

**THE FACTORS AFFECTING AVAILABILITY OF MEDICINES IN THE FREE STATE
DISTRICT HEALTH SERVICES**

by

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submitted in accordance with the requirements for
the degree of

MASTER OF ARTS

in the subject

HEALTH STUDIES

at the

UNIVERSITY OF SOUTH AFRICA

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June 2013

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I declare that **THE FACTORS AFFECTING THE AVAILABILITY OF MEDICINES IN THE FREE STATE DISTRICT HEALTH SERVICES** 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.

SIGNATURE

(MR SM ZUMA)

DATE

ABSTRACT: THE FACTORS AFFECTING AVAILABILITY OF MEDICINES IN THE FREE STATE DISTRICT HEALTH SERVICES

The purpose of this study was to identify and explore factors affecting medicine availability within the district health services. A qualitative descriptive, exploratory and contextual research design was followed. The data collection was conducted through two focus group discussions comprising of pharmaceutical managers and district health services managers respectively. The study found that medicine was not consistently available in the various districts, especially in community health centres and primary health clinics. The factors contributing to the non-availability of medicines include challenges with deliveries from Medical Depots, poor medicine stock management, shortage of pharmacists and pharmacist's assistants in the facilities, lack of the electronic medicine management systems and the separate existence of Pharmaceutical Services and Medical Depot within the province. The study made recommendations on how to improve medicine availability within the district health services.

KEY CONCEPTS:

Medicine, Pharmaceutical Services Manager, District Health Services, District Managers Medical Depot, Strategic Health Programmes, Five Health Districts.

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CHAPTER 1

ORIENTATION OF THE STUDY

1.1 INTRODUCTION

In 1996, the National Drug Policy (NDP) was developed with the objective of ensuring the consistent availability of essential drugs (medicine) to all South African citizens (National Department Of Health [NDOH] 1996:3). The NDP is supported by Standard Treatment Guidelines and the Essential Medicine List to realise provision of affordable essential medicines for each level of care. Essential medicines are medicines required in order to treat the majority of diseases that affect the people of South Africa. Therefore it is imperative that medicines be accessible, effective and affordable to the citizens of this country. However, only 10% of Free State Primary Health Care Facilities were found to have a full complement of the Essential Medicines during the last National Primary Health Care Survey that was conducted during 2003 (Gavin,Irlam & Levin 2004:35).

A further objective of the NDP was that of national development, aimed at educating the doctors, nurses and allied health professionals on the principles underlying the efficient economical and effective procurement, distribution and dispensing of medicine. The NDP emphasises that, for the consistent availability of medicinal treatment, there should be effective management of medicine; adequate budgeting for said medicine, effective stock control and monitoring as well as the availability of adequately trained health professionals, capable of issuing medicine to the health services consumers. However, in practice there have been several challenges regarding medicine supply.

The inability to provide the required quantity and quality of health care service through the availability of essential medicines and consumables were identified as one of the top 10 strategic risks for the Free State Department of Health (FSDOH). This was due to budgetary, supply and logistical failures (FSDOH2010:41). The Free State province's strategic plan of 2010-2014 requires the availability of medicine to be at least an average of 95% (FSDOH2010:49). However, in practice the Free State Department of

Health has not been able to maintain this required average level of medicine availability (45% during April 2009)(FSDOH 2009:1). As a result the quality of services offered was compromised. This, in turn, led to poor health outcomes resulting in patients defaulting on their treatment. The resulting situation exposed the Department of Health to various negative perceptions within the media (Health24:2010).

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

1.2.1 Source of the research problem

During May 2010, South Africa experienced a shortage of over 80 medicinal items in the public health sector which included, amongst others, influenza ('flu) vaccinations and medication for hypertension and tuberculosis. The severity of this shortage varied from province to province as well as from hospital to hospital within the provinces depending on the leadership abilities and skill levels of management (Health24:2010).

In the Free State District Health Services the medicine availability reached an average of 45% during April 2009 resulting in patients dying whilst on the waiting list for antiretroviral medication (FSDOH 2009:1). Twelve percent of the clients that visited Free State District Health Services during March 2010 reported non-availability of medication during their visit (Survey Workshop 2010:15). Furthermore, patients with chronic conditions including hypertension and diabetes found themselves being without their medication or injections for controlling their illnesses. Subsequently, the insufficient procurement and distribution of medicines were identified as being amongst the key service delivery challenges facing the Department of Health in the Free State (FSDOH 2010:10). These problems were in contrast with the Health Ten Point plan which emphasises the need to ensure sufficient availability of medication at an acceptable norm of 95% for essential medicine (FSDOH 2010:49).

According to the Management Science for Health (MSH), investigation the problem seemed to be arising from various internal factors rather than external factors and needs to be investigated to prevent re-occurrence in the future(MSH 2010:3).

1.2.2 Background to the research problem

The availability of medicine is an integral part of the provision of quality health care services. Medicine availability has been regarded as one of the six priorities listed for the South African Department of Health (NDOH 2009a:1). In order to improve the health profile of all South Africans improving medicine supply and management have been identified as key factors in the South African Health Programme of Action (NDOH 2009b:5).

The Ten Point Plan of the National Department of Health places the emphasis on the review of drug policies which may lead to the improvement of medicine availability by means of improved procurement of medicines and the possible establishment of a state owned pharmaceutical industry (NDOH 2009b:6).

According to an investigation conducted on the availability of medicines by MSH in 2009, possible factors which inhibit the availability of medicine in the Free State District Health services are as follows.

Firstly, it may be that the Free State Department of Health has failed to fully understand and appreciate the fact that medicine is costly, and this that medicine has to be managed differently from any other hospital supplies.

Secondly, a dysfunctional and unrealistic organisational structure led to inadequate financing and an unreliable, incoherent information management system, which may result in patient care suffering the consequences. Management Sciences for Health (2010:15) states that the policy making and oversight unit for medicinal policies is located in a different directorate than the Medical Depot which is responsible for procurement and distribution of medicines to the five districts. This situation has an impact on the availability of medicines as the decisions are taken in another unit.

MSH's investigation further suggests that the positioning of the Medical Depot within the finance cluster and it being regarded as a trading entity primarily focusing on financial viability rather than on citizen's accessibility to medicine of adequate quality is a challenge.

Lastly, the quality and quantity of qualified dispensing professional nurses and pharmacists also contributes to the reduced availability of medication, as inconsistent ordering was observed in areas with less skilled personnel and high staff shortages.

1.3 RESEARCH PROBLEM

During 2009 the Free State province experienced problems with insufficient medicine stock availability in four out of the five districts. This negatively affects the cure and treatment of communicable and non-communicable diseases. No formal study has yet been conducted in the province to establish the cause of the problem.

With the above mentioned problem the following questions arise:

- Why is there a shortage of medicine in the province?
- How does this shortage affect patients in the province?

1.4 AIM OF THE STUDY

1.4.1 Research purpose

This study intended to investigate the factors affecting the availability of medicine in the various district health services in the Free State.

1.4.2 Research objectives

- Identify the factors affecting the availability of medicine in the various district health services in the Free State.
- Describe the factors affecting the availability of medicine in the various district health services in the Free State.
- Make recommendations on corrective measures to be implemented in order to improve the availability of medicine in the various district health services in the Free State.

1.4.3 Research questions

- What are the factors that contribute towards insufficient availability of medicine in the District Health Services in the Free State?
- How can the Free State Department of Health ensure sufficient medicine availability in the District Health Services of the Free State?

1.5 SIGNIFICANCE OF THE STUDY

The study will contribute towards better understanding of factors affecting medicine availability and the establishment of a more uniform medicine provisioning system for the Free State Department of Health with the intention of improving the overall availability of medicine in various health care facilities within all five districts of the Free State.

1.6 DEFINITION OF KEY CONCEPTS

1.6.1 Medicine

According to the *Merriam-Webster online dictionary* (Merriam Webster n.a.), “medicine” can be defined as “a substance or preparation used in treating disease”. Furthermore, the Medicines and Related Substances Act (Act 101 of 1965, as amended) defines medicine as “any substance used in diagnosis, treatment, mitigation, modification or prevention of disease”.

For the purpose of this study, medicine refers to those therapeutic substances used in the diagnosis, treatment, mitigation, and modification of the majority of the diseases affecting the population. These medicines are referred to as essential medicines (World Health Organization [WHO] 2011a:2).

1.6.2 Pharmaceutical Service Manager

The definition of this construct can be divided into three lower-level concepts, namely pharmaceutical, services and manager which in turn can be defined as follows. According to the *Oxford Advanced Learner’s Dictionary* (2005:1088), pharmaceutical

can be defined as connected with making and selling medicines and medicines. Service can be defined as a system that provides something that the public needs, organised by the government or a private company (*Oxford Advanced Learner's Dictionary* 2005:1335). Furthermore, manager can be defined as a person in charge of running a business or a similar organisation (*Oxford Advanced Learner's Dictionary* 2005:896). For the purpose of this study the Pharmaceutical Service Manager will be defined as the person who is in charge of Pharmaceutical Services or medicine provision.

1.6.3 District Health Services

Once again, this construct can be divided into three lower-level concepts, namely district, health and services. According to the *Oxford Advanced Learner's Dictionary* (2005:426), district can be defined as an area of a country or town, especially one that has particular features, while health can be defined as the state of being physically healthy (*Oxford Advanced Learner's Dictionary* 2005:690). However, in this case health services should be regarded as one concept defined as the work of providing medical services. For the purpose of this study, district health services can be defined as the health services offered within a demarcated area ranging from primary health care services up to district hospital level.

1.6.4 District Managers

Both the lower-level concepts of this construct have been previously defined in the above-mentioned paragraphs. However, for the purpose of this study, district managers can be defined as managers within either one of the five districts of the Free State in charge of the health care services and responsible for health related programmes.

1.6.5 Medical Depot

According to the *Oxford Advanced Learner's Dictionary* (2005:916), medical can be defined as connected with illnesses and their treatment, while depot can be defined as a place where large amounts of goods or equipment are stored (*Oxford Advanced Learner's Dictionary* 2005:392). For the purpose of this study Medical Depot will be

defined as a provincial store of medicine from which the institutions order medicine and other medical consumables.

1.6.6 Strategic Health Programmes

According to the *Oxford Advanced Learner's Dictionary* (2005:1461), strategic can be defined as something done as part of a plan that is meant to achieve a particular purpose or to gain an advantage, while programmes can be defined as an organised order of events (*Oxford Advanced Learner's Dictionary* 2005:1161). For the purpose of this study, strategic health programmes will be defined as the pre-determined organisational unit meant to uphold and develop policies for the health care services provision within a government department.

1.6.7 Five Health Districts

The five health districts within the Free State include Fezile Dabi, Xhariep, Lejweleputswa, Thabo Mofutsanyana and Motheo districts.

1.7 THEORETICAL FOUNDATION OF THE STUDY

1.7.1 Theoretical framework

The framework is defined as an abstract, logical structure of meaning that guides the development of the study and enables the researcher to link the findings to the body of knowledge (Burns & Grove 2005:37).

For this study a theoretical framework developed and refined by Management Sciences for Health in 2011 will be used. This framework guides the provision of the medicines in a holistic approach through clearly outlined processes for selection, procurement, storage, distribution and usage of medicine. When implemented properly the possibility of ensuring continuous availability of medicine is likely to be successful. The drug supply management cycle details the steps required for selection, procurement, storage, distribution and usage of medicine.

The **Drug Supply Management Cycle** (see figure 1.1) is a holistic approach to medicine supply. The Free State Province Pharmaceutical Services unit adopted the principles of the drug management cycle as a basis for its operations.

1.8 RESEARCH DESIGN AND METHOD

1.8.1 Qualitative exploratory, descriptive and contextual design

Qualitative research designs aim for understanding the significance which respondents attach to their environment as well as enabling the researcher to change the data progressively so that deeper understanding of what is being investigated can be achieved (Welman, Kruger & Mitchell 2005:8). This research was conducted through experiences of the managers responsible for provision of medicines in the five districts. The design used had to provide for in depth narrative and content rich data. It is for this reason that the qualitative research design was chosen as it allows for the respondents to share first-hand experiences of the subject under investigation to produce best data. For this research the best results were obtained by conducting focus groups discussions.

There were two focus group discussions held separately for the pharmaceutical service managers and the district health managers from the five previously mentioned districts within the Free State to provide an in-depth understanding of the problems that are faced regarding medicine shortages.

1.8.2 Research method

Wimmer and Dominick (2006:48) indicate that qualitative research involves several methods of data collection, such as focus groups, field observation, in-depth interviews and case studies. For the purpose of this study the researcher conducted focus groups with the pharmaceutical service managers and district managers. Marshall and Rossman (2011:93) state that [a]lthough interviewing is often supplemented with other data, the primary strategy is to capture the deep meaning of experience in the participant's own words.

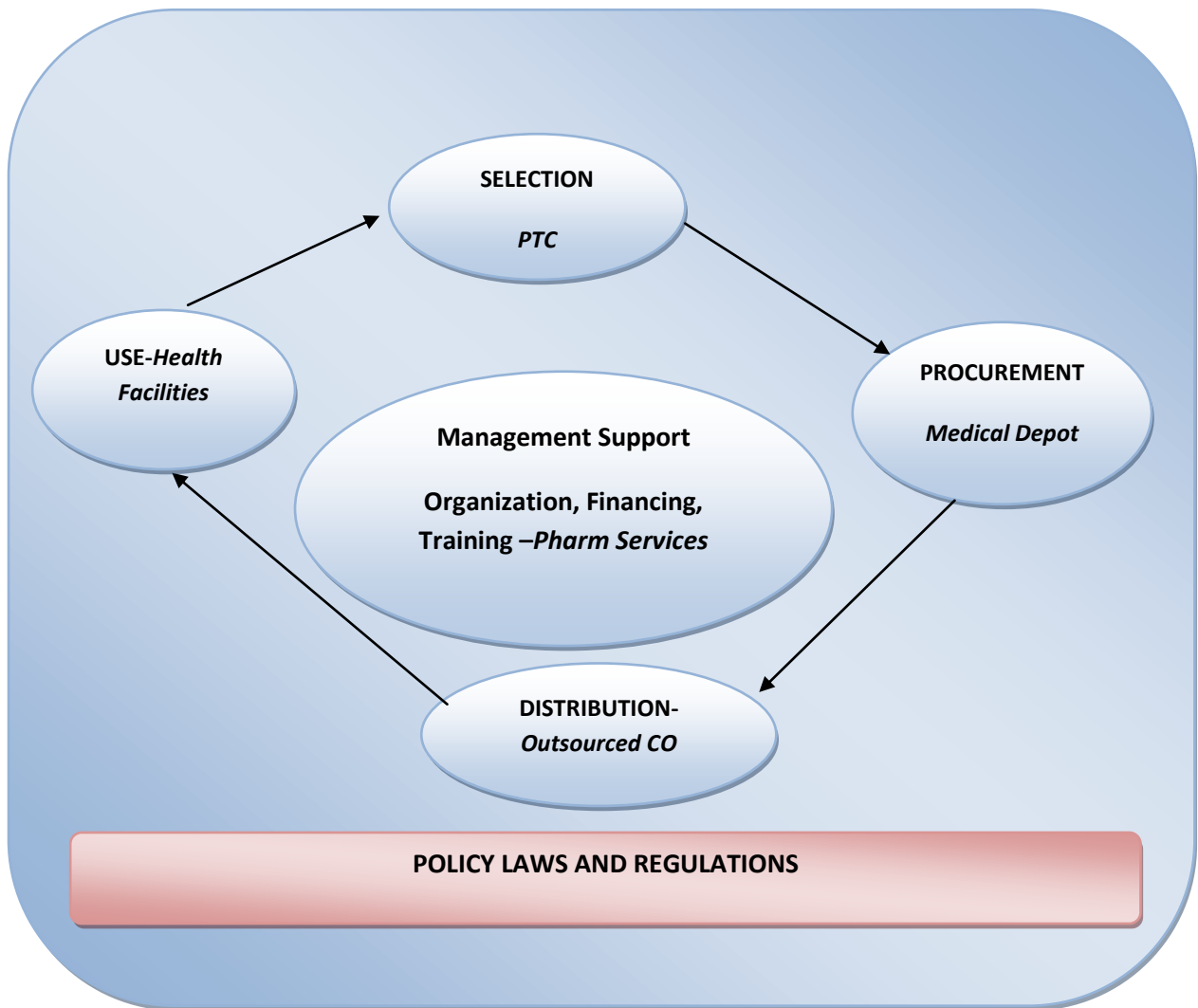


Figure 1.1 Drug supply management cycle (pharmaceutical medicine management framework)

(Source: MSH 2011:1:10)

*The italics indicate the responsible unit in the Free State context as at June 2013

According to Marshall and Rossman (2011:2), qualitative research is typically enacted in a naturalistic setting, focuses on context, is emergent and evolving and is fundamentally interpretative. Furthermore, Wimmer and Dominick (2006:116) indicate that qualitative research uses a flexible questioning approach. Although a basic set of questions is designed to start the project the researcher can change questions or ask follow-up questions at any time.

1.8.3 Focus groups

Focus groups are the qualitative research design method which allows one to obtain in-depth descriptive data. For the purpose of obtaining as much data and individual experiences as possible from the participants' focus groups the interviews were expounded by providing the respondents of both focus groups with a short questionnaire to capture demographic details as well as to record responses to certain predetermined questions. Wimmer and Dominick (2006:130) refer to this as an extended focus group.

Burns and Grove (2005:542) further state that focus groups are designed to obtain the participants' perceptions in a focused area in a setting that is permissive and non-threatening.

There are various advantages to this approach, namely that the researcher can view behaviour in a natural setting, excluding the artificiality that sometimes surround experimental research. Furthermore, this technique can increase the depth of understanding that the researcher may gain from the experience. Finally, this method allows flexibility in questioning and clarity regarding information that is collected from the respondents (Wimmer & Dominick 2006:49).

The possible disadvantage of the focus group is that some participants are intimidated to speak in a group (Welman et al 2005:204). This was overcome by the fact that the participants are familiar with each other as they currently work together in the department.

A focus group can include 6-12 participants (Burns & Grove 2005:543; Wimmer & Dominick 2006:128). In this study there were 12 participants. The two focus groups were conducted in Bloemfontein during August 2012.

1.8.4 Sample selection

Purposive sampling is used to identify and select the individuals that have more information than the regular group members (Welman *et al* 2005:204). Burn and Grove (2005:353) states that purposive sampling involves the conscious selection by the researcher of certain subjects to include in the study. The selected subjects are the information rich cases from which the researcher can learn a great deal about the central focus of the study.

For this study the selected participants were the five districts' Medical Depot Pharmaceutical Manager and one provincial pharmaceutical manager as well as five district managers and the Manager Medical Depot. They were purposely selected as a sample on the basis of their experiences and their prominent responsibility in the provision of medicine.

The six managers of Pharmaceutical Services were all pharmacists by profession and directly responsible for the provision of medicine to the health care facilities as well as being the custodians and originators of the reports on medicine availability. They were labelled as Focus Group #1. The second group comprised of the five district health care managers and Manager Medical Depot as the key informants responsible for provision of health services within the first level of care. Interestingly they were all professional nurses. They were labelled Focus Group #2.

1.8.5 The role of the researcher during focus groups

The researcher observed behind the scenes the interaction and the discussions to be able to take notes and ensure that the research questions are addressed.

1.8.6 The role of the facilitator

To avoid biased results a facilitator for the focus groups was appointed. The facilitator was an experienced researcher who has conducted previous focus groups on a health related field. The facilitator's role was to clarify, paraphrase and reflect back what has

been said. The facilitator should remain neutral and non-judgemental (Burns & Grove 2005:544).

1.8.7 Data collection

Wimmer and Dominick (2006:128) indicate that the focus group is a research strategy for understanding audience attitudes and behaviour where no more than 12 people are interviewed simultaneously, with a moderator leading the respondents in a relatively unstructured discussion about the focal topic.

Marshall and Rossman (2011:145) stipulate that when more than one person participates the process takes in a wider variety of information than if there were fewer participants as immediate follow-up and clarification is possible. According to Wimmer and Dominick (2006:130), focus groups have various advantages including the wealth of information that can be gained, the minimal cost of the group and the flexibility in question design and follow-up.

1.8.8 Interview guide

Prior to the focus group an interview guide (see Annexure D) was developed in order to assist the facilitator of the focus group in collecting the relevant information from the respondents. A set of predetermined questions were developed. However, the existence of an interview guide does not mean that the moderator (facilitator) cannot ask questions not contained in the guide (Wimmer & Dominick 2006:133). The facilitator was allowed to ask follow-up questions or probe respondents' comments during the session to gain further insight.

Respondents were asked the central question: "Describe your experiences regarding medicine availability, as well as the factors affecting availability of medicine within the facilities of the Free State district health services". The two interviews took place in a relaxed environment at a focus group facility in Bloemfontein and was digitally recorded for reference purposes as well as for the transcribing of the discussions which is essential in the analysis of the data.

1.8.9 Data analysis

Data was collected from the transcripts made from the digital recordings and notes that were collected during the focus groups. The collected data was organised and analysed by means of an inductive model where the data that was relevant to the topic had to be grouped into appropriate and meaningful categories. This was enhanced by the use of XSight, a software package that was developed for the analysis of qualitative data. XSight software assists researchers or other professionals working with non-numerical or unstructured data to compile, compare and make sense of their information. It provides a range of analysis frameworks for importing, classifying and arranging data; tools for testing theories and relationships between items; and the ability to visually map and report thoughts and findings (QSRI 2008).

Designed for rapid analysis, XSight can handle small or large volumes of data and search and query tools support the review and reflection process and users can look for patterns, make comparisons, and interrogate the data in seconds. Explanations usually emerge from the data itself.

1.8.10 Trustworthiness

Trustworthiness is the extent to which the study can be regarded as reliable and produces credible findings. Lincoln and Guba (1985) suggest that credibility, transferability, authenticity and confirmability should be demonstrated in a qualitative study (Creswell 2013:246). Trustworthiness and validity of qualitative studies is concerned with the truthfulness of the data collected with special emphasis on the conveying the insider view and providing the detailed account of how the people we are studying understand the phenomenon (Neuman 2011:214). Trustworthiness is about the extent to which the study has the potential to produce credible findings and interpretation of phenomenon under study.

The test of trustworthiness can thus be described as whether or not the study investigates the proposed research questions. All the necessary precautions were taken to ensure trustworthiness through identification and selection of appropriate informants as well as conducting the research focus group discussion at the facility with an

experienced researcher as the facilitator as well as design and refinement of the of the interview guide to ensure that the research questions are addressed.

Further strategies to ensure trustworthiness will be presented in more detail in Chapter 3.

1.8.11 Ethical considerations

The best reason to behave ethically is the personal knowledge that you have acted in a morally appropriate way. Wimmer and Dominick (2006:67) postulate that there are other reasons for ethical behaviour, namely that unethical behaviour may have an adverse effect on the participants and that unethical research practices reflect poorly on the profession. In a clinical environment the researcher will come into contact with health professionals and their patients possibly invading their work space which is normally managed by authorities. Therefore, the researcher will have to ensure compliance with principles of ethical research. Wimmer and Dominick provides general ethical principles namely autonomy, which has its roots in the categorical imperative and demands the researchers respect towards the rights, values and decisions of other people.

The second is nonmaleficence, which is the avoidance of intentional harm to respondents, and beneficence, which stipulates that a positive obligation to remove existing harms can be identified. Lastly, the principle of justice holds that people who are equal in relevant respects should be treated equally (Wimmer & Dominick 2006:69).

The researcher ensured that the study was executed in line with the above ethical consideration and obtained clearance from the University and the Free State Department of Health to conduct the study (see Annexures A and B).

1.9 SCOPE OF THE STUDY

The study focuses on the factors affecting medicine availability at the first level of health care – that is district health services – based on the experiences of Pharmaceutical Services managers and district health managers.

1.10 STRUCTURE OF THE DISSERTATION

The dissertation is structured into five chapters.

Chapter 1: Orientation of the study

Chapter 2: Literature review

Chapter 3: Research method and design

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

Chapter 5: Study conclusions, summary of findings and recommendations

1.11 CONCLUSION

Conducting research on factors affecting availability of medicine in the district health services facilities would be beneficial to the researcher, the employer as well as the community of the Free State in that the research outcome might be an indication of what factors need to be considered in ensuring consistent availability of medicines in the district of health services which is essential for treatment and management of diseases and increase the life expectancy of the population.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter explores and describes the current situation in the different parts of the world in terms of the availability of medicines and the factors affecting the availability thereof.

The provision of health services across the world is associated with medicine prescription and issuing to patients and clients accessing health facilities. It is therefore essential that a constant pharmaceutical (medicine) supply is ensured to promote effective care, inspire confidence in the health facilities and contribute to job satisfaction and self-esteem amongst staff (MSH2011:1:4).

It has been established that the quality of a public health care system is evaluated by the patients on the basis of appropriate medical staff members and availability of needed quality medicines (MSH 2011:1:3). Medicine has special importance for at least five reasons, namely:

- It aids in saving lives.
- It helps promote trust and participation in health services.
- It is costly.
- It is different from other consumer products.
- That substantive improvement in the supply and availability of medicines is possible.

Over the years household and patient surveys around the world have found that medicine availability is a major determinant of where patients go for health care and how satisfied they are with said care. In addition to the direct effect on health, the availability of essential medicines attracts patients who can then also receive preventive and public health messages (MSH 2011:1:4). It can therefore be concluded that the

inability of the health services to provide medicines on time and in the right quantities has the potential to cause the public to lose confidence in the health care system, resulting in the decrease of patient numbers and increase in avoidable morbidity and mortality amongst the health service users.

The Declaration of Alma-Ata in 1978 – a milestone in international public health – was the first official document to underline the importance of primary care and the role of essential medicines at a global level. It is a worldwide reality that medicine accounts for 15% to 30% of health spending in transitional economies and 25% to 66% in developing countries.

In some developing countries, medicine is the largest health expense for poor households. The projections are that by 2015 over 10 million deaths per year could be avoided by scaling up certain health interventions, the majority of which depend on availability of essential medicines (WHO 2011a:2).

The United Nations identified access (and availability) to essential medicines in developing countries as one of the indicators of the Millennium Development Goal Eight focusing on developing global partnership. Development and medicine availability is considered fundamental to guarantee adequate healthcare and safeguard human rights (United Nations [UN] 2011:51). Medicine therefore needs to be accessible to the population in acceptable quantities, dosages and quality, and at affordable prices.

In an investigation conducted on the availability of 15 generic medicines in 36 developing countries Cameroon, Roubos, Ewen, Teeuwisse, Leufkens and Laing (2011:412) discovered that, unfortunately, low medicine availability is prevalent in low and middle income countries. Several studies reported that the availability was at an average of 38%. Further, according to the United Nations Report, the prevailing limited availability of essential medicines in the public sector is often caused by factors including lack of resources, under-budgeting, inaccurate demand forecasting or inefficient procurement and distribution. The non-availability of medicines in the public sector has a negative impact of forcing patients to buy medicine from private providers, which often charge two to three times more. The affordability is further compromised by the private sector's preference for originator brand products which further increases the price and makes treatment even more unaffordable. Prices in the private sector tend to

also be higher due to higher manufacturers' prices, taxes and tariffs, and high mark-ups in the supply chain (UN 2011:51).

2.2 INTERNATIONAL CONTEXT AND STRUCTURES PROMOTING PROVISION AND AVAILABILITY OF ADEQUATE MEDICINES

Medicine availability and prices in both public and private sectors are the key global indicators of access to treatment and health services. For the effective global coordination of medicine programmes as key component of health service delivery, a Department of Essential Medicines was established in the WHO structure. The WHO recognises the importance of strengthening provision and availability of medicines worldwide. It further established a presence in all regional offices and branches of the Department of Essential Medicines Programme for the coordination of initiatives towards promotion of access to medicine efforts and revision of pharmaceutical policies in member countries, to give input into the world's efforts of ensuring access and availability of medicines in sufficient quantities and quality across various states (WHO 2011a:2).

This department, through the work in the branches across the regions, lobby for design as well as the review of medicinal policies and production processes, including the development of generic medicines that are cost effective and affordable compared to the original brands.

Based on the work done in the member countries the Department of Essential Medicines publishes the annual reports on the medicine situation in the world to share progress and challenges towards increasing access and availability of medicine worldwide. The published reports recommend that governments should determine the essential medicines list for their own countries to serve as a guideline as to which medicine is required for continuous availability to manage prevailing health conditions. Following these recommendations there have been various initiatives across the world to promote access to essential medicines, including development of country specific medicine policies. Furthermore it prompted review of drug and medicinal policies to enable other health worker categories, in addition to the medical doctors, to prescribe medicine in areas with inadequate availability of doctors. There are also on-going high level negotiations through the WHO Heads of States forum for shift towards use of

generic medicines instead of original brands in order to reduce the prices of medicines to ensure availability of essential medicines in all parts of the world, especially developing countries, including South Africa (MSH 2011:1:10).

2.3 KEY PROCESSES FOR ENSURING EFFECTIVE MEDICINE SUPPLY MANAGEMENT

Management Sciences for Health developed a framework which has been adopted by the WHO to serve as a guide and mechanism to ensure adequate provision of medicine by following the key processes of selection, procurement, distribution, and use. At the centre of these processes, management support is key. These processes make up what is referred to as the Drug Supply Management Cycle. This is a holistic approach to medicine supply management and cannot be executed in isolation, but should be well aligned and executed comprehensively for optimum results (MSH 2011:1:10).

Globally, Pharmaceutical Services (units responsible for facilitating acquisition of medicines for the health sector) adopted the principles of the drug management cycle as a basis for their operations. When the cycle is implemented properly the possibility of ensuring continuous availability of medicines is likely to be successful. The aim of the cycle is to ensure the availability of cost effective, safe and quality essential medicines to the communities as governed by the National Medicine Policies (NMP) and supporting legislation.

Inadequate implementation of the key processes in this cycle will lead to a lack of coherence and eventual collapse of the structure and the services, resulting in delay or even non-provision of the medicine to the facilities. Although the individual parts of the cycle may function independently for a while, the cycle as a whole will soon collapse when the elements are separated. Patient care will suffer without a functional organisational structure, adequate financing, reliable information management and motivated staff (MSH 2011:1:9).

2.4 CONCEPT OF MEDICINE AVAILABILITY

The South African Concise Oxford Dictionary (2007:273) defines medicine as a drug or preparation used for the treatment or prevention of disease. In South Africa, in

accordance with the Medicine and Related Substances Act (Act 101 of 1965, as amended), the term medicine refers to any therapeutic substance or mixture of substances used or purporting to be suitable for use or manufactured or sold for use in the diagnosis, treatment, mitigation, modification or prevention of disease, abnormal physical, mental state or the symptoms thereof in man or restoring, correcting or modifying any somatic or psychic or organic function in man (South Africa 2002:3).

It is important to note that various medicines are continuously being introduced into the market by manufacturers. However, not all medicines are necessary for human life preservation and, as such, not all medicines are useful to the health system. The World Health Organisation defines medicine with a special focus on medicines required to treat the majority of the priority health conditions, referred to as essential medicines, which should be available at all times. Essential medicines are defined as those medicines that satisfy the priority healthcare needs of the population. These medicines include first line treatment for chronic non-communicable conditions, communicable disease, vaccines, HIV and AIDS. These therapeutic substances are said to be available when the stock on hand is able to ensure that the patients receive all the essential prescribed items on the day of the visit to the health facilities (WHO 2011 a:2).

To ensure human safety, the governments of different countries, in line with WHO standards, have introduced regulations for the production, distribution and prescription of carefully selected medicines as well as strived to ensure continuous availability of essential medicines. The rationale for the selection and use of a limited number of medicines is that it leads to an improved supply of medicines, more rational prescribing, and lower costs (MSH 2011:16:3).

2.5 GLOBAL SITUATION OF MEDICINE AVAILABILITY

The 2011 WHO report is based on the standard methodology and focuses on essential medicines used in the majority of the member countries. The report indicates that medicine availability across the WHO regions was reported at an average of 60%. In the Eastern Mediterranean region medicine availability scored 32%, with 58% in the European region. In the African and South Asian regions the average availability was less than 60% (WHO 2011a:4).

A study conducted in 36 countries reports that in the public sector the availability of 15 generic medicines was found to be low, ranging from 9,7% in Yemen to 79,2% in Mongolia.

The regional availability ranged from 29,4% in Africa and 54,4% in America. In the private sector the availability of generic medicine was lower, ranging from 50,1% in the Western Pacific to 75,1% in South East Asia. The lowest availability of medication was recorded in Chad to be at 14,8%, Kuwait 36,3%, Philippines 33,6% and China ranging from 34,6% to 38,3%. The mean availability of medicines was found to be generally lower in the public sector than in the private sector. The factors contributing to low availability of medicines in the public sector in particular include inadequate funding, lack of incentives to maintain stocks, inability to forecast accurately, inefficient distribution systems or leakage of medicine for private use. In the private sector the factors influencing availability and access was mainly the price. However, the private sector shows a high availability of generic medicines in the private sector, such as recorded in Syria at 97,5% and in Chennai, India, of 91,8%. Factors contributing to this were setting of limits on the price mark-up and elimination of taxes on medicinal products (Cameron et al 2008:8).

While the availability of generic essential medicines is limited in general, especially in the public sector, the situation with regard to medicine for treating chronic conditions is particularly poor. This is very disturbing given the fact that chronic diseases are the cause of no less than 40% of all deaths in low income countries. The MDG Gap Task Force 2010 report reflects that generic medicines used for chronic conditions are available in only 36% of the facilities in the public sector and 55% of those in the private sector. Moreover, only 27% of respondents from poor households in low-income countries who needed treatment for a chronic condition reported having received it (UN 2011:52).

Gray and Manasse (2012:158) in recent commentary in a Belgian pharmacy journal claims that the problem is global – "from Afghanistan to Zimbabwe" – listing 21 countries affected by a variety of medicine supply problems.

A shortage of the injectable antibiotic Streptomycin was reported in 15 countries in 2010, with 11 more countries predicting their stocks would run out before they could be replenished. This report states that there was a wide range of causes for medicine supply shortages, some of which could be dealt with by government agencies.

Due to low medicine availability in the public health sector patients from lower income countries, including South Africa, are forced to buy medicine privately, where original brands are sold costing the public a possible four times the price of the generic medicines (WHO 2011b:7). The non-availability of medicines in public health facilities and high cost of original brands result in patients from poor lower income countries being exposed to the risk of defaulting treatment and disease complications, which contributes to reduced life expectancy as well as premature mortality and morbidity.

Medicine is a critical commodity for maintaining the health status of citizens across the world. It should be free at a point of service for poor communities and accessible to all countries at affordable prices. However, according to Mercurio (2007:23) the availability of medicine is also affected by inflated medicine prices due to tariffs levied by the production countries on medicine leaving their shores. In the Democratic Republic of Congo the tax levied on medicine is 30%. Other countries, including India, Sierra Leone, Nigeria and Bolivia, also impose tariffs on the importation of pharmaceuticals, namely 55%,40%, 34% and 32% respectively. The charging of additional sales tax in countries including South Africa (14%), Argentina (21%), Bangladesh (15%), The Dominican Republic (28%), Greece (15%) and Turkey (18%) is another factor affecting medicine availability and access to medicine by individual patients.

The WHO made the following recommendations to facilitate lifesaving medicine's availability and access: improve financing and distribution efficiency, promote the use of generic products and control supply chain costs by limiting the mark-ups and remove duties and taxes on medicine. It is believed that improvement in the availability of medicine through these measures will contribute towards achievement of Millennium Development Goals 4, 5 and 6 which lobbies for reduction of infant mortality, improving maternal health and combating HIV and AIDS, tuberculosis and malaria (WHO 2011a:2).The WHO further proposes a review of policies towards improving the availability of medicines, including the components of medicine selection, procurement, distribution, and financing. Financing models include promotion of the provision of free

essential medicines and also the introduction of the insurance system, like medical aid and subsidies, for different categories of the population (WHO 2011 b:13).

Management Science for Health strongly advocates the promotion of equitable access to quality medicine as both a key development challenge and an essential component of strengthening the health systems and primary health care reform in the world.

For the provision and continuous availability of medicines it is regarded to be an important priority that countries design and implement the National Medicine Policy to guide selection, procurement, distribution, and use of medicine. The National Medicine Policy is regarded as an indication for political commitment and a guide for action that demonstrate how the government will ensure that efficacious and safe medicine of good quality are affordable, accessible, available, and rationally used (MSH 2011:1:9). The majority of WHO member countries, including South Africa, have approved national medicine policies.

2.6 OVERSEAS COUNTRIES MEDICINE AVAILABILITY CONTEXT

2.6.1 United States of America

Whilst USA is regarded as a developed country, it is also affected by the non-availability of medicine. Gray and Manasse (2012:158) report that shortages of essential medicines, amongst them generic injectable chemotherapy agents, are an increasing cause for concern in the country (USA). The problem is said to be far greater, affecting other classes of medicines including injectable anaesthetic agents, nutrition and electrolyte products, enzyme replacement products and radio pharmaceuticals. Further, Erin Fox, Manager of the drug information centre at the University of Utah, states that the reported drug shortages are at its highest in a decade in the United States of America. The service is said to have recorded 211 new drug shortages, up from 70 shortages in 2006 and 166 in 2008. The shortages have an impact on patient safety and care standards with more than 1000 near misses and adverse patient outcomes reported (Larkin 2011:28). The lack of some of the most basic medications has caused physicians to advise their patients to seek the medicines they need from locations outside the United States of America. Manufacturing quality problems have been implicated as one of the contributing factors in shortages of medicines produced by a

limited number of suppliers, such as the influenza vaccine. Overall 43 % of 127 shortages investigated by the United States Food and Drug Administration were attributed to manufacturing quality problems (Nash 2012:12). The other factors contributing to the non-availability of medicines in the United States of America include medicine manufacturers depending on a small number of facilities for medicine production, and that shut-downs for various reasons may cause problems. Changes in procurement practices are also another factor (such as insistence on the WHO prequalification status or registration with a stringent regulatory authority) which may invalidate a previous supplier as in the case of Streptomycin (Gray & Manasse 2012:158).

2.6.2 Mexico

According to Wirtz, Russo and Escoban (2009:30) in Mexico, like many other developing countries, access to and availability of medicines has been hampered by various factors, including stock outs in the public health sector (especially for the uninsured population) as well as the out of pocket expenditure on medicines and the fragmentation of the Mexican health system. Access to and availability of medicine was further limited by the fact that at least 42% of the health services users had to pay for their prescribed medicines. Thus, if the patient could not pay he will not obtain the required medicine. Over the years population access does not seem to have improved significantly as the patients who had to buy medicines in private pharmacies increased from 42% in 2000 to 47% in 2006.

2.6.3 China

Yang, Dib, Zhu, Gang and Zhang (2010:224) reported that in the availability of low price generic medicine in the Hubei province was found to be 38,9% in the public sector and 44,4% in the private sector. The factor reported to contribute mainly to the low availability of generic medicines in the public sector was that doctors did not prescribe medicines on the essential lists resulting in essential medicines not being ordered for utilisation in public health facilities. Another survey conducted in 2006 in Shanghai, China, revealed that the overall availability of medicine was poor in both the public and private sectors. Generic medicine was more readily available in the public sector than the private sector. The average availability in the public sector was 13,3% for the

innovator (non-generic expensive) brand and 33,3% for the lower priced generics respectively, whilst in private pharmacies the average availability for innovator brands was 10% and 15 % for lower priced generics. The factors contributing to low availability were:

- Poor quality of medicine in circulation, as the strength of medicine available differed from the recommended strength in the WHO survey manual.
- Lack of supply from the manufacturers due to low government prices.
- Irrational use of medicine due to financial incentives.
- That profit driven prescribing physicians were prescribing more expensive medicines.
- The issuing of hospicentric medicine which led to low medicine availability in private pharmacies as patients were encouraged to obtain medication in hospital rather than in private pharmacies; and
- That the policy on global budget control on pharmaceutical expenditure limited the procurement of innovator non-generic medicines (Lu Ye 2006:35).

2.6.4 India

Kotwani, Ewen, Dey, Iyer, Lakshmi, Patel, Raman, Singhai, Thawani, Tripathi and Laing (2007:645-654), in a study conducted in six sites in India, found that the average availability of core medicines in accordance with WHO methodology was low ranging between 30% in Chennai ,10% in Haryana, and 12,5 %in Karnataka. The factors contributing the low availability included poor consideration and disregard of the state essential medicine list in the prescription patterns by the clinicians, limited finances for medicine, inefficient distribution systems and utilisation of different essential medicine lists by pharmacies leading non-availability of medicines prescribed by specialists.

Patel, Thawani and Gharpure (2005:10) recommend the following strategies to improve medicine availability:

- That India should legalise implementation of one country essential medicine lists to reduce the number of available medicine in the country;

- That the usage of generic medicines rather than the non-generic brands should be promoted;
- That pharmacists should be empowered to issue generic brand equivalents; and
- The introduction of national regulation of medicinal prices.

2.6.5 Malaysia

According to Babar, Ibrahim, Sing and Bukhari (2005:17), in the Malaysian public sector only 25% of the generic medicines were available in the 20 facilities surveyed. The factors contributing to the low availability were under-regulation of medicine prices, uncapped mark-ups by health practitioners and poor monitoring for the provision and procurement of medicines on the National Essential Drug List. The pharmacist's role in ensuring the availability of medicine was also limited as medicine was freely available in private doctors' consulting rooms. However, stricter measures were imposed on medicine control and issuing by pharmacists. The country also did not have a national medicine pricing policy. The recommendations included that government should control mark-ups on generic brands and ensure that medicines on the National Essential Drug List are available in the public sector.

2.6.6 Philippines

A 2009 study conducted in the country using WHO methodology indicated that availability of essential medicines in the public health facilities was 53,3%. In the private sector it was at 100%, and in central district warehouses supplying the public sector it was 33,3%. The stock out duration for the public facilities was an average of 24,9 days and 43,8 days in the central districts warehouses respectively. The factors contributing to the low availability were non-centralisation of procurement from the district warehouses, as facilities could still bypass the warehouses to obtain medicines elsewhere, as well as high medicine prices in the country (Batangan & Juban 2009:34).

2.6.7 Summary of common factors affecting medicine availability in overseas countries

The common factors identified were pricing, tax levies, use of expensive non-generic brands, unsubsidised medicine in state facilities resulting in out of pocket expenses,

poor quality of medicines not compliant with WHO standards, and irrational prescribing by health professionals.

2.7 AFRICAN COUNTRIES' MEDICINE AVAILABILITY CONTEXT

Over the years the African region has also experienced an alarming lack of essential medicines in the public sector, driving patients to pay higher prices in the private sector or stay without medicine to manage their ailments and diseases. In an attempt to turn around the situation, the African Region of WHO hosted a consultative workshop to explore ways to improve access to and availability of medicine. During this workshop the major contributing factor to medicine shortages was identified as African countries having weak or no mechanisms for essential medicine availability monitoring and evaluation (WHOAFRICA 2006:38).

In subsequent developments on the continent the Southern African Development Community (SADC) regarded improvement in the availability of medicines in Africa as a key development priority to the extent of adopting a SADC Pharmaceutical Business Plan for the period of 2007 to 2013.

The main objective is to improve sustainable availability of and access to affordable, quality, safe and effective essential medicines through regulation and facilitation of trade within SADC region, as well as harmonising standard treatment guidelines and essential medicine lists (SADC Secretariat 2007:4).

The input from the partners was that the public sector is suffering stock out of medicines because of the poor planning, low consumption, and estimates which deplete the medicine reserves from the suppliers. Warehouses stock levels are kept based on what is expected to be consumed to minimise medicine overstock and expiry of medicines in the manufacturers' warehouses (WHOAFRICA 2006:13).

As will be made clear in the following paragraphs the consistent availability of essential medicine in the continent is far from being achieved.

2.7.1 Ethiopia

In a study conducted by Daniel, Tegegnenwork, Demissie and Reithinger (2011:61) provision of continuous access to essential medicines, laboratory services and medical supplies is regarded as fundamental in addressing the health needs of the population. However, in 10 out of 48 (21% of) facilities that were surveyed no malaria, tuberculosis or HIV medicines were available. The shortage of human resources and weak supply chain processes were reported as the main factors contributing to the non-availability of medicines in this country.

2.7.2 Malawi

Lufesi, Andrew and Aursnes (2007:86) found that medicine necessary for treating pneumonia, malaria and sexually transmitted infections were out of stock for a period of 42 to 240 days per year. The main factors reported for these shortages were poor deliveries from the Regional Medical Store, poor medicine stock management practices, delays in the ordering of medicine, as well as lack of training and supervision in the facilities and medical stores. The authors recommend that logistical systems should be put in place to ensure continuous medicine availability.

2.7.3 Kenya

A 2008 study by Kangwana, Njogu, Wasunna, Kedenge, Memusi, Goodman, Zurovac and Snow (2009:737) investigates the availability of malaria medication in government facilities. The study shows that 25, 6% of the surveyed facilities did not have any of the four treatment packs in stock. The factors contributing to this stock out are mainly procurement failures and delays due to a shift made away from direct procurement towards open tender processes. This shift was intended to achieve value for money and increase competition amongst potential suppliers. The open tender system implementation was further delayed by difficulty to obtain compliant tender bids from the bidders. The recommendation from the study was that procurement processes should be strengthened and impact: cost analyses conducted before deciding on international open tenders as the processes can be of extended duration leading to medicine stock outs.

2.7.4 Uganda

A review of drug management and procurement practices conducted in the period 2006 to 2007 at the Kilembe Hospital in the Kasese District revealed that there were frequent medicine stock outs in the health units ranging between 24 and 94 days on average. In addition, large quantities of expired medicine were found in most district level facilities. The factors contributing to this situation were the irrational procurement and provision of medicines not based on needs and requisition, and poor quantification and donor driven supplies without proper coordination with the recipient department to determine actual need. These practices led to the non-availability of essential medicines required for the treatment of prevailing conditions in the country (Tumwine, Kutwabami, Odoi & Kalyango 2010:559).

2.7.5 Sudan

The availability of essential medicines in this country is relatively higher with medical stores and private pharmacies reporting the average availability at 100%, and 82% in public facilities.

The high availability is enhanced by the existence of a central medicines store which is a governmental corporation responsible for ensuring that quality medicines are available at affordable prices through, amongst other strategies, the creation of dedicated funding for medicine, and the implementation of good procurement, storage, transportation and distribution practices. Areas reporting lower medicine availability report contributing factors as being the absence of drug (medicine) inventory cards, and poor financial support for transportation and distribution from the central medicine store to the pharmacies (Elamin, Ibrahim & Yousif 2010:36).

2.7.6 Nigeria

This country also faces the challenge of low- and non-availability of medicine as evidenced by the health centres and primary health care centres reporting stock out of essential medicines. The factors cited for these stock outs include inadequate budgetary allocations for medicines, poor stock control in supply chain processes, poor quality medicine not containing the minimum required ingredients for effectiveness, poor

value for money, uncoordinated government action and local non-availability of quality essential medicines. The country has developed a Ten Remedies Plan to improve availability, including establishing a dedicated fund for Primary Health Care, direct procurement of medicines, and utilisation of a drug supply management cycle in the medicine management processes (Oluabunwa 2008:12).

2.7.7 Summary of common factors affecting medicine availability in the African Region

The unregulated pricing of medicines, donor driven availability of medicines with poor coordination with the recipient department, poor warehousing practices, lack of skills in quantification and medicine supply management, and shortage of skilled human resources to manage medicine stock.

2.8 THE REPUBLIC OF SOUTH AFRICA'S NATIONAL CONTEXT OF MEDICINE AVAILABILITY

Prior to the implementation of South Africa's democratic government, dispensation medicine policies were also in line with the fragmented provision of the health services model. This resulted in differentiated access and varied availability of medicines due to lack of standardised essential medicine lists. In 1996 the National Drug Policy (NDP) was developed and approved by the new government in line with WHO standard requirements of member countries developing and implementing national medicine policies. The primary objective for the NDP was that of ensuring the availability of essential medicines (medication) to all South African citizens. The NDP is supported by Standard Treatment Guidelines and the Essential Medicine List for each level of care to realise the provision of affordable essential medicines (South Africa 1996:3).

The NDP defines Essential medicines as those medicines that are required to treat the majority of diseases that affect the people of South Africa in line with the WHO's accepted definition. Therefore it became imperative that such medicines are accessible, effective and affordable to the citizens of this country. The government is expected to ensure availability of generic essential medicine through implementation of incentives that favour generic medicines and their production in the country (South Africa 1996:10).

A further objective of the NDP is that of national development aiming at educating medical doctors, nurses and allied health professionals on the principles underlying the efficient, economical, effective procurement, distribution and dispensing of medicines.

The NDP emphasises that, for the consistent availability of medicinal treatment, there should be effective management of medicine; adequate budgeting for medicine, effective stock control and monitoring as well as the availability of adequately trained health professionals capable of issuing medicine to the health services consumers (South Africa 1996:28). In this country the major platform through which citizens' access basic health services and medicines has been identified as primary healthcare centres which are located within the district health services. The provision of medicines in the primary health care context has been free for all citizens since 1994 in an attempt to promote healthy living and improve life expectancy of the population (South Africa 1997). Although the medicine policies are in place, medicine availability has not been at an acceptable, consistent average.

During May 2010 South Africa experienced a shortage of over 80 medicines in the public health sector which included, amongst others, influenza vaccinations, medication for hypertension and tuberculosis.

The severity of this shortage varied from province to province, as well as from hospital to hospital within the provinces, depending on the leadership abilities and skills levels of management (Health24:2010).

The Public Service Commission results of the 2010 Citizen Survey also indicated that there were instances where citizens visited service delivery points and returned without receiving what they needed. Of the patient (10,5%) who participated in the survey were told to come the following day for their treatment, due to lack of sufficient stock of medicine or that it was time for staff to knock off for the day (Public Service Commission 2011:41).

As the challenges with the health services provision, including medicine availability, continued to surface the need to strengthen District Health Services to become well-functioning was also identified as a core principle of Primary Health Care Re-engineering processes (Gray, Vawda & Jack 2011:23). The re-engineering process, it is

believed, will contribute towards the efficiency of district health services in the rendering of required essential services and will ensure that health programmes are available. This will include the provision of medicines, as well as treatment and care to the population in the areas where they live. The National Department of Health formally recognised that medicine availability is cardinal in the provision of quality health care services to the extent where medicine availability has been regarded as one of the six Ministerial priorities required for compliance in all public health facilities (NDOH 2011a:16).

In further developments over the years the South African Government has also regarded Health as one of 12 key outcomes to be prioritised during the 2009-2014 government term of office towards ensuring a better life for all South Africans and the achievement of the Millennium Development Goals during the period 2010-2015 (GCIS 2010). In order to improve the health profile of all South Africans improved medicine supply and management have been identified as key factors in the South African Health Programme of Action.

The National Department of Health's (NDOH) Ten Point Plan emphasises the review of drug policies which may lead to the improvement of medicine availability by means of the improved procurement of medicines and the possible establishment of a state owned pharmaceutical industry (NDOH 2009b:5). In its Medium Term Review 2009-2014 of progress towards achievement of the Ten Point Plan the NDOH reported access to medicine as an achievement for the country due to reduced medicine prices because of generic medicine and bulk purchasing power. A major reduction in the prices of ARV medicines was the main output.

In 2010/11, the NDOH awarded a tender to the value of R4. 2 billion over two years for the procurement of antiretroviral (ARVs). The Department amended the usual procurement strategies which resulted in a saving of 53% (R4. 4billion) on ARV medicines. Further reductions were achieved in TB medicines and antibiotics.

The benefit of this watershed event for South Africans is that these savings will enable the health sector to treat more patients with the same resource envelope (NDOH 2011b:35). However, this achievement has been impacted negatively by media reports of continuing medicine stock outs. This is especially true of AIDS medicines in at least

six provinces including KwaZulu-Natal, the Free State, Gauteng and Limpopo during 2012 (South African Press Association 2012). The negative media coverage on the non-availability and stock out of medicines ensured the public health services a poor reputation as service users did not receive the expected medications as they visited health facilities (Thom & Langa 2010:7).

A study conducted on Pharmaceutical Management of Tuberculosis in seven of our nine provinces found that the availability of ARV and TB medication was at less than 95 % in five of the provinces, namely the Free State, Eastern Cape, Gauteng, Limpopo, and Mpumalanga. The factors contributing to this low availability, especially in clinic settings, include poor stock control and management in nurse-led primary health clinics, and a lack of pharmacist's assistants to take charge of drug supply management. A lack of electronic stock management systems also play a role as manual stock cards were found not to be updated at most facilities (Pure Health Consulting 2012:97).

Western Cape and North West had above 95% availability. The factors that contributed to this include electronic stock management, maintenance of the 3 month buffer stock, close monitoring and weekly reporting on stock availability, active contract management, and interaction with the suppliers over quantification, shortages and forecasting of needs, involvement of all role-players in medicine stock management including finance, programme managers and pharmacists and adjustment of issuing quantities during limited stock period to ensure that all patients receive medication whilst waiting for the replenishment stock (Pure Health Consulting 2012:129).

In response to the continuous challenge of poor health services and dissatisfaction including medicine stock outs, long waiting times, cleanliness, and staff attitudes across the country, the Ministry of Health called for a review of the Health Act to make provision for the establishment of the Office of Health Standards Compliance. The function of the Office is, amongst others, to develop National Health Standards with which all health facilities will have to comply for provision of quality healthcare services (Gray et al). These standards have been developed and include the standard for the availability of medicine as a vital measure of quality and is a priority area.

In 2011 the Ministry of Health commissioned a baseline audit for all public health facilities based on these standards. The purpose was to assess the current state of

health services as well as the degree of compliance with standards. The results showed that the majority of health facilities did not comply with medicine availability standards due to stock out of essential medicines (Gray et al 2011:62).

In 2012 the Ministry of Health, responding to the countrywide medicine shortages, adopted what is called non-negotiables for the public health sectors. The non-negotiables list is a list of items that are supposed to be available at all times for the continued provision of safe and quality health services. These items include medicine, cleaning materials, as well as equipment and laboratory services. The Minister called for provinces to do sufficient budgeting and ring-fence these funds with the intention to minimise the recurrence of non-availability of essential goods and services for basic service delivery (NDOH 2012a:1).

Whilst turnaround strategies are being implemented, the insufficient availability of pharmacy personnel in the public health system is said to be amongst the contributing factors in the non-availability of medicine in district health services as nursing personnel tend to prioritise the service delivery and lag behind with consistent ordering of replacement medicine stock as well as following up on placed orders for uninterrupted supply and availability of medicine (Strengthening Pharmaceutical Services 2008:29).

For quality and efficient medicine provision the South African Pharmacy Council advocates the availability of pharmacists and pharmacist's assistants to take charge of the provision of medicines in the hospitals, community health centres and primary health clinics in an environment compliant with Good Pharmacy Practice (South African Pharmacy Council 2010:2). However, in practice there have been several challenges regarding availability of pharmacists and pharmacists' assistants in public health facilities with hospitals and Community Health Centres not having permanent pharmacists. In primary health clinics nurses are in the main the only available personnel responsible for the provision-, ordering-, control of and enabling access to medicines (International Council of Nurses 2011).

This situation has the potential for the consistent non-replenishment of medicine stock as nurses' primary function is to render nursing care depending on other health workers and support services for on-site provision of service delivery resources.

2.9 PROVINCES OF THE REPUBLIC OF SOUTH AFRICA'S SITUATION ON MEDICINE AVAILABILITY

When assessing the number of provinces publishing availability details in their annual performance plans for the 2010/2011 financial year it becomes clear that not all nine provinces have readily available information on medicine availability. Information regarding the availability of medicine usually emerges through the media when there are challenges with stock outs and as reaction to criticism by civil society lobby groups including Treatment Action Campaign and Section 27.

2.9.1 Gauteng

In the 2010/2011 Annual Report the province reported 98% medicine availability across all its hospitals, community health centres and primary health care clinics.

The provincial report mentioned that in instances where medications were reported to be out of stock, substitutes were provided. Required medicine was also purchased from alternative suppliers in order to ensure continuity of care. District pharmacy monitoring and evaluation teams were also established to strengthen Pharmaceutical Services at PHC level through improved processes, supervision and training (Gauteng Department of Health 2011:50). The 2011 Facilities Baseline Audit on six priorities compliance reported that medicine availability was at a 68% average against a target of 100% in the province (HST 2013:16). The reports of non-availability of medicines continued to surface in 2012. Once again the province experienced medicine shortages and stock outs across the different districts. According to Bloom (2012:5) it was reported that these shortages were due to non-payment of suppliers which resulted in the withholding of deliveries to the health facilities. This resulted in patients going without treatment for diabetes, hypertension and other chronic diseases.

2.9.2 Limpopo

According to a study conducted on medicine shortages in Limpopo's Mopani district the non-availability of tracer (essential) medicines was found to be at an average of 24,8%. Medicine non-availability was found to be due to the following additional factors: poor quantification practices by the primary health care staff, as personnel would order

medicine without regarding minimum and maximum stock levels required for the facility; stock out from the Medical Depot, as facilities were out of Paracetamol for 4 months; as well as poor supervision resulting in shortages being identified at an advanced stage and irrational prescribing by the health professionals as evidenced by overuse of antibiotics (Matse 2006:52).

The increase in the number of patients visiting primary health care due to health policy changes post democratic government - which classified primary health services as free – and medicine shopping behaviour by the patients visiting more than one facility without allowing the original prescription to take effect was cited as also playing a role in the Limpopo province non-availability of medicines (Baloyi 2009:28). The average medicine availability in this province was at an average of 43% in the year 2011 during the ministerial commissioned baseline audit (HST 2013:17).

2.9.3 Western Cape

The National Health Facilities Baseline Audit conducted in the province in 2011 reported an average medicine availability of 60% (HST 2013:19).

There were also reports indicating that provincial public patients with chronic conditions, including diabetes, had to go without their lifesaving medicines in 2010 and again in 2012. The blame for the shortage was placed on the failure of suppliers and distribution contractors. These glitches resulted in long waiting times and patients being turned away without medicine. These shortages occurred despite the outsourced management of distribution of medicines with a private company with a clear mandate to ensure continuous uninterrupted supply of medicine (Fokazi 2012:7).

2.9.4 KwaZulu-Natal

The province reported an estimated 15% and 10% essential medicine non-availability for the Medical Depot and facilities respectively in its annual reports for 2010 and 2011. The factors mentioned were poor monitoring in Medical Depot and facilities and limited storage space for buffer stock (KwaZulu-Natal Department of Health 2011:157).The National Health Facilities Audit reported 56% average availability of medicines in the year 2011 (HST 2013:17).

2.9.5 Northern Cape

In 2008 it was found in this province that, out of the essential list of 39 items common to all health facilities, the number of items out of stock ranged from 2 to 25, which translated into between 5% and 64% on the day of the assessment by the investigation team commissioned by the provincial government. The non-availability of medicine was reported to be influenced by the inadequate and inappropriate pharmaceutical staff numbers, as the dispensing and ordering was done mainly by nurses instead of pharmacy professionals, an inadequate distribution system, and, to a lesser extent, poor supplier performance (Strengthening Pharmaceutical Services 2008:27). By 2011 the poor medicine availability situation had not improved as the province was found to be at an average of 42%, which was the lowest of the nine provinces in the country. The audit outcome recommended that this province needs to be assisted in order to improve on their performance (HST 2013:18).

2.9.6 Mpumalanga, Eastern Cape and Northwest Provinces

The above three provinces did not publish their annual report information on medicine availability.

2.10 FREE STATE PROVINCIAL CONTEXT OF MEDICINE AVAILABILITY

The Free State Province has also not been able to continuously ensure the availability of medicine required to treat prevailing health conditions within the province. In the National Primary Health Care Survey conducted during 2003 only 10% of Free State Primary Health Care Facilities were found to have a full complement of essential medicines (Health Systems Trust 2004:35). Furthermore, the Free State District Health Services' medicine availability reached an average of 45% during April 2009, resulting in patients dying whilst on the waiting list for antiretroviral medication (Free State Department of Health (FSDOH) 2009:1).

As reported in the 2010 patient satisfaction survey, 12% of clients who visited Free State District Health Services during March 2010 reported non-availability of medication during their visit (Survey Workshop 2010:15).

In 2012 the respondents in the patient satisfaction survey indicated that amongst the main medicines not always available were chronic medicine for diabetes management and hypertension, as well as acute medicines for influenza and minor ailments ranked the highest in primary health care settings. In hospitals acute medicines were highest on the list of medicines reported to be frequently unavailable (Survey Workshop 2012:15). The inability to provide the required quantity and quality of health care service, including consistent availability of essential medication and consumables, were identified as amongst the top 10 strategic risks for the Free State Department of Health.

The causes of the inability to maintain acceptable medicine stock levels was reported as being budgetary, supply and logistical failures (FSDOH 2010:41). In an attempt to improve medicine availability the Provincial Strategic Plan of 2010-2014 required the availability of medicine to be maintained at an average of at least 95% across all levels of care (FSDOH 2010:49). However, the Free State Department of Health has failed to maintain the required average level of 95 % medicinal availability over the years (Free State Provincial Government 2012:17).

The insufficient procurement and distribution of medicine was identified as being amongst the key service delivery challenges facing the Department of Health in the Free State to achieve the set target (FSDOH 2010:10).

Another assessment into the availability of medicine conducted by HST in 2011 as part of the National Health Facilities Baseline Audit also demonstrated that the majority of Free State Primary Health Facilities across the five districts were found non-compliant with the medicine availability standards at an average of 54% (HST 2013:16).

Furthermore, according to the annual report for medicine availability in the five districts during 2011 calendar year, there was still a below acceptable average availability of 95%. The 2011/2012 Free State Provincial Government Annual Report reflects an average of 92% medicine availability for the province (Free State Provincial Government 2012:17).

Early in 2012 the province was once again reported in the media as not having sufficient stock of antiretroviral and TB medicines, resulting in patients once again not receiving

the required medicines (FSDOH 2012a:1). The medicine stock out continued to exist towards the end of the year as another study reported 89.4% availability of ARVs and TB medicines in one district. This was said to be mainly due to poor stock management practices (Pure Health Consulting 2012:34).

The medicine stock out was accepted by government to be in the supply of the antiretroviral (Stavudine and Tenofovir), TB medication (INH 100mg and 300mg), as well as Actraphane (insulin prescribed for Diabetes Mellitus). The non-availability was said to be due to the inability of the pharmaceutical manufacturers of these essential medications to keep up with the demand from the various provinces (FSDOH 2012 a:1).

The factors contributing to the below norm availability included poor supplier performance, unreliable distribution mechanisms from the Medical Depot, and poor ordering patterns by health institutions. The situation that was brought on by the non-availability of medicines, including antiretroviral treatment, and exposed the Department of Health to various negative perceptions within the media (Health 24:2010). Furthermore, patients with chronic conditions, including hypertension and diabetes, found themselves without their medication or injections for controlling these conditions.

As a result the quality of services offered was compromised and in turn this situation led to poor health outcomes causing patients to default on their treatment. These problems were in contrast with the South African Government's Health Ten Point Plan, which emphasises the need to ensure sufficient availability of medication at an acceptable norm of 95% for essential medicines (FSDOH 2010:49).

According to an MSH investigation conducted in 2009 at the request of the department, the problem seemed to arise from various internal factors, rather than external factors, and needed to be investigated to prevent re-occurrence in the future. Possible factors which inhibit the availability of medicine in the Free State District Health services included the following:

Firstly, it may be that the Free State Department of Health has failed to fully understand and appreciate the fact that medicine is costly. Therefore, medicine has to be managed differently from any other hospital supplies.

Secondly, a dysfunctional and unrealistic organisational structure led to inadequate financing and an unreliable, incoherent information management system for medicine provision. This resulted in patient care suffering the consequences, as evidenced by the fact that the policy making and oversight unit for medicinal policies is located in a different directorate than the Medical Depot which is responsible for procurement and distribution of medicines to the five districts. This situation has an impact on the availability of medicines as the decisions are taken in another unit other than the Medical Depot and medicine stores. The investigation by MSH further suggested that the positioning of the Medical Depot within the Finance cluster and its regard as a trading entity primarily, focusing on financial viability rather than on citizen's accessibility to medicine of adequate quality, is a challenge.

Lastly, the quality and quantity of qualified dispensing professional nurses and pharmacists also contributes to the reduced availability of medication, as inconsistent ordering was observed in areas with less skilled personnel and high staff shortages (MSH 2010:3).

2.11 CONCLUSION

The failure to ensure consistent availability of medicines and compliance with the set national core standards has the potential to affect the implementation of the National Health Insurance plan. This is because the recruitment of private General Practitioners to support primary health nurses in the provision of health services will also require additional available medicine stock, as doctors will prescribe medicine of higher restrictions in the clinic, which was not the case before due to non-availability of doctors within primary health services (Paradath & English 2013 :16).

It is, therefore, of utmost importance and necessity to explore further which factors contribute to the availability of medicine in the five districts of the Free State Province's health services.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

In this chapter the study's research design, methodology, population, sampling, data collection, and analysis as well as the ethical considerations will be explained.

3.2 RESEARCH PURPOSE, OBJECTIVES AND QUESTIONS

3.2.1 Research purpose

The purpose of the study was to investigate the factors affecting the availability of medicine in the various Free State districts' health services.

3.2.2 Research objectives

- Explore and describe the factors affecting the availability of medicine in the various Free State districts' health services.
- Make recommendations on corrective measures to be implemented to improve the availability of medicine in the various districts' health services in the Free State.

3.2.3 Research questions

- What are the factors that contribute towards insufficient availability of medicine in the District Health Services in the Free State?
- How can the Free State Department of Health ensure sufficient medicine availability in the District Health Services of the Free State?

3.3 RESEARCH DESIGN

Research design is concerned with what the researcher intends to study and the data collection and analysis methods to be utilised in the process (Barbie 2010:91).

According to Welman et al, (2005:52) the research design is the plan according to which we obtain research participants and collect information from them to reach conclusions about a research problem. This research was conducted through experiences of the managers responsible for provision of medicine in the five districts. In this study the design used had to provide for in depth narrative and content rich data. It is for this reason that the qualitative exploratory, descriptive and contextual research design was chosen to allow for the respondents to share first-hand experience of the subject under investigation in order to produce quality research information.

3.3.1 Qualitative research design

Qualitative research designs aim for understanding the significance which respondents attach to their environment as well as enabling the researcher to change the data progressively so that deeper understanding of what is being investigated can be achieved (Welman et al 2005:8). Qualitative research design is a naturalistic enquiry which is usually less obstructive than quantitative investigations and does not manipulate the research setting. It aims to understand the individual's view without making any value judgement during data collection. The focus of qualitative studies is on the meaning that the participants attach to their social world (Bowling 2009:380). Marshall and Rossman (2011:2) also confirm that qualitative research is typically enacted in a naturalistic setting focusing on context, is emergent and evolving as well as fundamentally interpretative. According to Barbie (2010:92), the purpose of conducting qualitative research can be exploration, description and or explanation of a phenomenon.

Qualitative research design was found to be suitable for this research as it explored and described in an uncontrolled setting the experiences of the managers responsible for provision of medicines in the Free State Province with the intention of obtaining rich explanations and understanding of the factors affecting medicine availability.

3.3.2 Exploratory research

Exploratory research is used to understand the phenomenon under study by employing an open, flexible and inductive approach in an attempt to look for new insights into the phenomenon under study (Terreblanche, Durrheim & Painter, 2006:44). Exploratory research is further described as research which is conducted to obtain more details on a poorly understood phenomenon and develop preliminary ideas about it and move towards refined research questions (Neuman 2011:38).

Exploratory research is useful in conducting studies with the intention to yield new insights into the research topic (Barbie 2010:93). In this study the researcher intended to explore and describe factors affecting medicine availability through the experiences of managers directly involved with the phenomenon.

3.3.3 Descriptive research

According to Barbie (2010:93), the major purpose of social sciences studies is to describe situations and events (in our case medicine availability). Descriptive studies enable researchers to present a picture of the specific details of a situation, setting or relationship by focusing on explaining why something happened (Neuman 2011:39). This study intended to describe factors affecting the availability of medicines within the district health services as such exploratory and descriptive research approach was found to be relevant for the study. A descriptive research design is suitable for the purpose of identifying problems with current practice or justification thereof (Burns & Grove 2005:232).

3.3.4 Contextual design

Qualitative researchers conduct research to make sense of feelings, experiences, social situations and phenomena as they occur in the real world (Terreblanche et al 2006:287). Human behaviour and experiences cannot be understood without appreciating the environment in which it occurs. Thus it is important to understand the context under which the research is conducted (Welman et al 2005:91). The conduct of qualitative research is better executed in an environment that is natural and uncontrolled (Burns & Grove 2005:25).

This study was conducted in the health services setting focusing on the provision of medicines within the district health services in a relatively rural province comprising of 5 districts. Each district possesses facilities ranging from primary health clinics to district hospitals, which all form a referral chain for the rendering of health services inclusive of medicine provision to service users. The Free State's district health services provide services to at least three million patients annually.

3.4 RESEARCH DATA COLLECTION METHOD

Qualitative researchers are interested in making sense of feelings and experiences as they occur in the real world with minimal disturbance of the context in an attempt to become a natural part of the context by engaging with researchers in an open and empathic manner (Terreblanche et al 2006:287). Researchers conducting qualitative research utilise methods that are unique to qualitative studies which focus on words rather than numbers (Burn & Grove 2005:535). Qualitative research involves several methods of data collection such as focus groups, field observation, in-depth interviews and case studies to obtain rich data (Wimmer & Dominick 2006:48). The method selected for this study was focus group discussions through in depth interviews with the participants to obtain a detailed explanation of the experiences in relation to medicine availability.

3.4.1 Focus Group Discussions

Marshall and Rossman (2011:93) recommend that, in order to capture the individuals' lived experiences, an in depth interview should be used to capture the deep meaning of experience in the participant's own words. Furthermore, Wimmer and Dominick (2006:116) indicate that qualitative research uses a flexible questioning approach. Although a basic set of questions is designed to start the project, the researcher can change questions or ask follow-up questions at any time. In the process of conducting this study, the researcher utilised focus group discussion.

Focus groups are the qualitative research design technique in which people are interviewed in a group setting (Neuman 2011:458) allowing the researcher to obtain in-depth descriptive data. Burns and Grove (2005:542) explain that focus groups are

designed to obtain the participants' perceptions in a focused area and in a setting that is permissive and non-threatening.

The focus groups were conducted using the semi structured interview approach, and focus group discussions were utilised in order to explore the experiences of the participants. The process was expounded by providing the respondents of both focus groups with a short questionnaire to capture demographic details, as well as to record responses to certain predetermined questions. Wimmer and Dominick (2006:130) refer to this as an extended focus group. Two focus groups were held separately: one group consisting of the pharmaceutical service managers and the second group with district health managers. Neuman (2011:460) recommends that focus groups should be segmented by status as people often respond very differently when people of higher or lower status are present.

The focus groups discussions were conducted on different days in a research facility equipped with audio recording facilities. The setting promoted proper conduct of the study and allowed for an in-depth understanding of the problems faced by the participants regarding medicine availability. There are various advantages to focus group discussions, namely that the researcher can view behaviour in a natural setting, excluding the artificiality that sometimes surround experimental research, and the fostering of social support networks as the participants engage and reflect on the research topic under discussion (Marshall & Rossman 2011:150). Furthermore, this technique can increase the depth of understanding that the researcher may gain from the experience.

According to Wimmer and Dominick (2006:130) and Barbie (2010:323), focus groups have additional advantages, including the depth and wealth of information that can be gained at minimal cost to the group and the flexibility in question design and follow-up. Finally, this method allows flexibility in questioning and clarity regarding information that is collected from the respondents (Wimmer & Dominick 2006:49). Focus groups make use of group dynamics to stimulate, gain insights and generate ideas in order to pursue a topic in greater detail (Bowling 2009:424). Focus groups are recommended for conducting qualitative studies, because they facilitate the participation of more than one person, allowing the process to generate a wider variety of information than if there

were fewer participants as immediate follow-up and clarification are possible (Marshall & Rossman 2011:145).

The possible disadvantage of the focus group discussions is that some participants are intimidated by speaking in a group (Welman et al 2005:204). This was overcome by the fact that the participants were familiar to each other as they currently work together in the department.

Different views exist on the number of participants in focus group discussions. One view is that a focus group should comprise between 6 and 12 participants (Burns & Grove 2005:543). The other view is that the focus group could comprise of 5-15 participants brought together in a private, comfortable environment to engage in a guided discussion of some topic (Barbie 2010:322). Wimmer and Dominick (2006:128) indicate that the focus group is a research strategy for understanding audience attitudes and behaviour where no more than 12 people are interviewed simultaneously with a moderator leading the respondents in a relatively unstructured discussion about the focal topic. For this study two groups were purposely selected for their role in and experience of medicine provision. The participants were ranging between 6 and 7 participants per group in order to comply with the standard set for the conduct of focus group discussion. The total number of participants for this study was 13 and the interviews were conducted in Bloemfontein during August 2012.

3.4.2 Study population

According to Terreblanche et al (2006:133), population is the larger pool from which the sampling elements are drawn and to which we want to generalise the findings. Barbie (2010:199) defines the study population as the aggregation of elements from which the sample is actually selected. Welman et al (2005:52) defines the population as that group which encompasses the total collection of all units of analysis about which the researcher wishes to make specific conclusions. The population for this study was the pharmaceutical managers and the district health services managers within the Free State province comprising of:

- The seven pharmaceutical managers, including a responsible pharmacist, for the Medical Depot, Provincial Head of Pharmaceutical Services and five district pharmacists representing each of the five districts;
- The District Managers group inclusive of all 5 District Managers and the Manager of the Medical Depot who were all professional nurses.

The core function of the study population is to ensure provision of quality health services and medicines to the Free State Communities within a district level setting.

3.4.3 Sampling framing

A sampling frame is a list of units composing a population from which a sample is selected (Barbie2010:208). The sampling frame enables the researcher to choose the cases suitable for the study (Terreblanche et al 2006:133). The cases in the qualitative research are called participants or informants for the purposes of the study. Welman et al (2005:204) recommend that, for qualitative studies, participants should be obtained through purposive sampling with the intention to identify and select key informants who, on account of their position or experience, have more information than regular group members. The participants for this study were identified through a review of the organogram and the staff establishment for district health services in order to identify officials responsible for the provision of medicine. They would be able to provide a rich explanation and description of the factors affecting medicine availability.

3.4.4 Purposive sample selection

Purposive sampling was used to identify and select the individuals that have more information than the regular group members (Welman et al 2005:204). Burn and Grove (2005:353) explain that purposive sampling involves conscious selection of certain subjects to include in the study by the researcher. The selected subjects should present information rich cases from which the researcher can learn a lot about the central focus of the study. Barbie (2010:193) defines purposive sampling as the selection of the sample on the basis of knowledge of the population, its elements, and the purpose of the study.

According to Neuman (2011:268), purposive sampling is appropriate for selecting unique cases that are especially informative in order to gain deeper understanding of the phenomenon under study. For this study the five district and two provincial pharmaceutical managers as well as five district managers and the Manager for the Medical Depot were selected as a sample on the basis of their experiences and their prominent responsibility in the provision of medicine. The seven managers of Pharmaceutical Services were all responsible for the provision of medicine to the health care facilities, as well as the custodians and originators of the reports on medicine availability. They were labelled Focus Group #1. The second group comprised of the five district health care managers and Manager Medical Depot as the key informants responsible for provision of health services within the first level of care. They were labelled Focus Group #2.

3.4.5 The role of the researcher during focus groups

Qualitative researchers are not independent or separate from the research process. They interact with the group being studied to promote direct understanding of the phenomenon under study (Welman et al 2005:191). In qualitative studies the researcher is the instrument of observation and recording of human behaviour in the context of interaction (Terreblanche et al 2006:51). Furthermore, the researcher observes the social behaviour and may participate in social interaction with those being studied (Burns & Grove 2005:536). The researcher was present during the interviews, taking notes and observing the interaction and the discussions through a one way mirror to ensure that the research questions were addressed. The researcher also submitted additional clarity seeking questions through the facilitator to the group in order to allow the participants to freely express their views without being intimidated and disturbed by the researcher's presence and note taking.

3.4.6 The role of the facilitator

Focus groups require skilled interviewers as moderators/facilitators in order to control the group dynamics and avoid domination by the other interviewees in the discussion (Barbie 2010:323). To avoid biased results and ensure balanced proceeding of the discussions a facilitator for the focus groups was appointed. The facilitator is an experienced researcher who has conducted previous focus groups in a health related

fields using qualitative research approaches and holds a PhD. The facilitator's role was to clarify, paraphrase and reflect back what has been said by the participants. The facilitator should also remain neutral and non-judgemental in the process (Burns & Grove 2005:544). This was monitored throughout the conduct of the focus group discussions by the researcher. In the instances where the facilitator deviated from the discussion brief, a runner was given written communication to guide the facilitator to carry out his facilitation role in a neutral and non-judgemental manner.

3.5 DATA COLLECTION AND ANALYSIS

Data collection is the process of gathering information relevant to the study using one of the following primary methods: participating in the setting, observing directly, interviewing in depth, and analysing documents (Marshall & Rossman 2011:137).

The data collection process in qualitative studies aim for rich, narrative accounts of the phenomenon under study. As such, the chosen collection method should capture the experiences and views of the participant in expressed words format (Streubert & Carpenter 2011:38). Focus group interviews were found suitable for this study. Creswell (2013:177) also support the view that data collection could be done in many forms, including interviews, observation, documents and audio-visual equipment for qualitative studies.

3.5.1 Data collection through interviews

Qualitative interview is an interaction or a conversation between the interviewer and the respondents in which the interviewer has a general plan of inquiry including the topics to be covered (Barbie 2010:318).

For this study the data collection was executed by using the interview as a main strategy coupled with a structured questionnaire to answer specific predetermined research questions with a separate section for completion of demographic data including experience and main responsibilities. Having a questionnaire did not mean that this set of questions should be asked in particular words or in a certain order, but followed the flow of the interview discussions.

3.5.2 Interview guide

Prior to the focus group an interview guide was developed in order to assist the facilitator of the focus group in collecting the relevant information from the respondent. The interview guide should not exceed five pages and should contain no more than seven open ended questions which are developed from the research question (Creswell 2012:164). A set of predetermined questions were developed. However, the existence of an interview guide did not mean that the facilitator could not ask questions not contained in the guide (Wimmer & Dominick 2006:133). The facilitator was allowed to ask follow-up questions or probe respondents' comments during the session to gain further insight.

Respondents were asked the central question: "Describe your experiences regarding medicine availability, and also describe factors affecting availability of medicine within the facilities of the Free State district health services".

3.5.3 Interview setting

The researcher should provide an environment that is comfortable for the interviewees with the recording equipment placed unobtrusively (Burns & Grove 2005:540). Each of the two focus group interviews took place at a focus group facility in Bloemfontein using the developed interview guide. The interview process was digitally recorded for reference purposes as well as for the transcribing of the discussions, which is essential in the analysis of the data collected. Rapport and trust is essential for the conduct of an effective interview session (Welman et al 2005:199). The researcher and the participants were employed by the same department and have a working relationship. As such there was trust and rapport to promote free and open interaction during the interview sessions.

3.5.4 Data analysis

Qualitative data analysis is a search for general statements about the relationship and underlying themes in a study (Marshall & Rossman 2011:207). Data analysis in qualitative research consists of preparing and organising the data for analysis then reducing the data into themes through a process of coding and condensing the codes,

and finally representing the data in figures, tables or a discussion (Cresswell 2013:180). According to Corbin and Strauss (2008:66), data analysis involves taking raw data and raising it to the conceptual level. Data analysis for qualitative studies progresses through classification of ideas, themes, topics, activities, and types of people as well as other categories relevant to the study (Schensul & Le Compte 2013:98). The goal of data analysis is to illuminate the experiences of those who have lived them by sharing the richness of lived experiences and cultures (Streubert & Carpenter 2011:47).

De Vos, Strydom, Fouche and Delport (2005:333) define data analysis as the process of bringing order, structure, and meaning to the mass of collected data aimed at searching for general statements about relationships among the categories of data. There are nine overlapping steps for qualitative research data analysis, namely managing or organising the data, reading and writing memos, generating categories, themes and patterns, coding the data, testing the emergent understandings, searching for alternative explanations, and representing and visualising the data in report format (De Vos et al 2005:334). Data analysis involves organising the data, preliminarily reading through of the database, coding and organising themes, representing the data in a meaningful format and forming of an interpretation thereof.

These steps are interconnected and form a spiral of activities all related to the analysis and representation of the data (Creswell 2013:179). The aim of data analysis is the discovery of patterns among the data; patterns that point to theoretical understanding of social life (Barbie 2010:400).

3.5.5 Data analysis processing

Data for this research originated from the transcripts made of digital recordings and notes that were collected during the focus group interviews. The data were then organised and analysed by means of an inductive model in order to ensure that the data that is relevant and related to a particular theme was grouped into appropriate and meaningful categories. Coding was used to classify elements in text data into categories that are related to the study topic and useful for analysis (Schensul & Le Compte 2013:98).

Computers and technology can be utilised for qualitative data analysis because of their inherent advantages, including sorting and organising the data to make sense of the collected information (Burns & Grove 2005:546). The data analysis process for this study was enhanced by the use of the Xsight a software package that was developed for the analysis of qualitative data. XSight software assists researchers or other professionals working with non-numerical or unstructured data to compile, compare and make sense of collected information.

XSight provides a range of analysis frameworks for importing, classifying and arranging data, tools for testing theories and relationships between items, plus the ability to visually map and report thoughts as well as the findings. This software package is designed for rapid analysis with the potential to handle small or large volumes of data. Using the search tools supports the review and reflection process and enables users to look for patterns, make comparisons and interrogate the data to obtain the explanations of the phenomenon under study (QSRI 2008).

3.6 TRUSTWORTHINESS

Trustworthiness is the extent to which the study can be regarded as reliable and produced credible findings. Lincoln and Guba (1985) suggest that credibility, transferability, authenticity, and confirmability should be demonstrated in a qualitative study (Creswell 2013:246).

The trustworthiness and validity of qualitative studies is concerned with the truthfulness of the data collected with special emphasis on conveying the insider view and providing a detailed account of how the people we are studying understand the phenomenon (Neuman 2011:214). Trustworthiness comprises the extent to which the study has the potential to produce credible findings and interpretation of the phenomenon under study. The test of trustworthiness can thus be described as whether or not the study investigates the proposed research questions. All the necessary precautions were taken to ensure trustworthiness through identification and selection of appropriate informants as well as conduct of the research focus group discussion at the facility with an experienced researcher as the facilitator. Furthermore, the design and refinement of the interview guide ensured that the research questions are addressed.

The elements of credibility, confirmability, and transferability were promoted in the conduct of the study as discussed below.

3.6.1 Credibility

Credibility of a qualitative study is established while the research is being undertaken (Terreblanche et al 2006:90). According to Lincoln and Guba (1985), credibility includes activities that increase the probability that credible findings will be produced. Credibility can also be enhanced by returning to the participants to assess whether they recognise the findings (Streubert & Carpenter 2011:48). The study was undertaken over time with approval from the university's ethics committee and allowing for prolonged engagement with the participants in a familiar environment under the guidance of the supervisors who are seasoned, qualified, and experienced researchers as mentors throughout the lifespan of research project. Cross checking of data with the participants ensured that what is reported are the views of the participants. Furthermore, the researcher underwent preparation in advanced research methodology as part of the studies for the Honours Degree in Health Studies.

3.6.2 Confirmability

Confirmability is the extent to which the research findings can be verified or confirmed by another person (Marshall & Rossman 2011:253). Confirmability was achieved by keeping an audit trail, namely the written and audio records of information collected over time, to enable other researchers to verify the findings of the conducted research. A reference list could also be beneficial in facilitating the identification of reference material used in doing the research. For this study the audio and written notes and reference materials are available for verification purposes.

3.6.3 Transferability

Transferability is the extent to which the research finding can be applicable to other similar situations. Streubert and Carpenter (2011:49) define transferability as the probability that the study findings have meaning to others in similar situations and submit that the transferability possibility rests with potential users of the findings and not the researchers. Terreblanche et al (2006:92) explain that transferability is achieved by

producing detailed and rich descriptions of context, and that this provides the reader with a detailed account of the structured meaning which develops in a specific context. According to Wimmer and Dominick (2006:27), transferability is the level to which the results can be generalised to the population.

For this study the quality, credibility, confirmability, and dependability of work produced will assist in determining transferability. Transferability is determined by the readers of the research report and not by the researcher, as in this study the purpose is to explore and describe the factors affecting medicine availability in the Free State Province district health services context.

3.7 ETHICAL CONSIDERATIONS

Wimmer and Dominick (2006:69) provide general ethical principles which the researcher should consider. The first is autonomy, which has its roots in the categorical imperative and demands the researchers respect the rights, values and decisions of other people. The second is nonmaleficence, which is the avoidance of intentional harm to respondents, and beneficence, which stipulates that a positive obligation to remove existing harm can be identified. Lastly, the principle of justice holds that people who are equal in relevant respects should be treated equally. The research conduct process should not cause harm to the participants and organisations, thereby supporting the principle of beneficence (Streubert & Carpenter 2011:60). According to Wimmer and Dominick (2006:67), there are various reasons for ethical behaviour. These include that unethical behaviour may have an adverse effect on the participants, and that unethical research practices reflect poorly on the profession. In a clinical or health environment the researcher will come into contact with health professionals and their patients, possibly invading their work space, which is normally managed by authorities.

The researcher ensured compliance with principles of ethical research throughout the study period by implementing the measures required for conformance with the principles of autonomy, beneficence, justice and informed consent as explained below.

3.7.1 Ethical clearance

Ethical clearance for this study was obtained from the University of South Africa and approval to conduct the study was obtained from the Head of Department of the Free State Department of Health (see Annexure A and B).

3.7.2 Human rights and principles of justice

Human rights can include the right to self-determination, privacy, anonymity, and protection from harm (Burns & Grove 2005:181). The principle of justice is concerned with fair treatment, right to privacy, and anonymity (Streubert & Carpenter 2011:65).

3.7.3 Right to self-determination (autonomy)

The prospective participants should have the opportunity to choose whether or not to participate in the study (Burns & Grove 2005:1930). The potential respondents were not forced or coerced into being part of the research by being promised rewards, but did so with the full understanding that their contribution might build knowledge for effective health services through improving medicine availability. The participants were informed of their right to withdraw at any time or reserve their comments and inputs without being penalised.

3.7.4 Informed consent

According to Polit and Beck (2004:151), informed consent means that participants have adequate information regarding the research and are capable of comprehending the information. They also have the power of free choice which enables them to consent voluntarily to participate in the research or decline participation.

Informed consent consists of four elements namely: disclosure of essential information, comprehensionability, competency and voluntarism (Burns & Grove 2005:193). The reasons, benefits, impact, and content of the research, as well as the criteria for being chosen were provided to the potential participants prior to commencing the study. This enabled the participants to decide whether or not to take part in the research.

All participants in this study were above the consenting age of 18 years and have basic understanding of the research. They also received written requests to voluntarily participate in the research and signed a voluntary consent form for participation in the study on acceptance (see Annexure C).

3.7.5 Privacy and confidentiality

Researchers have a responsibility to protect the anonymity of subjects and to maintain the confidentiality of data collected during the study (Burns & Grove 2005:188). The participants' names and personal identifying information were not used in the records. Instead, symbols were used as codes and personal details will only be accessed by the researcher and the supervisors. Should personal information be necessary for reporting purposes the permission of the affected participant will be sought.

3.7.6 Respect

The participants were not judged for their responses or experiences. All inputs were regarded as valuable; contributing to realising the purpose of the research.

3.8 RIGHTS OF THE INSTITUTION

The institutional routine and integrity should be respected during the research process (Creswell 2013:58). Integrity was maintained during the conduct of the study through proper arrangements for conducting the research focus groups interviews, such as that there was no interference with the participants' routine and the supervisor's permission was sought.

3.8.1 Permission to conduct research

An application to the Head of the Department and Research Committee was submitted indicating the duration and nature of research to be conducted and was approved in writing prior to the commencement of the research.

3.8.2 Privacy

In this study there was no direct mention of the facilities or names of any member of the health care facilities management in order to maintain the integrity, privacy, and image of the district facilities involved.

3.9 SCIENTIFIC HONESTY OF THE RESEARCHER

The goal of the research is to generate sound and scientific knowledge, which is only possible through the honest conduct, reporting and publication of studies (Burns & Grove 2005:203). While conducting the study the researcher should not falsify authorship, evidence, data, findings, or conclusions, and should neither plagiarise nor disclose information that will harm the participants (Creswell 2013:59).

The researcher submits that the following was complied with during the research process:

- Accurate recording and reporting of study findings;
- Reported only the truth on the experiences of district pharmaceutical managers and without distorting the acquired information to meet the needs and beliefs of the researcher;
- Acknowledged all sources ideas and processes and words used or obtained from other authors' work;
- Utilised the tested means in obtaining data and conducting the research;
- Did not coerce or manipulate participants into taking part in the research.

3.10 CONCLUSION

This chapter presented the methodology followed in conducting the study. In the next chapter the data collected will be presented, so doing expressing the views of the managers on the topic under study.

CHAPTER 4

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 INTRODUCTION

The previous chapters have provided background to the research by providing the literature review and the methodology followed in conducting the study. In this chapter, data collected during the focus groups and analysed will be presented.

4.2 DATA MANAGEMENT AND ANALYSIS

De Vos et al (2005:333) define data analysis as the process of bringing order, structure, and meaning to the mass of collected data. It is aimed at searching for general statements about relationships among the categories of data. Data analysis involves organising the data, conducting a preliminary reading through of the database, coding and organising themes, representing the data, and forming of an interpretation thereof.

These steps are interconnected and form a spiral of activities all related to the analysis and representation of the data (Creswell 2013:179). The process followed in this research data analysis and presentation mirrors the steps for qualitative research data analysis, namely managing or organising the data, reading and writing memos, generating categories, themes and patterns, coding the data, testing the emergent understandings, searching for alternative explanations and representing the collected data in a report format (De Vos et al 2005:334). The aim of data analysis is the discovery of patterns among the data to promote theoretical understanding of social life (Barbie 2010:400).

Data analysis for this study utilised the spiral model as proposed by Creswell (2013:182-188) as follows.

Data organisation

The data were audio recorded and then transcribed by a professional reader to produce a mind map and narrative written data using XSight software.

Reading and memoing

The transcribed data were read comprehensively to make sense of the collected facts before clustering the data in line with the research questions and the emergent themes.

Description, classifying and Interpretation into codes and themes

During this process the researcher compiled detailed descriptions of the experiences of the informants, highlighting the emerging themes and contrasting the collected data with the current literature and the researchers' experience and views. The outcome was coding, which entails the clustering of data into small categories of information and labelling it. Barbie (2010:402) defines coding as the classification of individual pieces of data. Coding can be categorised into three classes, namely the initial classification and labelling of concepts, axial reanalysis of the results of open coding, and selective coding which seeks to identify the central code in the study. The data were then labelled into general themes, which are broad units of information that consist of several codes aggregated to form a common idea.

Data interpretation

Based on the developed codes and themes the researcher made sense of data through interpretation, reflecting and contrasting the findings with the current literature available.

Data representation

The data were then presented in a clustered theme approach reflecting the findings and identifying trends and practices affecting medicine availability. The collected information was then shared with the informants for validation as a true reflection of the discussions held.

4.3 RESEARCH RESULTS

4.3.1 Sample characteristics

It is important to note that the study was conducted after the period of reshuffling of the senior management in the department; hence, some managers had less than a year experience in management.

The five Free State province districts, namely Thabo Mofutsanyana, Xhariep, Mangaung, Lejweleputswa and Fezile Dabi, were all represented in the focus groups. The pharmacist participants' primary role was defined by the participants themselves as that of ensuring sufficient, cost effective and efficient medicine provision within the district health services while the District Managers defined their role as that of being the ultimate accounting officers for the quality of health services including consistent availability of medicines within the district.

- One District Manager stated that their role is to provide strategic leadership to ensure that the department strategic objectives are met, including provision of medicine.
- One pharmacist participant put it: "So my duty is to ensure that there is coverage in terms of medicine availability throughout. I shouldn't wait to hear from communities or ever complaining from somewhere – that is no. 1."

Table 4.1 The profile of the participants

GENDER	6 Male	7 Female			
AGE	10 (45-60 years)	1 (26-35 years)	2 (36-44 years)		
MANAGEMENT EXPERIENCE IN YEARS	5 (+5 years)	3 (2-5 years)	5 (less than a year)		
WORK EXPERIENCE YEARS	7(+15 years)	3 (10-15 years)	2 (6-10 years)	1 (1-5 years)	
OCCUPATION	7 Pharmaceutical Services Managers	6 Health Services Managers			
TOTAL					13

4.3.2 Presentation of the research findings themes

Table 4.2 Presentation of the research findings themes

Category	Theme	Sub-theme
4.3.2 Understanding of the concept medicine availability	4.3.3.1 Medicine availability is understood differently in practice.	4.3.3.1.1 All patients receive all the medications they need. 4.3.3.1.2 From the Medical Depot's side, medicine is sufficiently available when they can satisfy 100% of the demand. 4.3.3.1.3 The availability should be in line with international standards.
4.3.3 Status of availability of medicines in the various districts	4.3.3.2 Medicine availability differs in each district.	4.3.3.2.1 There is general acceptance that medicine availability in hospitals is within the required standards. 4.3.3.2.2 The availability in Community Health Centres is below acceptable standards. 4.3.3.2.3 The availability in primary health clinics is far below the required standards.
4.3.4 Categories of medicine for consistent availability	4.3.3.3 Certain medicines should always be available	4.3.3.3.1 Tuberculosis 4.3.3.3.2 Antiretroviral 4.3.3.3.3 Vaccines 4.3.3.3.4 Chronic Diseases
4.3.5 Factors affecting the availability of medicines	4.3.3.4 Certain factors negatively affect the availability of medicines	4.3.3.4.1 Poor medicine stock management. 4.3.3.4.2 Late deliveries from the Medical Depot. 4.3.3.4.3 There is a poor communication amongst the role players. 4.3.3.4.4 Lack of electronic ordering system. 4.3.3.4.5 Duplication of patients.

Category	Theme	Sub-theme
		4.3.3.4.6 Medicine Theft. 4.3.3.4.7 Transport. 4.3.3.4.8 Department Red Tape.
4.3.6 Factors affecting the availability of medicines positively	4.3.3.5 Certain factors promote the availability of medicines	4.3.3.5.1 There is a strong Pharmaceutical Services Unit in the Free State at the Corporate Office. 4.3.3.5.2 Partnerships with the private sector. 4.3.3.5.3 The Medical Depot is running more smoothly, especially regarding emergency orders.
4.3.7 Availability of medicines impact on service delivery	4.3.3.6 Non-availability of medicine is negative towards patient care outcomes	4.3.3.6.1 Medicine shortages definitely affect department reputation and patient wellbeing. 4.3.3.6.2. The quality of work life for frontline workers is adversely affected.
4.3.8 Essential medicine should be available at all times in the facilities	4.3.3.8 Suggestions for improving medicine availability in the Free State District Health Services	4.3.3.8.1 The Medical Depot should supply what is ordered. 4.3.3.8.2 There should be experienced people and pharmacists' assistants at the clinics. 4.3.3.8.3 The Medical Depot and Pharmaceutical Services should be one department. 4.3.3.8.4 Invest in an IT system for medicine stock management. 4.3.3.8.5 There should be a proper Service Level Agreement with the Medical Depot.

Category	Theme	Sub-theme
		<p>4.3.3.8.6 Establish a Mini Depot in each district.</p> <p>4.3.3.8.7 Teamwork and communication should be improved.</p> <p>4.3.3.8.8 There should be regular meetings between the role players.</p> <p>4.3.3.8.9 Reduce red tape in the procurement of medicines.</p> <p>4.3.3.8.10 Managers need to be empowered to manage medicine supply.</p>

4.3.3 Discussion of themes and categories

The central theme emerging is that medicines are often not available as required due to various factors.

4.3.3.1 *Medicine availability is understood differently in practice*

Medicine availability was understood differently by the participants. Some used the supplier, the management or the user perspective.

4.3.3.1.1 *All patients receive all the medications they need*

The management group regarded medicine to be available when the patients receive the prescribed medication on the day of the visit. The pharmacists also regarded medicine to be available when all patients receive all the medications they need as evidenced by the fact that all medicinal items on a prescription are issued to the patient at the time of visit at the facility, in the correct dosage, the correct strength, the correct quantities and at the correct storage conditions.

One participant explained: “When no patient has to return home without receiving medication, then the medication is available”.

This understanding is in line with the WHO standard that states that medicine is regarded as being available when the essential medicines required to treat the majority of conditions prevalent in that particular country is available at all times (WHO 2011a:2). The same standard was adopted by South Africa in 1996 as part of the introduction of the National Drug Policy (South Africa 1996:3). Another similar perspective in terms of facilities assessments is that medicinal items are considered to be available when at least one unexpired item is in stock (Pure Health Consulting 2012:97). The implication of this definition is that if more than one patient is prescribed the same medication, the other presenting patients may not receive medicine whilst awaiting delivery from the Medical Depot or higher levels of care as certain medicines require higher level authorisation by medical specialists.

4.3.3.1.2 From the Medical Depot's side medicine is sufficiently available when they can satisfy 100% of the demand of the health facilities

The participants from the Medical Depot regarded medicine to be sufficiently available when the depot can satisfy 100% of the demand from the institutions. The Medical Depot medicine stock is kept and issued in accordance with the Free State Code List and the National Essential Drug List.

4.3.3.1.3 The availability should be in line with provincial set norms and standards

The department stipulated that medicine availability should be at least at 95% for essential medicines, including the following critical medicinal items: chronic treatment (diabetes, asthma, and hypertension), immunisation vaccines, antiretrovirals and tuberculosis medication, because these medicines are used by the majority of the population and are important for the preservation of human life (FSDOH 2012b:72). The provincial set medicine availability norm of at least 95% availability at all times was due to the impact of supplier challenges and stock outs from the Medical Depot. There was also an argument against this norm as explained in the following quote from one of the participants:

"There will be difference in available medicines between facilities depending on what items are in demand. So the denominator differs from each and every facility but the Auditor General's people couldn't understand the principle and the result was the introduction of a common denominator based on the list drawn from the National Core Standards which include all the TB medication, the ARVs, the vaccines and a list of medicine items that was identified by National Department of Health. Now we report only on that and it doesn't reflect everything. There are lots of items currently that are not on that list which is critical and which the people cannot get."

The average of 95 % was accepted as a provincial norm as the majority of participants agreed that:

"Certain medicines are not available due to supplier challenges which are not within the control of the department. As such these shortages should not be blamed to the department."

The provincial target remains below the international and national norm of 100% availability of essential medicines, as according to the WHO medicine is regarded as being available when the essential medicines required to treat the majority of conditions prevalent in that particular country is available at all times (WHO 2011a:2). The same definition was adopted by South Africa in 1996 as part of the introduction of the National Drug Policy (South Africa 1996:3).

4.3.3.2 *Medicine availability differs in each district*

The availability for the year ending March 2011 was as follows in the different districts (see Table 4.3). Thabo Mofutsanyana, as the biggest and furthest district from the Main Depot in Bloemfontein, had the worst medicine availability followed by the Lejweleputswa district. The factors provided as affecting the availability in the various districts were the following: inconsistent availability of transport from the Medical Depot, inadequate availability of pharmacists to continuously facilitate placement, follow up and monitoring of stock levels, storage space for buffer stock and poor ordering patterns from the facilities.

Motheo and Xhariep districts had better situations than the other three districts. The contributing factors were reported to be the proximity of these districts to the Medical Depot making it possible for self-collection of medicines should the depot have transport challenges.

The participants further highlighted the following:

“The status of the medicine availability differs by level of care, namely primary health care clinics, community health centres and district hospitals in the districts, as the skills and knowledge of medicine supply management differs as well as the type of medicine to be available.”

A South African Department of Health commissioned assessment in 2011 found that less than 60% score was achieved by the Free State Health facilities across all districts in relation to the medicine availability standard (HST 2013:16). In another study conducted in India medicine availability differed in the various districts due to various factors, including inefficient distribution systems, non-compliance to Essential Medicine

Lists, and financial constraints (Kotwani et al 2007:649). According to Strengthening Pharmaceutical Services (2008:40), in the Northern Cape Province, across all the districts, medicine stock out was a major problem and the main factors contributing to the stock outs were poor record keeping and stock level monitoring which is key for the availability of essential medicines.

Table 4.3 Medicine availability in five districts 2011

District	% Availability
Motheo	93
Xhariep	94
Thabo Mofutsanyana	81
Fezile Dabi	92
Lejweleputswa	87

4.3.3.2.1 There is general acceptance that medicine availability in district hospitals is within the required standards

Free State Hospitals have mostly maintained an average 95% stock level due to continuous availability of pharmacists and pharmacists’ assistants, as they are specifically appointed for medicine supply management and are competent in monitoring medicine stock levels and forecast medicine needs ahead of time.

The participants argued that:

“... [H]ospitals have pharmacists and the pharmacists are better at monitoring stock levels and planning ahead...”.

When probed about failure to ensure 100% availability the response was that the 5% shortage was contributed to by expired contracts for some medicines and the long process of obtaining specialist medicines that need to be ordered once prescribed as it is not normally kept at district hospital level.

In the Northern Cape Province the non-availability of essential medicines in hospitals ranged from 3% to 45% which was far lower than in the Free State province. The hospitals had inadequate availability of pharmacists and pharmacists’ assistants for effective medicine supply management, as well as poor stock management systems

and inadequate distribution transport availability (Strengthening Pharmaceutical Services 2008:38).

4.3.3.2.2 The medicine availability in Community Health Centres is below the acceptable standards

The Free State has 9 CHCs which have, on average, all maintained at least 90% stock level against a benchmark of 95%. The availability is also impacted positively by the availability of pharmacists and pharmacists' assistants at this level. However, the high turnover of pharmacists as community services is completed and arrival of new pharmacists not knowing the ordering system contributed to the inadequate availability of medicines.

"But just to also elaborate, as well you know, like he has indicated, we have been over 90%. But now for me in the beginning of the year especially when we have community pharmacists that are leaving and we have new people coming in we will experience problems in terms of medicine unavailability, because you have got new people who do not know the systems in government, so there will be challenges."

The literature review reveals that, in the neighbouring province of Northern Cape CHCs, the non-availability ranged between 10% and 64%. The major contributing factors are the total non-existence of pharmacists' assistants and pharmacists in all CHCs and poor stock management practices, as nurses are responsible for stock management and ordering in addition to their routine nursing functions (Strengthening Pharmaceutical Services 2008:14). These factors affected medicine availability negatively.

4.3.3.2.3 The medicine availability in primary health clinics is far below the required standards

The Free State has 222 clinics run by professional nurses and varied availability of pharmacists' assistants. There is also total lack of technology and electronic systems to facilitate orders. Medicine ordering and stock control is a manual process and, furthermore, some clinics do not even have telephones to follow up on orders. Medicine availability has been on average between 75% and 95%. The sub optimum availability is due to insufficient availability of pharmacists' assistants and inconsistent ordering and

stock level monitoring at the clinics, as the professional nurses have other duties to execute rather than focusing exclusively on medicines supply management.

The participants shared the following experiences with regard to primary health care:

“You know with the clinics actually I have operational managers, but because of shortage of operational managers they are not primarily focusing on administration, including the medicine management. So there’s no-one dedicated for that. The very clinic manager starts readily with patient care, so medication should lie there unopened and at the time they’re susceptible to unlawful elements.”

"Not all of them have pharmacists’ assistants. And you know what at times happen? You are waiting for the order at the district office, you phone the clinic. They just go and get last month’s copy and submit it because there is nobody to do the order at the clinic level then they just give it to you and because of experience you have been working with these people at times you will ask yourself but last month you ordered this much of this why are you ordering it again? Or at times you know this person is ordering only 20 Panado but that clinic can’t use 20 Panado a month. Then you make the necessary adjustment; where you’re not sure, you phone them. I am just trying to emphasise what she is saying when she says Human Resources is a big problem in our facilities really."

“Lack of the monitoring system, long chain of order processing via the district office, lack of delegations for the clinic managers and delayed deliveries from the Medical Depot also contribute factors to inadequate medicine availability at the primary health care level.”

Poor stock control and ineffective management of medicine and medical consumables occur despite these items being the second largest expenditure item in the health system after staff. It is accepted that the reason therefore is the insufficient availability of pharmacists and pharmacists’ assistants to manage the medicine supply chain at Primary Health Care level (NDOH 2011:68). Matse (2006:52) finds that an average out of stock of tracer (essential) medicines in the Mopani District PHC facilities exists.

The inadequate stock level monitoring system, long chain of order processing via the district offices, and lack of delegation coupled with no insight into budget allocated for medicines by the clinic managers, and delayed deliveries from the warehouses were cited as contributing factors to inadequate medicine availability at the primary health care level. Baloyi (2009:94) reports that a shortage of medicine in primary health care seriously affects service delivery. Patients become disappointed and lose confidence in the health services. Thus treatment outcomes are adversely affected and the staff morale is lowered. The non-availability of pharmacy personnel in primary health care, poor stock control and electronic drug supply management systems and lack of financial delegations are cited as the factors affecting the availability of medicine (Strengthening Pharmaceutical Services 2008:42).

Another study also found that the factors contributing to low availability, especially in the clinic setting, include poor stock control and management in nurse led primary health clinics, and lack of pharmacists' assistants to take charge of drug supply management. Lack of an electronic stock management system also played a role as the manual stock card was found not updated in most facilities (Pure Health Consulting 2012:97).

4.3.3.3 *Certain medicines should always be available*

In a narrative questionnaire completed by all participants at the beginning of the interviews the following medicines were mostly regarded to be important for consistent availability: tuberculosis medication, Antiretroviral, medication for chronic diseases, and vaccines.

4.3.3.3.1 *Tuberculosis*

Almost all the participants reported that TB medication at times was out of stock due to supplier challenges, resulting in the patients defaulting on treatment and becoming exposed to the potential of developing Extreme Drug Resistant TB. Pure Health Consulting (2012:97) reported that TB medicine availability was less than 100% in six of the seven provinces assessed. The factors identified were poor stock control in the primary health clinics and CHCs, in particular due to insufficient availability of pharmacy personnel, manual ordering, poor stock availability reporting, and also supplier challenges (Pure Health Consulting 2012:122). A survey conducted in a province in

South Africa reported that 22% of facilities reported that they were completely unable to provide paediatric TB treatments, often for many months, and in many cases this was an on-going problem.

This was confirmed by the Depot's order data, which showed that large volumes of paediatric TB treatments had not yet been received by the Depot and have in turn not been supplied to facilities in need, with 20 facilities still having outstanding orders at the time of this report. Long interruptions of TB treatment in children are likely to have a much higher proportional impact on mortality of these children than short interruptions of ART (Medicins Sans et al 2013:11).

4.3.3.3.2 Antiretrovirals

All participants reported the antiretrovirals to be out of stock periodically due to supplier problems as well as non-payment of accounts by the department, leading to suppliers withholding orders and thus affecting the availability of medicines.

Pure Health Consulting (2012:97) also reported that ARV medicine availability was less than 100% in six of the seven provinces assessed. Western Cape was the only province with 100% availability for both ARVs and TB medicines. The challenge identified for ARVs was mainly poor stock holding capacity and supplier stock shortages due to poor estimation of drug needs. MSF and TAC reports are based on a survey of 72 health facilities supplied by the Mthatha Depot to establish whether they had experienced stock outs during the period of September 2012-January 2013. The survey found that 24% of those facilities surveyed had to send away more than one regular ARV dependent patient without treatment. Had drug supply not been re-established this situation would have quickly deteriorated further, with 53% of facilities surveyed also reporting stock outs of one or more HIV or TB medicines (Medicins Sans Frontiers et al 2013:11).

4.3.3.3.3 Vaccines

The majority of participants also reported vaccines to be frequently out of stock, especially during the campaign period. This occurrence is regarded as problematic as

the prevention of communicable diseases through vaccination is essential to reduce the infant mortality and morbidity prevalence in the country.

One pharmacist emphasised:

“We cannot be without our vaccines so we must have overall 100%”.

An investigation by Section 27 in the Gauteng Province found that there were shortages of the 5 in 1 vaccine, Rotavirus-, and Pneumococcal Vaccine, which are key to the implementation of the Expanded Programme of Immunisation for reduction of child mortality from communicable diseases (Section 27 2013:12).

4.3.3.3.4 Chronic diseases medicines

All participants reported that certain chronic medicines are always out of stock in practice due to supplier challenges, Medical Depots' insufficient stock as well as poor ordering practices in the facilities.

“Even though some medicines may almost always be available the lack of critical items such as Metformin, a diabetic medicine, may cause big problems, due to it being critical items for management of diabetes.”

In a survey of 40 countries equitable and regular access to essential medicines for chronic disease was reported to be worse than that of acute medicines as the availability was only 36% and 54.7% respectively. Low public sector availability of essential medicines is often caused by a lack of public resources or under-budgeting, inaccurate demand forecasting, and inefficient procurement and distribution (World Health Organization 2011 b: 1. In another study the availability of certain key medicines used for chronic diseases was reported to be poor in several countries. Hydrochlorothiazide, a tablet used for the management of hypertension, had poor availability in the public sector in Bangladesh and in both the public and private sectors in Nepal and Pakistan. Both ACE inhibitors and statins have been shown to prevent recurrent attacks in patients with coronary heart disease and are important for secondary prevention. However, the availability of ACE inhibitors was poor in the public sector in Bangladesh and Malawi and in both sectors in Nepal (World Health Organization 2007). The availability of treatment for diabetes was also reported

to be low in 12 districts of India. The worst off district indicated that only one out of 26 facilities had stock of glibenclamide (Kotwani et al 2007:649).

In summary, the participants unanimously identified the medicines for management of tuberculosis, AIDS, chronic conditions including diabetes, hypertension, asthma and the immunisations as the medicines that should always be available. These were regarded as important because these are the medicines required by the majority of the population and are used in the prevention as well as treatment of priority diseases in the country. These medicines also fall under the Primary Health Care Essential Medicine List for South Africa. The National Department of Health has also regarded these medicines as part of the non-negotiable items for consistent availability (NDOH 2008:6).

4.3.3.4 Certain factors negatively affect the availability of medicines

4.3.3.4.1 Poor medicine stock management

The participants reported delayed ordering and monitoring of the stock levels, especially in primary health clinics, as the major factor affecting the availability of medicine. Professional nurses were reported to generally not prioritise medicine ordering and control, but rather to focus on core patient care duties.

The participants highlighted the following practical experiences with regard to poor medicine stock management:

“The stock cards are also generally not updated to identify the ordering requirements. The clinic personnel in some instances dispense medicine to the last unit before placing an order. In such situations the likelihood of stock out is high as the standard lead time for medicine to arrive at the facility is six weeks from the date of placing the order. However, in practice this takes 6–12 weeks on average”

“Not all of them have pharmacists’ assistants. And you know what at times happen? You are waiting for the order at the district office, you phone the clinic. They just go and get last month’s copy and submit it because there is nobody to do the order at the clinic level then they just give it to you and because of experience you have been working with these people at times you will ask yourself but last month you ordered this much of this why are you ordering it again or at times you know this person is ordering only 20 Panado but that clinic can’t use 20 Panado a month. Then you make the necessary adjustment; where

you're not sure, you phone them. I am just trying to emphasise what she is saying when she says Human Resources is a big problem in our facilities really."

"At the end of the year there are problems with medication availability because the systems close, the managers often over-stock just before the system closes. However, sometimes the bulk medicine that is ordered is not managed correctly and end up expiring in the shelves."

According to a study conducted on drug shortages in the Mopani district of the Limpopo Province, the poor quantification practices by the primary health care staff contributed medicine being unavailable as personnel would order medicine without regard for minimum and maximum stock levels required for the facility (Matse 2006:52).

Another review of drug management and procurement practices conducted in the period 2006-2007 at the Kilembe Hospital in the Kasese District revealed that there were frequent medicine stock outs in the health units ranging between 24 and 94 average days.

In addition, large quantities of expired medicines were found in most district level facilities. The factors contributing to this situation were the irrational procurement and provision of medicines not based on needs and requisition, and poor quantification and donor driven supplies without proper coordination with the recipient department to determine actual need. These practices led to non-availability of essential medicines required for treatment of prevailing conditions, including malaria and sexually transmitted diseases (Tumwine et al 2010:559).

Furthermore, according to Pure Health Consulting (2012:97), the factors contributing to the low availability of medicines, especially in the clinic setting, also include poor stock control and management in nurse led primary health clinics, lack of pharmacists' assistants to take charge of drug supply management, and lack of electronic stock management systems (the manual stock card was found not updated in most facilities).

The insufficient availability of pharmacy personnel in the public health system is reported to be amongst the contributing factors in the non-availability of medicines in district health services as nursing personnel tend to prioritise the service delivery and lag behind with consistent ordering of replacement medicine stock as well as following

up on placed orders for uninterrupted supply and availability of medicines (Strengthening Pharmaceutical Services 2008:29).

4.3.3.4.2 Late deliveries from the Medical Depot

The Medical Depot does not always comply with the schedule of the deliveries due to medicine suppliers' contracts not being in place as well as challenges with the distribution company for delivery of medicines. The participants mentioned the following:

"The delayed deliveries occur definitely from the beginning of the year, and also towards the end of the financial year when there are all these processes that have to happen towards the end of the financial year leading to the beginning of the financial year where now the budget has to be captured. During these times you can't do anything including placing of orders due to stocktaking, closing of books and all those kinds of things."

"The Medical Depot is also affected by the time taken to finalise contracts. You will find that the contract is expiring end of August. It means that national treasury needs to see to it that before the contract expires they re-negotiate whatever they want to negotiate to ensure that come the 1st of September that contract is ready. Most of the time there is a break in between. After the contracts have expired they are still negotiating the new contracts, and you cannot procure from the expired contracts. Now you have to buy on quotation then there comes the supply chain processes that you need to follow which contribute to further delays. By the time we get the medication it could be two to three months later."

The suppliers in some instances fail to provide the complete order citing reasons of inconsistent supplies from the manufacturers. Often managers are told that the medication is not available anywhere, not even at national level, and the national treasury is also sometimes unresponsive. The supply chain refuses certain suppliers.

In Sudan availability of essential medicines was found to be relatively higher in medical stores and private pharmacies with the average availability reported at 100%. However, there was low availability in the public facilities with the average being 82%. Public health facilities experienced lower availability of medicine due to the absence of medicine inventory cards, poor financial support for transportation, and distribution from the central medicine store to the pharmacies (Elamin et al 2010:36).

4.3.3.4.3 Poor communication amongst the role players

Medicine was reported to be available at times in the Medical Depot but not at the facilities. Communication was cited as the factor in this situation despite availability of standard operating procedures stating the communication channels and platforms.

“There is a communication problem with suppliers and the communication between the District pharmacists and Medical Depots is also not always up to standard”.

“In the beginning of the year especially when we have community pharmacists that are leaving and we have new people coming in we will experience problems in terms of medicine non-availability because you’ve got new people who don’t know the systems in government so there will be challenges.”

Improved communication through involvement of all role-players in medicine stock management including finance, programme managers, and pharmacists, and the adjustment of issuing quantities during limited stock periods were found to be a positive contributory factor in above average medicine availability in the North West and Western Cape (Pure Health Consulting 2012:129).

Lack of communication between the Medical Depot and health facilities, especially in terms of stock availability, was noticeable in the provinces with low medicine availability. The contributory factors were the lack of telephone, fax, internet and stationery (Strengthening Pharmaceutical Services 2008:39).

4.3.3.4.4 Lack of electronic ordering system

The Free State province as a whole does not have an electronic medicine supply, monitoring and ordering system in order to monitor stock levels and automatically generate orders when the ordering level is reached. The district pharmacists and the Medical Depot depend on the end users to submit medicine needs manually. This can take time and orders are placed once a month or even every second month. There is a high likelihood that those facilities that do not order consistently will not have medicine, but also that other facilities could be overstocked whilst another facility in the same area is under stocked due to lack of electronic monitoring systems.

“The clinics often have trouble to stay in contact with other facilities due to resource challenges. Often the clinics do not have computers and are not connected in terms of internet. It would be much easier for communication if all facilities were linked on one system.”

If the province had an electronic medicine management system the above bottlenecks could have been eliminated. Resources like photocopies machines and fax equipment are also important, but often not available to transfer orders through.

An efficient and computerised central purchasing system is highly recommended to improve medicine availability in the public sector. Western Cape and North West had above 95% availability. The factors that contributed to this include electronic stock management, close monitoring and weekly reporting on stock availability (Pure Health Consulting 2012:129). With regard to the use of computer or stock cards to monitor stock movements only 52% used stock cards or requisition forms. None used a computer system. The absence of these tools which play a role in ordering and monitoring of stock could explain why some facilities did not have stock - because they were ordering without any reference. Orders were placed arbitrarily or based on experience. It was expected of all of them to have either a computer system or non-computerised tools such as stock cards in place (Strengthening Pharmaceutical Services 2008:39). Successful computerisation of medicine supply management can greatly increase an organisation efficiency and capability for ensuring consistent medicine availability (MSH 2012:50:18).

4.3.3.4.5 Duplication of patients

The patients were said to occasionally visit a number of clinics for the same condition without allowing the prescribed treatment to take effect.

“This also happens with regards to patients who are applying for government grants, these people visit the clinic on a very regular basis thinking that they will be regarded as chronic patients so that the doctors will approve the person's application for a grant.”

“One person visits more than one clinic for the same medication. This happens especially with contraception and people coming from neighbouring countries. She goes to this clinic they give 3 packets and to the next clinic for another 3 packets.”

"The other thing is with us it happens because our clinics are nurse-driven but sometimes the doctors are there so patients prefer to see a doctor rather than a nurse. At times the patient is honestly sick and is seen by a professional nurse the following day the same patient goes to clinic B because they know the doctor is there and they get duplication of medicines."

Furthermore, people may prefer to be examined by a specific person at the institution as explained below:

"I don't like sister A, I like sister B and would go today and then I would tell her that I was here yesterday but I feel that I prefer to be seen by you, the patients also at times do not trust the changing of medication packaging and colour of medicines due to different suppliers and would visit different clinics until she finds the regular packaged medicine."

The increase in the numbers of patients visiting primary health care due to health policy changes post democratic government - which classified primary health services as free – and the medicine shopping behaviour by the patients visiting more than one facility without allowing the original prescription to take effect was reported to also have had a role in the Limpopo province's non-availability of medicine (Baloyi 2009:28).

4.3.3.4.6 Medicine Theft

A few incidences of medicine theft have been reported in the districts.

"The depot will deliver and then the stock will be lying in the corridors or in the passages – that also affects the depot, because say for instance the depot delivers 10 boxes and then they don't have time to look into the contents and then after 5 days they will phone and say, "we are short of this". And we can't prove; because also from the depot, our systems are not actually 100%. Everything is done manually. So if they say they are short of the delivered stock we normally give them 48 hours to report. Often after the delivery, shortages are reported to the Medical Depot without any proof."

"In a clinic there was this sister who was caught with boxes of medication".

It has been established in Nigeria that a significant proportion of essential medicines meant for the Primary Health Care are misappropriated or diverted. Health workers, especially the storekeepers and those at the dispensaries, are said to divert some of the items either for personal use or theft (Oluabunwa 2008:7). Another confirmation of possible leakages and theft of medicines in the health facilities was the acceptance and

prevalence of inadequate management, security, and controls in KwaZulu-Natal's Pharmaceutical Services leading to increased risk of leakage and theft. The situation is made worse by the inadequate availability of experienced pharmacists in the facilities resulting in junior personnel, often Community Service Pharmacists, running the pharmacies (KZNDOH 2012:44).

4.3.3.4.7 Transport

The delivery of medicine to the facilities is the responsibility of the Medical Depot and has been outsourced to a private company. The transportation of medicines is not without challenges as mentioned below:

“The delivery company has to deliver to all (262) facilities at least once a month sometimes not often, it happens that when it snows or rains the truck cannot reach a facility also the road infrastructure provides a challenge as the roads may not be very accessible in that case the medicine is delivered to the nearest hospital and the clinics have to collect it from the hospitals.”

The participants also mentioned that there are instances where the Medical Depot has medicine in stock, but is unable to deliver due to transport problems as well as delayed delivery schedule and the fact that the districts do not have the suitable vehicles to collect medicines directly.

“Sometimes medicine cannot be moved between clinics due to transport problems, which cause a big problem.”

Inefficient transport and distribution systems was reported as one of the factors leading to frequent stock outs in India (Kotwani et al 2007:652). In a study by Strengthening Pharmaceutical Services (2008:37) it was reported that, although there was a delivery roster at the depot, the transport of medicine from the depot to the districts and within the districts to clinics appeared to be a challenge. In the districts there was no dedicated means of transport to deliver medicine from hospitals to clinics. In most instances medicines were delivered through patient transport and ambulance or staff's own transport with serious implications on the lead times. Outsourced transportation of medicines can promote better, cheaper and efficient delivery of medicines than that which government services are able to provide (MSH 2011:25:14).

4.3.3.4.8 Department Red Tape

The participants felt that medicine availability is also affected by the red tape and lack of delegation by the facility managers to authorise orders at the facility level. The view was that the availability could be improved if the department could reduce the red tape and long processes by allowing the clinic managers to authorise orders for medicines at facility level.

"I have seen in the department that the most problems are created by top management through the red tape."

There was also the view that the managers' inefficiencies make it necessary to introduce red tape in the organisation. One participant put it:

"Sometimes we are creating our own red tape ourselves, but not always. The way we operate we tend to create that tape ourselves. I mean if I don't manage the budget of the clinic quite correctly, someone sitting at head office all he sees is this budget cannot be managed at that level. Then he or she takes that responsibility. But if it is done correctly at the facility level, someone at head office or someone out there can have confidence on that particular person. So this person is responsible and accountable enough to take this type of responsibility."

The pharmacist participants felt that the tender processes were also to be blamed for the non-availability as mentioned in the following excerpt:

"And the other thing is the tender processes – the province forces us to procure 70% from Small Micro and Medium Enterprises (SMME) meaning that we should upgrade or advance the SMMEs. They tell us we need to have 70% of the money spent within the Free State; however we don't have the companies that are manufacturing the medicines in the province. And then they force us (pharmacists) to buy from the people that are not registered knowing that you are not going to get the required supplies from them, so it's really a struggle for medicines procurement, for the medical supplies may be you can buy a Band-Aid and if not usable you'll throw it away but with the medicines you cannot. Maybe the government should start looking at the tender process before we can go anywhere."

In 2008 Kangwana *et al.* (2009:737), in a study conducted to investigate the availability of malaria medication in government facilities, found that 25,6% of the surveyed facilities did not have any of the four treatment packs in stock. The factors contributing

to this stock out were mainly due to procurement failures and delays due to shift from direct procurement to open tender processes which was intended to achieve value for money and increase competition.

4.3.3.5 *Certain factors promote the availability of medicines*

4.3.3.5.1 *There is a strong Pharmaceutical Services Unit in the Free State at the Corporate Office*

The pharmacists reported that there is a strong Pharmaceutical Services office in the Free State at the Corporate Office. This office provides support and assists facilities by ensuring that medicine is available through various means, including movement of stock from facilities with surplus to those with deficits.

“For me I think the Pharmaceutical Service in the province, is at least recognised by our seniors when we can at least be called by HOD to come and discuss medicine provisioning problems. It means there’s recognition of this service which was not there before and I think there is an impact on getting things. They understand where we are coming from, they can assist us. We have our strong Pharmaceutical Services Office, we are getting there.”

The Pharmaceutical Services office is also responsible for policy formulation, oversight and coordination of the Pharmaco Therapeutic Committee (PTC) which contributes positively towards addressing all problems encountered as well as improves availability of medicines.

“The functionality of our PTC does contribute positively towards addressing all these problems.”

The hosting of regular meetings with key stakeholders is said to have a positive influence on the availability of medicines.

“The regular meetings on Drug (Medicine) Supply Management and District Pharmacists facilitated by the Pharmaceutical Services office also assists to enhance medicine availability as in these meetings the pharmacists can share information on the challenges and updates from the pharmaceutical companies with regard to medicine availability.”

Effective management and good governance through oversight and advocacy by the policy units make a vital difference in all aspects of medicine supply management especially in procurement and distribution of essential medicines (MSH 2011:1:10).

4.3.3.5.2 Partnerships with the private sector

The province is supported by Management Sciences for Health to promote effective management of medicine through initiatives including implementation of electronic ordering system, improvement of the operations at the Medical Depot and development of the Service Level Agreement between facilities and the Medical Depot.

“Also our partnerships with private sector like MSH – Management Sciences for Health - they actually contribute very positively in us rendering the services to our people.”

Partnerships have the potential, if well managed, to provide effective technical support to countries through capacity building, management information systems, procurement, distribution, storage, development of quality assurance systems, medicine financing, and information sharing (WHOAFRICA 2006:13).

4.3.3.5.3 The Medical Depot is running more smoothly especially regarding emergency orders

The communication and service at the Medical Depot has improved. With the appointment of the new pharmaceutical manager at the Medical Depot the pharmacist group reported that there is improved communication and provision of assistance, especially for emergencies and bail-outs of struggling facilities with the orders and medicine stock out situation.

“At the Medical Depot now, I think things are beginning to run smoothly even with the emergency orders. The last time I was at the Medical Depot for emergency orders was I think 3 months back.”

Another participant added:

“I am going today again today so that means really they are doing a wonderful job. Even with the enquiry of the ARVs side, I don't know if that is because I am

here in Bloemfontein I just phone and say you didn't deliver Stavudine, I want Stavudine and they say ok after 2 hours they call me come and get it so I think the situation has improved a lot at the Medical Depot.”

Medical Depot efficiency is key in the consistent availability of medicines as was observed in the Northern Cape where inefficiencies led to poor availability of medicines in the facilities. The Medical Depot plays a critical role in the selection, purchase, storage, and distribution of medicines and other medical devices in the province (Strengthening Pharmaceutical Services 2008:41).

4.3.3.6 Non-availability of medicine is negative towards patient care outcomes

4.3.3.6.1 Medicine shortages definitely affect department reputation and patient wellbeing

All participants agreed that when patients arrive at the facility and do not receive the required medicine they lose trust and confidence on the ability of the department to deliver on the constitutional mandate to deliver quality health services. Health Service Delivery is negatively affected as the patient defaults on treatment. Some develop resistance to first line treatment leading to disease complications that require expensive regimens and possible hospital admissions.

“Service delivery gets affected negatively when we’ve got shortages, because people then do not have trust in us.”

“As a department we have taken a conscious decision that we shouldn’t be running short of medicines – it’s an embarrassment.”

Medicine availability affects the productivity as when medicines fail to arrive, health programmes’ effectiveness is constrained and health workers are disabled from delivering a quality service (MSH 2011:1:4).

4.3.3.6.2 The quality of work life for frontline workers is adversely affected

The frontline staff faces abuse and humiliation by the disgruntled patients who do not understand the processes and delays in the delivery of medicines for dispensing to the patient. A lot of time is wasted on phoning, planning and transport arrangements.

“Ja, it's very de-motivating because you go to work, I am going to do this and that and that. This is my priority list today now suddenly they phone you and they tell you nobody has got Cidex. Now you must do something about it the whole province is looking at you and you spend the whole day just trying to solve that one problem. At the end of the day you didn't solve the problem because there was nobody that could help you. You phoned National Department of Health you tried all the other provinces and tried to borrow from them you tried to get another source and the people are not answering their phones it's really very demoralising.”

“The inconvenience drains the persons responsible for trying to organise the medicine and make transport arrangements. The failure to deliver an optimum service is de-motivating to staff.”

The credibility of health workers depends on the ability to provide relevant treatment for presenting complaint or symptom (MSH 2011:1:4).

4.3.3.7 Suggestions for improving medicine availability in the Free State District Health Services

The participants were asked to provide suggestions on how to improve medicine availability in the Free State specifically and reflected below are their views.

4.3.3.7.1 The Medical Depot should supply what is ordered

Both the managers and the pharmacists agreed that for consistent availability of medicines the Medical Depot should be able to meet the demands of the users all the time. This expectation requires that the depot should keep sufficient stock and buffer stock for all the essential and fast moving items to cover for delays in the deliveries from the suppliers.

“I think my situation can only be improved if the Medical Depot supplies what I order.”

4.3.3.7.2 There should be experienced people and pharmacists' assistants at the clinics

Having dedicated personnel in the form of pharmacists' assistants focusing exclusively on medicines will ensure that medicine stock ordering and management is not a

secondary function of the professional nurses who may forget to place orders or rotate stock to prevent expiry of medicines.

“What we’re trying to say is that at clinic level it’s very rare that you’ll have a pharmacist, whereas in hospital you probably will have a pharmacist and that will assist you for instance to know that at this point when I have this quantity of medicine I start my ordering process.”

“Where there’s no pharmacy assistant it now becomes the responsibility of the sister in the clinic who has to see patients and do a whole lot of other things. So in the hospital you have somebody with much better skills to manage the medicine, a pharmacist but clinics may be relying on a district pharmacist or perhaps a pharmacy assistant. So those challenges then become evident in the availability of medicines in our facilities if you were to compare clinics, community health and district hospitals.”

4.3.3.7.3 The Medical Depot and Pharmaceutical Services should be one department

The participants expressed the view that when the Medical Depot and Pharmaceutical Services were under one management the medicine availability was optimal; because the drug management cycle require that there should be synergy between medicine procurement and policy processes.

“For me you need to have a depot together with pharmaceutical service it will be one thing to match. The depot falls under finance and for me it does not work for us.”

4.3.3.7.4 Invest in IT system for medicine stock management

Medicine availability is difficult to monitor from a central point without the availability of the electronic tracking system. The participants recommended that there should be an electronic medicine supply management system starting from the Medical Depot to all the health facilities to allow for monitoring of stock levels, ordering patterns, and expiry dates to prompt appropriate action including placing of orders on reaching the minimum stock levels.

“If we could have electronic medicine management system for me in government we are still 15 years behind in terms of rendering service. I am talking here technology, especially when it comes to the clinics. What is preventing a patient to go to 20 different facilities and get the same type of medication? If we can

have a system that when the patient comes and gets medication you can pick it up. Some patients are just taking chances if we could have technologies installed in our facilities so that we can manage things better.”

4.3.3.7.5 There should be a proper Service Level Agreement with the Medical Depot

There should be clear responsibilities and penalties for all involved in the provision of medicines, especially the facilities management, who should ensure payment of the medicine account within 30 days to ensure that the depot has adequate cash reserves and can pay its suppliers on time, the Medical Depot should ensure that stock is available and delivered within the 6 week period of the placing of the order. This can only be achieved once the Service Level Agreement is approved and implemented in the province.

“We sat for days developing a Service Level Agreement of the Medical Depot with the facilities. That must be signed and implemented and if it works it will be wonderful.”

4.3.3.7.6 Establish a Mini Depot in each district

The provision of medicines from one central depot was reported as one of the areas to be reviewed as the Free State province is wide and further apart. One recommendation was that there should be mini depot (warehouse with bulk stock from the main depot), at least one in each district, so that the medicine store is closer to the facilities thus reducing the long waiting period for deliveries.

However, this proposal has the potential to increase staff and need of storage areas within the district. The consideration of this proposal should be accompanied by the cost benefit analysis.

“If the implementation of the Service Level Agreement does not work we will have to look at establishing mini depots in our districts because we want supply of medication for every day.”

4.3.3.7.7 Teamwork and communication should be improved

The medicine provision information originate from multiple sources namely the National Treasury for new tenders for medicines, the National Department of Health for new protocols, and the various suppliers for the status of the availability from the manufacturers. As such continuous, effective communication and cooperation should exist amongst all stakeholders.

Further, with the Pharmaceutical Services, health facilities and the Medical Depot located in various clusters there is a need for better, clearer communication and teamwork to ensure that medicine availability information reaches all key stakeholders on time to minimise interruptions and stock out in the facilities.

“I think that everything will work if all of us work together and that we can be one team. You know currently we are really fragmented and there is not really communication.”

4.3.3.7.8 There should be regular meetings between the role-players

The Medical Depot should also engage the suppliers through standing meetings to address any bottlenecks that may occur at times impacting on medicine stock provision.

The Medical Depot, facilities, supply chain, and Pharmaceutical Services should meet periodically for discussions, updates and resolutions of system red tape processes to address the challenges encountered by the facilities in the provision of medicines.

“I think that everything will work if all of us work together and that we can be one team as they said. You know currently we are really fragmented and there is not really communication. And if we don't have meetings like this on a regular basis...there is nobody who can really take a decision.”

4.3.3.7.9 Reduce red tape in the procurement of medicines

Medicine orders are subject to departmental financial delegations resulting in orders from the clinics supposed to be authorised at district level thus delaying the finalisation of the order and delivery to the facilities.

“Further requirement by supply chain a unit for three quotations despite the particular medicine being available only from one supplier is time wasting and should be reviewed.”

4.3.3.7.10 Managers need to be empowered to manage

The clinic managers need to know their clinic budgets, costs of medicines, and be given the necessary delegation power to authorise the procurement of essential supplies including medicines.

The clinic managers also need to be capacitated on medicine supply management including stock control and electronic ordering of medicines.

“And managers need to be empowered to manage as cost centre managers to understand the implications of over-budgeting and under budgeting as well then be given chance to do their work as clinic administrators. Right now we don't have dedicated administrators because of staff shortage.”

4.4 CONCLUSION

Based on the findings presented it is clear that medicines are not always available as required for optimum service delivery in health facilities. The non-availability of medicines has a negative impact on the department, staff, and the service users. The next chapter will present the recommendations and the conclusion for the study.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter the research findings, recommendations and conclusions will be presented.

5.2 RESEARCH DESIGN AND METHOD

5.2.1 Research purpose

The purpose of the study was to investigate the factors affecting the availability of medicine in the various district health services in the Free State.

5.2.2 Research objectives

- Explore and describe the factors affecting the availability of medicine in the various district health services in the Free State.
- Make recommendations on corrective measures to be implemented to improve the availability of medicine in the various district health services in the Free State.

5.2.3 Research questions

- What are the factors that contribute towards insufficient availability of medicine in the District Health Services in the Free State?
- How can the Free State Department of Health ensure sufficient medicine availability in the District Health Services of the Free State?

5.2.4 Research design

This research was conducted through experiences of the managers responsible for provision of medicines in the five districts. In this study the design used had to provide for in depth narratives and content rich data. It is for this reason that the qualitative exploratory, descriptive and contextual research design was chosen to allow for the respondents to share first-hand experience of the subject under investigation to produce quality research information. Welman et al (2005:8) recommend qualitative research designs for studies aiming to understand the significance which respondents attach to their environment as well as enabling the researcher to obtain deeper understanding of what is being investigated. Qualitative research involves several methods of data collection such as focus groups, field observation, in-depth interviews and case studies to obtain rich data (Wimmer & Dominick 2006:48).

The method selected for this study was focus group discussions through in depth interviews with the participants to obtain a detailed explanation of the experiences in relation to medicine availability.

The population for this study was the pharmaceutical managers and the district health services managers within the Free State province comprising of:

- The seven pharmaceutical managers, including a responsible pharmacist for the Medical Depot, the Provincial Head of Pharmaceutical Services, and five district pharmacists representing each of the five districts.
- The District Managers group inclusive of all five District Managers and the Manager of the Medical Depot who were all professional nurses by profession.
- The core function of the study population is to ensure provision of quality health services and medicines to the Free State Communities within a district level setting.

5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS

The research findings based on the data analysis indicate that medicines were not always available in the district health services, in particular at community health centres

and primary health clinics. District hospitals were found to have satisfactory medicine availability.

The following factors affected negatively the availability of medicines:

- Poor medicine stock management
- Late deliveries from the Medical Depot
- There is a poor communication amongst the role players
- Lack of electronic ordering systems
- Duplication of patients
- Medicine theft
- Transport
- Departmental red tape

Below is the summary of the key findings:

5.3.1 Poor medicine stock management

The study's findings indicate that the inadequate availability of pharmacists and pharmacists' assistants in clinics and community health centres resulted in poor medicine stock management as the professional nurses were unable to render health services whilst at the same time carrying out medicine ordering and stock control duties. It has been accepted that the reason therefore is insufficient availability of pharmacists and pharmacists' assistants to manage the medicine supply chain at Primary Health Care level (NDOH 2011:68).

Matse (2006:52) found that there were tracer medicine shortages in the Mopani District's (Limpopo) PHC facilities. The inadequate stock level monitoring system, long chain of order processing via the district offices, and lack of delegation coupled with no insight into budget allocated for medicines by the clinic managers and delayed deliveries from the warehouses were cited as contributing factors to inadequate medicine availability at the primary health care level. Baloyi (2009:94) reported that shortage of medicine in primary health care seriously affects service delivery in that patients become disappointed and lose confidence in the health services, affecting

treatment outcomes adversely and lowering the staff morale. The non-availability of pharmacy personnel in the primary health care setting, poor stock control and lack of financial delegations were cited as factors affecting the availability of medicines (Strengthening Pharmaceutical Services 2008:42).

Another study also found that the factors contributing to the low availability, especially in the clinic setting, include poor stock control and management in nurse-led primary health clinics, lack of pharmacists' assistants to take charge of drug supply management (Pure Health Consulting 2012:97). In facilities where pharmacists and pharmacists' assistants are employed there is generally adequate medicine availability.

5.3.2 Late deliveries from the Medical Depot

The delay in the delivery of ordered medicines was found to be due to various reasons, including medicine stock out at the Medical Depot caused by non-finalisation of medicine suppliers' contracts, non-payment of the suppliers, as well as the distribution company contract and end of the year financial closures for stock take during which the Medical Depot does not handle orders or issue medicine to any facilities.

Elamin et al (2010:36) reported that public health facilities were reported to experience less availability of medicines due to poor financial support for transportation and distribution from the central medicine store to the pharmacies.

The delayed deliveries from the Medical Depot were reported to be due to poor human resources availability as well as closure for stocktaking purposes and failure of suppliers to meet the depot demands due to stock outs or inadequate tender processes leading to long delivery periods from the time of order by the facilities (Section 27 2012:21).

5.3.3 Poor communication amongst the role players

Medicine was reported to be available at times at the Medical Depot, but not at the facilities. Communication was cited as the main contributing factor to this situation despite the availability of standard operating procedures stating the communication channels and platforms to be used for medicine supply purposes. The problem of the lack of permanent pharmacists in district hospitals and community health centres in

particular leads to new community service pharmacists being placed in facilities with no knowledge and initial orientation on the procedures for ordering and communication systems of government. Lack of communication between the Medical Depot and health facilities, especially in terms of stock availability, was noticeable in provinces with low medicine availability (Strengthening Pharmaceutical Services 2008:39). Pure Health Consulting (2012:129) noted that improved communication through involvement of all role-players in medicine stock management including finance, programme managers and pharmacists, and adjustment of issuing quantities during limited stock period were positive contributory factors in above average medicine availability in the North West and Western Cape.

5.3.4 Lack of electronic ordering systems

The Free State Province as a whole does not have an electronic medicine supply, monitoring and ordering system to be able to monitor stock levels and automatically generate orders when the ordering level is reached.

The district pharmacists and the Medical Depot depend on the end users to submit medicine needs manually. This can take time as orders are placed once in a month or even every second month.

The lack of the electronic ordering and monitoring systems increase the likelihood that those facilities that do not order consistently will not have medicines and the possibility that other facilities could be overstocked whilst another facility in the same area is under stocked due to lack of electronic monitoring systems.

An efficient and computerised central purchasing system is highly recommended to improve medicine availability in the public sector. Western Cape and North West was shown to have above 95% medicine availability. The factors that contributed to this include electronic stock management, close monitoring, and weekly reporting on stock availability (Pure Health Consulting 2012:129).

The absence of an electronic ordering system which plays a role in effective ordering and monitoring of stock was mentioned as a contributory factor in poor medicine availability as some facilities would order without any reference, placing orders

arbitrarily or based on experience(Strengthening Pharmaceutical Services 2008:39). Successful computerisation of medicine supply management has the potential to greatly increase an organisation's efficiency and capability for ensuring consistent medicine availability (MSH 2011:50:18).

5.3.5 Duplication of patients

Patients are said to occasionally visit a number of clinics for the same condition without allowing the prescribed treatment to take effect. By doing so they attempt to present a chronic illness in order to be assessed favourably to qualify for government disability grants. Furthermore, due to personal preference for particular health professionals who may not be present at the time of the patient's visit, the patients would come back repeatedly and be issued medicine with each visit. The increase in the numbers of patients visiting primary health care due to health policy changes post democratic government, which classified primary health services as free, and the medicine shopping behaviour by the patients visiting more than one facility without allowing the original prescription to take effect was reported to also have had a role in the Limpopo province's non-availability of medicine (Baloyi 2009:28).

5.3.6 Medicine theft

There have been few reported incidences of medicine theft in the Free State District Health Services. It has been established in Nigeria that a significant proportion of essential medicines meant for Primary Health Care are misappropriated or diverted by health workers, especially the storekeepers and those at the dispensaries, either for personal use or theft (Oluabunwa 2008:7). Another confirmation of possible leakages and theft of medicines in the health facilities was the acceptance and prevalence of inadequate management, security, and controls in KwaZulu-Natal's Pharmaceutical Services leading to increased risk of leakage and theft. The situation is made worse by the inadequate availability of experienced pharmacists in the facilities resulting in junior personnel, often Community Service Pharmacists, running the pharmacies (KZNDOH 2012:44).

5.3.7 Transportation of medicine across the Free State province

The transportation of medicine in the province is not without challenges as the Medical Depot tender for the distribution of medicines has not been finalised. The scope of the distribution company is to transport from the Depot to the facilities only, but transportation of medicines from one facility to another, as well as outside schedule dates for the current contractor for distribution, remains the individual facility's responsibility. This leads to delays as suitable transport for medicine is not available. Thus, at time facilities may not have medicine because of lack of transport whilst the depot or the neighbouring facility has stock to supply.

Inefficient transport and distribution systems were reported as one of the factors leading to frequent stock outs in India (Kotwani et al 2007:652). In a study by Strengthening Pharmaceutical Services (2008:37) it was reported that, although there was a delivery roster at the depot, the transport of medicine from the depot to the districts and within the districts to clinics appeared to be a challenge. In the districts there was no dedicated means of transport to deliver medicine from hospitals to clinics. In most instances medicines were delivered through patient transport and ambulance or staff's own transport with serious implications on the lead times.

5.3.8 Departmental Red Tape

Facility managers have limited delegations for medicine procurement and the authority for approval of orders lies with District Managers and Pharmacists. As a result it takes a long time for orders to be finalised.

Furthermore, the requirement of procurement from small-, micro-, and medium enterprises expose the department to second level suppliers increasing both the cost of and turnaround time for delivery of medicine. The availability could be improved if the department could reduce the red tape and long processes by allowing the facility managers to authorise orders for medicines at facility level.

In 2008 Kangwana et al (2009:737), in a study conducted to investigate the availability of malaria medication in government facilities, found that 25,6% of the surveyed facilities did not have any of the four treatment packs in stock. The factors contributing

to this stock out were mainly due to procurement failures and delays due to shift from direct procurement to open tender processes which was intended to achieve value for money and increase competition.

5.4 CONCLUSIONS

The research results demonstrate that there is inadequate availability of medicine in district health services due to various factors, including a shortage of pharmacists and pharmacists' assistants in the primary health setting, lack of delegation, red tape in the procurement of medicines, and lack of an electronic medicine procurement and monitoring system.

5.5 RECOMMENDATIONS FOR IMPROVING MEDICINE AVAILABILITY IN THE FREE STATE DISTRICTS' HEALTH SERVICES

Separate recommendations will be presented for the Free State Department of Health, District Health Services and further research.

5.5.1 Recommendations for the Free State Provincial Department of Health

- **The Medical Depot and Pharmaceutical Services should be one department**

The Free State Department of Health should consider merging the two departments into one department for efficiency.

To ensure adequate availability of medicines selection, procurement, use, and distribution of medicines should be coordinated seamlessly without breakdown or separation(MSH 2011:1:8).This is not the case in the Free State, as Pharmaceutical Services and Medical Depot are located in different clusters. The provision of medicine in eight of the nine provinces is coordinated by one unit comprising of Pharmaceutical Services and the Medical Depot together to promote efficiency and consistent medicine availability.

- **Improve teamwork and communication amongst role players in medicine supply**

Based on the fact that Pharmaceutical Services, health facilities and the Medical Depot are located in various clusters, it is recommended that formal communication forums are established and sustained. These include standing multidisciplinary medicine supply management meetings, written circulars and memos, as well as teamwork through collaboration and secondment of staff during delayed delivery periods to ensure that medicine availability information and medicines reach all key stakeholders on time to minimise interruptions and stock out in the facilities.

- **Invest in an IT system for medicine stock management**

The problems of medicine stock management and delays in ordering can be improved by the introduction of the electronic medicine supply system to strengthen availability. Strengthening Pharmaceutical Services (2008:42) highly recommends the use of computerised medicine supply management systems to improve medicine availability.

- **Finalisation of distribution transport contract**

The distribution transport contract should be finalised so as to ensure consistent delivery of medicine to health facilities. Lufesi et al (2007:86) reports that the main factors contributing to the medicine shortages are poor deliveries from the Regional Medical Store, poor medicine stock management practices and delay in the ordering, as well as lack of training and supervision in the facilities and the medical stores. The authors recommend that logistical systems should be put in place to ensure continuous medicine availability.

- **There should be a proper Service Level Agreement with the Medical Depot**

The standard delivery periods as well as payment terms and deadlines for medicines delivered to the facilities should be documented and agreed on with clear penalties and responsibilities between the department health facilities and the Medical Depot to improve medicine availability. There should be clear responsibilities and penalties for all involved in the provision of medicines, especially the facilities management, who should

ensure payment of the medicine account within 30 days to ensure that the depot has adequate cash reserves and can pay its suppliers on time. The Medical Depot should ensure that stock is available and delivered within a six week period of the placing of the order. This can only be achieved once the Service Level Agreement is approved and implemented in the province.

- **The Medical Depot should keep sufficient stock and buffer stock for all the essential and fast moving items to cover for delays in deliveries from the suppliers**

For consistent availability of medicine the Medical Depot should be able to meet the demands of the users at all times. The Medical Depot should keep sufficient stock and buffer stock for all the essential and fast moving items to cover for delays in the deliveries from the suppliers. The high availability of medicine in Sudan was enhanced by the existence of a central medicines store, which is a governmental corporation responsible for ensuring that quality medicines are available at affordable prices through, amongst others, strategies creation of dedicated funding for medicines and implementation of good procurement, storage, transportation, and distribution practices.

In areas where there was less availability of medicine the factors were due to the absence of drug (medicine) inventory cards, poor financial support for transportation, and distribution from the central medicine store to the pharmacies(Elamin *et al* 2010:36).

- **There should be regular meetings between the role-players in medicine supply, in particular the suppliers**

The Medical Depot should also engage the suppliers through standing meetings to address any bottlenecks that may occur at times impacting on the medicine stock provision. The Medical Depot, facilities, supply chain, and Pharmaceutical Services should meet periodically for discussions, updates, and resolution of system red tape processes to address the challenges encountered by the facilities in the provision of medicines.

- **The Medical Depot should be enabled to function efficiently**

The Department should ensure payment for medicines received within 30 days of receipt of invoices to enable the Medical Depot to maintain a healthy cash flow for payment of suppliers so that no deliveries are withheld because of non-payment. Lufesi et al (2007:86) recommend that logistical systems including, those of the Medical Depot, should be put in place to ensure continuous medicine availability.

- **Reduce red tape in the procurement of medicines**

The province should review the departmental financial delegations to allow authorisation of orders at facilities and consider entering into contracts with primary suppliers and manufacturers of medicines instead of the procurement of medicines from SMMEs, as well as exemption of medicines from the three quotation requirement, as certain medicines are only available from one supplier.

5.5.2 Recommendation for the District Health Services

- **Make provision for appointment of permanent pharmacists and pharmacists' assistants across the district health services**

The province should ensure that there are sufficient posts for appointment of pharmacists and pharmacists' assistants for all levels of care, including primary health care and community health centres, to enhance medicine availability and ensure that medicine stock ordering and management is not a secondary function of the professional nurses who may forget to place orders or rotate stock to prevent expiry of medicines.

An investigation on the availability of ARVs and tuberculosis medicines in the South African health system reported that the factors contributing to the low availability, especially in the clinics setting, were poor stock control and management in nurse-led primary health clinics, lack of pharmacists' assistants to take charge of drug supply management. Lack of electronic stock management systems also played a role as the manual stock card was found not to be updated in most facilities (Pure Health Consulting 2012:97).

In another investigation on general medicine shortages the insufficient availability of pharmacy personnel in the public health system was also reported to be amongst the contributing factors in the non-availability of medicine in the district health services, as nursing personnel tend to prioritise the service delivery and lag behind with consistent ordering of replacement medicine stock as well as following up on placed orders for uninterrupted supply and availability of medicines (Strengthening Pharmaceutical Services 2008:29).

- **Establish a Mini Depot in each district**

The provision of medicines from one central depot was reported as one of the areas to be reviewed as the Free State province's districts are wide and far apart. The recommendation was that there should be a mini depot (warehouse with bulk stock from the main depot), at least one in each district, so that the medicine store is closer to the facilities, thus reducing the long awaiting delivery period.

Oakland (2011:71) proposes that the suppliers of goods and services (in our case medicine) should be located near service delivery points, delivering frequent small quantities to match the service delivery requirements, leading to reduced lead times and deliveries being more reliable.

- **Managers need to be empowered to effectively and efficiently manage medicine stock in the facilities**

All facility managers need to be capacitated and trained in budget management and medicine supply management and given the necessary delegations to authorise the procurement of essential supplies, including medicines, without having to transfer documents to the district management to improve lead times for orders processing. The capacity building for health facilities management will have an impact on effective management of medicines (Strengthening Pharmaceutical Services 2008:43).The capacity building could be provided by the partners including Management Sciences for Health.

5.5.3 Recommendations for further research

Further research should be conducted on the following:

- Strategies to improve medicine availability in district health services.
- Other provincial district health services on the factors affecting medicine availability.

5.6 CONTRIBUTION OF THE STUDY

This study contributes to the field by exposing the factors affecting medicine availability in district health services and enabling the district pharmacists and managers to reflect on their role in the provision of medicines and make recommendations for improving medicine availability. The consistent availability of medicines is a non-negotiable service delivery imperative for the South African Department of Health and a vital standard for certification and accreditation for National Health Insurance of health establishments by the Office of Health Standards Compliance. The study is also the first of its kind to explore the whole provincial situation on medicine availability in the South African context.

5.7 LIMITATION OF THE STUDY

The study was conducted in one province in South Africa and reflects the findings in the context of the Free State.

It is up to the reader of this report to attach meaning and understanding of factors affecting medicine availability taking into account their own context as other provincial situations may be different. Further study should be conducted in the other provincial district health services context to explore the factors affecting medicine availability nationally.

5.8 CONCLUDING REMARKS

The findings of this study has demonstrated that medicine availability is not in line with National Drug policy definitions requiring consistent availability of essential medicines, including HIV and AIDS medication, tuberculosis medication, vaccines, and chronic conditions medicines.

The non-availability of medicine contributes to poor service user satisfaction and patient disease complications, thus reducing life expectancy for the communities. It is therefore advisable that the provision of medicines should be improved through recommendations from this study, including the deployment of pharmacists and pharmacists' assistants to district health services facilities and also empowerment managers for effective and efficient management of medicine supplies.

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