

**EXAMINING THE PHYSICIANS' IMPLEMENTATION AND  
COMPLIANCE WITH HYPERTENSION MANAGEMENT GUIDELINES  
IN NAMIBIA**

By

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I declare that the above dissertation/thesis 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 and that this work has not been submitted before for any other degree at any other institution.



Signature

14 November 2017

Date

## **DEDICATION**

*This dissertation is dedicated to my parents, sisters and brother, for their love and support throughout my study. I also dedicate this work to my son, Pohamba. E.*

*Shilongo for his understanding and support*

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# **EXAMINING THE PHYSICIANS' IMPLEMENTATION AND COMPLIANCE WITH HYPERTENSION MANAGEMENT GUIDELINES IN NAMIBIA**

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## **ABSTRACT**

The Namibian Treatment Guidelines of 2011 for hypertension management provide evidence-based care protocols for effective management of hypertension. Documentation of health care in clients' records is important to ensure patient safety and effective continuity of care. Documentation in this study reflected the extent of implementation and compliance with the hypertension management guidelines.

The purpose of this study was to examine physicians' implementation and compliance with hypertension management guidelines, through auditing documentation in health passports of clients diagnosed with hypertension. The guidelines were used as a framework to assess completeness of documentation. The study used a non-experimental, descriptive, retrospective quantitative research to examine the physicians' implementation and compliance with hypertension management guidelines at the selected hospital outpatient department in Namibia. Non-probability convenience sampling was used to select client records. Data were collected by means of a structured three point Likert scale checklist. Data were analysed using the (SPSS) version 23 for Windows.

The findings showed poor documentation of care provided, thus, assuming low compliance with hypertension management guidelines. Major areas of poor documentation were found in monitoring of risks factors, investigations to monitor organ damage, advise on when to seek care and client-centred health education.

Based on study results, recommendations were formulated to improve quality of documentation and thus, implementation of and compliance with hypertension management guidelines.

Key concepts: *Client health passport, Clinical audit, Documentation, Hypertension, Quality, Compliance, Implementation, Physician*

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## LIST OF ABBREVIATIONS

ACEI	Angiotensin Converting Enzyme Inhibitors
CKD	Chronic Kidney Disease
CPG	Clinical Practice Guidelines
CVA	Cerebrovascular Accident
ECG	Electrocardiogram
EHR	Electronic Health Record
JNC8	Eighth Joint National Committee for Management for High Blood Pressure in Adults
MoHSS	Ministry of Health and Social Services
NCDs	Non-Communicable Diseases
WHO	World Health Organization

# CHAPTER 1

## ORIENTATION TO THE STUDY

### 1.1 INTRODUCTION

In 2014, Africa saw the highest prevalence of hypertension at 30% among adults aged 18 years and older, while the lowest incidence was in America at 18% for the same year (World Health Organization 2015). A study conducted in India showed that there is an epidemiological transition burden for hypertension diseases shifting from higher income groups to middle and low socio-economic groups (Moser, Agrawal, Smith & Ebrahim 2014:1). In Namibia, hypertension was among the top ten diseases associated with mortality with approximately 497 deaths per 100 000 people in 2012 (World Health Organization 2014). In order to enhance the quality of hypertension management, hypertension guidelines were developed to assist physicians to move away from the solely pharmacological treatment of high blood pressure, to hypertension management. It is comprehensive and includes assessment of the risks of cardiovascular diseases, drug management, and periodic investigation (Ministry of Health and Social Services (MoHSS) 2011:209). Therefore, hypertension documentation audits play an essential role in ensuring that proper detection, as well as the appropriate case management of hypertension, is well implemented (Non-Communicable Disease Take Care Centre 2011). This will help to improve the quality of patient care, because currently there are gaps between what the standard guidelines recommend and what physicians are providing (Chen, Zhang, Gu, Wang, Zhang & Zhu 2013:1).

Namibia makes use of a health passport which is a legal document that contains the patient's information of their health and health-seeking behaviours (Ford 2015). Therefore, the health information in the patient health passport should reflect all symptoms, complete history, risk factors, as well as the name of the treatment provided and health education offered. Incomplete data about hypertension management could lead to poor case management, resulting in complications such as Cerebrovascular Accidents (CVA) and comas (Moser et al 2014:1).

## **1.2 RESEARCH PROBLEM**

A research problem is an issue or concern that needs to be addressed because there are gaps between the way things are and what they are expected to be (Creswell 2014:20). Therefore, problematic issues or concerns stimulate researchers to conduct studies to find solutions (Brink, van der Walt & van Rensburg 2012:61).

### **1.2.1 Background to the research problem**

Hypertension guidelines classify hypertension in three categories: (1) high normal pre-hypertension, 120-139 systolic and 80-89 diastolic blood pressure; (2) mild hypertension Stage 1, 140-159 systolic and 90-99 diastolic blood pressure; (3) moderate to severe hypertension Stage 2, with systolic that is greater than 160 and diastolic greater than 100 (MoHSS 2011:209).

Furthermore, in the case management of hypertension, the guidelines recommend that risk factors, symptoms and signs be assessed and documented. Additionally, investigations, drug management, as well as health education provided should appear in patient documents (MoHSS2011:210). The benefits of hypertension guidelines are to promote the primary prevention of hypertension and cardiovascular disease by changes in diet and lifestyle, increased detection, and treatment of undiagnosed hypertension through routine screening, and increased awareness of hypertension among the public. Moreover, hypertension guidelines aim to ensure that clients taking anti-hypertensive drugs are monitored to optimise blood pressure levels, in order to reduce the risk of cardiovascular diseases among treated hypertensive patients through non-pharmacological measures. The guidelines also aim to increase the identification of individuals with mild hypertension who are at risk of cardiovascular disease through early detection of signs and symptoms (Williams, Poulter, Brown, Davis, McInnes, Sever & Tom 2004:634).

Even though the final decisions concerning an individual patient are the responsibility of the physician, treatment guidelines aim to assist physicians in providing standardised care and best management strategies for individual clients with a specific condition, which is efficient and cost-effective (Murray 2012:807). Therefore, it is imperative to assess the quality of medical care given to hypertensive patients as reflected by what physicians document in order to improve the treatment outcomes.

Mabotuwana and Warren (2009:438) indicate that there are various treatment guidelines in place to control hypertension. However, less than 50% of treated clients with hypertension are reported to have regulated blood pressure. Therefore, health data on hypertension management needs to be reviewed to assess the quality of documentation for hypertensive patients.

Chimeddamba, Peeters, Ayton, Tumenjargal, Sodov and Joyce (2015:1) found that the majority of health professionals are aware of hypertension guidelines and they incorporate them in their daily practice. However, these guidelines are not implemented optimally as a result of challenges such as increased workloads due to high numbers of clients, staff shortages, and low patient health literacy. Furthermore, interventions in hypertension management, such as health education, may be provided, but not documented due to the abovementioned challenges. Wood, Viljoen, van der Merwe and Mash (2015:2) also claim that under-reporting could lead to poor case management, resulting in increased mortality and morbidity. If hypertension guidelines are fully implemented, there will be an improvement in patient care, uniformity in hypertension management, and positive outcomes.

Al-Shidhani, Bhargava and Rizvi (2011:249) found that in a study in Oman, a history of smoking, and symptoms such as chest pain and palpitation are poorly documented. Only 0.7% of physicians documented smoking, leaving 97.3% undocumented. Thus, if there is poor documentation of essential assessments, investigations and health education provided to the client, it could be interpreted as poor implementation of the hypertension management guidelines and physicians not complying with the set standards.

On the other hand, it could also be attributed to physicians being unaware of the existence of the guidelines, being in disagreement with the recommendations of the guidelines, or a lack of confidence in their ability to implement the guidelines (Adedeji, Tumbo & Govender 2015:2).

### **1.2.2 Statement of the research problem**

The Namibia Standard Treatment Guidelines of 2011 provide standard protocols for the assessment procedures and investigations that need to be carried out for the effective management of hypertension (MoHSS 2011:209). In order to ensure continuity of care, the data documented in the client health passport should be complete, accurate and consistent. The management and maintenance of clients' health records are significant in a health care setting. An examination of documented care provided to clients diagnosed with hypertension is a quality management initiative to ensure that clients receive the best possible care as recommended in the guidelines. Al-Shidhani et al (2011:251) indicate that physicians' documentation does not always indicate the assessment, investigations and treatment plans as outlined in the standard treatment guidelines. This means that the documents could be incomplete or not accurate regarding the medical care provided.

The standard treatment guidelines are viewed as quality initiatives that physicians need to comply with. There has been no audit of hypertension guideline documentation in the selected hospital in Namibia. Therefore, the level of compliance with hypertension management guidelines is not known, hence, a need for this study.

### **1.3 PURPOSE OF THE STUDY**

The purpose of this study was to examine physicians' implementation and compliance with hypertension management guidelines, through auditing documentation in the health passports of clients diagnosed with hypertension. The guidelines were used as a framework to assess the completeness of documentation.

### **1.3.1 Objectives of the study**

The objectives of the study were:

- To describe the physicians' implementation and compliance with hypertension management guidelines in Namibia.
- To make recommendations to improve the quality of documentation and compliance with hypertension guidelines.

### **1.4 RESEARCH QUESTION**

- To what extent do physicians implement and comply with hypertension management guidelines in Namibia?

### **1.5 SIGNIFICANCE OF THE STUDY**

Managing health information is essential for legal and clinical reasons. Complete, accurate and consistent documentation of care enhances communication among health care providers and improves patient health outcomes. Treatment guidelines provide protocols for care, and compliance with these protocols sustains excellence in case management. Hospitals thrive to ensure client safety, improve the quality of care, and enhance efficiency. The concept of 'if it is not documented, it is not done' further strengthens the need to examine physicians' documentation trends. If the guidelines are well implemented through quality documentation, the physicians continuing with patient care will be able to know what investigations, anthropometric measurements, drug management and health education were provided, and manage cases more effectively.

A study conducted in Bojanala district, North-West province South Africa, indicates that there are gaps in the implementation of guidelines, and provides an opportunity for continual in-service training for physicians regarding health information management and case management (Adedeji et al 2015:1; Al-Shidhani et al 2011:248).

Additionally, this research could contribute to physicians' understanding of the need to comply with the guidelines for hypertension management. The outcomes of the study will empower the health managers and programme officers to strengthen their supervision regarding information management of provided care (Mabotwana & Warren 2009:438).

## **1.6 DEFINITIONS OF KEY TERMS**

The key concepts in the study were defined in two components; conceptual and operational definitions. These definitions are described next.

### **1.6.1 Conceptual definitions**

The **client health passport** is a “legal document that carries all the patient information regarding his health and health-seeking behaviours to ensure that all health professionals have access to relevant information about their condition, regardless where they have been treated” (Ford 2015). In this study, a client health passport is a client-held, legal document that carries all patient health information regarding their health conditions, including hypertension.

**Clinical audit** is referred to as “a clinical led, quality improvement process that seeks to improve patient care and outcomes through the systematic review of care against explicit criteria and act to improve care when standards are met” (Quality and Patient Safety Directorate 2013:7). In this study, an audit is a process of assessing the physicians' implementation and compliance with hypertension management guidelines against the set standards in the Namibia Standard Treatment Guidelines of 2011, using a checklist.

**Documentation** is defined as “is the recording of information to describe care provided to a patient in order to communicate essential information between healthcare providers and maintain a patient record” (Boone 2011:9).

**Hypertension** the consistent elevation of systemic arterial blood pressure. Individuals are diagnosed as having hypertension when the average of two or more diastolic blood pressure readings taken on two or more consecutive clinical visits are 90mmHg or higher, or when the average systolic blood pressure readings taken on three visits is greater than 140mmHg (McCance & Heuether 2002:984). In this study, hypertension refers to all outpatients clients diagnosed with blood pressure higher than 140/90 and receiving anti-hypertensive medication.

**Quality** is defined to as “the standard of something when it is compared to other things like it; how good or bad is something” (Hornby 2015:1271). In this study, quality is referred to as the completeness, accuracy and timeliness of documenting care for clients diagnosed with hypertension.

### **1.6.2 Operational definitions**

**Compliance** is defined as a process of implementing and maintaining required standards whereby health professionals make efforts to collaboratively achieve mutual derived health goals (Rafii, Fatemi, Danielson, Johansson & Modanloo 2014:161). In this study, compliance refers to the completeness of documentation in the clients’ health passports by physicians according to the Namibia Standard Treatment Guidelines of 2011 for hypertension.

**Hypertension management guidelines** are defined as a “document which has guides to decisions and criteria regarding diagnosis, management and treatment in specific areas of health care” (Adedeji et al 2015:2). In this study, the term refers to the Namibia Standard Treatment Guidelines of 2011 developed to guide physicians in the management of hypertension.

**Implementation** is a “process to make something that has been officially decided to start or happen or be used” (Hornby 2015:765). In this study, implementation means documenting all hypertension medical care in the client health passport using hypertension management guidelines.

A **physician** is “an individual authorised to practice medicine who graduated from a college of medicine and licensed by an appropriate board or council” (McWay 2014:32). In this study, a physician is a doctor who provides care for clients diagnosed with hypertension in an outpatient department.

**Documentation** in this study, refers to the recording of hypertension medical care by physicians in the client’s health passport. Documentation indicates the level of implementation and compliance with the Namibian Standard Treatment Guidelines of 2011 for hypertension.

## **1.7 RESEARCH METHODOLOGY**

The research methodology provides the scope of how investigations were carried out and specifies the type of information or data collected and the motive behind selecting designs and methods used in the study (Brink et al 2012:199). In this study, the researcher used a quantitative approach. The research methodology is described in detail in Chapter 3.

### **1.7.1 The research design**

The research design provides the framework which specifies the type of information to be collected (Brink et al 2012:102). The research design for this study was quantitative, non-experimental and descriptive. A quantitative approach was selected because the phenomenon (physicians’ documentation of care, thus, compliance with guidelines for hypertension management) was studied by way of the precise measurement and quantification of variables (Polit & Beck 2012:729).

Non-experimental, descriptive, retrospective quantitative research was used and data were collected without introducing any treatment or changes to the subjects (de Vos, Strydom, Fouche & Delpont 2014:145). In this study, the descriptive study was applicable for describing the documentation of care provided to clients diagnosed with hypertension. Furthermore, retrospective research was used by reviewing documentation of care provided in previous encounters (Bink et al 2012:113). A retrospective design was appropriate in this study as the researcher worked backward to examine the implementation and documentation of hypertension management by physicians. The study audited the health passports of hypertensive clients who have been on treatment for more than a year.

## **1.7.2 Population and sample**

### **1.7.2.1 Population**

Population refers to all persons or objects that meet the inclusion criteria for what the research is interested in studying (Brink et al 2012:13). The population for this study was client health passports for all clients diagnosed with hypertension who received treatment at the outpatient department in a selected hospital in Namibia. The population criteria was important to gather comprehensive data from client health passports for those clients who are hypertensive who have been receiving treatment for more than a year, in order to examine to what extent physicians implement and comply with hypertension guidelines in Namibia.

### **1.7.2.2 Sampling and sample**

Sampling is referred to as the process of taking a portion of units with particular characteristics of a population, as being representative of the population (de Vos et al 2014:223). In this study, the researcher used non-probability sampling to select health passports of clients who came for medical consultation, in the outpatient department in the selected hospital in Namibia. Non-probability sampling is referred to as sampling where samples are selected based on the researcher's judgements in terms of the participants' knowledge on the phenomenon (Brink et al 2012:139).

Although this approach is usually used in qualitative methods, due to the nature of the population, it was used in this study. A convenience sampling was appropriate for this study because the researcher collected data from outpatient clients who came for consultation. The number of available clients with hypertension was not known. Therefore, the researcher only sampled hypertensive clients available on the day of their consultation. The sample size in this study was 129 client health passports.

## **1.8 THE RESEARCH SETTING**

The study was conducted at the outpatient department in the selected hospital in Namibia. The hospital is situated in the Kharas region which is 500 kilometres from the capital city of Namibia, Windhoek. The outpatient department was ideal for this study because it is a setting where hypertensive clients come for diagnosis, investigation, treatment follow-up, and health education. Furthermore, comprehensive case management for hypertension is offered in this outpatient department.

## **1.9 DATA COLLECTION**

Data collection is a systematic way of gathering relevant information for the research purpose and objective of the study (Burns & Grove 2011:52). In this study, the researcher used the clinical audit to review physicians' guideline implementation and documentation trends, and determined the completeness of health information in clients' health passports.

### **1.9.1 Data collection instrument and process**

A structured Likert scale checklist was developed and the Namibia Standard Treatment Guidelines of 2011 provided a framework for the criteria.

A checklist was convenient in this quantitative, descriptive, retrospective study as it consisted of a list of items which the researcher ticked regarding the implementation of guidelines and compliance level (de Vos et al 2014:202), in this case, the presence of data elements in the clients' health passports.

The audit was done at the outpatient department pharmacy as it was convenient for the clients.

### **1.10 VALIDITY AND RELIABILITY**

Brink et al (2012:171) state that reliability and validity are closely related. The researcher needs to consider both of these qualities when selecting a research instrument. Reliability refers to the repeatability and consistency of a measuring instrument, and whether it will yield the same results under similar circumstances (Brink et al 2012:126). Validity is dealing with the authenticity, accuracy and truthfulness of the concept under study (Brink et al 2012:166). Various statistical strategies were used to ensure the validity and reliability of the study.

### **1.11 DATA ANALYSIS**

Data analysis is referred to as a technique that converts data to numerical form so that it is interpretable (de Vos et al 2014:249). The purpose of data analysis is to categorise, order, manipulate and summarise the data, and to describe it in meaningful terms (Brink et al 2012:177). The research study was descriptive in nature, therefore descriptive statistics were used to perform basic calculations. The researcher first categorised the variables according to the measurement levels. In order to enhance data management, the researcher then coded the checklist variables to prepare them for data capturing using the statistical package for social sciences (SPSS) version 23.

The details of the methodology are outlined in Chapter 3.

## **1.12 ETHICAL CONSIDERATIONS**

Ethical standards were considered when dealing with the research institution and participants. All the relevant authorities were contacted to get the required permission. The ethical clearance to conduct the study was obtained from the Higher Degrees Committee of the Department of Health Studies at the University of South Africa (Annexure D). Permission to conduct the research was obtained from the Permanent Secretary of the Ministry of Health and Social Services in Namibia (Annexure B). The physicians in the hospital were also informed of the study's purpose and procedures in order to prevent any discomfort.

Clients whose health passports were audited were protected from any harm and all their rights were observed. They were informed of the nature and purpose of the study. Informed consent was signed prior to the commencement of the study and participants were informed that they have a right to withdraw from the study at any time without penalties. Participants had an opportunity to ask questions for clarity and were asked to confirm their participation by signing a written informed consent form.

The researcher employed ethical principles which include the principle of beneficence, informed consent, the right to self-determination, the right to privacy, anonymity, and confidentiality.

Further details on the ethical principles applied in this study are provided in Chapter 3.

## **1.13 SCOPE AND LIMITATIONS**

The study included records of hypertensive clients who had been on hypertension treatment for one year and longer, who visited the outpatient department during the data collection period. The focus was only on the completeness of the documentation of provided care. This study assumed that documentation indicates physicians' implementation and level of compliance with treatment guidelines.

Other quality dimensions of documentation such as precision, uniqueness and integrity of health information in the health records were not included.

## **1.14 STRUCTURE OF THE DISSERTATION**

The structure of the dissertation includes five chapters.

### **Chapter 1: Orientation to the study**

The orientation to the research study introduces the overview covering the background of the study, the problem statement, the purpose of the study, the research question and significance of the study. A brief introduction to the methodology, ethical considerations, scope and limitation, and summary of the research content are also part of this chapter.

### **Chapter 2: Literature review**

This chapter covers all aspects that enabled the researcher to gain a clear understanding of the research topic (de Vos, et al 2014:135). Furthermore, it provides knowledge through available sources regarding the documentation of health care and the extent to which physicians' implement and comply with hypertension guidelines in Namibia.

### **Chapter 3: Research design and methodology**

The chapter on the research methodology presents the quantitative, descriptive and retrospective design with a structured checklist for data collection. The research design and methodology is covered in detailed in this chapter.

### **Chapter 4: Data analysis, presentation and description of the research findings**

In this chapter, the focus is on data analysis using the SPSS software 23. Analysed data are presented in graphs, figures and tables, followed by narrative descriptions.

## **Chapter 5: Interpretations, discussion of findings, conclusions, and recommendations**

The chapter provides interpretations, conclusions, and recommendations for strengthening health record management, thus leading to established and integrated strategies for hypertension management guidelines by physicians.

### **1.15 CONCLUSION**

This chapter offered an overview of the research problem, the purpose and significance of the study, and the research design and methodology. The population, sample, data collection, analysis and ethical considerations were also discussed. Key terms were defined, and a chapter outline of the study was provided.

The following chapter will offer a detailed review of the related literature on the study.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter presents a review of the literature on health care guidelines and issues pertaining to the need for quality documentation. The aim is to critically analyse what is known about this phenomenon (Brink et al 2012:70) and relate that information to the objectives of this study. This chapter highlights the Clinical Practice Guidelines (CPGs), hypertension management guidelines, the documentation of care in health care settings, dimensions of data quality, and factors related to the implementation and compliance with hypertension management guidelines.

#### **2.2 CLINICAL PRACTICE GUIDELINES**

Clinical Practice Guidelines (CPGs) can be defined as documents that contain a summary of evidence-based information that guides the decisions of physicians regarding diagnosis, management/treatment in specific areas of health care (Adedeji et al 2015:2). Guidelines in health care assist health care professionals to focus on specific elements when treating clients and improve the quality of care. CPGs also encourage documenting care as health care professionals are obliged to document the recommended assessments, investigations, treatments and health education provided to each client (Blancher, Halimi, Hanon, Mourad, Pathak, Schnbert & Girerd 2014:4). Furthermore, CPGs aim to provide standardised medical care and promote uniformity in practice for diagnosis, drug management and investigations that need to be conducted (Adedeji et al 2015:2). Various guidelines have been documented in literature, for example, guidelines for documenting on electronic health records and protocols on documenting ante-natal care (National Department of Health (NDoH) 2009).

The principles for developing guidelines have evolved since the 1990s, which were strongly influenced by values and advances of evidence-based medicine movements.

Clinical Practice Guidelines are developed at international, national and local levels (Richter-Sundberg, Kardakis, Weinehall, Garvare & Nystrom 2015:2) to ensure quality of care based on evidence. Furthermore, CPGs are initiated to improve the quality of care by providing recent scientific information for decision-making and adequate details for appropriate practices (Ahn & Kim 2012:1).

The global strategy for the prevention and control of non-communicable diseases (NCDs) endorsed by the World Health Organization (WHO) in 2008 aims to ensure that there is an action plan for the prevention and control of NCDs that will reduce the incidence of NCDs by establishing national policies and plans (WHO 2012:12). Cardiovascular diseases (CVD) are first among NCDs, with nearly 17.5 million deaths, which are estimated to be 31% of all deaths worldwide. Nearly 75% of CVD deaths were due to heart attacks and strokes in 2015 (WHO 2017:1). The development of health care guidelines by health care systems will support efforts to reduce the incidence, morbidity and mortality of CVDs. The WHO endorsement can be seen as confirmation or support for the development of guidelines for health care systems.

### **2.2.1 Hypertension management guidelines**

Hypertension is defined as consistent elevation of systemic arterial blood pressure. Individuals are diagnosed as having hypertension when the average of two or more diastolic blood pressure readings, taken on two or more consecutive clinical visit, is 90mmHg or higher, or when the average systolic blood pressure readings taken on three visits is greater than 140mmHg (McCance & Heuther 2002:984).

Hypertension is one of the CVDs. Thus, effective hypertension management could be ensured by the provision of management guidelines that offer a framework for health care professionals, especially in limited resource countries such as Namibia. There is a need to have guidelines for hypertension management that are formulated based on evidence-based research. The guidelines should provide clear and concise direction for hypertension prevention and management (Jami, Smith, Moningi, Martin, Rosenorance & Reyes 2007:251).

Furthermore, guidelines should include evidence of high quality current information about disease case management, risks/benefits, and cost-effectiveness (Adedeji et al 2015:2).

The hypertension management guidelines should identify risk factors for hypertension and CVD in the general population; effectively measure blood pressure at the point of care; conduct lifestyle examinations and yearly investigations for assessing and monitoring organ damage; offer treatment algorithms (general hypertensive clients); and assess co-morbidity such as diabetes or chronic kidney diseases (Chimeddamba et al 2015:2).

The primary aim of the hypertension management guidelines is to improve hypertension control at population level. Globally, there is an Eighth Joint National Committee for Management of High Blood Pressure in Adults (JNC8) with a panel of experts from different disciplines such as primary care, cardiology, nephrology, internal medicine, nursing, dietetics, epidemiology, informatics and evidence-based medicine (James, Oparil, Carter, Cushman, Dennison-Hummelfarb, Handler et al 2014:2). These experts are appointed to develop evidence statements for blood pressure treatment based on systematic reviews of literature to meet user needs, especially in primary care. Most countries worldwide adopt their hypertension guidelines based on the recommendations of the JNC8. The JNC8 classified hypertension management in two categories: hypertensive clients from the general population (with no diabetes or chronic kidney disease); and hypertensive clients with diabetes mellitus or chronic kidney disease (James et al 2014:2).

Even in developed countries, hypertension guidelines are essential to ensure that there are cost-effective treatments to alleviate the high costs of medical care (Weber, Schiffrin, White, Mann, Lindholm, Kererson et al 2013:14). In France, the French Society of Hypertension has developed hypertension guidelines that will improve the management of hypertension in the French population. These hypertension guidelines offer practical characteristics which are useful in clinical practice.

They are presented in a short, easy-to-read format, comprehensively written for non-physicians, and offers wide dissemination among health professionals (Blacher et al 2014:1). Physicians are expected to provide clients with appropriate interventions to reduce the risks of developing cardiovascular complications. Ahmad, Hassan, Tangiisuran, Meng, Aziz et al (2012:799) indicate that guidelines are based on the best available evidence from research and clinical trials. Hence, adherence to the guidelines is expected to yield better client outcomes, and the association between physicians' adherent prescriptions and hypertension control is anticipated to closely relate.

### 2.2.2 The Namibia Standard Treatment Guidelines of 2011

In Namibia, the MoHSS' (2011:209) standard treatment guidelines have classified hypertension into three categories as reflected in Table 2.1:

**Table 2.1: Hypertension classification**

<b>Classification</b>	<b>Systolic blood pressure (BP) mmHg</b>	<b>Diastolic blood pressure (BP) mmHg</b>
Pre-Hypertension	120-139	81-89
Mild Hypertension (Stage 1)	140-159	90-99
Moderate to severe hypertension (Stage 2)	>160	>100

Source: MoHSS (2011:209)

The hypertension management guidelines recommend that blood pressure readings should be taken three times at different intervals on two different occasions before initiating a client on chronic hypertension care (MoHSS 2011:209). This recommendation will ensure that the client is correctly diagnosed as one high blood pressure reading does not indicate certain hypertension. A high blood pressure reading at one visit could be caused by other predisposing factors such as pain, stress, or recent exercise before the client's blood pressure was taken.

In hypertension management, the guidelines recommend that health professionals assess clients who are at risk of cardiovascular diseases. Major risk factors include diabetes mellitus, smoking, obesity, dyslipidaemia, physical inactivity, and a family history of primary hypertension (James et al 2014:1). The assessment will assist in the early detection of complications and can offer timely preventative treatment.

The MoHSS (2011:211) has further stated that pre-hypertension, which has a range of 120-139mmHg systolic blood pressure, and diastolic blood pressure of 90-99mmHg, should be managed through non-pharmacological measures such as health education on dietary measures. The health education regarding hypertension control should include information on weight loss and decreased sodium intake. Furthermore, health education should also touch on the importance of restricting alcohol intake, coffee and other caffeine-containing beverages. Dietary education should also encourage hypertensive clients to increase their calcium intake, folic acid, and vitamins B6 and B12. The diet should have decreased saturated fat intake and increased fruits and vegetables (MoHSS 2011:211). The JNC8 guidelines also indicate that non-pharmacological measures can assist in preventing the development of hypertension as well as control hypertension for clients on hypertensive treatment. These interventions can reduce the risks of developing cardiovascular complications such as strokes and heart attacks among hypertensive clients.

In order to monitor the client's progress on hypertension treatment, various investigations need to be undertaken of hypertensive clients on treatment. These investigations include; body weight, height, urine dipsticks, and blood pressure readings at each visit. Furthermore, urea and electrolytes, creatinine, lipids profile (cholesterol and triglycerides) and electrocardiogram and fundoscopy, should be done on an annual basis. The various investigations are vital as they will assist the physician to assess the impact of hypertension treatment on hypertensive clients. The investigations will also help to assess the clients' kidneys as it is frequently an organ that is damaged as a result of the depletion of potassium and other electrolytes by diuretic drugs.

Other organs that could be at risk of being damaged are the eyes; if hypertension is uncontrolled it could lead to permanent blindness as a result of glaucoma. Thus, there is a need to routinely conduct fundoscopy on hypertensive clients. This will enable the physician to adjust the doses of the drug or prescribe a different drug (MoHSS 2011:211).

The MoHSS (2011:212) make provision for pharmacological interventions. There are clear treatment paths that guide physicians on which drugs to prescribe. The guidelines also provide for cases where the response is not ideal. They are available and accessible to all physicians.

The comparison of the JNC8 guidelines and French hypertension society guidelines with Namibia's Standard Treatment Guidelines of 2011 reveal non-alignment. There are gaps because the Namibian Standard Treatment Guidelines of 2011 do not address the issue of hypertension with co-morbidities such as diabetes mellitus or chronic kidney diseases.

Hypertension management guidelines offer recommendations that lead to desired health outcomes. If there is inadequate compliance with hypertension management guideline, the client's safety will be compromised, increasing the risks of hypertension complications. The Patient Safety Group of North-West Province of South Africa also indicate that a lack of standardised clinical management may lead to adverse outcomes, and there are increasing trends of preventable adverse events from poor physician adherence to hypertension management guidelines (Adedeji et al 2015:2).

### **2.2.3 Implementation of guidelines**

This study uses implementation of guidelines to reflect the physicians' level of compliance with hypertension treatment guidelines. Guidelines were established to standardise medical care and promote uniformity in practices. All physicians are expected to implement and comply with the guidelines to ensure continuity of care.

This will raise the quality of care provided, reduce risks of mismanagement, and achieve a balance between cost and medical parameters such as effectiveness, specificity and availability (Adedeji et al 2015:2). Guidelines form an intersection between research evidence and clinical actions, hence complying with hypertension management guidelines improves client outcomes (James et al 2014:2).

Despite international and national organisational investments in developing and disseminating guidelines for hypertension management, literature has shown that there is limited impact on health professionals' behaviours in implementing the guidelines. Hence, if there is poor implementation of guidelines, the purpose of providing quality care will be meaningless (Richter-Sundberg et al 2015:2).

Adherence to hypertension management guidelines is essential in hypertension control. Uncontrolled hypertension usually occurs as a result of poor management, which is generally caused by gaps in implementing national hypertension guidelines among other contributory factors. If uncontrolled hypertension persists, it could lead to related complications including stroke and chronic kidney diseases (Lulebo, Mapatano, Kayembe, Mafuta, Mutombo & Coppieters 2015:2).

Asnani, Brown, O'Connor, Lewis, Win and Ried (2005:180) state that there is a significant gap between guidelines on standards of care and actual medical practice. This supports the observation that the development of sound guidelines often does not translate into practice. Another study conducted in Japan revealed that there are gaps in physicians' management of clients using hypertension guidelines. The study showed the demographic characteristics of the doctors. Their perceptions and attitudes appeared to influence the uptake and adoption of the guidelines. Some of the contributory factors included their number of years since graduation, participation in post-graduate education, and where their medical degree was obtained (Yokokawa, Goto, Sanada, Watanabe & Yasumura 2009:4; Taba, Rosenthal, Habicht, Tarien, Mathiesen, Hill & Bero 2012:5).

Another study conducted in a tertiary hospital in Malaysia revealed that some physicians do not implement the hypertension guidelines optimally, especially in hypertensive clients with co-morbidities such as diabetes mellitus. This could result in poor case management (Ahmad et al 2012:802).

In another study conducted in South Africa, it was found that most of the assessments and measurements documented – such as blood pressure, weight and height – were done by professional nurses. The study further noted that there was poor adherence to hypertension management guidelines, as reflected by the poor documentation by physicians (Adedeji et al 2015:5). Poor documentation could be attributed to various factors such as busy clinics and doctors abbreviating their descriptions of care in patient records. The poor documentation in computerised systems was found to be the result of physicians forgetting to save their input of the care provided in the electronic file (Al-Shidhani et al 2011:25).

In their research, Mogbel and Khawaji (2012:59) also reveal poor documentation among physicians, especially the biological data of the clients, assuming that documenting such data is a waste of time. Furthermore, Mogbel and Khawaji (2012:59) indicate that physicians are not oriented or trained to properly record and document care.

### **2.3 THE LEGAL AND ETHICAL ASPECTS OF DOCUMENTATION OF HEALTH CARE**

Documentation is defined as “the recording of information to describe care provided to a patient in order to communicate essential information between health care providers” (Boone 2011:9). Documentation in health care settings is a measure which is undertaken by different disciplines such as nursing, medicine, social work, physiotherapy, occupational therapy, and many more. Documenting care is vital to ensure accountability, to facilitate co-ordination of care between physicians and nurses, and for hospital quality improvement (National Council of Social Services 2007:5).

Documentation is referred to as a written or electronic communication that generates information about clients and their responses to treatment. Irrespective of the format of documentation, all client records need to be complete, accurate and timely. The information gathered from physicians' documentation is used to determine the quality of care given to the clients. Nurses generate a wealth of information as they spend considerable time with clients; they are at the point of entry in the health system, especially in primary care and when patients are hospitalised (Lindo, Stennet, Stephenson-Wilson, Barret, Bunnaman, Anderson-Johnson et al 2016:509). Incomplete documentation compromises the continuity of care. This is in agreement with Ruuso's (2016:1) view that, if attending physicians ensure complete documentation of their care, it is easier to interpret clinical examinations or tests, or confirm the findings of other physicians.

In the health care setting, there is a saying: "work not documented, is work not done", meaning that information about the care and treatment provided by the health care professional to the client needs to be documented and the records should be complete, accurate and timely (Olin 2011:1). Thus, if there is incomplete documentation of care provided, there are no guarantees that the care was provided at all. This study focuses on documentation as a practice that reflects compliance with the guidelines for hypertension management. The study assumes that complete documentation indicates total compliance with the guidelines.

Good record keeping is crucial because clinical records are legal documents which inform physicians and authorised parties offering care to the client. Thus, good records support good defence, while poor records results in poor defence, and no records translate into no defence (Chong, Chew, Ravindranath & Pau 2013:206). The gaps in medical records can be interpreted as invisible and is seen by courts of law as evidence of negligence (Taylor 2012:32). Cruz-Correia, Boldt, Lapao, Santos-Pereira, Rodrigues, Feneira and Freitas (2013:2) also state that if the medical records are complete, it can protect both health care employers and employees during lawsuits as it provides evidence of the care provided. The best way to ensure accountability during lawsuits is to offer a comprehensive backtrack of records to the relevant authority at points of care.

Healthcare professionals routinely communicate information about their clients orally, hence modes of written communication in health care settings are not given the attention they deserve. Written communication provides a much broader platform for the storage of knowledge (Jefferies, Johnson & Griffiths 2010:113).

### **2.3.1 Quality of documentation**

In healthcare, quality is defined as a “degree to which health services for individuals and populations increase the likelihood of desired health outcomes and care consistent with current professional knowledge” (Boukdedid, Abdoul, Loustau, Sibony & Alberti 2011:2). In data quality, there are different quality indicators which are used to monitor the quality of health care. These quality indicators are measured with the purpose to provide information regarding how well a health institution performs their services (Hassani, Lindman, Kristofferson, Tomic & Helgeland 2015:2). The interpretation of guidelines as quality indicators could increase awareness and reduce the gap between the content of the guidelines and clinical practice (Mosca, Tani, Aringer, Bombardieri, Boumpass, Cervera et al 2011:384). Poor data quality may lead to inaccurate hospital performance management, poor disease management, as well as the inappropriate allocation of resources (Chen, Hailey, Wang & Yu 2014:517).

Medical records are powerful tools that allow the treating health professional to track the client’s medical history and identify problems or patterns that help determine the course of treatment (College of Physicians and Surgeons of Ontario 2012:1). Therefore, high data quality is crucial for better information and decision-making. Ahmadi, Alipour, Johanpour, Mohamadi and Khorami (2014:1096) state that there is a need to conduct regular record audits in public health care settings to ensure that the collected data provide a true reflection on what is being implemented at the point of care. If the health information is of high quality, it will assist health care managers to plan accordingly and take appropriate decisions (Nooi, Sarrafzadegan, Khosrvai & Andalib 2012:118). In addition, there should be a policy on documentation in health records and the policy should guide health care professionals on how to record in terms of assessment, treatment, clinical handover, client safety, clinical quality improvement and education (NSW Department of Health 2012:1).

### **2.3.1.1 Dimensions of data quality**

Dimensions of data quality are referred to as features of data that can be measured or assessed against defined standards in order to determine the quality of the data (DAMA UK Working Group 2013:3). In order to measure quality according to set standards, there is a need to assess crucial dimensions, such as completeness, accuracy, and timeliness.

- **Completeness**

Completeness refers to the presence or availability of all data elements in a medical record (Weiskopf & Weng 2012:146). A patient record is considered complete when all observations made during the clinical encounter are recorded. An assessment of documentation completeness relies on whether all the information recorded by the physician in the client record are according to CPGs (Weiskopf, Hripcsak, Swaminathan & Weng 2013:831).

Completeness is measured by calculating the presence of elements documented over the total number of all the elements as required in the guidelines. Auditing medical records is useful in health institutions to assess whether the institution is following a set of guidelines and policies and if data recording is done correctly and meaningfully (Willie-Jorgenson 2013:517). Hence, health institutions should periodically audit medical records to assess the documentation of the physicians in order to ensure that the documentation complies with the set standards in the treatment guidelines. Chong et al (2013:211) indicate that clinical audits improve record keeping and benefit practitioners and clients. Asnani et al (2005:177) claim that auditing clinical records monitor the use of particular interventions or the care received by clients against set standards. The clinical record audit results should be shared with physicians as part of the health care system's quality improvement project that aims to improve client care and treatment. After the first record audit has taken place and feedback has been given to physicians and nurses, the record management or documentation among those physicians significantly improve in the second audit (Asnani et al 2005:178).

Audits that have regular feedback mechanisms have been shown to improve the quality of health care. The improvement is not only in hospital management quality but also in client case management, as well as instilling a sense of accountability among physicians (Fraser, Sales, O'Rourke & Schalm 2012:2).

A hypertension audit conducted in Jamaica by Asnani et al (2005:178) reveals shortcomings in physicians' documentation of smoking and fundoscopy. Al-Shidhani, et al (2011:251) also confirm poor documentation in an audit of hypertension at a university health centre in Oman, especially the history of important symptoms presented by the client, such as their smoking history and lipid profile. Chong et al (2013:207) stress that the completeness of client records and health conditions is essential to ensure that appropriate care is given when a client is seen by more than one care provider. A study conducted in Iran indicated that low-quality health information increased medical errors or near misses, which results in poor health care. Furthermore, the study also indicated that data entered in medical records should be accurate and complete as it indicates that physicians are complying to set standards to improve quality care, easing continuity of care and reducing the client's length of hospitalisation (Chong et al 2013:207).

Incomplete documentation is also a challenge among other health professionals such as nurses. Research conducted in a Jamaican hospital showed deficiencies in client education and recording basic information such as body weight, which is an important assessment factor for heart disease. The low scores in documenting interventions could have occurred as a result of fatigue among nurses and high client load (Blake-Mowatt, Lindo & Bennet 2013:329). Peusschers, Twine, Wheeler, Moudgil and Patterson (2015:1) propose that incomplete documentation can be addressed by establishing quality improvement activities that go beyond the basic legible documentation, to comprehensive documentation that includes all observations done, treatments given, and health education provided to close the gaps in communication with other health practitioners. This study assumed that the completeness of documentation would reflect high compliance with the hypertension management guidelines.

- **Accuracy**

Accuracy is defined as the degree to which data correctly describes the “real world” object or event (Olupot-Olupot 2009:45). Accuracy aims to establish if data matches the events it describes so that correct conclusions can be drawn from such data (DAMA UK Working Group 2013:12). Inaccurate documentation can lead to poor clinical decision-making and inappropriate medicine that could potentially harm the client. Gunningberg, Poder, Donaldson and Swenne (2014:415) state that accuracy in medication prescription, administration and documentation is crucial in order to prevent medication errors which could be harmful to the client.

An unpublished thesis conducted at the University Teaching Hospital in Zambia by Mutinta (2015:19) reveals that client histories at the time of admission to hospital were inaccurately documented, because they contained incorrect medication frequencies, incomplete doses, and differences between clinical notes and nursing documents. The same study indicates that there was a statistically significant association between the accuracy of medication histories and the completeness of documentation related to medication histories. Hence, medication history documentation has to be complete for it to be accurate (Mutinta 2015:20).

Richardson, Sengstack, Doucette, Hammond, Schertz, Thompson and Johnson (2016:62) state that complete and accurate documentation in health care settings can assist in identifying clients who are at risk of developing strokes, which can lead to such clients receiving timely treatment. Therefore, the quality of medical records could be improved by ensuring that information recorded in the client health passports are complete and accurate for client safety and continuity. There must be consistency between the care documented for hypertensive clients in their health passports and hypertension management guidelines. The accuracy of health information is vital for health care planning and for evaluating progress towards specific health programme targets (Mphatswe, Mate, Bennet, Ngidi, Reddy, Barker & Rollins 2011:1).

- **Timeliness**

Timeliness refers to a convenient time in which information regarding an event must be used before it loses its ability to influence the decision-making process (Ahn, Choi & Kim 2016:274). Timeliness in health care is the system's capacity to provide care required as quickly as possible after a need is recognised (Agency for Healthcare Research and Quality 2011:153).

Timeliness is a data quality dimension element that is crucial in the improvement of health care systems as it facilitates that the care required is provided in a reasonable timeframe to prevent complications. Timeliness and the completeness of medical records are also vital when conducting monthly or yearly investigations as outlined in hypertension management guideline. If such investigations are not carried out on a monthly (blood pressure, body mass index) or yearly (urea, creatinine, lipid profile, ECG and fundoscopy) basis, it will delay appropriate clinical decisions for detecting organ damage to the kidneys, heart, eyes and brain, which could be affected as a result of the anti-hypertensive drugs prescribed to the clients (Agency for Health Research and Quality 2011:50). Hence, documentation of the assessments and interventions provided to the client should be complete, accurate, up to date, and available on time (Rashi 2011).

Ahn et al (2016:24) indicate that the timeliness of documentation in the Electronic Health Record (EHR) could be affected by the busy schedules of health care professionals, and they tend to think documenting clients records disrupts direct client care, hence a delay in record keeping is noticed. However, the health care professionals should complete all the relevant documentation as soon as care is provided, to avoid delays in clinical decisions.

## **2.4 FACTORS RELATED TO THE IMPLEMENTATION AND COMPLIANCE WITH CLINICAL PRACTICE GUIDELINES**

Guidelines provide clear information and recommendations on treatment options, the outcomes of providing those treatment options, evidence supporting those options, the benefits and harm, and issues related to the cost of those treatment options.

Compliance with hypertension management guidelines is a collective of the efforts of all key players in the health system, from policymakers to physicians. There should be an implementation plan that is designed to put guidelines into practice and to deal with potential challenges that may affect the effective implementation of these hypertension management guidelines (McAlister & Padwal 2011:366).

### **2.4.1 Barriers to effective implementation of guidelines**

Many potential barriers may interfere with the implementation of a guideline in clinical practice. These are categorised as physician-related, environment-related, client-related, as well as content-related guideline barriers (McAlister & Padwal 2011:364). Literature indicates that the potential reasons for poor guideline compliance could also be as a result of other system factors such as resources, support and costs (Armstrong, Gronseth, Dubinsky, Potrebick, Murray, Getchius et al 2017:2).

#### **2.4.1.1 Physician-related factors**

Even when guidelines are developed, barriers from physicians in the implementation of CPGs can still exist, and include physicians and nurses being unaware of the existence of the guideline. Another barrier is when a physician is in disagreement with the concept and recommendations of the guideline (Adedeji et al 2015:2). Literature has also indicated the slight difference between how physicians manage hypertension and what is outlined in the hypertension management guidelines. This was attributed to some physicians being influenced by clinical decisions which are based on individual enthusiasm rather than being evidence-based (McAlister & Padwal 2011:364).

McAlister and Padwal (2011:364) claim that a lack of self-efficacy (belief that one can perform a recommendation), especially on preventative counselling, was found to be a barrier in guideline implementation. Another barrier includes an inability to overcome the inertia of previous practice, especially for physicians who have more than 12 years experience. A lack of outcome expectancy (the belief that interventions are likely to be successful in a particular patient) was also found to be another barrier among physicians. Further obstacles related to guideline implementation are a lack of support from guideline developers, as the physicians assume responsibility for implementing the guidelines, and health professionals are often frustrated and uncertain about how to implement the guidelines (Armstrong et al 2017:2).

Another physician-related barrier to implementing guidelines is the physician's concern regarding the legal status of the CPGs. Some physicians challenge the legality of evidence-based guidelines as opposed to common professional adoption. Physicians felt the CPGs should be accepted legally by legal professional bodies, such as the Health Professional Council, so that it serves as evidence of the standard of care in the court of law. Presently, the physicians are accountable for their actions, and medical negligence as a result of the use of guidelines (Agency for Health Care Research and Quality 2011:8).

#### **2.4.1.2 Environmental or contextual factors**

The non-implementation of guidelines occurs most commonly as a result of the lack of time due to high client workload, staff shortages and cost limitations to procure required equipment (McAlister & Padwal 2011:365; Turner 2013:450). Limited financial resources remain crucial in the implementation of CPGs as they are needed to conduct orientation and training, and to purchase medical resources, such as medical equipment and information communication technology used in patient care (Taba, et al 2012:4).

It could be interpreted that little resources are being dedicated to support guideline implementation, hence there is a need for developers to periodically visit the health facilities to assess how the guidelines are being implemented (Baradaran-Seyed, Nedjat, Yazdizadeh, Nedjat & Majdzadeh 2012:342).

Health Information Systems (HISs) are considered among the five building blocks of health systems, and there is a need to invest in high-quality HISs to address data quality (Lidikwe, Grignon, Lebolonyane, Ludick, Matshediso, Sharma & Semo 2014:2). With rapid changes in information technology, health care institutions should adopt the EHR, a computerised system that is linked to hospital information systems and integrated with the national health information system (Ahn et al 2016:271). Introducing the EHR, which is designed with customised flowsheets with alerts on key variables which could be disease-specific, will support health care professionals to complete all assessments and interventions. This may help to improve data quality (Richardson et al 2016:68).

#### **2.4.1.3 Content of the guidelines**

The layout, format and content of a guideline may be regarded as a barrier to its implementation. This means that some guidelines are formulated in a complicated manner, which makes it difficult for the clinician to understand (McAlister & Padwal 2011:365). Another obstacle could be discordance with recommendations from clinical guidelines on a topic from different organisations such as the WHO and the US CDC. Physicians may raise concerns about potential flaws in their development. A last concern is that the guidelines may fail to address important clinically relevant issues, such as lowering blood pressure in hypertensive clients with multiple cardiovascular risk factors or organ damage. Thus, guidelines which emphasise the treatment of specific blood pressure levels without considering absolute cardiovascular risks are unlikely to influence clinical practice and will remain a barrier to its implementation (McAlister & Padwal 2011:366).

#### **2.4.1.4 Patient-related barriers**

Patients could also be barriers to the implementation of the guidelines, because some patients could act contrary to their best interest. When guidelines recommend the cessation of smoking and reducing saturated fat consumption, it makes it difficult for clients to change their behaviours (McAlister & Padwal 2011:6). Additionally, the client-held health records as practised in Namibia, could be lost or damaged and another record then needs to be created. The past medical history is thus lost.

#### **2.4.2 Opportunities for improvement in implementation and compliance with care guidelines**

Measures need to be implemented to improve the quality of documentation, as well as compliance with care guidelines among physicians. There is a need to provide continued education to all physicians in health care settings on every clinical guideline that the government has developed (Ahmad, Hassan, Tangiisuran, Meng, Aziz, Ahmad & Atif 2012:803). The physicians will implement and comply better with the guidelines if they are aware of their existence and are familiar with the content. In the same vein, there is a need to develop algorithms in the guidelines to make it convenient for the physicians to follow.

Richter-Sundberg et al (2015:10) and Adedeji et al (2015:3) reveal the need to identify key issues in the guideline development processes. These include the scope, structure, and involvement of the target audience. Their studies recommend that physicians, pharmacists, dieticians and nurses should be part of drafting and reviewing the clinical guidelines in order to give their input to the policymakers on the practicality of the guidelines, as this will help maximise implementation.

The other strategy is to conduct regular record audits in public health care settings to ensure that data collected provide a true reflection of what is being implemented at the point of care.

Hence, there is a need for senior physicians or consultants to actively participate in collaborative practices regarding quality improvements in outpatient departments, a practice that has shown effectiveness in enhancing adherence to CPGs (Ahmad et al 2013:803). Senior physicians should also provide regular feedback to show subordinates evidence of gaps and improvements, and identify areas that need support.

Regarding environmental barriers, Steyn, Lombard, Gwebushe, Fourie, Everett-Murphy, Zwarenstein and Levitt (2013:8) recommend an assessment of the staff compliment versus the client load and recruiting physicians accordingly in order to ease the staff workload. Furthermore, the hospitals should prioritise budgeting and the procurement of critical equipment needed for implementing set standards. The guidelines could also be pre-tested and peer-reviewed to assess them for ease of use.

## **2.5 CONCLUSION**

This chapter provided an outline of the importance of documentation in a health care setting. A broad overview of all aspects related to quality, patient safety and continuity of care, with special focus on the implementation of hypertension guidelines, were discussed. The chapter also highlighted the dimensions of data quality and showed the factors related to the implementation and compliance with treatment guidelines and the opportunities to improve compliance with the guidelines. The following chapter will offer details of the research design and methodology used in this study.

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter provides an overview of the methodology used in the study. It describes the research problem, the purpose of the study, the research question, the research design and method, as well as data collection and analysis procedures. The chapter further considers the approaches used to ensure the reliability and validity of the research instrument.

#### **3.2 PURPOSE OF THE STUDY**

The purpose of this study was to examine the extent to which physicians implement and comply with hypertension management guidelines in Namibia. This was achieved by auditing documentation in the health passports of clients diagnosed with hypertension. The guidelines were used as a framework to assess the completeness of documentation.

#### **3.3 RESEARCH DESIGN**

The research design provides the framework which specifies the type of information to be collected (Brink, et al 2012:102). In order for the researcher to achieve the research objectives and address the research problem, a quantitative, non-experimental, descriptive and retrospective approach was used.

The study design was selected because the physicians' implementation of guidelines for hypertension management was studied by way of the precise measurement and quantification of variables.

### **3.3.1 Quantitative research**

Burns, Grove and Grey (2015:19) describe quantitative research as an approach which is formal and objective, and one in which numerical data is used to obtain information for the study. There was a need for this study to adhere to the principles of scientific inquiry which operates on the rules of logic, truths, laws, and predictions. This study focused on assembling numerical data on the number of elements present as contained in the treatment guidelines to explain the physicians' level of implementation and compliance with hypertension guidelines in Namibia (Brink et al 2012:97; Blanche, Durrheim & Painter 2006:47).

Quantitative designs predominantly feature relatively small numbers of concepts. It begins with preconceived ideas about how concepts could be interrelated, uses structured procedures and formal research instruments to collect information under conditions of control, and emphasise objectivity in the collection and analysis of information. Quantitative designs also analyse numeric information through statistical procedures and incorporate logistic, and deductive reasoning (Brink et al 2012:11). The processes followed in this study were highly structured. There was strict control from the sampling techniques, through to ensuring the validity and reliability of the instrument and statistical analysis.

Quantitative researchers hold the position that "truth" is absolute and a single reality can be defined by careful measurement. This study focused on objectivity by using a structured checklist to determine the truth about the challenges of health records management or solutions to these challenges. The researcher chose to be objective, which means her values, feelings, and personal perceptions were not allowed to influence the measurement of implementation and compliance with the hypertension management guidelines (Burns et al 2015:19).

### **3.3.2 Non-experimental design**

In this study, the researcher used non-experimental, descriptive and retrospective research which does not introduce any treatment or changes to the subjects (de Vos et al 2014:145). Non-experimental designs offer no manipulation of the independent variable. Therefore, there was no intervention or control of the setting. The study was carried out in an outpatient department of the selected hospital in Namibia, and clients' health passports were reviewed for the completeness of the documentation of care provided by physicians. The completeness refers to the presence of all data elements contained in the hypertension management guidelines.

The primary purpose of non-experimental designs is to describe a phenomenon, and explore and explain the relationships between the variables (Polit & Beck 2012:159). Furthermore, non-experimental approaches are very useful in acquiring more information and knowledge which is difficult, unethical, or even impossible to employ in an experimental approach (Brink et al 2012:112). In this study, there was no intervention and manipulation, only the description of the physicians' implementation and compliance with hypertension management guidelines.

### **3.3.3 Descriptive design**

Managing health information requires compliance with legal aspects as well as protocols. Descriptive designs describe variables in order to answer the research question, and there was no intention of establishing a cause-effect relationship (Brink et al 2012:112). Descriptive studies are normally conducted with large numbers of study participants, in natural settings, without manipulation of the situation (Burns et al 2015:33). The researcher was able to discover new meaning in relation to physicians' documentation trends, describe how they complied with hypertension guidelines, and determine the frequency of specific data elements. These were categorised as documented or not documented (Burns & Grove 2011:35). Descriptive designs are based on the following assumptions:

- The variable exists in the study population as a single variable that is amenable to description. The variable in this study was implementation and compliance.
- There is insufficient existing literature describing the study population or the variable. In this study, the researcher could find no literature on the audit of documentation at this specific hospital.
- The study commenced with or without a theoretical framework, but the researcher provided the rationale for the study based on a thorough literature review.
- In a study where the criteria for external validity cannot be met owing to unknown population parameters, the findings cannot be generalised (Brink et al 2012:113). In this study, it was possible to generalise the findings.

Descriptive research outcomes include discovering and describing concepts, identifying possible relationships among concepts, and developing hypotheses that provide a basis for future research (Burns et al 2015:33). The design provided a description of the frequency of physicians' documentation of care for clients diagnosed with hypertension. The descriptive design was appropriate for this study because it enabled the researcher to gain the necessary information required to determine the extent of physicians' compliance with hypertension management guidelines.

### **3.3.4 Retrospective study**

A retrospective design is defined as a study which deals with an effect and works backward to determine what was associated with the past (Brink et al 2012:115).

In retrospective designs, the outcome or effect has already happened at the time of the design (Kalogeropoulos 2014). Hence, a retrospective study was conducted on the documentation of care provided and records of previous encounters (Brink et al 2012:113).

A retrospective design was appropriate for this study as the researcher worked backward to examine the implementation and documentation of hypertension management by physicians. The study involved the use of a checklist in reviewing the health passports of hypertensive clients who have been receiving treatment for more than a year.



Figure 3.1: Map of Namibia (Courtesy of [www.mapsofworld.com](http://www.mapsofworld.com))

### 3.3.5 The study setting

The study setting refers to the environment in which a researcher collects data regarding the phenomenon under investigation (Polit & Beck 2012:743). This study was conducted in Namibia. Namibia is divided into 14 political regions. The MoHSS has 14 directorates that are managed by the regional health directors of those 14 regions, and it is further divided into 35 health districts, which are managed by senior medical officers.

The selected hospital outpatient department was used as a study setting and falls under the Keetmanshoop district. This is because the outpatient department is the setting where hypertensive clients come for diagnosis, investigations, treatment follow-up, and health education. Therefore, comprehensive case management is offered at an outpatient department in this hospital. The study setting contributed vast information regarding physicians' documentation trends.

### **3.4 RESEARCH METHOD**

Research methods provide the scope which specifies the type of information or data collected and the motive behind selecting designs and methods in a study (Brink et al 2012:199). The research method described in this chapter includes population, sampling data, sample size, data collection, data processing and data analysis, as well as strategies to enhance methodological and scientific integrity (Brink et al 2012:199).

#### **3.4.1 Population**

The population refers to all persons or objects that meet the inclusion criteria that the researcher is interested in studying (Brink et al 2012:13). In this study, the research population included health passports for all clients diagnosed with hypertension receiving treatment at the outpatient department in the hospital. The researcher used hypertensive clients seen in the outpatient department of the hospital who met the inclusion criteria as an estimated population, for over three months, from January-March 2017. The estimated population size was 1290.

In Namibia, outpatient clients do not have files kept in the hospital but the clients have their client health passports to make it easy for them to access care wherever they are in the country with the information at their disposal. The researcher outlined eligibility criteria for inclusion and exclusion as follows:

## **Inclusion criteria**

The criteria for eligibility in this study included the medical records of:

- Clients who have continuously been on hypertension treatment for one year or longer (Records containing treatment covering a year).
- Clients receiving hypertension treatment at an outpatient department.
- Residents of Namibia.

## **Exclusion criteria**

- Health passports that showed gaps in treatment duration, including new records of old clients.
- Clients who appeared tired or sick on the days of data collection.

### **3.4.1.1 Sampling**

Sampling is referred to as the process of taking a portion of units with particular characteristics of a population, as being representative of the population (de Vos et al 2014:223). In this study, the researcher used non-probability, convenience sampling to select health passports of clients who came for medical consultation in the outpatient department. Non-probability is referred to as sampling where samples are selected based on the researcher's judgements in terms of participants' knowledge on the phenomenon (Brink et al 2012:139). Although this approach is usually used in qualitative methods, due to the nature of the population, it was used in this study.

However, for the study to conform to the norms of sampling in quantitative research, the researcher used hypertensive clients seen in the outpatient department who met the inclusion criteria as the population over three months (January-March 2017) to estimate the size of the sample for this study. This was based on the following formula:

$$N \geq (S/100 \times P)$$

$$S = 10\%$$

$$P = 1290$$

$$N > (10/100 \times 1290)$$

$$N \geq 0.1 \times 1290$$

$$N \geq 129 \text{ (de Vos et al 2014:22).}$$

The rationale for estimating the sample size was based on the need for representativeness in quantitative research. Since the researcher used a non-probability sampling approach, the estimated sample size gives some indication of what would be truly representative of the population.

The convenience sampling was appropriate for this study because the researcher recruited clients from outpatient departments who came for consultation. The number of available clients with hypertension was not known. Therefore, the researcher only sampled from those who were available on the day of their consultation.

### **3.4.2 Data collection approach and method**

Data collection is a systematic way of gathering relevant information for the research purpose and objective of the study (Burns & Grove 2011:52). Quantitative methods require researchers to collect data in a structured manner. Thus, in this study the researcher used a structured Likert scale checklist as research instrument to collect relevant data. The structured method enabled the researcher to review all client health passports using the same format. A checklist is the easiest research instrument to test for reliability and validity (Brink et al 2012:153).

### **3.4.2.1 Research instrument**

In this study, a checklist was used and is defined as a type of questionnaire that is made up of elements which a participant can tick if the elements are applicable (de Vos et al 2014:203). The checklist was written in English and it contained variables contained in the standard treatment guidelines that physicians needed to document. These were indicated as *not applicable*, *not documented*, or *documented* (de Vos et al 2014:203). There was a need to establish the frequency of documentation for monthly assessments, advice on when to seek care immediately and client centred health education. The following scale was used: indicated *not documented*, *documented less than six times in a year* and *documented more than six times in a year*. See Annexure E.

Because the researcher intended to examine the physicians' compliance with the standard treatment guidelines, a checklist was convenient in this retrospective study as the focus was on the presence of specific data elements in the care of hypertensive clients. The checklist was appropriate as the researcher audited medical records' completeness. It assisted the researcher to organise and ensure that all variables were captured for evaluation purposes (de Vos et al 2014:2012).

### **3.4.2.2 Development and testing of the data collection instrument**

The researcher developed the data collection instrument. Namibia's Standard Treatment Guidelines of 2011 and research objectives were used to ensure the suitability of items. The checklist comprised of two sections namely: Section A and Section B.

#### **Section A: Biographic information**

This section comprised variables regarding biographic data such as gender, age range, and attending physician.

## **Section B: Information regarding documentation trends**

This section contained variables regarding the documentation trends of physicians, such as the severity of the hypertension, monitoring of risk factors, monthly documentation of clinical assessment, investigations conducted for assessing and monitoring organ damage on a yearly basis, current treatment, advice given on each visit, and client-centred health education.

### **3.4.2.3 Data collection process**

The data collection process deals with acquiring subjects and collecting data for the study (Brink et al 2012:148). The researcher sampled hypertensive clients who met the inclusion criteria at the outpatient department pharmacy, which was convenient for clients because they would already have been seen by the doctor for the day. The researcher explained the purpose of the study, procedures, possible risks, benefits and confidentiality, then obtained informed consent from clients. The researcher reviewed the clients' health passports using the checklist. The review of each client's health passport took about 12 – 15 minutes. No names were included, only the variables as indicated in the biographic section. The data collection continued until the sample size was reached.

### **3.4.2.4 Ethical considerations**

Researchers are responsible for conducting research in an ethical manner. Failure to do so undermines the scientific process and may have negative consequences. To conduct research ethically, researchers must conduct ethical research (Brink et al 2012:30).

#### **a) Permission**

The researcher obtained ethical clearance from the Higher Degrees Committee of the Department of Health Studies at University of South Africa before commencing with the actual research (Annexure D).

Permission was also obtained from the Permanent Secretary of the Ministry of Health and Social Services to conduct the research at Keetmanshoop hospital (Annexure B). All clients whose health passports were reviewed were issued with a detailed information letter, explaining their rights, which included the consent form to sign (Annexure C). Clients were not forced or coerced to participate in the study.

The names of the participants were not entered on the research instrument, and there was no link between the data and the client. The name of the attending physician was also protected.

### **b) Beneficence**

Beneficence is a principle of doing good for both research participants and society (Moule & Goodman 2014:60). There was no physical risk anticipated with participation in this study. The researcher used principles of beneficence with a dimension of freedom from harm: no client-linking data was collected, and the names of the attending physicians were not disclosed in the research report. Furthermore, if the researcher noticed discomfort, such as distress when explaining the objective of the study procedures and risks to the participants, the participation was terminated.

### **c) Informed consent**

Informed consent is an ethical principle that protects participants from harm by providing them adequate information on the goal of the investigation, procedures to be followed, as well as possible risks and benefits. Providing such comprehensive and clear information give participants an opportunity to provide consent or decline to participate in the study (Brink et al 2012:38).

Participants whose health passports were reviewed were given detailed information regarding the research. The information offered included the study purpose, the procedures, and the expected duration of participation in the study.

Furthermore, the information was written on an information leaflet and the participants were requested to sign a consent form to prove that they gave permission for their health passports to be audited.

**d) The right to self-determination/ justice**

The principle of self-determination implies that an individual has a right to decide whether to participate in a study or not. The participants were not forced or coerced to participate in the study. Participants were informed that participation was on a voluntary basis and that they have a right to withdraw from the study at any time without penalties.

Furthermore, the selection of medical records from client health passports was fair for the clients during the time of data collection. The researcher used inclusion criteria to select clients' health records for the study that ensured proper representation in the research sample.

**e) The right to privacy and confidentiality**

The checklist was completed in a private room where there was limited access. The researcher did not write the names of the clients whose health passports were reviewed on the checklist or report. Thus, there was no link between the information on the checklist and the client's name.

The researcher marked the checklist by giving each a number to make it easy when capturing data and checking during data management to avoid double entry of the same checklist into the SPSS software (version 23). Also, only the researcher and statistician had access to the completed checklists.

### **3.5 DATA ANALYSIS**

Data analysis is referred to as a technique that converts data to numerical form so that it is interpretable (de Vos et al 2014:249).

Data analysis aims to categorise, order, manipulate and summarise the data, and describe it in meaningful terms (Brink et al 2012:177).

Since this study used the quantitative approach, statistical methods were applied to analyse the data (Blanche et al 2006:188). The researcher used descriptive statistics as the statistical method to analyse the data. Furthermore, because the research study was descriptive in nature, descriptive statistics were used to calculate the measures of central tendency such as mean, median and standard deviation to measure the frequency of documentation. Descriptive statistics was applicable in this study, as it allowed the researcher to describe numerical data and organise and summarise data in a way that gives meaning numerical form and provide recommendations for the findings.

The researcher first categorised the variables according to the measurement levels. In order to enhance data management, the researcher coded the variables on the checklist to prepare for data capturing using SPSS software (version 23). A coding frame was developed under the guidance of the supervisor. The researcher created a coded sheet with numerical values which was assigned to variables such as; 2- Documented, 1- Not documented, and 0- Not applicable. This enabled the researcher to quantify completeness by calculating the document frequencies. Inferential statistics were used to measure the relationships between variables. The statistician verified the calculations.

A summary of findings is presented in the form of frequency tables and graphs in Chapter 4.

### **3.6 RELIABILITY AND VALIDITY OF THE STUDY**

Brink et al (2012:171) state that reliability and validity are closely related. The researcher needs to consider both these qualities when selecting a research instrument.

### **3.6.1 Validity of the study**

Internal validity refers to the extent to which drawn conclusions represent the reality in the study (Blanche et al 2006:90). Although internal validity is rarely measured in descriptive research, the researcher ensured internal validity in this study by using a reliable and valid data collection instrument. The researcher developed the questionnaire based on the Namibia Standard Treatment Guidelines of 2011. The supervisor, and experts in the field such as the chief medical officer, senior physicians, and researchers in the research unit, evaluated the checklist to ensure face and content validity. Any recommendations were considered and the necessary adaptations were incorporated.

External validity is defined as the degree to which the findings of the study can be generalised to settings other than the study design and setting (Brink et al 2012:127). External validity is an important aspect of descriptive research, hence, the researcher ensured that the sample size of 129 was reached from the target population meeting the same inclusion criteria. Although there were some refusals, the researcher ensured that the data collection period was extended until the required sample size was reached.

### **3.6.2 Reliability of the study**

Reliability is the repeatability and consistency of a measuring instrument and the extent to which it will yield the same results (Brink et al 2012:126). If a measuring instrument is reliable, the researcher can deduce that it will yield the same results in different situations under similar conditions, even though the magnitude of the study is small (Brink et al 2012:126). In this study, the researcher conducted a pilot study of the research instrument to determine the reliability of the checklist, prior to the actual research, with ten checklists. The errors detected in the instrument were corrected before the actual data collection process was implemented.

Furthermore, the researcher used an inter-rater reliability test to test for the research instrument's reliability.

The raters were two physicians working as general practitioners in a hospital outpatient department. The physicians were each given a clean checklist using the same client health passports. The results were compared for levels of consensus.

If the instrument is reliable, it should yield the same results from both observers (Gwet 2014:4). After the first round, the agreement level was 60%. This enabled the researcher to modify issues where raters had dissimilarities on the research instrument before the actual study was conducted. The inter-rater reliability test was considered appropriate because it has strong intuitive appeal and measures instruments to enable the instruments to yield similar results under comparable conditions. Inter-raters assist in refining the research instruments so that the same instrument can be administered to different subjects from the same populations, and findings would be the same (de Vos et al 2014:178).

### **3.7 CONCLUSION**

This chapter presented a detailed account of the methodology adopted for this study to answer the research question. All the stages of the methodology complied with the requirements of a quantitative study. Literature was used to strengthen the selection of approaches and techniques. Validity and reliability were ensured using experts in the field to assess the tool. All ethical principles were adhered to. The next chapter is a detailed presentation and discussion of the findings from the study.

## **CHAPTER 4**

### **DATA ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS**

#### **4.1 INTRODUCTION**

This chapter presents the results of the study from the health records' review. The purpose is to assemble and summarise numerical data in an interpretable format (de Vos et al 2014:249), in order to answer the research question and draw conclusions. The first section of the chapter presents the research results regarding biographical information, which includes gender, age distribution, and attending physician in the health passports reviewed. The second section outlines documentation trends on the severity of hypertension, the monitoring of risk factors, documenting clinical assessments, documenting investigations to monitor organ damage, documenting current patient treatment, documenting advice given, and client-centred education provided. The last section presents the results of non-parametric tests on the relationship between the severity of hypertension and treatment given, the attending physician's documentation to monitor organ damage, and attending physicians and client-centred health education provided. The chapter includes literature to support the need for including the variables presented.

This study was based on the premise that accurate documentation is essential to ensure accountability, to facilitate the co-ordination of care between physicians and nurses, and for hospital quality improvement (National Council of Social Services 2007:5). If there is incomplete documentation in a client's health passport, it becomes difficult to provide continued care to the client as the medical history patterns would not be sufficient enough to decide on an appropriate case management for individual hypertensive clients (Ruuso 2016:1). Complete records are crucial because clinical records are legal documents that inform physicians and any authorised party in line with the care of clients (Chong et al 2013:206).

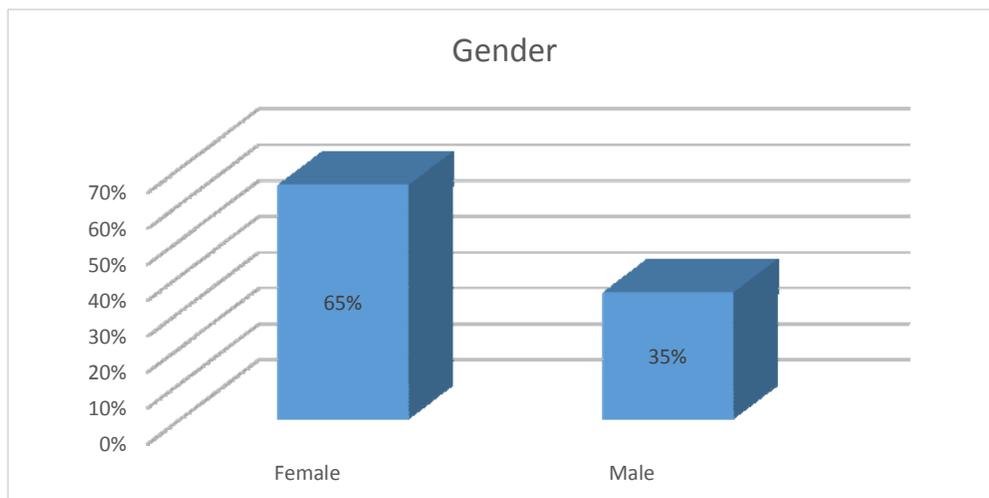
## 4.2 RESEARCH RESULTS

One hundred and twenty-nine health passports were reviewed using the checklist designed by the researcher. The Namibian Standard Treatment Guidelines of 2011 were used as reference for reviewing the health passports. The focus of the review/audit was on the completeness or presence of specific data elements.

### 4.2.1 Biographic information

The biographic section focused on gender distribution, age distribution, and attending physicians. The reason for including biographic elements was to determine whether there was any significant relationship between the elements and physicians' implementation and compliance with the hypertension management guidelines.

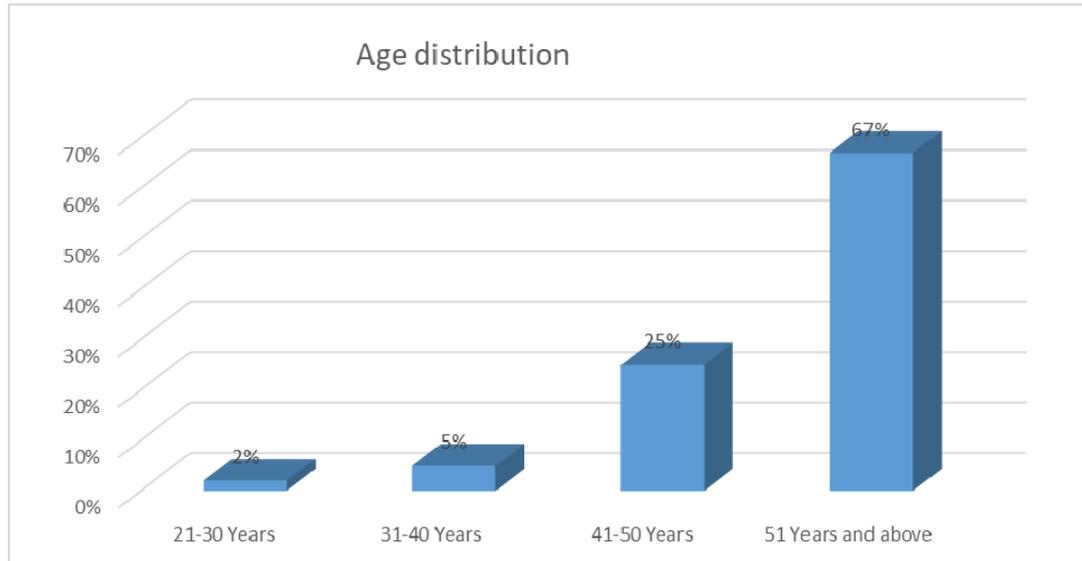
#### 4.2.1.1 Gender distribution



**Figure 4.1: Gender**

Figure 4.1 shows that the majority, 65% ( $n = 84$ ), of the clients were women, and the remaining 35% ( $n = 45$ ) were men. Oteh, Azrisman, Azreen, Jamaluddin, Aszrin, Ting and Bahri (2011:319) also report that hypertension-related diseases are more prevalent in women and that there is a significantly weaker level of hypertension control among women.

#### 4.2.1.2 Age distribution



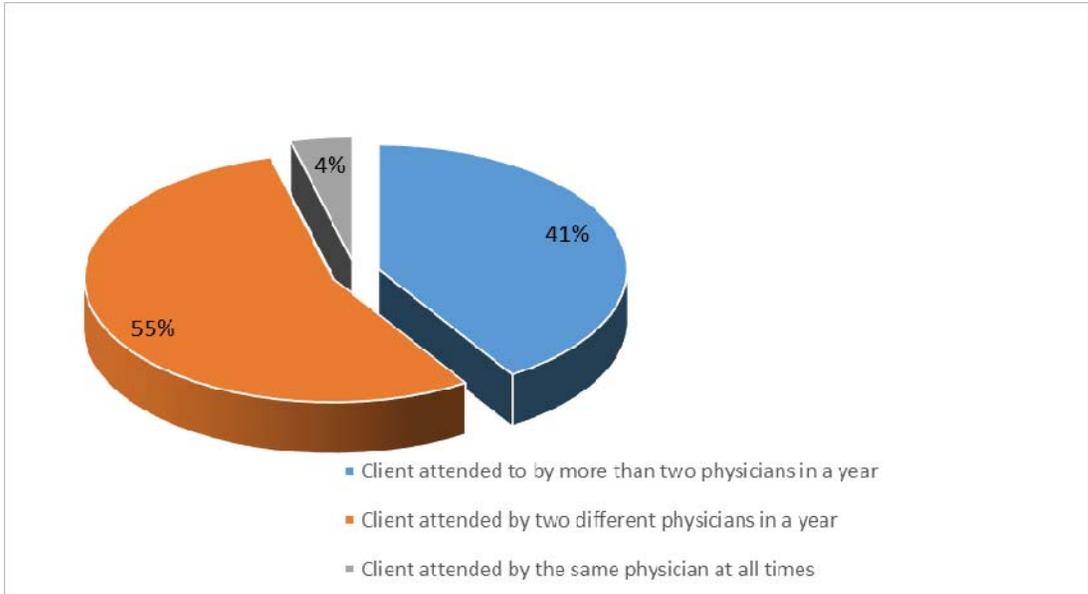
**Figure 4.2: Age distribution**

Based on Figure 4.2, the largest proportion, 67% (n = 87), of records belonged to clients aged 51 years and above, followed by 25% (n = 32) for clients aged 41-50 years. Clients aged 31-40 years constituted 5% (n = 7) of the records, and lastly, only 2% (n = 3) of the clients were 21-30 years old.

The prevalence of hypertension increases with advanced age to a point where more than half of people aged 60-69 years, and approximately three-fourths of those aged 70 years and older, are hypertensive (Al-Gelban, Khan, Al-Khaldi, Mahfouz, Abdelmoneim, Daffala, Mostafa & Al-Almri 2011:942).

#### 4.2.1.3 Attending physician

It was important to establish how many physicians attend to one client over a period of one year. Stringer and Ryan (2017:16) posit that if the client is attended by one physician at all times, it improves the compliance to CPGs as the physician will have a close relationship with the patient and know what type of care should be provided.

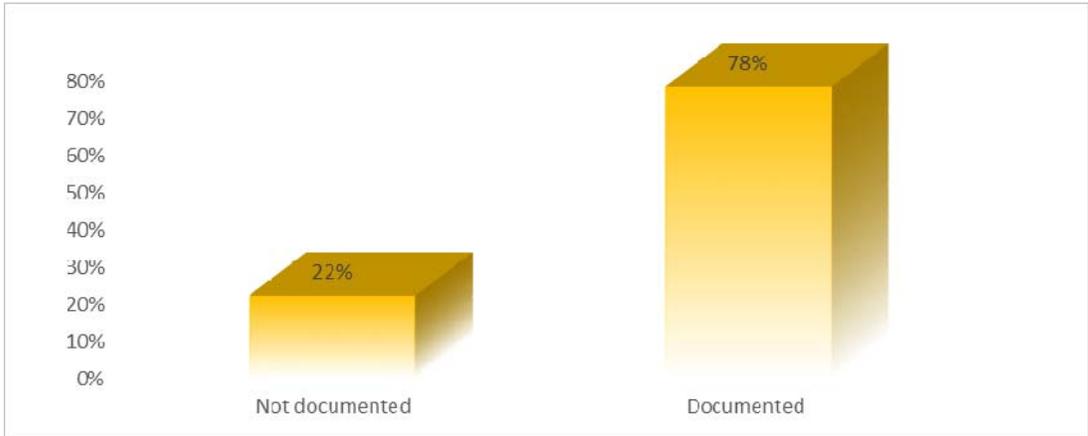


**Figure 4.3: Attending physician**

Figure 4.3 reveals that 55% (n = 71) of clients were attended by two different physicians within a period of one year. From the remaining 45% of the clients, 41% (n = 53) were seen by more than two physicians, and only 4% (n = 5) were attended by the same physician.

**4.3 DOCUMENTATION TRENDS OF PHYSICIANS**

**4.3.1 Severity of hypertension**



**Figure 4.4: Documentation of severity of hypertension**

To manage the condition effectively, classification of the severity of hypertension is important. The Namibian Standard Treatment Guideline of 2011 indicates various typologies that physicians must use to classify the severity of hypertension. These are: mild hypertension (Stage 1- 140-159/80-99mmHg), and moderate to severe hypertension (Stage 2- 160+/100+ mmHg) (MoHSS 2011:212). The severity of hypertension was documented in 78% (n = 100) of the records. Meanwhile, the remaining 22% (n = 29) contained no information on the severity of hypertension.

### 4.3.2 Documentation of risk factors

Hypertension risk factors include a history of smoking, dyslipidemia, obesity, lack of exercise, a family history of hypertension, renal conditions, cardiovascular diseases, diabetes mellitus, age, high alcohol consumption, and stress. Adequately screening for risk factors can improve the outcome of hypertension management through early detection and prevention of complications. Undiagnosed, untreated, and uncontrolled hypertension places significant strains on health care delivery systems (Al-Gelban et al 2011:942).

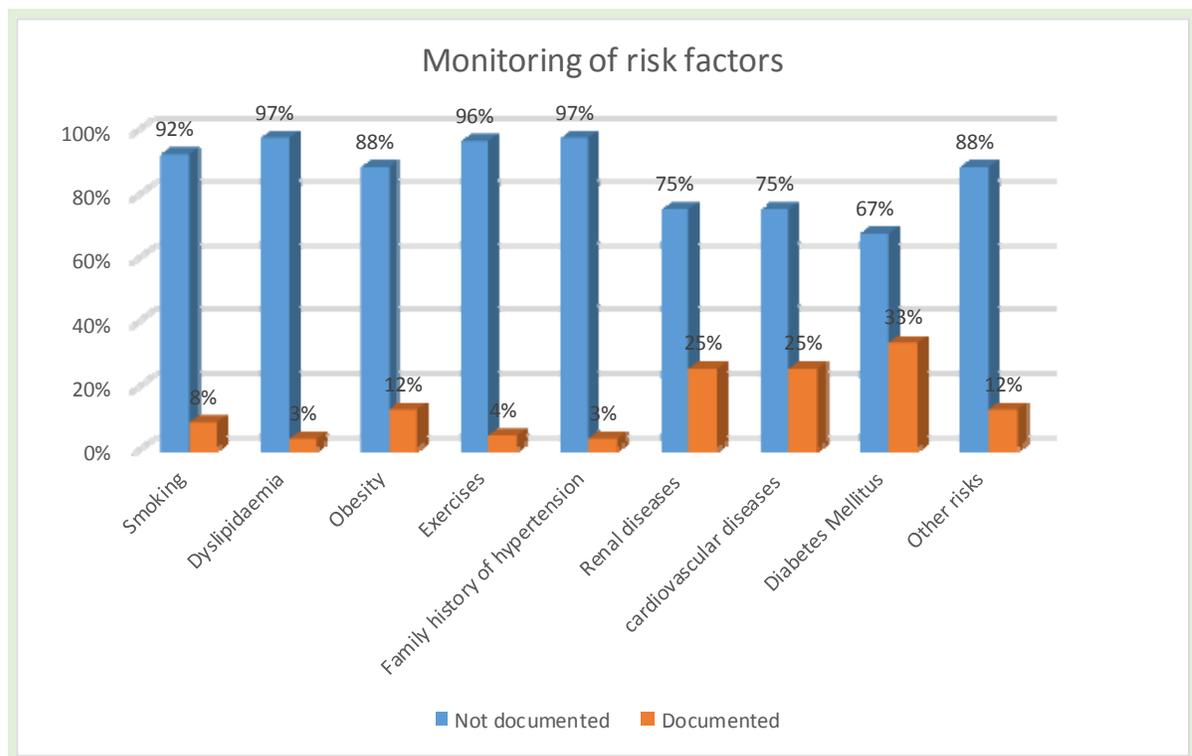


Figure 4.5: Monitoring of risk factors

Results showed that risk factors were the least documented. Diabetes was the higher documented in 38% (n = 43) of passports, followed by renal and cardiovascular diseases who were both at 25% (n = 32). Obesity was documented in 12% (n = 15) of the health passports, while smoking was only recorded in 8% (n = 11). Exercise was noted in 4% (n = 5), while dyslipidemia and family history were documented in 3% (n = 4) of the passports.

The section for “other risks” indicated an average level of documentation at 12%. Of these other risks, 47% (n = 7) was age, 20% (n = 2) was stress, and 12% (n = 15) was alcohol consumption.

### 4.3.3 Documentation of monthly clinical assessment

Even though blood monitoring, urine tests, body weight and height is a nursing function, it is important for physicians to know the results of the assessments, especially in the drug choice for hypertension management. This study presents the findings of the presence of these data elements in the client’s health passport. The study assumes that physicians have the final responsibility to ensure accurate documentation in the client’s health passport.

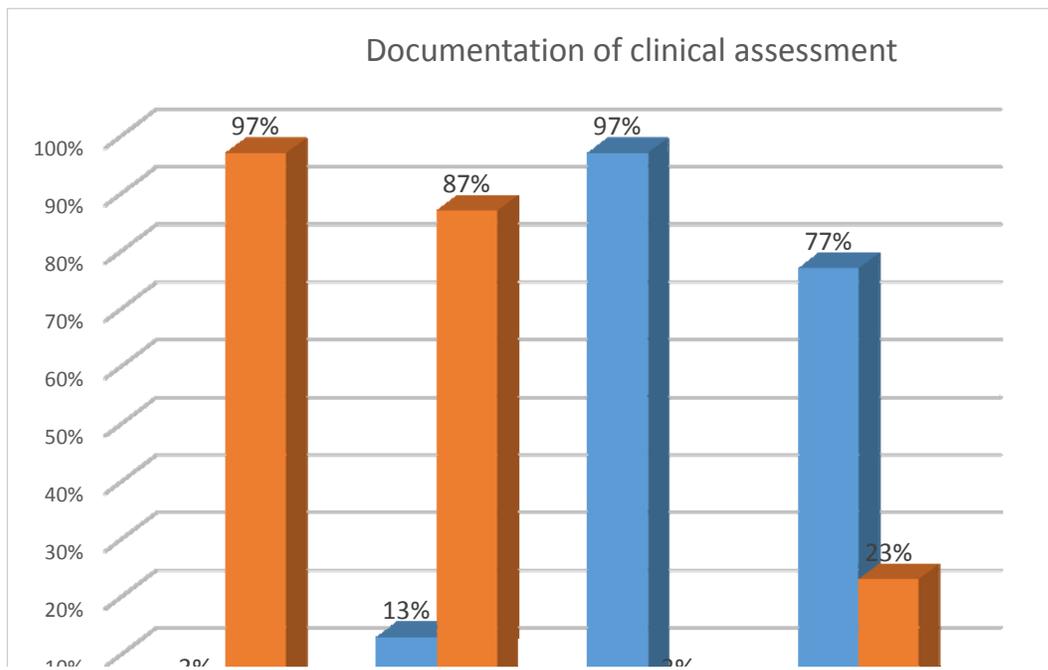
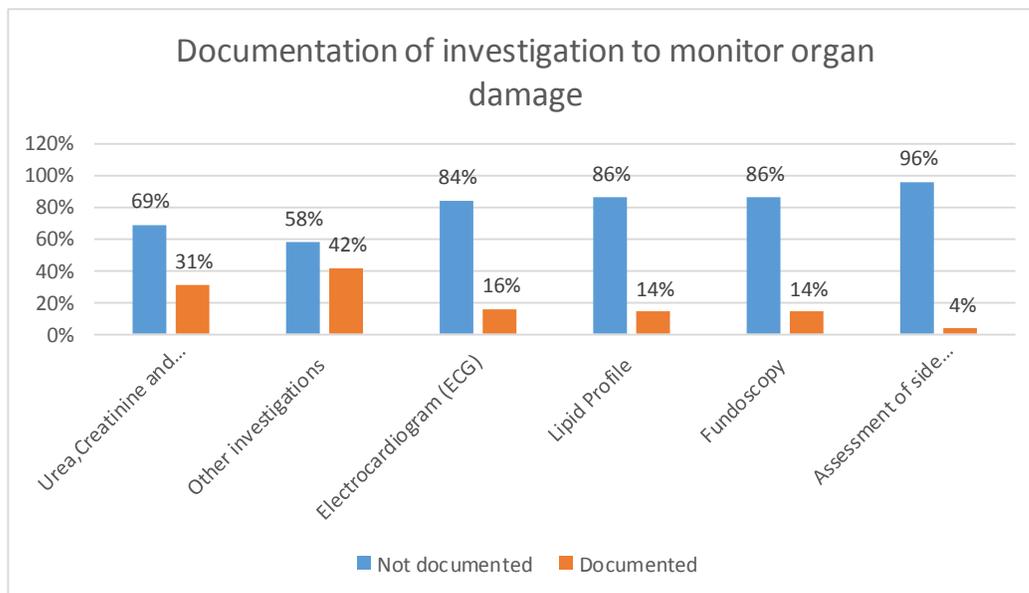


Figure 4.6: Clinical assessment

The findings revealed that blood pressure was documented in the majority, 97% (n = 125) of passports, and the remaining 3% (n = 4) was not. This was almost similar to the recording of body weight, which showed 87% (n = 112) documentation. However, height measurement showed a significant decline with 3% (n = 4) of the client passports containing the information, while 97% (n = 125) did not. Urine dipstick tests were poorly documented with only 23% (n = 30) documented and 77% (n = 99) not documented.

#### 4.3.4 Documentation of investigations to monitor organ damage

This section presents the level of documentation of the yearly investigations to monitor major organ damage among hypertensive clients. Effective care that can improve the outcome of hypertension should include monitoring organ damage which could be caused by diuretic drugs, through assessments of kidney function through urea, electrolytes and creatinine tests. Fundoscopy examinations are essential in hypertension as it evaluates the status of the retina since uncontrolled hypertension can potentially damage blood vessels around the retina, causing blindness. If the fundoscopy examination is done on a yearly basis, hypertensive clients are given appropriate therapy to control their hypertension as well as reduce damage to the retinal blood vessels (Kolman, Sijl & van de Ree 2017:121)



**Figure 4.7: Documentation of investigations to monitor organ damage**

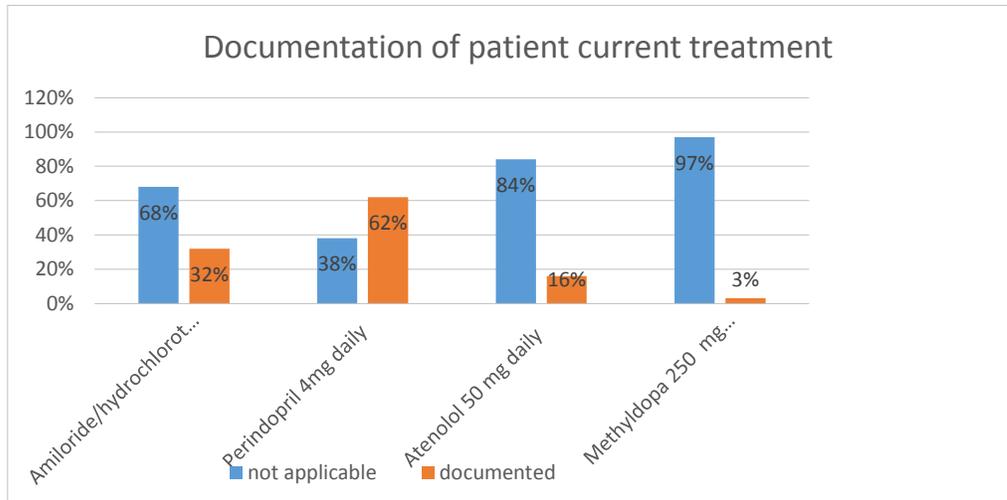
Based on the results provided in Figure 4.7, 31% (n = 40) of health passports showed that urea, creatinine and electrolytes were documented, while 69% (n = 89) were not. This is almost equivalent to the average documentation of other investigations which were 42% (n = 54). These “other investigations” included blood glucose tests at 46% (n = 25), chest x-rays at 26% (n = 14), and Thyroid Stimulating Hormone (TSH)/ Triiodothyronine (T3) tests at 28% (n = 15).

The study also revealed that there was low documentation for electrocardiograms (ECG) at 16% (n = 20), monitoring the lipid profile (cholesterol and triglycerides) was at 14% (n = 18), and funduscopy examinations were documented in 14% (n = 18) of the client health passports. The results of the study also indicate that anti-hypertensive medication side effects were not documented in the majority, 96% (n = 124), of the records.

#### **4.3.5 Documentation of patient’s current treatment**

This component presents the level of compliance with the standard treatment guidelines. The compliance is reflected through documentation of treatments given. The physicians are expected to prescribe medication according to the treatment guidelines. For example, Amiloride/hydrochlorothiazide 2.5mg should be given daily if the client has no organ damage, and if there is no response, they need to add Perindopril 4mg daily or use Perindopril 4mg alone for clients with chronic kidney diseases (MoHSS 2011:212).

Based on the frequency statistics presented in Figure 4.8, data from the clients’ health passports indicated the compliance level to guidelines for Amiloride/hydrochlorothiazide 2.5mg daily to be 32% (n = 41). The compliance level for Perindopril 4mg, was 62% (n = 80). The rest of the records reviewed showed other medications such as: Atenolol 50mg daily was documented in 16% (n = 20) of health passports, and Methyldopa 250mg was documented in only 3% (n = 4) of the health passports.



**Figure 4.8: Documentation of clients' current treatment**

#### 4.3.6 Documentation of advice given

The Namibia Standard Treatment Guidelines of 2011 recommend that physicians document their advice on when to seek care and the monthly review date on each hypertensive client's health passport. Thus, documentation in the client health record should be visible enough to provide evidence that such advice was given (MoHSS 2011:212).

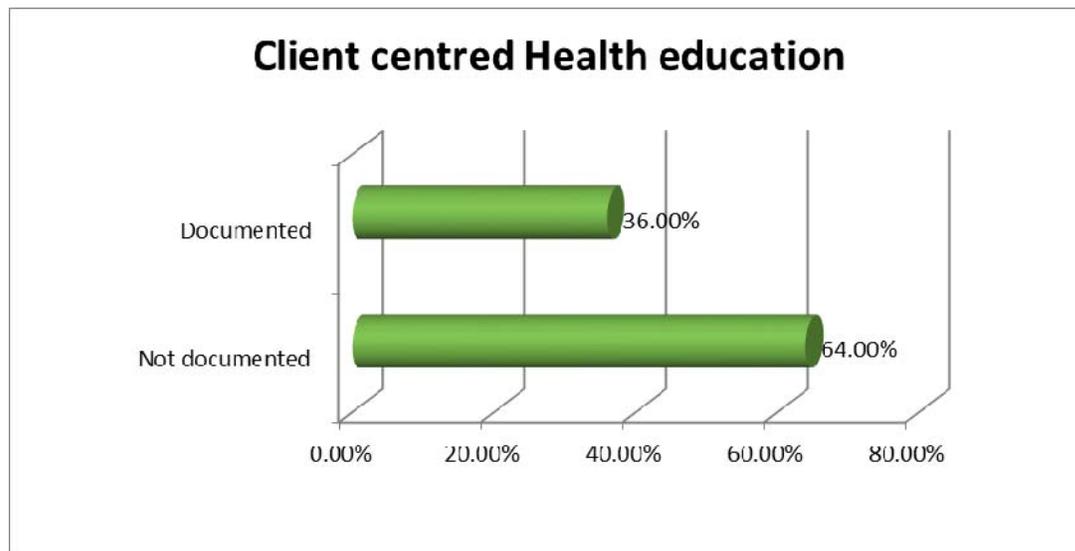
**Table 4.1: Documentation of advice given**

Variable	Frequency	Percentage
<b>Advise on when to seek care immediately</b>		
Not documented	121	94%
Documented	8	6%
<b>Monthly review date</b>		
Not documented	7	5%
Documented	122	95%

Table 4.1 indicates that there was only 6% (n = 8) documentation of advice given for when to seek care. On the other hand, there was significant documentation for monthly review dates at 95% (n = 122).

### 4.3.7 Documentation of client-centred health education

Client-centred health education is an integral part of hypertension management, complementing the pharmacological interventions, clinical assessments, and organ damage investigations to manage blood pressure. Client-centred health education is aimed at maintaining a good lifestyle or modifying negative lifestyle habits that could place the client at risk of hypertensive complications (Asnani et al 2005:180).



**Figure 4.9: Client-centred health education**

Results from the research showed that only 36% (n= 46) of clients received health education specific to their needs, while 64% (n = 83) did not.

## 4.4 RELATIONSHIPS BETWEEN DIFFERENT VARIABLES

Given that the data used in the analysis were ordinal data from the survey, the suitable statistical technique that was relevant for application in the analysis of relationships between given factors was the non-parametric Spearman's rank correlation coefficient ( $\rho$ ) criterion (Brink et al 2012:188). The non-parametric Spearman's correlation coefficient was relevant to ascertain whether the results obtained were statistically significant; whether they are meaningful and not merely the results of chance in the sample.

The statistical significance measures the possible association between variables that could indicate if there is a difference or if relationships exist among variables (de Vos et al 2014:274).

**Table 4.2: Severity of hypertension and documentation of treatment provided**

			Severity of hypertension	Amiloride/ Hydro-chlorothiazide 2.5mg	Perindopril 4mg	Atenolol 50 mg daily	Methyldopa 250mg two times a day
Spearman's rho	Severity of hypertension	Correlation Coefficient	1.000	-.151	.229**	-.026	.096
		Sig. (2-tailed)	.	.088	.009	.771	.277
		N	129	129	129	129	129
**. Correlation is significant at the 0.01 level (2-tailed).							

In Table 4.2 Spearman's rho results show that a statistically significant relationship only exists between documentation of the severity of hypertension and Perindopril 4mg daily at 0.01 level (rho = 0.229). Relationships between the severity of hypertension and other treatment options were not statistically significant. The severity of hypertension can determine what type of treatment a hypertensive client should get. The Namibia Standard Treatment Guidelines of 2011 classify hypertension as Stage 1, non-pharmacological, and Stage 2, with pharmacological interventions which include Amiloride/hydrochlorothiazide and Perindopril as first-line treatment regimens (MoHSS 2011:213).

**Table 4.3: Attending physician and monitoring of organ damage documentation**

			Attending physician	Urea, Creatinine and electrolytes	Electrocardiogram (ECG)	Lipid profile (Cholesterol and triglycerides)	Fundoscopy	Other investigations
Spearman's rho	Attending physician	Correlation Coefficient	1.000	<b>-0.176*</b>	-0.092	-0.172	-	-0.116
		Sig. (2-tailed)	.	.046	.299	.051	.177	.191
		N	129	129	129	129	129	129
* . Correlation is significant at the 0.05 level (2-tailed).								
** . Correlation is significant at the 0.01 level (2-tailed).								

In Table 4.3 Spearman's rho results show that a statistically significant correlation or relationship was found between the attending physician and urea, creatinine and electrolyte documentation. No significant relationships were found between attending physicians and documentation of other factors investigated, such as assessing organ damage, namely electrocardiogram (ECG), lipid profile (cholesterol and triglycerides), funduscopy, and other investigations.

**Table 4.4: Attending physician and current patient treatment documentation**

			Attending physician	Amiloride 2.5 mg daily	Perindopril 4 mg	Atenolol 50 mg daily	Methyldopa 250 mg daily
Spearman's rho	Attending physician	Correlation coefficient	1.00	<b>-.194*</b>	.074	-.092	0.132
		Sig. (2-tailed)	-	.027	0.407	0.299	0.136
		N	129	129	129	129	129
Correlation is significant at the 0.05 level (2-tailed).*							

Spearman's correlation coefficient results in Table 4.4 show that there was a statistical correlation found between the attending physician and Amiloride/hydrochlorothiazide 2.5mg. However, there were no significant relationships found between the attending physician and documentation of other treatment options, which are Perindopril, Atenolol and Methyldopa.

**Table 4.5: Attending physician and client-centred health education documentation**

			Attending physician	Client-centred health education individual patient condition
Spearman's rho	Attending physician	Correlation Coefficient	1.000	-.049
		Sig. (2-tailed)	.	.583
		N	129	129

The Spearman's rho results presented in Table 4.5 shows that no statistically significant relationship was found between the attending physician and client-centred health education.

## **4.5 CONCLUSION**

This chapter presented findings from the reviewed client health passports, and the level of documentation of several variables was offered. In the absence of reasons for this level of compliance with the treatment guidelines, the researcher opted to seek more answers by doing non-parametric tests whose results are presented in the latter section of the chapter. Chapter 5 offers an interpretation of these results and uses literature to support or refute the findings.

## **CHAPTER 5**

### **INTERPRETATIONS, DISCUSSION OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This chapter presents the interpretation and discussion of findings generated from Chapter 4. It also acknowledges the limitations of the study and draws conclusions. Recommendations on how to manage clients' health information by improving documentation quality are also provided.

This study intended to find answers to the following research question:

- To what extent do physicians implement and comply with hypertension management guidelines in Namibia?

This study was based on the assumption that complete documentation is indicative of implementation and compliance with the hypertension management guidelines.

Therefore, the Namibian Standard Treatment Guidelines of 2011 provided the framework for the interpretation and conclusions of the research. In addition, literature was presented to control the findings.

#### **5.2 INTERPRETATION AND DISCUSSION OF THE RESEARCH FINDINGS**

The study was based on the premise that "if it is not documented, it didn't happen". The focus was on the assessment of health data quality with special reference to completeness. Keeping good records is an essential professional and legal requirement for all physicians. The client health record is the primary legal record documenting the health care services provided to a person in any aspect of the health care system. It is a vital tool in client care. Sound record keeping also plays a role in quality assurance practices. Therefore, monitoring documentation is key to ensuring that information is usable for continuity of care (Richardson et al 2016:62).

Namibia's Standard Treatment Guidelines of 2011 are recognised as a quality management initiative. CPG are initiated to improve the quality of care by providing recent scientific information for decision-making, and adequate details for appropriate practices (Ahn & Kim 2012:1).

### **5.2.1 Biographic data**

The results showed that the largest proportion (67%) of client health passports reviewed were of clients aged 51 years and older, while the other age groups were less than 50%. Al-Gelban et al (2011:942) also found that hypertension was more prevalent in advanced age, with more than half of people aged between 60 and above, affected. Of the health passports reviewed, 65% were of female clients, compared to 35% who were males. The study conducted by Oteh et al (2011:222) indicates that women are at higher risk of developing hypertension. They also found that hypertension is poorly controlled among women at 41.8%, compared to 53.5% in men.

The records revealed that the majority of hypertensive clients were attended by two or more physicians at the selected hospital within a period of one year. Only 4% of the clients were attended by one physician. The study was not out to establish the reasons for this finding. However, the data creates opportunities for further research regarding clients' preferences of physicians or the hospital/outpatient department's allocation of clients to physicians to improve continuity of care and proper follow-up. O'Brien, Ellis, Whelan, Charles, Gafni, Lovrics, et al (2011:377) argue that when clients are attended by one physician over a period of time, good relationships develop. This relationship can assist the physicians to identify risk factors and monitor them continuously, they can assess clients' responses to treatment, and intensify patient-centred health education.

Adedeji et al (2015:4) claim that the number of physicians attending to a client each time they visit the health facility affect their attitude to the uptake and adoption of the guidelines.

## **5.2.2 Physicians' implementation of hypertension management guidelines**

This section focuses on how physicians implemented the hypertension management guidelines. The implementation of guidelines reflects the extent of compliance. This is revealed by their documentation trends. The documentation of care provided should be complete, that is, all data elements contained in the guidelines should be recorded. The quality and safety of health care requires that the right information should be available at the right time to support client care and disease management decisions. CPGs provide standardised medical care and promote uniformity in practice regarding diagnosis, drug management and investigations that need to be conducted (Adedeji et al 2015:2). Adherence to hypertension management guidelines is vital in hypertension control. Gaps in implementing national hypertension guidelines are among the contributory factors of uncontrolled hypertension (Lulebo et al 2015:2).

### **5.2.2.1 Severity of hypertension**

The severity of hypertension was documented in 78% of health records. The documentation still fell short of the aspired 100% completeness, as hypertension classification will influence the treatment options as stipulated in the guidelines. The study findings are almost similar to a study by Adedeji et al (2015:5), who found a 19% compliance level in documenting the severity of hypertension among physicians. Hypertension guidelines classify hypertension into three categories: pre-hypertension, mild hypertension (Stage 1), and moderate to severe hypertension (Stage 2). It is important to grade clients according to their degree of hypertension in order to ensure that proper case management is provided. Non-documentation of the severity of hypertension compromises continuity of care. Should the client be attended by other physicians, it will be easier to identify problems, interpret clinical examinations and previous tests to provide client-centred care (Ruuso 2016). The study believes that the severity of hypertension is the foundation from which treatment modalities are built. Therefore, it must be documented.

### 5.2.2.2 Documentation of risks factors

The guidelines stipulate that physicians should assess the risk factors of hypertensive clients for developing cardiovascular complications, which include smoking, dyslipidemia, obesity, exercise, family history of cardiovascular diseases, diabetes mellitus, renal diseases, and cardiovascular diseases (MoHSS 2011:209). The study showed variations in the documentation of risk factors, with an overall mean of 4%. Identifying and monitoring risk factors in hypertensive clients is significant to manage the condition effectively (Kjeldsen, Feldman, Lisheng, Mourad, Chiang, Zhang et al 2014:2034). Documenting the monitoring of renal diseases, cardiovascular diseases and diabetes mellitus was slightly higher than that of dyslipidemia, exercise and family history. Meanwhile, documentation of smoking, obesity and other risk factors was also low at 8% and 12% respectively. Generally, this study revealed poor compliance with the monitoring of risks. Complying with monitoring risk factors will assist physicians to identify the types of modifications required, such as the promotion of physical activity, weight loss in obesity, and cessation of smoking.

Even though some risk factors cannot be modified, such as a family history of hypertension and diabetes mellitus, documenting these risk factors is essential to provide effective patient-centred care (Ewald & Haldeman 2015:2). The non-documentation of risk factors was also identified in a study conducted by Mogbel and Khawaji (2012:58); their audit of client health passports showed an overall mean of 6.8% for risk factors such as smoking, dyslipidaemia, obesity, exercise and family history.

It is therefore, not known whether health professionals assess the risk factors but fail to document it (Olin 2011:1; Jefferies et al 2010:113). In other instances, it could be that physicians document risk factors at the onset of treatment and neglect to document it again in the follow up visits (Al-Shidhani et al 2015:251). From reviewed literature and study findings, it is confirmed that complete documentation is a significant clinical responsibility, as it removes uncertainty of whether or not care was

given. The study believes that auditing documentation is linked to quality management.

#### **5.2.2.3 Documentation of monthly clinical assessment**

The study found that vital signs such as blood pressure and body weight were well documented at a mean of 92%. Thus, the implementation and compliance of the guideline in that regard was exceptionally good. However, these vital signs are measured and recorded by nurses. Most of the required elements missing from client records were height and urine dipstick tests, with a mean of 13%. The height and urine dipstick is not part of routine vital signs at this hospital, hence, the low compliance. The hypertension management guidelines stipulate that physicians are required to ensure that blood pressure measurement, body weight, height and urine dipstick tests are recorded at each visit (MoHSS 2011:210). Physicians need to ensure that these vital signs are well documented to ensure appropriate interventions are provided to the client (Chong et al 2013;207). It would appear that of these requirements, physicians only ensured that the vital signs were documented. However, it is also indicative that nurses performed their tasks and supported the physicians. Nurses' documentation trends were not included in this study.

#### **5.2.2.4 Documentation of investigations to monitor organ damage**

The guidelines require physicians to conduct investigations to monitor organ damage by conducting urea, creatinine and electrolyte, electrocardiograms (ECG), fundoscopy, and lipid profiles on an annual basis. Other investigations such as chest x-rays and blood glucose should also be checked regularly (MoHSS 2011:210). The study findings indicated compliance at a mean of 23%. Investigations with the lowest documentation were fundoscopy and lipid profiles at 14%, while ECG, urea, creatinine and electrolytes had a mean of 24% documented, which was low. Overall, the investigations to monitor organ damage were not well documented and were therefore assumed as not implemented, as outlined in the hypertension management guidelines. Some studies show similar challenges with documenting organ damage

monitoring. The first clinical audit conducted by Asnani et al (2005:179) in Saudi Arabia revealed low documentation of organ damage assessment at 29%.

However, the second audit, which was done six months later, showed an improvement, with a mean of 66%. This provides evidence of the significance of clinical audits in identifying deficiencies in documentation of care. It also shows the possibilities of improvement following the audits. There could be reasons for physicians not documenting care. However, recording all relevant information of a client's care helps physicians to monitor what has been done and reduce the probability of errors. Mogbel and Khawaji (2012:59) found that the unavailability of equipment such as lactate monitoring kits and electrocardiogram (ECG) machines, and time constraints, especially among ophthalmologists, contributed to incomplete documentation of organ failure monitoring. The treatment guidelines provide protocols for hypertension management which are based on evidence of what is best practice for disease management. CPGs form an intersection between research evidence and clinical actions, hence complete documentation of care provides evidence of compliance with hypertension management guidelines. Complete documentation of care and compliance with guidelines lead to improved client outcomes (James et al 2014:2).

#### **5.2.2.5 Documentation of current patient treatment**

Analysis of the data revealed that in 32% of client health passports, physicians documented thiazide diuretic (Amiloride/Hydrochlorothiazide 2.5mg), while Angiotensin Converting Enzyme Inhibitors (ACEI) (Perindopril 4mg) was documented in 62%. Other treatments such as Methyldopa, Atenolol and Indapamide had a mean of 10%. The study did not review the other treatment options that physicians prescribed as it was out of its scope.

According to the Namibia Standard Treatment Guidelines of 2011, the first-line treatment for hypertensive clients is Amiloride/hydrochlorothiazide 2.5mg. However, documentation trends show that there was a low compliance to set standards in hypertension management guidelines (MoHSS 2011:212). On the other hand, there was a high number of hypertensive clients on Perindopril 4mg which is an ACEI,

which is added to the first-line treatment if there is poor response to the first-line treatment, or if the client suffers from chronic kidney disease (MoHSS 2011:212).

Al-Geban et al (2011:946) indicate that despite the various benefits of thiazide diuretics, they remain underutilised, with nearly 40% of physicians preferring to prescribe other anti-hypertensive drugs.

The physicians showed a preference for an ACEI, whereas data indicated low documentation of organ damage investigations. Thus, the researcher wondered on what physicians based their treatment options if there was such low documentation of urea, creatinine and electrolytes which is used in diagnosing kidney disease. A cross-examination of data showed the severity of hypertension was documented in 78% of health records; the physicians might have used the severity of hypertension to prescribe Perindopril 4mg instead of Amiloride/hydrochlorothiazide 2.5 mg. It is also noted that Perindopril is more expensive.

McAlister and Padwall (2011:364) posit that this treatment trend could be related to physicians' inability to overcome the inertia of previous practice, especially among physicians with more than 12 years' experience. In such situations, there could be a dialogue between physicians and policymakers on treatment options in the guidelines. Al-Gelban et al (2011:946) indicate that drugs such as Methyldopa and Atenolol could also be prescribed due to other factors such as pregnancy or poor responses to the first-line drugs.

If documentation is complete, the probability of treatment continuation is raised, and the reliability of treatment options can be monitored. It will be possible to relate the treatment provided with the information on the investigations carried out in subsequent audits.

#### **5.2.2.6 Documentation of advice given**

The hypertension management guidelines made provision for clients to be educated on symptoms that require them to seek immediate care, such as severe headaches, vertigo, shortness of breath, and drowsiness, among others (MoHSS 2011:210). Yet findings showed poor implementation of guidelines of advice given to clients regarding when to seek care. This was documented in only 6% of the health passports reviewed.

Documentation of monthly review dates was well documented, with a 96% compliance level. The study results have close similarities with the study conducted by Adedeji et al (2015:5) that found 93% compliance for the same category. This is an important intervention that ensures that following up on hypertensive clients take place for continuity of care. The clients who are well informed about their follow-up dates and comply with it benefit from greater rates of blood pressure control than those who regularly default (Himmelfarb & Commodore-Mensah 2016:245). However, this is relevant information that must be passed on by the physician.

#### **5.2.2.7 Documentation of client-centred health education**

Hypertension management guidelines stipulate that the client should be provided with client-centred health education. This health education should be based on the findings of risk factors and the severity of hypertension (MoHSS 2011:213).

The study has revealed that there was poor documentation of client-centred health education; only 36% of health records documented health education. The findings are in contrast with results of the study by Mogbel and Khawaji (2012:57), which reported that almost all hypertensive clients in their study were offered health education and the care was documented. Their documentation level was at 98.2%. There are various topics that physicians could address at each visit, including lifestyle modification of dietary sodium reduction, physical activity, and low-fat diets. The combination of two or more lifestyle modifications can enhance the efficacy of anti-hypertensive drugs in reducing blood pressure and achieving better results (Al-Gelban et al 2011:942). Physicians who produce high-quality documentation demonstrate a personal commitment to the standards of practice and behaviour set out in the code of conduct, thereby upholding the reputation of the profession. Therefore, health records must be credible to be effective, meaning that they should be produced by trusted authorities. Health records must be complete and not omit important details.

### 5.3 DEEPER ANALYSIS OF DOCUMENTATION TRENDS

This study did not intend to examine or establish reasons for incomplete documentation. Statistical tests were conducted to get an understanding beyond the presence of data elements in the client health passports. A few variables were tested for their level of significance, to find out if there were associations between them. The results of association between the severity of hypertension and ACEI showed a significant relationship. However, there were no statistically significant relationships with other treatment options. This indicated that Perindopril was prescribed based on the severity of hypertension for a specific client. Perindopril is a first-line treatment for clients with chronic kidney diseases, or clients not responding to thiazide diuretics (MoHSS 2011:214).

Since there was a high level of compliance on documenting the severity of hypertension, the study assumes that physicians might have used that as a basis for their preference of Perindopril instead of Amiloride/hydrochlorothiazide. The prescription trends of physicians can also be influenced by factors such as their level of experience, instead of what the guidelines recommend. However, the researcher believes that the clinical guidelines contain recent scientific information, which is evidence-based and proven to be effective in the management of a disease.

Statistically significant relationships were found between the attending physician and monitoring of urea, creatinine and electrolytes. There were no significant relationships between the attending physician and documentation of other factors investigated to monitor organ damage, namely; ECG, lipid profile and fundoscopy, and other investigations such as chest x-rays and insulin tests. This means that the number of physicians attending a client in a year did not have an influence on documentation. There was a statistically significant relationship between the attending physician and the prescription of Amiloride/hydrochlorothiazide. On the other hand, the study did not specify the actual number of physicians attending to hypertensive clients receiving a specific treatment option. However, regarding other treatment options, there was no statistical significance.

The study found no statistically significant relationship between the attending physician and education centred on an individual client's condition. There was no evidence that the number of physicians attending to a hypertensive client in a year improves the client-centred health education.

Irrespective of the format of documentation, all client health passports need to be complete, accurate and timely (Lindo et al 2016:509). Incomplete documentation by physicians compromises continuity of care, while complete documentation makes it easier to interpret clinical examinations or tests, and confirming the findings of other health care professionals (Ruuso 2016:1). The treatment guidelines are meant to ensure that a health care record is complete, accurate, comprehensive and reliable to assist with assessment and treatment, continuity of care, client safety and medico-legal and statutory requirements.

#### **5.4 SIGNIFANCE OF COMPLETE DOCUMENTATION**

Documentation was used in this study to assess physicians' level of implementation and compliance with hypertension management guidelines. On average, the findings in this study showed poor documentation compliance. There could be factors that prevented the physicians from documenting the care they provided. However, client safety and evidence of client care cannot be speculated. Physicians should always be conscious of the legal and ethical requirements of providing evidence of the care given. CPGs are quality management initiatives that provide guidance on how services should be rendered (Blancher et al 2014:4). If physicians do not document as outlined in the guidelines, it leads to poor disease management, inappropriate use of resources, and ineffective hospital performance management (Chen et al 2014:517).

This study showed that documentation is essential to ensure accountability, facilitate co-ordination of care between physicians and nurses, and for hospital quality improvement (National Council of Social Services 2007:5). Health record management becomes imperative in the hospital quality management to ensure client safety.

Clinical record audits aim to improve patient care and outcomes through a systematic review of medical records of care provided against stated criteria and the implementation of change (Chong et al 2013:207). It is evident that auditing medical records are useful in health institutions to assess whether the institutions are following set guidelines and policies and if data recording is done properly and meaningfully (Willie-Jorgenson 2013:517).

## **5.5 RECOMMENDATIONS**

The recommendations are based on findings described in Chapter 4.

Therefore, it is recommended to the Ministry of Health and Social Services that:

- Policies or protocols on documentation are established to provide guidance for physicians on professional and legal obligations with regard to recording in the client health records.
- Protocols on documentation must indicate the time frame within which all care documents should be completed.

### **5.5.1 Recommendations for practice**

For the academic institutions and ministry of health and social services it is recommend that;

- There should be orientation and training on hypertension management guidelines to ensure that health care professionals are aware of the existence of such guidelines and the content thereof. It would be ideal to have physicians participate in the development of these guidelines to encourage complete documentation, thus, compliance.
- Guidelines should be reviewed periodically when compliance levels get low to ascertain the reasons.

- There should be continuous review of documentation in medical records in order to monitor quality.
- Supportive supervisory visits should be conducted periodically at health care facilities to identify and address the gaps in the documentation of care provided.
- A framework for continuing education on health records management should be developed, with emphasis on factors that improve the quality and usefulness of charted information: accuracy, relevance, completeness, timeliness, and reliability.

### **5.5.2 Further research**

The results from this study will assist to develop knowledge through further research on the following topics;

- The factors that influence physicians' adherence to hypertension management guidelines.
- Investigating possibilities of digitalising clients' health records and documentation.

## **5.6 CONTRIBUTION OF THE STUDY**

This study's focus was on the quality of health records. It assumes that completeness of records is a quality management initiative. It is based on the assumption that physicians are professionally accountable for ensuring that any care provided is documented. Incorrect information or no information at all, may have severe consequences for the clients. It is therefore, essential to complete client records during the clinical encounter and all the information documented by the physicians should be according to CPGs (Weiskopf et al 2013:831). Therefore, health institutions should periodically audit medical records to assess physicians' documentation in order to ensure that the documentation complies with the set standards in the treatment guidelines.

The study showed the extent of completeness of medical care in the health passport for clients with hypertension. Namibia's Standard Treatment Guidelines of 2011 were

used as a framework to identify the essential data elements that must be present in the clients' health passports.

Documentation in this study was used as an indicator of physicians' implementation of and compliance with hypertension management guidelines. Therefore, the contribution was twofold: the extent of completeness, which is a quality management task, as well as the implementation and compliance of physicians with treatment guidelines.

This study highlighted the importance of health information management through monitoring health records. Patient record audits increase the awareness of physicians on their documentation trends, improve the physicians' knowledge on the interpretation of guidelines, and reduce the gap between the content of the guideline and clinical practice (Chen et al 2014:517).

In addition, the study could be beneficial to the MoHSS in Namibia to design additional guidelines on criteria for professional documentation. The results of the study might support policymakers, physicians and other physicians in the MoHSS, and the private sector to improve health record management.

## **5.7 LIMITATIONS OF THE STUDY**

Some limitations of the study were noted. This study focused on the implementation of hypertension management guidelines as manifested by the presence of required data elements in documentation. The focus was on maintenance and management of health records as shown by the documentation trends of physicians. Other quality dimensions of documentation, such as precision, uniqueness, and integrity of health information, were not included. The study also did not include the views of the physicians on the reasons for poor implementation of hypertension guidelines.

## **5.8 CONCLUSIONS**

The study concludes that in general, documentation of clinical care was low. This finding raises concerns and questions regarding physicians' understanding of the

importance of the Namibian Standard Treatment Guidelines of 2011. There were variations in the levels of compliance.

Some areas, such as the severity of hypertension and monthly clinical assessment, showed higher documentation and therefore, higher compliance. Nurses document the latter but it is still the responsibility of physicians to ensure that the vital assessments are captured in the client's health passport. However, monitoring of risk factors and investigations for assessing and monitoring organ damage were poorly documented.

Documentation of current treatment showed certain preferences for ACEI. On the other hand, guidelines on advice to hypertensive clients on when to seek care and client-centred health education were also poorly documented. The study concludes that physicians are not adequately implementing hypertension management guidelines, reflecting low compliance with clinical protocols.

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## **ANNEXURE A: APPLICATION TO CONDUCT RESEARCH**

Rauna Namukwambi  
P.O. Box 1898  
Keetmanshoop  
Namibia  
14 November 2016  
[ndali84@hotmail.com](mailto:ndali84@hotmail.com)

Dr. Andreas Mwoombola  
Permanent Secretary  
Ministry of Health and Social Services  
Private Bag 13198  
Harvey Street  
Windhoek  
Namibia

Dear Sir

### **Re: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH**

I, Rauna N.Namukwambi currently studying towards Master of Public Health at University of South Africa, would like to request for permission to conduct a research examining the physicians' implementation and compliance with hypertension management guidelines in Namibia. The study is intended to be conducted at an outpatient department in Keetmanshoop hospital, //Kharas region.

The research will be conducted by using checklist where client health passport (records) will be audited and it will take minimal time to complete. The results of the research will be provided to you and recommendations based on the findings, I therefore appreciate your consent in conducting research in your hospital.

Yours sincerely

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Ms. Rauna.N.Namukwambi  
Student Number: 56228325  
University of South Africa

## ANNEXURE B: PERMISSION TO CONDUCT STUDY



### REPUBLIC OF NAMIBIA

#### *Ministry of Health and Social Services*

Private Bag 13198  
Windhoek  
Namibia

Ministerial Building  
Harvey Street  
Windhoek

Tel: 061 – 203 2562  
Fax: 061 – 222558  
E-mail: [hnangombe@gmail.com](mailto:hnangombe@gmail.com)

#### OFFICE OF THE PERMANENT SECRETARY

Ref: 17/3/3 RNN  
Enquiries: Ms. H. Nangombe

Date: 13 January 2017

**Rauna N. Namukwambi**  
P.O. Box 1898  
Keetmanshoop

Dear Ms. Namukwambi

**Re: Examining physicians' implementation and compliance with hypertension management guidelines in Namibia.**

1. Reference is made to your application to conduct the above-mentioned study.
2. The proposal has been evaluated and found to have merit.
3. **Kindly be informed that permission to conduct the study has been granted under the following conditions:**
  - 3.1 The data to be collected must only be used for academic purposes;
  - 3.2 No other data should be collected other than the data stated in the proposal;
  - 3.3 Stipulated ethical considerations in the protocol related to the protection of Human Subjects' should be observed and adhered to, any violation thereof will lead to termination of the study at any stage;
  - 3.4 A quarterly report to be submitted to the Ministry's Research Unit;
  - 3.5 Preliminary findings to be submitted upon completion of the study;

3.6 Final report to be submitted upon completion of the study;

3.7 Separate permission should be sought from the Ministry of Health and Social Services for the publication of the findings.

Yours sincerely,



Andreas Mwoombola (Dr)  
Permanent Secretary



## ANNEXURE C: INFORMATION AND INFORMED CONSENT FORM

Dear participant,

This structured checklist was designed as an instrument to elicit information regarding physicians' implementation and compliance with hypertension management guidelines in Namibia.

Kindly note that your participation is entirely voluntary, your identity remains anonymous, no personal information about participants will be disclosed to anyone and all information you provide will remain confidential. Your integrity will in no way be compromised and you are also at liberty to withdraw from this study at any point, should you feel so.

If you decide to participate, the checklist will take about twelve minutes to complete. There are no costs associated with completing the checklist other than your time.

If you have any queries or would like further information about this research project, please contact me during office hours on +264 814077316 / +264 63 2209031 or e-mail me on [ndali84@hotmail.com](mailto:ndali84@hotmail.com) or [56228325@mylife.unisa.ac.za](mailto:56228325@mylife.unisa.ac.za)

Should you have any questions regarding ethical aspects of the study, you can contact the supervisor of the study at UNISA, Dr Margaret Ramukumba, during office hours at telephone number 012 4296719 or e-mail: [ramukmm@unisa.ac.za](mailto:ramukmm@unisa.ac.za).

The researcher appreciates the time taken by the respondents waited while completing the checklist as well as their contribution to the successful completion of the study. A copy of my completed research report can be made available to you upon request.

<b>RESEARCHER'S DETAILS</b>	
Title of the research project	Examining the physicians' implementation and compliance with hypertension management guidelines in Namibia.
Reference number	
Principal investigator	Ms. Rauna Namukwambi
Address	P.O. Box 1898, Keetmanshoop, Namibia
Postal Code	9000
Contact telephone number	0814077316

(Private numbers not advisable)	
---------------------------------	--

<b>A. DECLARATIN BY OR ON BEHALF OF PARTICIPANT</b>		<u>Initial</u>
I, the participant and the undersigned	(full names)	
ID Number		
<u>OR</u>		
I, in my capacity as	(parent or guardian)	
Of the participant	(full names)	
ID number		
Address (of participant)		

<b>A.1 HEREBY CONFIRM AS FOLLOWS:</b>		<u>Initial</u>
I, the participant, was invited to participate in the abovementioned research project		
that is being undertaken by	Rauna Namukwambi	
from	University of South Africa	

<b>THE FOLLOWING ASPECTS HAVE BEEN EXPLAINED TO ME, THE PARTICIPANT:</b>			<u>Initial</u>
2.1	Aim:	The purpose of this study is to examine physicians' implementation and compliance of hypertension management guidelines to support to support the hospital quality management practices by ensuring complete, accurate, and consistent recording of essential information in the management of hypertension.	
2.2	Procedures:	I understand that	
2.3	Risks:		
2.4	Possible benefits:	As a result of my participation in this study	
2.5	Confidentiality:	My identity will not be revealed in any discussion, description or scientific publications by the investigators.	
2.6	Access to findings:	Any new information or benefit that develops during the course of the study will be shared as follows:	
2.7	Voluntary participation/refuse/ discontinuation	My participation is voluntary	
		My decision whether or not to participate will in no way affect my present or future care/employment/lifestyle	TRUE FALSE

<b>3. THE INFORMATION ABOVE WAS EXPLAINED TO ME/THE PARTICIPANT BY:</b>						<u>Initial</u>
(name of relevant person)						
in	<b>Afrikaans</b>		<b>English</b>		<b>Other</b>	
And I am in command of this language, <b>or</b> it was satisfactorily translated to me by						
(name of translator)						
I was given the opportunity to ask questions and all these questions were answered satisfactorily.						

<b>4.</b>	No pressure was exerted on me to consent to participation and I understand that I may withdraw at any stage without penalisation.	
-----------	---	--

<b>5.</b>	Participation in this study will not result in any additional cost to myself.	
-----------	---	--

<b>A.2 I HEREBY VOLUNTARILY CONSENT TO PARTICIPATE IN THE Abovementioned PROJECT:</b>	
Signed/confirmed at on 20	
Signature or right thumb print of participant	Signature of witness:
	Full name of witness:

# ANNEXURE D: ETHICAL CLEARANCE CERTIFICATE



**RESEARCH ETHICS COMMITTEE: DEPARTMENT OF HEALTH STUDIES  
REC-012714-039 (NHERC)**

2 November 2016

Dear Mrs RN Namukwambi

**Decision: Ethics Approval**

**MSHDC/555/2016**

Mrs RN Namukwambi

Student: 5622-832-5

Supervisor: Dr MM Ramukumba

Qualification: PhD

Joint Supervisor: -

**Name:** Mrs RN Namukwambi

**Proposal:** Examining physicians' Implementation and compliance with hypertension management guidelines in Namibia.

**Qualification:** MPCH594

Thank you for the application for research ethics approval from the Research Ethics Committee: Department of Health Studies, for the above mentioned research. Final approval is granted for the duration of the research period as indicated in your application.

*The application was reviewed in compliance with the Unisa Policy on Research Ethics by the Research Ethics Committee: Department of Health Studies on 2 November 2016.*

*The proposed research may now commence with the proviso that:*

- 1) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
- 2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Research Ethics Review Committee, Department of Health Studies. An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.*

University of South Africa  
Preller Street, Muckleneuk Ridge, City of Tshwane  
PO Box 392 UNISA 0003 South Africa  
ore: +27 12 429 3111 Facsimile: +27 12 429 4150  
[www.unisa.ac.za](http://www.unisa.ac.za)

3) *The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.*

4) *[Stipulate any reporting requirements if applicable].*

*Note:*

*The reference numbers [top middle and right corner of this communiqué] should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the Research Ethics Committee: Department of Health Studies.*

Kind regards,



Prof L Roets  
CHAIRPERSON  
[roetsl@unisa.ac.za](mailto:roetsl@unisa.ac.za)



Prof MM Moleki  
ACADEMIC CHAIRPERSON  
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## ANNEXURE E: RESEARCH INSTRUMENT: CHECKLIST



DEPARTMENT OF HEALTH STUDIES

COLLEGE OF HUMAN SCIENCES

SCHOOL OF SOCIAL SCIENCES

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Explanatory note

Guide to conduct an audit

This structured checklist was designed to elicit information regarding physicians' implementation and compliance with hypertension management guidelines in Namibia.

The checklist will be used to audit health passports of clients who have been hypertension treatment for more than a year.

Explanation of scale of measurement regarding documentation trends

2 = Represents documented which refers to documenting of all variables as set in the guidelines

1 = Represents not documented in health passport

0 = Represents a variable that is not applicable to the particular client.

Comments based on extraordinary observations on the health passport will be listed in the column for comments for the purpose of clarification.

**Scale for: Monthly documentation of clinical assessment, advise when to seek care immediately and client centred health education.**

2 = Represents documented more than six times in a year

1 = Represents documented in less than six times in a year

0 = Represents not documented in health passport

#	Question	Response	Code	Comments
<b>Section A: Biographic information</b>				
101	Gender	Male Female	1 2	
102	Age Range	Not documented 18- 20 years 21-30 years 31-40 years 41-50 years 50 years and above	0 1 2 3 4 5	
103	Attending Physician	Client attended to by more than two physicians in a year  Client attended by two different physicians in a year  Client attended by the same physician at all times in a year	1  2  3	
<b>Section B: Documentation trends of physicians</b>				
104	Severity of hypertension:  Mild hypertension- Stage 1 (140-159/90-99mmHg)  Moderate to Severe hypertension- Stage 2 (160+/100+ mmHg)	Not applicable  Not documented  Documented	0  1  2	
	<b>B1. Monitoring of risk factors</b>	<b>Response</b>	<b>Code</b>	
105	Smoking	Not applicable  Not documented  Documented	0  1  2	

106	Dyslipidaemia	Not applicable	0	
		Not documented	1	
		Documented	2	
107	Obesity	Not applicable	0	
		Not documented	1	
		Documented	2	
108	Exercise	Not applicable	0	
		Not documented	1	
		Documented	2	
109	Family history of hypertension	Not applicable	0	
		Not documented	1	
		Documented	2	
110	Renal Diseases	Not applicable	0	
		Not documented	1	
		Documented	2	
111	Cardiovascular diseases	Not applicable	0	
		Not documented	1	
		Documented	2	

112	Diabetes Mellitus	Not applicable	0	
		Not documented	1	
		Documented	2	
113	Others... specify	Not applicable	0	
		Not documented	1	
		Documented	2	
	<b>B2: Documentation of monthly clinical assessment</b>	<b>Response</b>	<b>Code</b>	
114	Blood pressure	Not documented	0	
		Documented less than six times in a year	1	
		Documented more than six times in a year	2	
115	Body weight	Not documented	0	
		Documented less than six times in a year	1	
		Documented more than six times in a year	2	
116	Height	Not documented	0	
		Documented less than six times in a year	1	
		Documented more than six times in a year	2	

117	Urine dipstick	Not documented  Documented less than six times in a year  Documented more than six times in a year	0  1  2	
	<b>B 3 Documentation of Investigations to monitor organ damage</b>	<b>Response</b>	<b>Code</b>	
118	Urea, creatinine and electrolytes	Not applicable  Not documented  Documented	0  1  2	
119	Electrocardiogram (ECG)	Not applicable  Not documented  Documented	0  1  2	
120	Lipid profile (cholesterol and triglycerides)	Not applicable  Not documented  Documented	0  1  2	
121	Fundoscopy	Not applicable  Not documented  Documented	0  1  2	
122	Side effects of anti-hypertensive	Not applicable	0	

	medications	Not Documented	1	
		Documented	2	
123	Other investigations Please specify.....	Not applicable	0	
		Not documented	1	
		Documented	2	
	<b>B5 Current Patient Treatment</b>	<b>Response</b>	<b>Code</b>	
<b>B 5.1 Thiazide Duretics</b>				
124	Amiloride/hydrochlorothiazide 2.5mg daily	Not applicable	0	
		Not documented	1	
		Documented	2	
<b>B5.2 Angiotensin- converting enzyme inhibitors</b>				
125	Perindopril 4mg daily	Not applicable	0	
		Not documented	1	
		Documented	2	
<b>B5.3 Calcium channel blocker</b>				
126	Verapamil 80 mg three times a day	Not applicable	0	
		Not documented	1	
	Amlodipine 80 mg daily	Documented	2	
<b>B5.4 Beta- blockers</b>				
127	Atenolol 50mg daily	Not applicable	0	
		Not documented	1	

		Documented	2	
<b>B5.5 Alpha blockers</b>				
128	Doxazosin 1mg daily	Not applicable	0	
		Not documented	1	
	Doxazosin 2mg daily	Documented	2	
<b>B5.6 Alpha 2 Agonist</b>				
129	Methyldopa 250mg two times a day	Not applicable	0	
		Not documented	1	
		Documented	2	
<b>B5.7 Loop diuretic</b>				
130	Furosemide 40mg daily	Not applicable	0	
		Not documented	1	
		Documented	2	
131	Others medications :_____	Not applicable	0	
		Not documented	1	
		Documented	2	
	<b>B 6 Documentation of advice given</b>	<b>Response</b>	<b>Code</b>	
132	Advice on when to seek care immediately	Not documented	0	
		Documented less than six times in a year	1	
		Documented more than six times in a	2	

		year		
133	Monthly review date	Not applicable Not Documented Documented	0 1 2	
	<b>B7 Documentation Client-centred health education</b>	<b>Response</b>	<b>Code</b>	<b>Comment</b>
135	Client-centred Health Education individual patient condition  Specify..... .	Not documented  Documented less than six times in a year  Documented more than six times in a year	0  1  2	