, known as EDRMS. This will enable a move to a total paperless administration in the public health service delivery. The system should use the server as a storage media and should also be capable of tracking file movement. In terms of e-health readiness, the hospitals should increase available resources to at least above 75%, adopt the new system or upgrade available electronic system, appoint and train officials for e-health administration and processes.

6.5. PROPOSAL FOR FURTHER RESEARCH

The study has eventually achieved its goal by identifying the shortfalls and gaps in patient records management that impact on public health care services to citizens. It eventually recommended possible alternative solutions to each challenge or problem. Several alternative solutions have been recommended in accordance with the findings of the study presented in Chapter 4, including development of guiding policy document, support for training, resources and budget to improve records administration. The study also recommended that the hospitals should move to an effective electronic records management system to enable them to capture and access full records of the patients and also assist them in tracking paper recordsô movement. In so doing, they will resolve the challenge of file sharing, retrieval time and misfiling. The ERDMS was also recommended as the first priority to accommodate the current paper records by means of converting paper records to PDF. This could pave a way to a paperless patient/health service administration. From all of the above, one should realise that the recommendations in this study were about what should be done rather than how it should be done. As a result, this study recommends that further research be carried out to determine the requirements and processes of developing an effective, modern and advanced records management system, particularly electronic records management system. This will enable the hospitals to obtain knowledge and understanding of the implementation part of the recommended way forward.

6.6. LAST SUMMARY

Chapter six concludes the study. It summarises the findings of the study and drew conclusions based on the findings and literature reviewed in Chapter 2. This chapter also offers recommendations that can assist the department and hospitals, in particular, to resolve or face certain challenges of records management in the public health sector. The key recommendation is for the hospitals to move to full electronic record creation and management to assist medical professionals in providing timely and effective access to records. This is because the current records management system somehow contributed to the long patient waiting time before patients receive health services.

Moreover, the hospitals, through the support of the Department of Health, should take the advantage of improving records keeping systems in order to experience improvement in the health service delivery. The timelines of health service to patients depend on, amongst others, timely retrieval and provision of patientsô records to clinicians and nurses. On the other hand, the quality or proper health service depends on, amongst others, quality records that are authentic, reliable, trustworthy, unaltered, not erased/changed, retrievable, usable and accurate. The department should ensure that the necessary resources and budget are available to assist in improving records management and administration since this will positively impact on improvement in health services.

LIST OF REFERENCES

Acker, E. (2007). *Archives and Record Storage Building*, Steven Winter Associates, Inc and Paul O'Connell, P.E. Operations Concepts Inc. Available: http://www.wbdg.org/design/archives_records.php (accessed 8/04/2008).

Ackoff, R.L. (1989). From data to wisdom. *Journal of Applies Systems Analysis*, 16: 3-9.

Adams, S and Bal, R. (2009). Practicing reliability: reconstructing traditional boundaries in the gray areas of health information review on the web. *Science, Technology and Human Values*, (34)1: 34-54.

Adelaide University Records and Archives Management (2004). Records and Archives Management Manual. Available: http://www.adelaide.edu.au/policies/?201(accessed 11/09/2009).

Akeh, L. and Morfaw, Z. (2007). *E-health Africa: Overcoming the Barriers to its Implementation: A Case Study of Sub Sahara Africa. A Paper Presented at Karlstad,* University Symposium. Sweden. Available: http://www.humanit.org/PID/karlstad_symposium/presentations/Akeh_Lucas.ppt (accessed 11/09/2009).

Akotia, P. (2000). *Financial Records Management Project: Phase Three*, Submitted to the Government of Uganda, Kampala: DFID: 1-24.

Andersen, G. and Arsenault, N. (1998). *Fundamentals of Educational Research,* London: RutledgeFalmer.

Ann, C. (2003). *Electronic Records and Document Management Systems: A New Tool for Enhancing the Public's Right to Access Government-Held Information?* Information and Privacy Commissioner Ontario.

Babbie, E.R, Halley, F. and Zaino, J. (2003). *Adventures in Social Research: Data Analysis Using SPSS 11.0/11.5 for Windows*. 5th ed. California: Pinee Forge Press.

Bantin, P.C. (2009). *Strategies for Managing Electronic Records: A New Archival Paradigm? An Affirmation of our Archival Tradition,* Available: http://www.indiana.edu/~libarch/ER/macpaper12.pdf (accessed 27/11/2009).

Barry, R.E. (2001). *Electronic Document and Records Management Systems, Towards a Methodology for Requirements Definition,* Available: http://www.caldeson.com/RIMOS/barry1.html#six (accessed 03/04/2008).

Bellinger, G. (2004). *Knowledge Management—Emerging Perspectives,* Available: http://www.systems-thinking.org/kmgmt/kmgmt.htm (accessed 30/09/2008).

Bellinger, G, Castro, D. and Mills, A. (2004). *Data, Information, Knowledge and Wisdom,* Available: http://www.systems-thinking.org/dikw/dikw.htm (accessed 31/09/2008).

Benfell, P. (2002). An integrated approach to managing electronic records. *Records Management Journal,* (12)3: 94-97.

Bhana, P. (2008). *The Contribution of Proper Record Keeping Towards Auditing and Risk Mitigation: Auditor General's Perspective,* Corporate Executive: Office of the Auditor-General, 10 November.

Black, T.R. (1999). *Doing Quantitative Research,* London: SAGE Publications Ltd.

Bless, C. and Higson-Smith, C. (2000). *Fundamentals of Social Research Methods: An African Perspective*, 3rd ed. Cape Town South Africa: Juta and Co. Ltd.

Bless, C. and Smith, C.H. (2000). *Fundamentals of Social Research Methods: An African Perspective*, 3rd ed., Zambia: Juta Education.

Bless, C, Smith, C.H. and Kagee, A. (2006). *Fundamentals of Social Research Methods: An African Perspective*, 4th ed., Cape Town South Africa: Juta and Co Ltd.

Bryman, A. (1988). *Quality and Quantity in Social Research,* London: Unwin Hyman.

Burton, M.L, Croce, M.D, Masri, S. A., Bartholomew, M. and Yefremian, A. (2005). Sampling from the United States Census Archives. *Field Methods, (*17)1:102ï 118.

Capel, S, Childs, S, Banwell, L. and Heaford, S. (2007). Access to information and support for health: some potential issues and solutions for an ageing population. *Health Informatics Journal*, (13)4:243-253.

Carvalho, C. (2001). Appraisal based on organic functional analysis: a case study in an electronic records environment. *Records Management Journal,* (11)3:175-205.

Cauldwell, M.R. et al. (2007). The impact of electronic patient records on workflow in general practice. *Health Information Journal*, 13(2):155-160.

Chachage, B. and Ngulube, P. (2006). Management of business records in Tanzania: an exploratory case study of selected companies. *South African Journal of Information Management*, 8(3):1-18.

Chauke, O. (2008). No operation as patient file is lost. *Capricorn Voice*, 10-12 September: 7.

Chester, B. (2006). Archiving electronic files. *AIIM E-Doc. Magazine,* (20)3: 63-64.

Chinyemba, A and Ngulube, P. (2005). Managing records at higher education institution: a case study of the University of KwaZulu-Natal, Pietermaritzburg Campus. *South African Journal of Information Management,* 7(1) Available: www.sajim.co.za/index.php/SAJIM/article/download/250/241 (Accessed 24/07/2010).

Clarke, J.L. and Meiris, D.C. (2006). Electronic personal health records come of age. *American Journal of Medical Quality*, 21:5S-15S.

Cohen, L, Manion, L and Morrison, K. (2000). *Research Methods in Education*, 5th ed. London and New York: RoutledgeFalmer.

Cowan, J. (2000). Clinical risk management, Clinical governance and clinical documentation: still a long way to go? *British Journal of Clinical Governance,* (5)3:179-182.

Cowan, J. and Haslam, J. (2006). Clinical risk management Managing NHS records: complying with the new code of practice. Clinical governance: *An International Journal*, (11)3:262-269.

Creswell, J.W. (1994). *Research Design: Qualitative And Quantitative Approaches,* Thousand Oaks, CA: Sage.

Creswell, J.W. (2003). *Research Design: A Qualitative, Quantitative and Mixed Method Approaches,* 2nd ed. Californian: Sage Publications Inc.

Currall, J. and Moss, M. (2008). We are Archivists, but are we OK? *Records Management Journal*, (18)1:69-91.

Davidson, E.J. (2000). Analyzing genre of organizational communication in clinical information system. *Information Technology and People,* (13)3:196-209.

Du Plooy, G.M. (2002). *Communication Research Techniques, Methods and Application,* Lansdowne: Juta and Co Ltd.

Duranti, L. (1999). Concepts and principles for management of electronic records, or records management theory in archival diplomatics[1]. *Records Management Journal,* (9)3: 149-171.

Esterberg, K.G. (2002). *Qualitative Methods in Social Research*, USA: McGraw Hill Higher Education.

Evans, N. and Mersham, G. (2006). Analyzing electronic theses and dissertations (ETDs) in South Africa. Paper presented at the ProLISSA 2006 Conference CD. Available: http://www.lis.uzulu.ac.za/2006/evans&mersham.pdf (Accessed 17/11/2009)

Fidel, R. (2008). Are we there yet?: Mixed method research in Library and Information Science. *Library and Information Science Research,* 30:265-272.

Fujitsu. (©2008). *EDRM and Electronic Records Management*. Available: http://www.fujitsu.com/za/services/infmanagement/docmanagement/edrm/ (accessed 02/04/2008).

Fuller, S.J. (1993). Selection of a Stratified Random Sample. *Market Information for the Medical Products Industries*, Lombard: InforMedix Marketing Research, Inc. Available: http://www.informedixmr.com/resources/pdfs/Selection%20of%20a%20Stratified%20Random%20Sample.pdf (accessed 08/06/ 2011).

Gerntholtz, T, Van Heerden, M.V. and Vine, D.G. (2007). Electronic medical records ï why should you consider implementing an EMR? The 21st century health care system is using a 19th century paperwork system. *CME, (*25)1: 24-28.

Gorman, G.E. and Clayton, P. (1997). *Qualitative Research for the Information Professional: A Practical Handbook,* London: Library Association Publishing.

Granath, P. Alariksson, S. and Axelsson, S. (2004). Creating a system for public information: the Swedish aid agencyôs transformation to electronic administration. *Records Management Journal*, (14)1:25-32.

Gunnlaugsdottir, J. (2008). As you sow, so you will reap: implementing ERMS. *Records Management Journal,* (18)1:21-39.

Hakim, C. (1997). *Research design,* USA and Canada: Routledge.

Harland, J. and Bath, P. (2007). Assessing the quality of websites providing information on multiple sclerosis: evaluating tools and comparing sites. *Health Informatics Journal,* (13)3:207-227.

Harris, V. (1997) Claiming Less, Delivering More: A Critique of Positivist Formulations on Archives in South Africa. *The Journal of the Association of Canadian Archivists,* 44:132-141. Available: http://journals.sfu.ca/archivar/index.php/archivaria/article/viewFile/12200/13217 (accessed 12/05/2008).

Hernon, P. and Schwartz, C. (2007).What is a problem statement. *Library and Information Science Research*, 29:307-309.

Hernon, P. and Schwartz, C. (2009). Reliability and validity. *Library and Information Science Research*, 31:73-74.

Hernon, P. and Schwartz, C. (2009). Procedure: Research design. *Library and Information Science Research*, 31:1-2.

ISO 15489-(2001). Information and Documentation ï Records Management. Part 1. General. *International Standards Organization*.

ISO 15489-(2001). Information and Documentation ï Records Management. Part 2. Guideline. *International Standards Organization*.

Irons, A. (2006). Computer forensics and records management ï Compatible discipline. *Records Management Journal,* (16)2:102-112.

Iwhiwhu, E.B. (2005). Management of records in Nigerian Universities: Problems and prospects. *The Electronic Library,* (23)3:345-355.

Johare, R. (2006). Education and training needs in electronic records management: a case study of records keepers in the Malaysian Federal Ministries. *Malaysia Journal of Library and Information Science*, (11)1:1-21.

Johnson, B. and Christenson, L. (2004). *Educational Research: Quantitative, Qualitative and Mixed Approaches,* Boston: Pearson.

Johnston, G.P. and Bowen, D.V. (2005). The benefit of electronic records management systems: a general review of published and some unpublished cases. *Records Management Journal*, (15)3:131-140.

Kasetsart University Archives. (2010). *What is Archives.* Available: **http://www.webportal.ku.ac.th/archives/eng/index.php?option=com_content&view=article&id=61&Itemid=279&PHPSESSID=u0qlajpnd0sq1bs767f7s5oe13** (accessed 12/11/2010).

Katuu, S. (2009). Archive and records management education and training: what can African learn from Europe and North America? *Information Development,* (25)2:133-142.

Keakopa, S.M. (2007). Policies and procedures for the management of electronic records in Botswana, Namibia and South Africa. *ESARBICA Journal,* 26:70-83.

Kemoni, H. and Ngulube, P. (2008). Relationship between records management, public service delivery and the attainment of the United Nations Millennium Development Goals in Kenya. *Information Development*, (24)4:296-306.

Kemoni, H.N. Wamokoya, J.W and Kiplangôat, J. (2003).Obstacles to utilization of information held by archival institutions: a review of literature. *Records Management Journal,* (13)1:38-42.

Kgosana, C. (2008). Home Affairs may not fire incompetent staff. *City press*, 23 November: 2.

Khoja, S, Scott, R, Mohsin, M, Ishaq, A. and Casebeer, A. (2008). Developing a conceptual-framework for e-health readiness assessment tool for developing countries. ICT developments: e-health in developing countries. *International Hospital Federation Reference Book,* 79-81.

King, L.A. (1997). Are you managing your vinyl effectively? *Management Decision,* (35)9:656-659.

Kikki, J. (2000).A new model for electronic records keeping in the Finnish Defence Forces. *Records Management Journal*, (10)3: 150-*160.*

Klischewski, R. (2006). Ontologies for e-document management in public administration. Business Process Management. *Business Process Management Journal*, (12)1: 34-47.

Kumar, R. (1999). *Research Methodology: A Step-By-Step Guide for Beginners*, London: Sage.

Kumar, R. (2005). *Research Methodology: A Step-By-Step Guide for Beginners,* London: Sage.

Lanseng, E.J and Andreassen, T.W. (2007). Electronic healthcare: a study of peopleôs readiness and attitude toward performing self-diagnosis. *International Journal of Service Industry Management*, (18)4: 394-4233.

Leedy, P.D. (1997). *Practical Research: Planning and Design,* 6th ed. Upper Saddle River, NJ: Merrill/Prentice Hall.

Leedy, P.D. and Ormond, J.E. (2005). *Practical Research: Planning and Design,* 8th ed. New Jersey: Pearson Prentice.

Lewis, J and Ritchie, J. (2003). *Qualitative Research Practice, a Guide for Social Science Students and Researchers*, London: SAGE Publications.

Limpopo Department of Health and Social Development. (2004). *Domain Specific Standard*, 2004/2005 Available: http://www.dhsd.limpopo.gov.za/ (accessed 03/12/2009).

Limpopo Department of Health and Social Development. (2006a). *Annual Performance Plan 2006/07-2009/09 Health (Vote 7)*, Available: http://www.limpopo.gov.za/prov_dept/health_socialdev/docs_publications/documents/annual_reports/docs/app_draft_3_social_development_2006_07_2009_feb_2006.pdf (accessed 03/12/2009).

Limpopo Department of Health and Social Development. (2006b). *Annual Report 2006/07 Health (Vote 7),* Available: http://www.dhsd.limpopo.gov.za/ (accessed 03/12/2009).

Limpopo Department of Health and Social Development. (2008). *Annual Performance Plan 2008/09-11 Health (Vote 12),* Available: http://www.dhsd.limpopo.gov.za/ (accessed 03/12/2009).

Limpopo Department of health and social development. Available: http://www.dhsd.limpopo.gov.za/docs/organograms/government_information_technology_services.JPG (accessed 11/11/2010).

Limpopo Department of health. Available: http://www.dhsd.limpopo.gov.za/docs/organograms/information_records_management.JPG (accessed 11/11/2010).

Limpopo Department of health. Available: http://www.dhsd.limpopo.gov.za/docs/organograms/health_services.JPG (accessed 11/11/2010).

Limpopo Province Map. Available: http://www.marula.co.za/Limpopoinfo.htm (accessed 05/10/2008).

Lin, S.L, Ramaiah, C.K and Wal, P.K. (2003). Problems in the preservation of records. *Library Review,* (52)3:117-125

Liyanage, S.E, Thyagarajan, S. and Khemka, S. (2006). Audit of the quality of documentation in an eye casualty department. *Clinical Governance: An International Journal,* (11)3:187-192.

Makhura, M,M. (2005). *The Contribution of Records Management towards an Organization's Competitive Performance,* D Phil Thesis, University of Johannesburg, Johannesburg.

Man, E. (2005). A functional approach to appraisal and retention scheduling. *Records Management Journal,* (15)1:21-33.

Marshall, C. and Rossman, G. (1995). *Designing Qualitative Research,* 2nd ed. California: SAGE Publications Ltd.

Marshall, C. and Rossman, G. (2006). *Designing qualitative research.* 4th ed. California: SAGE Publications, Inc.

Marutha, N.S. and Ngulube, P. (2010). Records management: a foundation for business success, compliance and accountability with special focus on the public sector. Paper presented at the Records Keeping and Data Management Conference, Johannesburg, July.

Matveev, V.A. (2002). *The Advantages of Employing Qualitative and Quantitative Methods in Intercultural Research: Perception of Intercultural Communication Competence by American and Russian Managers,* Available: http://www.russcomm.ru/eng/rca_biblio/m/Matveev()1_eng.shtml (Accessed 17/11/2009).

Mavodza, J. (2010). *Knowledge Management Practices and the Role of an Academic Library in a Changing Information Environment: The Case of the Metropolitan College of New York,* D Phil Thesis, University of South Africa, Pretoria.

McDonald, A. (2006). Electronic Records. *Encyclopedia of Governance,* SAGE Publications. Available: http://0-www.sage-ereference.com.oasis.unisa.ac.za/governance/Article_n159.html (accessed 16/07/2009).

Mdluli, LP. (2008). *The Role of Traditional Leaders in Service Delivery: A Case Study of the Bushbuckridge Local Municipality in the Mpumalanga Province*, MDEV Thesis, University of Limpopo, Polokwane: EDUPARK.

Moloi, J. and Mutula, S. (2007). E-records management in an e-government setting in Botswana. *Information Development,* (23)4:290-306.

Mnjama, N. (2003). Archives and records management in Kenya: problems and prospects. *Records Management Journal, 13(2):91-101.*

Mnjama, N. (2005). Archival landscape in eastern and southern Africa. *Library Management,* (26)8/9:457-470.

Mouton, J. (2002). *Understanding Social Research,* Pretoria Hatfield: Van Schaik.

Mubangizi, B.C. (2009). Community development and service delivery in South Africa: Work, workers and challenges. *Journal of Public Administration,* (44)3:435-450.

Mullon, P. (2004). Records management crucial to sustain services: e-Government. *IMIESA*, 71.

Myers, M.D. (1997). Qualitative Research in Information Systems. *MIS Quarterly,* 21(2):241-142.

Nachmias, C. and Nachmias, D. (1996). *Research Methods in the Social Sciences,* London: Arnold.

National Archive and Records Service of South Africa. Available: http://www.national.archives.gov.za/ (accessed 29/07/2009).

National Archive and Records Service of South Africa. (2003). *Records Management Policy Manual,* 1st ed. Ver. 1.1.

National Archive and Records Service of South Africa. (2004). *Records Management Policy Manual,* 1st ed., Ver. 1.2.

National Archive and Records Service of South Africa. (2006). *Records Management Policy Manual,* 1st ed. Ver. 1.3.

National Archive and Records Service of South Africa. (2007). *Records Management Policy Manual,* 1st ed. Ver. 1.4.

National Archive and Records Service of South Africa. (2006). *Managing Electronic Records in Government Bodies: Policies, Principles and Requirements,* 2nd ed. Ver. 1.3.

Nengomasha, C.T. (2003). Records management in the knowledge management age: Namibia context. *ESARBICA Journal*, 22:64-71.

Nengomasha, C.T. (2009). Managing public sector records in Namibia: a proposed model. *Information Development*, (25)2: 112-126.

Neuhauser, L. and Kreps, G.L. (2003). Rethinking communication in the e-health era. *Journal of Health Psychology,* (8)1:7-23.

Ngoepe, M.S. (2004). *Accountability, Transparency and Good Governance: The National Archives and Records Service of South Africa's Role in Helping Government to Better Service Delivery to the South Africans,* Paper presented at the seventh LIASA annual national conference, Polokwane, September-October. Available: http://www.liasa.org.za/conferences/conference2004/papers/LIASA_Conference_2004_Ngoepe.pdf (accessed 29/08/2010).

Ngoepe, M.S. (2008). *An Exploration of Records Management Trends in the South African Public Sector: A Case Study of the Department of Provincial and Local Government,* MINF Thesis, University of South Africa, Pretoria.

Ngulube, P. (2000). Professionalism and ethics in records management in the public sector of Zimbabwe. *Records Management Journal,* (10)3:161-173.

Ngulube, P. (2003a). Putting the horse in front of the cart: the role of disaster planning and security in the protection of documentary materials in Africa. *S.A. Archives Journal*, 43: 58-68.

Ngulube, P. (2003b). *Preservation and Access to Public Records and Archives in South Africa,* D. Phil Thesis, University of Natal, Pietermaritzburg.

Ngulube, P. (2005a). Research procedure used by Master of Information Studies students at the University of Natal in the period 1982 ï 2002 with special reference to their sampling techniques and survey response rate: A methodological discourse. *The International Information and Library Review,* 37:127-143.

Ngulube, P. (2005b). Improving the quality of research outputs in higher education through knowledge sharing and collaboration: a case study. *Mousaion,* (23)1:39-61.

Ngulube, P. (2007). The Nature and Accessibility of E-Government in Sub-Sahara Africa. *International Review of Information Ethics,* 7:1-13.

Ngulube, P. and Tafor, V.F. (2006). The management of Public Records and Archives in the Member Countries of ESARBICA. *Journal of the Society of Archives*, (27)1, 57-83.

Office IT and Server User Assistance. (2008). *Records Management Guide for Microsoft Office SharePoint Server Microsoft Corporation,* Available: http://technet.microsoft.com/en-us/library/cc261982.aspx (accessed 31/09/2008).

Ojo, T. (2009). Communication networking: ICT and health information in Africa, *Information Development,* 22(2):94-101.

Onwuegbuzie, A.J, Jiao, Q.G. and Bostick, S.L. (2004). *Library Anxiety: Theory, Research, and Applications,* Lanham, MD: Scarecrow Press.

Porter, C. (2004). Networking for health: health professionals using email discussion forum for development. *Information Development*, (20)2: 117-121.

Powell, R.R. (1997). *Basic Research Methods for Librarians*, 3rd ed. Greenwich: Ablex Publishing Corporation.

Powell, R.R. (1999). Recent trends in research: a methodological essay. *Library and Information Science Research,* 21(1):91-119.

Powell, R.R. and Connaway, L.S. (2004). *Basic Research Methods for Librarians,* London: Libraries Unlimited.

Punch, K.F. (2006). *Developing Effective Research Proposal,* 2nded. London: SAGE Publications Ltd.

Sapsford, R. (1999). *Survey Research,* London: Sage Publications.

Sims, F. (2002). A new appraisal approach for English heritage. *Records Management Journal*, (12)1:8-13.

Sinclair, N. (2002). ñBlack to futureò: electronic records management in the twenty-first century. *Records Management Journal,* (12)3: 103-107.

Slater, M. (1990). *Research Methods in Library and Information Studies,* London: Library Association, 1990.

South Africa. (1996). The constitution of the Republic of South Africa, 1996. Act No.108 of 1996. Republic of South Africa Government Gazette, Volume 378, No.17677.

South Africa. (1996). The National Archives and Records Service of South Africa Act, 1996. Act No. 43 of 1996 as amended.

South Africa. (1996). The National Archives and Records Service of South Africa Regulation.

South Africa. (1999). Public Finance Management Act, Act. No.1 of 1999.

South Africa. (2000). Promotion of Access to Information Act, Act. No. 2 of 2000. Republic of South Africa Government Gazette, Volume 416, No. 20852.

South Africa. (2000). Promotion of Administrative Justice Act, Act. No.3 of 2000.

South Africa. (2002). Electronic Communications and Transactions Act, Act. No.25 of 2002.

South Africa. (2003). National Health Act, Act No. 61 of 2003.

State Records of South Australia. (2003). *Appraisal of Official Records- Policy and Objectives,* February. Ver. 1.7. Available: www.archives.sa.gov.au. (accessed 29/08/2009).

State Records New South Wales. (2004). *Introducing Records, Records Keeping And Records Management,* Intro. No.3: April. Available: http://www.records.nsw.gov.au/recordkeeping/government-recordkeeping-manual/documents/recordkeeping-grk-manual/IntroducingRecordkeeping.pdf (accessed 29/08/2010).

Strauss, A. and Corbin, J. (1998). *Basics of Qualitative Research Techniques and Procedures For Developing Grounded Theory*, 2nd ed. London: SAGE Publications Ltd.

Sullivan, S.J. (2006). Professional sources: an archival/records management perspective on PDF/A. *Records Management Journal*, (16)1:51-56.

Swan, K, Cunningham, A. and Robertson, A. (2002). Establishing a high standard for electronic records management within the Australian public sector. *Records Management Journal*, (12)3: 79-86.

Raas, U. (1999). Electronic recordkeeping more than electronic document management. *Records Management Journal*, (9)2:117-129.

Rampfumedzi, D.P. (2006). Quality Control of Obstetric Nursing Records in a Selected Regional Hospital, MA. Health Studies Thesis, University of South Africa, Pretoria.

Rawabdeh, A.A.A. (2007). An e-health trend plan for the Jordanian health care system: a review. International Journal of Health Care Quality Assurance, (20)6:516-531.

Robek, Brown and Stephens (1995). Why Records Management? *Ten Business Reasons,* Available: http://www.epa.gov/records/what/quest1.htm: (accessed 31/03/2008).

Tafor, V. (2003) Digital technology- Understanding the problems posed by Information Technology in generating and managing records from a third perspective. *ESARBICA Journal*, 22:72-77.

Terre Blanche, M, Durrheim, K. and Painter D. (2006). *Research in Practice: Applied Method for the Social Science,* 2nd ed., RSA Cape Town: University of Cape Town (Pty) Ltd.

Terre Blanche, M. and Durrheim, K. (1999). *Research in Practice: Applied Method for the Social Science*, RSA Cape Town: University of Cape Town (Pty) Ltd.

The Records Management Act. *Minnesota Statutes*, Chapter 138.17. Available: https://www.revisor.leg.state.mn.us/bin/getpub.php?type=s&num=138.17&year=2007 (accessed 12/05/2008).

Thurston, A. (2005). Fostering trust and transparency through information system. *PREM Notes Public Sector*, 97: The World Bank

Tough, A. and Moss, M. (2003). Metadata, controlled vocabulary and directories: electronic document management and standards for records management. *Records Management Journal,* (13)1:24-31.

Tsai, J. and Bond, G. (2007). A comparison of electronic records to paper records in mental health centers. *International Journal for Quality in Health Care*, (20)2:136-143.

University of Greenwich records management Office. (2009). *Records Management Policy,* Available: http://www.gre.ac.uk/offices/rmo/introduction/records_management_policy (accessed 02 /04/2009).

University of South Africa. (2007). *Policy on research ethics.* Available: http://www.unisa.ac.za/contents/research/docs/ResearchEthicsPolicy_apprvCounc_21Sept07.pdf (accessed: 27/04/2010).

University of South Africa. (2009). *Master's and Doctor's Degree: General Information.* Available: http://www.unisa.ac.za/contents/faculties/humanities/docs/MD%20information%20(English)%202009.doc (accessed: 09/09/2009).

U.S. Department of Health and Human Services! (2006). *Consumer Awareness, Addressing Healthcare Connectivity as a Matter of Life and Death.* Available: http://www.hhs.gov/healthinformationtechnology/consumerAwareness.html (accessed 31/03/2008).

U.S. National Archives and Records Administration. (2008). *Records Life Cycle*. Available: http://www.archives.gov/records-mgmt/initiatives/fig4-1.html (Accessed 07/10/2008).

Valtonen, M.R. (2005). *Documentation in Pre-Trial Investigation: a Study of Using the Records Continuum Model as a Records Management Tool,* Tampere, Finland: Department of Information Studies, University of Tampere: 179-183.

Veldof, J.R. (1999). Data Driven Decisions: Using Data to Inform Process changes in libraries. TQM at the University of Arizona. Presented at the LRRT program at the 1998 ALA Conference. *Library and Information Science Research,* (21)1:31-46.

Wamukoya, J. and Mutula, S.M. (2005a). Opinion Piece. Capacity building requirements for e-records management: the case in East and Southern Africa. *Records Management Journal,* (15)2:71-93.

Wamukoya, J. and Mutula, S.M. (2005b), E-Records Management and Governance in East and Southern Africa. *Malaysian Journal of Library and Information Science*, (10)2:67-83. Available: http://majlis.fsktm.um.edu.my/document.aspx?FileName=331.pdf (accessed 02/04/2008).

Wamundila, S. (2008). *Developing Guideline for a Knowledge Management Policy to Enhance Knowledge Retention at the University of Zambia*, MINF Thesis, University of South Africa, Pretoria.

Webster, B.M, Hare, C.E and Julie, M. (1999). Records management practices in small and medium-sized enterprises: a study in North-East England. *Journal of Information Science,* 25 (4): 283ï 294.

Welman, J.C. and Kguger S.J. (2001). *Research Methodology for the Business and Administrative Science,* 2nd ed. Oxford: Oxford University Press.

Willis, A. (2005). Corporate governance and management of information and records. *Records Management Journal,* (15)2:86-97.

Yusof, Z.M. and Chell, R.W. (2000). The records life cycle:an adequate concept for technology-generated records. *Information Development*, (16)3:135-141.

Zou, J. (2006). Elements of Statistics: Lecture Notes # 9. *AMS,* (102)7. Available: http://www.ams.sunysb.edu/~jasonzou/ams102/notes/notes9.pdf. (accessed 08/06/2011).

Appendix 1: Number of staff in each hospital of Limpopo Province of South Africa

DISTRICT	HOSPITAL NAME	HOSPITAL TYPE	TOTAL STAFF	
			RECORDS MANAGEMENT	INFORMATION MANAGEMENT
1. Mopani District	1. Letaba Hospital	Regional hospital	15	2
	2. Evuxakeni Hospital	Specialised hospital	2	0
	3. Sekororo Hospital	District hospital	5	2
	4. Nkhesani Hospital	District hospital	4	1
	5. DR. CN Phatudi Hospital	District hospital	5	0
	6. ML Malatji Hospital	District hospital	4	4
	7. Kgapane Hospital	District hospital	8	1
	8. Van Velden Hospital	District hospital	5	1
	SUB-TOTAL		**48**	**11**
2. Capricorn District	1. Mankweng Hospital	Tertiary hospital	16	2
	2. Polokwane Hospital	Tertiary hospital	7	2
	3. Thabamoopo Hospital	Specialised hospital	4	2
	4. Helen Franz Hospital	District hospital	7	2
	5. Seshego Hospital	District hospital	5	3
	6. Bohlokwa Hospital	District hospital	4	2
	7. WF Knobel Hospital	District hospital	3	2
	8. Lebowakgomo Hospital	District hospital	7	2
	9. Zebediela Hospital	District hospital	5	1
	SUB-TOTAL		58	18
3. Sekhukhune District	1. St. Ritas Hospital	Regional hospital	12	3
	2. Dilokong Hospital	District hospital	4	1
	3. Jane Furse Hospital	District hospital	11	1
	4. Matlala Hospital	District hospital	5	1
	5. Groblersdal Hospital	District hospital	0	0
	6. Philadelphia Hospital	District hospital	5	2
	7. Mecklenberg Hospital	District hospital	2	0
	SUB-TOTAL		39	8
4. Vhembe District	1. Tshilidzini Hospital	Regional hospital	8	1
	2. Hayani Hospital	Specialised hospital	8	1
	3. Donald Frazer Hospital	District hospital	8	2

	4. Elim Hospital	District hospital	10	1
	5. Louis Trichard Hospital	District hospital	6	5
	6. Malamulele Hospital	District hospital	7	1
	7. Messina Hospital	District hospital	6	1
	8. Siloam Hospital	District hospital	10	2
	SUB-TOTAL		63	14
5. Waterberg District.	1. Mokopane Hospital	Regional hospital	10	2
	2. Elisras Hospital	District hospital	4	2
	3. Thabazimbi Hospital	District hospital	5	1
	4. Warmbaths Hospital	District hospital	9	1
	5. Witpoort Hospital	District hospital	5	3
	6. FH Odendaal Hospital	District hospital	6	2
	7. George Masebe Hospital	District hospital	6	2
	8. Voortrekker Hospital	District hospital	5	2
	SUB-TOTAL		50	15
GRAND TOTAL			258	66
SAMPLE FROM THE TOTAL POPULATION			155	56
PERCENTAGES FROM THE TOTAL SAMPLE			14%	5%
TOTAL POPULATION (STAFF)			**324 = 100%**	
TOTAL SAMPLE (PARTICIPANTS)			**210 = 65%**	

1. Tertiary hospitals: 2	3. Specialised hospitals: 3	5. Total hospitals: 40
2. Provincial hospitals: 4	4. District hospitals: 31	6. Total districts: 5

Appendix 2: Survey questionnaire

UNISA
DEPARTMENT OF INFORMATION SCIENCE

[STRICTLY CONFIDENTIAL]

"RECORDS MANAGEMENT IN SUPPORT OF SERVICE DELIVERY IN THE PUBLIC HEALTH SECTOR OF LIMPOPO"

SURVEY QUESTIONNAIRE

I am Ngoako Solomon Marutha, Master of Information Science student at the University of South Africa (UNISA). My research topic is **"records management in support of service delivery in the public health sector of Limpopo".** The purpose of the study is to investigate the extent to which the current records keeping practices in the Limpopo Province support or undermine service delivery and the level of e-health readiness. The information obtained and the resultant recommendations could assist the Department of Health in the Limpopo Province in its decision-making. Participation in this study is absolutely voluntary.

The information in this questionnaire shall not be used for any other purposes other than for this study. You are not required to provide your name, and will therefore remain anonymous. The aim of the questionnaire is to evaluate your opinion, perceptions and feelings about records management in support of service delivery in the public sector of the Limpopo Province in South Africa. The results of the study will be used to help answer unanswered questions as far as records management in the Department of Health is concerned.

It would be highly appreciated if you could answer all questions accurately. Please give your honest and sincere opinion. Your responses will be helpful in reviewing the extent of the current records keeping practice and the level of e-health readiness in the Limpopo Province of South Africa.

GUIDE FOR COMPLETING THE QUESTIONNAIRE

1. Please answer questions by making a tick (✓) or a cross (**X**) next to the correct answer and explain where necessary.
2. Use ñ**N/A"** for not applicable questions, avoid skipping some questions.
3. If writing space is not enough use separate page and write the question number next to the answer

This questionnaire will only take 15 minutes to complete.

1. INSTITUTIONAL AND STAFF DATA

1. How old are you?

19-24	
25-30	
31-35	
36-40	
41-45	
46-50	
51-55	
56-60	

2. Please indicate your gender.

MALE	
FEMALE	

3. Please provide the following information for your hospital?

Hospital name_____
District name_____
Address_____
Telephone_____
Email address_____
Website_____

4. Please indicate the name of your unit?

INFORMATION MANAGEMENT	
RECORDS MANAGEMENT	
Other	

2. CAPACITY, SKILLS AND TRAINING

5. What is your educational level?

DOCTORATE	
MASTERÕS	
HONOURS	
DEGREE	
DIPLOMA	
MATRICULANT	
BELOW MATRICULATION	

If less than matriculation specify: _____

6. If post matric qualification, what is your educational field of study?

Records Management	
Information Management	
Knowledge Management	

History	
Public Administration,	
Business Administration	
Nursing	
Medicine	
Other	

If other, specify_____

7. Please indicate your post level?

1 to 3	
4 to 6	
7 to 9	
10 to 12	
13+	

8. What is your job title (designation)?

Manager	
Deputy manager	
Senior admin officer	
Administrative officer	
Admin clerk	
Other	

If other, specify_____

9. What is the level of your position at work?

EXECUTIVE MANAGEMENT	
UNIT HEAD	
OFFICER/CLERK	
OTHER	

If other, specify_____

10. How long is your service in the current position?

Less than 1 year	
1-3 years	
4-5 years	
More than 5 years	

11. How long is your experience in the current field of work specialisation?

Less than 1 year	
1-3 years	
4-5 years	
More than 5 years	

12. Do you know what a record is?

YES	
NO	

13. What do you think is the meaning of record?

Recorded information. Information created during communication or business transaction	
Published information. Information published in books and journal	
Other	

If other, specify_____

14. Which of the following is a good example of record? (Tick all that apply)

Text books and bible	
Memos and registers	
Patients files	
Other	

If other, specify_____

15. Have you ever attended any formal records management training?

YES	
NO	

16. Is there any formal records management training offered to records management staff in your institution?

YES	
NO	

17. If yes in item 16, at which competency level was the training?

BASIC	
INTERMEDIATE	
ADVANCED	
GRADUATE COURSE	

18. If yes in item 16, what is the percentage of records management staff trained in records management?

NONE	
LESS THAN 25%	
50%	
75%	
100%	

19. If yes in item 16, what kind of training was offered? (Tick all that applicable)

In-house by internal staff	
In-house by private trainer	
External institution	
Other	

20. If in-house by internal staff in item 18, who offered the training?

Manager	
Supervisor	
Provincial office	
Other	

If other, specify_____

21. How often is the in-house training conducted?

WEEKLY	
MONTHLY	
QUARTERLY	
ANNUALY	

22. If Yes in item 16, was the course/training scope cover electronic records management?

YES	
NO	

23. If No in item 22, was the electronic records management course/training offered to records management staff?

YES	
NO	

24. What is the percentage of records management staff trained on electronic records management?

NONE	
LESS THAN 25%	
50%	
75%	
100%	

If other, specify_____

25. If Yes in item 16 and 22, what was the duration for each of the training?

Records management (RM	
1 day	
1-2 weeks	
1-3 months	
3-6 months	
1-2 years	
other	

Electronic records (ER))	
1 day	
1-2 weeks	
1-3 months	
3-6 months	
1-2 years	
other	

If other, specify for each of the above _____

26. How would you rate your knowledge about electronic records management in general from **excellent (1)** to very **poor (5)**?

1 (excellent)	
2 (Very good)	
3 (Good)	
4 (Poor)	
5 (Very poor)	

27. What do you think electronic records are?

Records created by computer	
Records managed by means of a computer system	
Digital books and journals	
Other	

If other, specify_____

3. STATE OF RECORDS MANAGEMENT

28. Rate the state of records management in your institution from 1 (very poor) to 5 (Very good)

1 Very poor	
2 Poor	
3 Unsure	
4 Good	
5 Very good	

Please justify your answer_____

29. What do you think has led to the status chosen above whether poor or good?

_____

_____

30. Please rate your records management status in terms of certain activities on the table below by percentage

COMPETENCY	LESS THAN 25%	26%-50%	51%-75%	76%-100%
Staff vacancy rate				
Staff turnover				
Resources availability				
Management support				
Functionality of records management programme				
Staff competency and skills				
Consideration of the value of records				
Other, specify				

31. Are there any budget specifically dedicated to records management?

YES	
NO	

32. If yes in item 31, scale the amount of budget allocated below.

LESS THAN R10 000	
R11 000-R100 000	
R110 000-R200 000	
R210 000-R300 000	
R310 000-R400 000	
R410 000-R500 000	
R510 000-R600 000	
R610 000-R700 000	
R710 000-R800 000	
R810 000-R900 000	
MORE THAN R1000 000	

33. How is your institution currently managing their patientsô records?

Electronically	
Manually	
OTHER	

If other, specify_____

_____

_____

34. Do you have a norm/target for turnaround time in retrieving patient medical records?

YES	
NO	

35. If Yes in item 34, what is the record retrieval turnaround time norm/target?

1-30 minute	
1HOUR	
2HOUR	
3HOUR	
4+ HOUR	

36. How long does it take to retrieve a patient record?

>1 HOUR	
2HOUR	
3HOUR	
4HOUR	
5+ HOUR	

37. If your turnaround time is more than the set norm as in item 35 and 36, what might be the challenge?

MISFILING	
MISSING FILES	
UNTIDY FILING	
HIGH RECORDS DEMAND	
STAFF SHORTAGE	
OTHERS	

If others, specify_____
Please justify your answer_____

38. What is your patient waiting time for the entire health service?

>1 hour	
2 hour	
3 hour	
4 hour	
5+ hour	

39. If answered Electronically in item 33, are all details about patients such as prescriptions, diagnosis and personal details covered on the records management system?

YES	
NO	

If No, please justify your answer_____

40. How often are the electronic records used?

Everyday	
Always	
Sometimes	
Seldom	
None	

41. If No in item 39, which details about the patients are covered in your electronic records system? (Please tick all applicable)

Prescriptions	
Diagnosis	
Personal Details And Dates	
Patient Payments (Bill)	
Doctors And Nurses In Charge Of The Patient	
Ward If Admitted	
Other	

If others, specify_____

42. Is the institution having a disposal authority for electronic records?

YES	
NO	

43. Is the institution also having the disposal plan for e-records?

YES	
NO	

44. If Yes in item 42 and 43, how long do you keep electronic records

1-2 YEARS	
3-4 YEARS	
5-6 YEARS	
7-8YEARS	
9-10 YEARS	
MORE THAN 11 YEARS	

45. If other medical records were preserved manually before the introduction of electronic system, do you think it is necessary or possible to scan and integrate both electronic records management system (ERMS) and electronic document management systems (EDMS) in one?

YES	
NO	

Please justify your answer_____

46. If records are also managed manually, is the hospital using the document tracking system to control its movement?

YES	
NO	

47. If yes in item 46, how is your tracking system?

MANUAL REGISTER	
ELECTRONIC SYSTEM	

48. If answered Manually in item 47, do you think it is necessary for the institution to capture and keep patients records electronically?

YES	
NO	

Please justify your answer_____

49. How do you think moving to electronic records can help the institution to improve on its business processes, choose all relevant answers?

Save Retrieval Time	
Save Filing Space	
Save Stationery (e.g. Toner and Blank Paper)	
Pave A Way To Paperless Office	
Avoid User Queue On One File	
Other	

If other, specify_____

50. Which methods do you think will be the best for keeping of patients records?

Computer Hardware	
Server	
Compact Disks	
Cassette	
Paper Hard Copies	
Microfilm	
Other	

If other, specify_____
Please justify your answers above_____

51. What do you think this type of records may be used for?

Accountability	
Monitor and Evaluate Business Process For Improvement	
For Future Research	
Keep The Memory Of The Institution	

Refer Patients Health History	
Other	

If other, specify_____

52. What do you think are the most serious administrative problems for records management in your institution today? (Please tick as many as are applicable)

Shortage of Filing Space	
Misfiling and Missing Files	
Damage to Record	
Incompetent/unskilled staff	
Shortage of Staff	
Lack of support for resources (inadequate budget)	
Lack of general staff awareness about the importance of records	
Insufficient budget	
Other	

If other, specify_____

53. Do you think electronic records management can minimise the above problems?

Yes	
No	

54. What else do you think should be done to solve these problems?
(Please tick as many as are applicable)

Move to electronic records management	
Review staff establishment and add more staff	
Provision of bigger buildings for records storage	
Capacitate records management staff	
Provision of a enough budget specifically for records management	
More training for staff	
Conduct regular scheduled records awareness workshop	
Other	

If other, specify_____

55. For what reason would you like to have an electronic records management system in your institution?

Save time	
Save stationery	
Save filing space	
Other	

If other, specify_____

56. How do you think electronic records can negatively impact on business processes?

System offline	
System slow response	
Lack of system usage skills	
Other	

If other, specify_____

57. Please rate how electronic records management can improve service delivery from excellent (1) to very poor (5) below.

ITEM	1 (excellent)	2 (Very good)	3 (Good)	4 (Poor)	5 (Very poor)
Improved business processes					
Quality of service					
File retrieval time					
Patient waiting time					
Customer satisfaction					
Compliance to policies and norms					
Job satisfaction					

58. Who are your stakeholders/clients for records?

Auditors	
Doctors	
Nurses	
Attorneys	
SASSA	
Other	

If other, specify_____

59. How often are your records retrieved for official use?

Everyday	
Always	
Sometimes	
Seldom	
None	

If non, specify_____

60. For what reason is your records usually requested?

uditing	
Patients treatments	
Motor vehicle accident claims	
Social grants application and claim	
Other	

If other, specify_____

61. What is a time frame for returning of the paper based files, if original files are issued to clients?

1-2 weeks	
3-4 weeks	
More than a month	

Please justify your answers above_____

4. E-HEALTH READINESS

62. Do you know what it means by e-health?

Yes	
No	

63. What do you think is e-health?

ELECTRONIC HEALTH SERVICE	
HEALTH SERVICE RENDERED THROUGH INFORMATION COMMUNICATION TECHNOLOGY	
OTHERS	

64. What are the indicators of e-health readiness?

User information access, communication, e-learning and monitoring	
Patient monitoring, task generating and reminding system	
Clinical/ encounter data	
System generated tasks and calendar	
Automated clinical and administrative reminder	
OTHERS	

If other, specify_____

65. Has the department already implemented e-health in your institution

YES	
NO	

66. If Yes in item 65, do you think the e-health system is fully functional?

YES	

NO	

67. If No in item 65, what do you think might be the challenges or problems?
_____
_____
_____

68. What do you think must be done to make it fully functional?
_____
_____
_____

69. If No in item 65, do you think the department is ready for e-health?

YES	
NO	

70. Is there reasonable availability of capacity for e-health in terms of training, skills and staff?

YES	
NO	

71. Is there reasonable availability of the necessary infrastructure, resources and equipments for e-health such as telecommunications networks and computers?

YES	
NO	

72. Please rate availability of the following infrastructure as 1 (totally not available), 2 (25% available), 3 (50% available), 4 (75% available), 5 (100% available)

Item	1	2	3	4	5
Computers					
Telecommunication Networks					
ICT staff capacity					
Staff capacity					
Patients internet and e-mail access					

73. Is e-health likely to improve the delivery of services in the hospitals?

YES	
NO	

74. If Yes in item 73, which improvement do you think e-health can bring in you hospital?

Fast service to patient	
Self service on the PC to patients	
Improve communication between patients and clinicians	
Minimise patients waiting time	

Build confidence to clinicians	
Increase patients satisfaction rate	
Quick retrieval of medical records and information	
Bring about electronic records system	
other	

75. POLICIES AND PROCEDURES

76. Do you know of any legislative framework governing electronic records management in South Africa?

YES	
NO	

77. If Yes in item 76, is the legislative framework also cover electronic records management in South Africa?

YES	
NO	

If Yes, specify_____

78. Do you know of any policy, procedures, norms and standards for records management in your institution?

YES	
NO	

79. If Yes in item 78, do the policy, procedures, norms and standards also cover electronic records management?

Yes	
No	

80. If Yes in item 78, have you got any training/workshop on policies, procedures, norms and standards for managing records?

Yes	
No	

81. Who do you think is responsible for the introduction and implementation of the functional record management for the institution?

Information and records management directorate	
Corporate services	
GITO	
HOD	
MEC	

CEOs	
OTHER	

If other, specify_____
_____

82. What do you think can be done to make sure effective records management is successfully established in the institution?
    Please give your opinion:
    _____
    _____

83. What do you think can be done to make sure records management is functional in the institution?
    Please give your opinion:
    _____
    _____

THANK YOU.

The researcher would like to thank you for taking time to complete this questionnaire, your contribution, participation and cooperation is highly appreciated. Please forward your completed questionnaire to Mr Ngoako Solomon Marutha through e-mail address: SollyMa@sassa.gov.za and/or sollymn@webmail.co.za by 30 January 2011.

Please also forward copies of records management-related documents like brochures that describe departmental organisational structure and records collections preserved, policies, procedures, standards and norms for records keeping

Marutha NS
Cell: 083 436 1652
Office Tel: (051) 410 8370

Appendix 3: Observation schedule

1. **Observer records**
   Observer name_____
   Observed Institution/hospital_____
   Date of observation_____

2. **Access control measures**
   Registry entrance counter _____
   Unauthorised access sign_____
   Users access to records/ files_____

3. **Measures for records security**
   Disaster preparedness plan_____
   Fire-fighting equipment and techniques_____
   Water-fighting equipment and techniques _____
   Theft and vandalism preventive measures_____
   Air conditioning and temperature_____

4. **Records keeping and retrieval**
   Filing shelves, covers and boxes_____
   File/records classification and filing system_____
   Filing space_____

5. **Records keeping control measures**
   Policies, procedure, norms and standards_____
   Access and application of legislative framework_____

6. **Telecommunication network availability**
   Internet and intranet connection_____
   Telephone conferencing_____
   Videoconferencing_____
   Computer hardware_____
   E-records system_____
   E-records server_____
   Computer hardware _____

Appendix 4: Questionnaire pre-test schedule

QUESTIONNAIRE PRETEST SCHEDULE FOR SURVEY ON RECORDS MANAGEMENT IN SUPPORT OF SERVICE DELIVERY IN THE PUBLIC HEALTH SECTOR OF LIMPOPO

Dear colleagues

I am currently a registered Masterôs student for Information Science at the University of South Africa (UNISA). I am conducting a research study on **"Records management in support of service delivery in the public health sector of Limpopo".** The purpose of the study is to investigate the extent to which the current records keeping practices in the Limpopo Province support or undermine service delivery. The study will also measure the level of e-health readiness in the province. The population of the study includes only hospitals within the Limpopo Province. I am now conducting a research project questionnaire pre-test. This serves to request your assistance for assessing validity and reliability of the questionnaire that will be used for this study to collect data. Your inputs on the questionnaire will be highly appreciated for the success of this research project. Please scrutinise the quality of the questionnaire using the checklist below. Indicate if each of the following items on the checklist is wrong or right in the questionnaire by making a Tick (✓) or a cross (**X**) next to each item. You can also write other comments in the attached questionnaire where necessary.

ASSESSMENT ITEM	WRONG	RIGHT	IF YOUR ANSWER IS WRONG PLEASE PROVIDE SOME SUGGESTIONS
1. Typography	WRONG	RIGHT	
2. Grammatical Spelling	WRONG	RIGHT	
3. Questions numbering	WRONG	RIGHT	
4. Font size	WRONG	RIGHT	
5. Vocabulary (terminologies)	WRONG	RIGHT	
6. length of the questionnaire	WRONG	RIGHT	
7. Item style	WRONG	RIGHT	
8. Line spacing	WRONG	RIGHT	
9. Survey format flow	WRONG	RIGHT	
10. Appropriateness of items	WRONG	RIGHT	

The researcher would like to thank you for taking time to assess the validity and reliability of this survey questionnaire. Please forward completed questionnaire to me via email: SollyMa@sassa.gov.za and/or sollymn@webmail.co.za by 31 January 2011.

Yours faithfully

Ngoako Solomon Marutha
MINF Student
Cell: 083 436 1652
Office Tel: (051) 410 8370

Appendix 5: Letter of request to conduct research to the Limpopo Department of Health and Social Development

P.O Box 563
SEKGOPO
0802
20 December 2010

The Head of Department
Limpopo Department of Health and Social Development
PRIVATE BAGX9302
POLOKWANE, 0700

Dear Sir/Madam

This letter serves to request your approval for me to conduct a research study about records management in your department. The researcher is a former employee of Limpopo Department of Health and Social Development and would like to plowback to the department through this study.

I am currently a Masters student in the Department of Information Science at the University of South Africa (UNISA). The study is about **"Records management in support of service delivery in the public health sector of Limpopo".** The purpose of the study is to investigate the extent to which the current recordkeeping practices in the Limpopo Province support or undermine service delivery. The study will also measure the level of e-health readiness in the province.

The department will benefit a lot from the information obtained and the resultant recommendations for its management decision-making and problem solving. The results of this study will also assist a lot for administrative officials who are directly or indirectly affected by records management practice in the health institutions, especially patientsô medical records. The study will also contribute much on enabling the department to improve patient satisfaction rate and patient waiting time in the health institutions, especially hospitals.

In completion of the study the researcher will donate a copy of the dissertation to the department for its Library and Information centre to enable future convenience reference. Confidentiality will be ensured on the data collected for the study. Attached is the letter issued by the University of South Africa (UNISA) as a means of verification for my studies.

Thanking you in anticipation for your forthcoming positive response

Yours faithfully

_____

Ngoako Solomon Marutha (Mr.)
MINF Student: University of South Africa (UNISA)
Cell: 083 4361 652,
E-mail: sollymn@webmail.co.za

Appendix 6: Letter of introduction to the Limpopo Department of Health and Social Development by UNISA

University of South Africa
School of Arts
Department of Information Science
P. O. Box 392
UNISA
0003
UNISA - Campus
Tel: (012) 429 2832
Fax: (012) 429 3792
E-mail: ngulup@unisa.ac.za
www.unisa.ac.za

14 December 2010

To whom it may concern,

This letter serves to introduce Mr. Solomon Ngoako Marutha who is registered as a student in the Department of Information Science at the University of South Africa (UNISA). Mr Marutha is currently carrying out a study on **"records management in support of service delivery in the public health sector of Limpopo".** The significance of records management in the service delivery chain cannot be overemphasized. The purpose of the study is to investigate the extent to which the current recordkeeping practices in the Limpopo Province support or undermine service delivery and the level of e-health readiness. The information obtained and the resultant recommendations could assist in decision-making.

In order to undertake the study, Mr Marutha will need to distribute a questionnaire and conduct interviews and observations in Government departments and hospitals. In that light, the Department of Information Science kindly requests you to render any possible assistance to Mr Marutha in order to facilitate the conduct of the study.

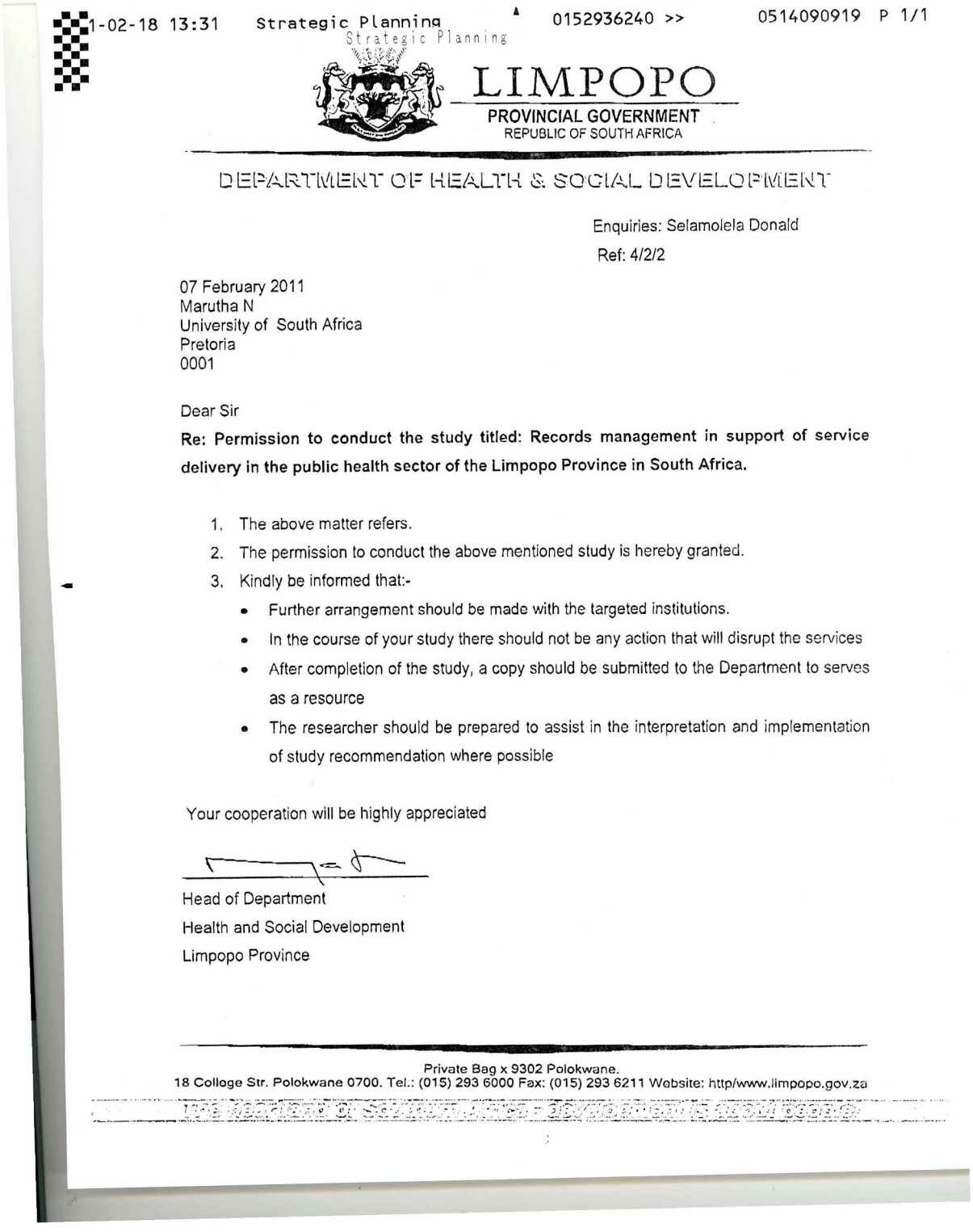
If you require any clarification pertaining to the study, please, feel free to contact Prof. Patrick Ngulube, who is the supervisor of the research, on telephone 27124292832 or email ngulup@unisa.ac.za.

Thank you in advance in anticipation.

Yours faithfully

Prof Patrick Ngulube (Supervisor)

Appendix 7: Letter of permission to conduct the study from the Limpopo Department of Health and Social Development



1-02-18 13:31 Strategic Planning 0152936240 >> 0514090919 P 1/1

Strategic Planning

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH & SOCIAL DEVELOPMENT

Enquiries: Selamolela Donald
Ref: 4/2/2

07 February 2011
Marutha N
University of South Africa
Pretoria
0001

Dear Sir

Re: Permission to conduct the study titled: Records management in support of service delivery in the public health sector of the Limpopo Province in South Africa.

1. The above matter refers.
2. The permission to conduct the above mentioned study is hereby granted.
3. Kindly be informed that:-
   - Further arrangement should be made with the targeted institutions.
   - In the course of your study there should not be any action that will disrupt the services
   - After completion of the study, a copy should be submitted to the Department to serves as a resource
   - The researcher should be prepared to assist in the interpretation and implementation of study recommendation where possible

Your cooperation will be highly appreciated

Head of Department
Health and Social Development
Limpopo Province

Private Bag x 9302 Polokwane.
18 College Str. Polokwane 0700. Tel.: (015) 293 6000 Fax: (015) 293 6211 Website: http/www.limpopo.gov.za

Appendix 8: **Research objectives, research questions and possible data sources**

Research Objectives	**Research Questions**	**Questions addressing the objectives**		
		Questionnaire	**Interview**	**Observation technique**
1. To establish how electronic records are managed in the public health sector of the Limpopo Province in South Africa.	How are electronic records managed in the public health sector?	**22,23,24,25,26,27 ,33,39,40,41,42,4 6,47,48,49,50**		
2. To determine the state of records management that hampers service delivery in the public health sector of South Africa in the Limpopo Province.	What is the state of records management in the public health sector of South Africa in the Limpopo Province?	**1,2,3,5,7,8,9,1011 ,28,29,30,31,32,3 3,34,35,36,37,38, 39,40,41,42,43, 44,45,46,47,48,59 ,61**	**2,3,4,5,6**	**2,3,4,5,6**
3. To find out the major causes of missing files that hamper service delivery in the public health sector	What are the major causes of missing files in the public health sector?	**1,2,5,6,7,8,9,10,1 1,12,13,14,15,16, 17,18,19,20,21,25 ,33,34,35,36,37,3 9,4041,42,44,46,4 7,52,59,60,61**	**2,3,4,5**	**2,3,4,5**
4. To explore awareness in the public health sector about e-records and e-health.	Is the public health sector aware of e- records and e-health?	**4,62,63,72**		
5. To explore the availability of the necessary infrastructure such as telecommunication networks and other ICT network connection facilities for e-health and e-records, to avoid digital division	Is the necessary infrastructure such as telecommunication network and other ICT network connection facilities for e-health and e-records available?	**70,71**	**6**	**6**
6. To determine availability of capacity for e-health and e-records in terms of human resources.	Is there a reasonable available capacity for e-health and e-records in terms of training for human resources?	**5,6,10,11,,12,13,1 4,15,16,17,18,19, 20,21,22,23,24,25 ,26,27,69,77**		
7. To identify existing guideline documents like policies and legislative framework governing e-records.	Are there existing guideline documents like policies and legislative framework governing e-records in the public sector of South Africa?	**73,74,75,76,77**		
8. To make recommendations to improve records management and e-health readiness.	Are there any effective records management and e-health readiness in the public health sector?	**5,49,50,51,52,53, 54,55,56,57,58,59 ,60,61,64,65,66,6 7,68,78,79**		