

# MANAGERS' PERCEPTIONS OF THE AVAILABILITY OF MEDICINES IN THE FREE STATE DISTRICT HEALTH SERVICES

**S. M. Zuma, MA Health Studies**

Department of Health Studies, University of South Africa

**L. M. Modiba, DCur**

Department of Health Studies, University of South Africa  
modiblm@unisa.ac.za

## ABSTRACT

The purpose of this study was to explore and to describe perceptions of pharmaceutical service managers and district managers regarding factors influencing the availability of medicines within the district health services of the Free State province. A qualitative, descriptive, exploratory and contextual research design was followed. Data collection was conducted through two focus group discussions consisting of pharmaceutical managers and district health services managers, respectively. The collected data were organised and analysed by means of an inductive model where the data that were relevant to the topic had to be grouped into appropriate and meaningful categories. This was enhanced by the use of X Sight, a software package developed for the analysis of qualitative data. 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 pharmacist 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. The study made recommendations on how to improve medicine availability within the district health services.

**Keywords:** district health services; district managers; medical depot; medicine; pharmaceutical services manager; strategic health programmes

## INTRODUCTION AND BACKGROUND INFORMATION

During May 2010, South Africa experienced a shortage of over 80 medicinal items in the public health sector, which included, among 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 (Free State Department of Health (FSDOH) 2010, 41).

In the Free State District Health Services, medicine availability reached an average of 45 per cent during April 2009 resulting in patients dying while on the waiting list for antiretroviral medication (FSDOH 2009, 1). Twelve per cent (12%) of the clients that visited the 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. According to the Management Science for Health (MSH), investigation of the problem seemed to be arising from various internal factors rather than external factors and needed to be investigated to prevent recurrence in the future (MSH 2010, 3). Subsequently, the insufficient procurement and distribution of medicines were identified as being among 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 that emphasised the need to ensure sufficient availability of medication at an acceptable norm of 95 per cent for essential medicine (FSDOH 2010, 49). As part of its medium term strategic framework, the South African National Department of Health released its priorities for the period 2009 to 2014. Also known as the 10 Point Plan, the priorities are intended to assist the country in meeting the Millennium Development Goals (MDGs) and monitoring improvements in the health system.

### Statement of the Research Problem

In 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. This is stressed by Bradshaw, Nannan, Laubsher, Groenewald, Joubert, Nojilana, Norman, Pieterse and Schneider (2000, 5), namely, that the non-communicable disease is 39 per cent while 33 per cent account for communicable diseases in the Free State province. Furthermore, no formal study has yet been conducted in the province to establish the cause of the problem.

## Research Questions

- What are the perceptions of the managers in the Free State province with regard to problems that contribute towards insufficient availability of medicine in the District Health Services?
- How can the Free State Department of Health ensure sufficient medicine availability in the District Health Services of the Free State?

## Significance of the Study

It is anticipated that, from the perceptions described, the study will contribute to the identification of some factors and a better understanding affecting medicine availability in district health services and enabling the district pharmacists and managing establishment of a more uniform medicine provisioning system for the Free State Department of Health. The intention is to improve the overall availability of medicine in various healthcare facilities within all five districts.

## Purpose of the Study

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

The study objectives were to:

- Explore and describe the perceptions of the pharmaceutical service managers and district managers about the availability of medicine in the various Free State district health services.
- 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.

## Definitions

**District health services** are components of the health system responsible for promotion and co-ordination of the development of the district health system, monitoring the implementation of primary healthcare, and activities related to the integrated sustainable rural development programme and the urban renewal programme (NDOH 2011, 17). The service package of health services offered ranges from primary health clinic to the district hospital level.

**District managers** are persons designated as the responsible manager for the district health services and can be defined as managers within one of the five districts of

the Free State in charge of the healthcare services and responsible for health-related programmes (NDOH 2011, 17).

**Medical depot** refers to the entity including the warehouse, under the administrative control of the province, which stores and distributes pharmaceuticals, medical consumables and medical stationery on behalf of the Department of Health to demanders (FSDOH 2013, 3).

**Medicine** means any 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 or mental state or the symptoms thereof in human beings, or restoring, correcting or modifying any somatic or psychic or organic function in humans, and includes any veterinary medicine (Medicine and Related Substances Act 101 of 1965 as amended).

**Pharmaceutical service manager** is a pharmacist responsible for the management of pharmaceutical services within a public health facility (SAPC 2010, 30).

**Strategic health programmes** refer to the priority clinical programmes, including HIV and AIDS, TB Communicable and Non-communicable Disease (NDOH 2011, 16).

## RESEARCH METHODOLOGY

The study adopted the qualitative exploratory, descriptive and contextual research design. It was chosen to allow for the respondents to share the perceptions of the pharmaceutical service managers and district managers in order to produce quality research information. For the purpose of this study, the researcher conducted focus groups with the pharmaceutical service managers and district managers.

Purposive sampling was used to identify and select the individuals that have more information than the regular group members (Welman, Kruger and Mitchell 2005, 204). The selected subjects were the information rich cases.

For this study, the selected participants were the five districts pharmaceutical managers, 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 healthcare facilities as well as being the custodians and originators of the reports on medicine availability. The second group comprised the five district healthcare managers and manager medical depot as the key informants responsible for provision of health services within the first level of care, who were all professional nurses.

## Data Collection

Wimmer and Dominick (2006, 128–130) indicate that the focus group is a research strategy for understanding audience attitudes and behaviour where no more than 12 people are interviewed simultaneously by a moderator leading the participants in a relatively unstructured discussion about the focal topic. Focus groups have various advantages. These include the wealth of information that can be gained, the minimal cost of the group and the flexibility in question design and follow-up. 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 participants. The facilitator was allowed to ask follow-up questions or probe participants' comments during the session to gain further insight. The two focus interviews took place in a relaxed environment at a facility in Bloemfontein and were digitally recorded for reference purposes as well as for transcribing the discussions. This is essential in the analysis of the data. The questions in the interview guide focused on the following key areas: understanding of the concept medicine availability, the shortage of medicines, the average level of medicine availability in the district, difference in availability of medicines in other districts, the effects of unavailability of medicines, and any suggestions to improve medicine availability.

## Data Analysis

De Vos, Strydom, Fouché and Delpont (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 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 (Cresswell 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 was the discovery of patterns among the data to promote a theoretical understanding of social life (Barbie 2010, 400).

Data were collected from the transcripts made from the digital recordings and notes that were collected during the focus groups. The collected data were organised and analysed by means of an inductive model where the data 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). Data analysis for this study utilised the spiral model as proposed by Cresswell (2013, 182–188) as given below.

## 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 writing memos

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 perceptions 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 them. 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.

## Trustworthiness

Trustworthiness is about the extent to which the study has the potential to produce credible findings and interpretation of phenomena under study. According to Lincoln and Guba (1985), credibility includes activities that increase the probability of credible findings. Credibility can also be enhanced by returning to the participants to assess whether they recognise the findings (Streubert and 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 was reported are the views of the participants.

Confirmability is the extent to which the research findings can be verified or confirmed by another person (Marshall and 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.

According to Wimmer and Dominick (2006, 27), transferability is the level to which the results can be generalised to the population. Transferability was 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.

## Ethical Considerations

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

Ethical clearance for this study was obtained from the Higher Degrees Committee of the Department of Health Studies, University of South Africa (reference HSHDC/61/2012). In addition, approval to conduct the study was subsequently obtained from the Head of Department of the Free State Department of Health.

## PRESENTATION OF THE RESEARCH FINDINGS

**Table 1:** Presentation of the research findings themes

<b>Theme</b>	<b>Sub-theme</b>
Medicine availability is understood differently in practice	<ul style="list-style-type: none"> <li>• All patients receive all the medications they need</li> <li>• From the Medical Depot's side, medicine is sufficiently available when they can satisfy 100% of the demand</li> <li>• The availability should be in line with international standards</li> </ul>
Medicine availability differs in each district	<ul style="list-style-type: none"> <li>• There is general acceptance that medicine availability in hospitals is within the required standards</li> <li>• The availability in Community Health Centres is below acceptable standards</li> <li>• The availability in primary health clinics is far below the required standards</li> </ul>
Certain medicines should always be available	<ul style="list-style-type: none"> <li>• Tuberculosis</li> <li>• Antiretroviral</li> <li>• Vaccines</li> <li>• Chronic diseases</li> </ul>
Certain factors negatively affect the availability of medicines	<ul style="list-style-type: none"> <li>• Poor medicine stock management</li> <li>• Late deliveries from the Medical Depot</li> <li>• There is poor communication among the role players</li> <li>• Lack of electronic ordering system</li> <li>• Duplication of patients</li> <li>• Medicine theft</li> <li>• Transport</li> <li>• Department red tape</li> </ul>
Non-availability of medicine is negative towards patient care outcomes	<ul style="list-style-type: none"> <li>• Medicine shortages definitely affect department reputation and patient well-being</li> <li>• The quality of work life for frontline workers is adversely affected</li> </ul>
Suggestions for improving medicine availability in the Free State district health services	<ul style="list-style-type: none"> <li>• The Medical Depot should supply what is ordered</li> <li>• There should be experienced people and pharmacist assistants at the clinics</li> <li>• The Medical Depot and Pharmaceutical Services should be one department</li> <li>• Invest in an IT system for medicine stock management</li> <li>• There should be a proper service level agreement with the Medical Depot</li> <li>• Establish a mini depot in each district</li> <li>• Teamwork and communication should be improved</li> <li>• There should be regular meetings between the role players</li> <li>• Reduce red tape in the procurement of medicines</li> <li>• Managers need to be empowered to manage medicine supply</li> </ul>



## Discussion of Results

Data from the focus groups' interview transcripts were grouped into six main themes: Medicine availability is understood differently in practice, medicine availability differs in each district, certain medicines should always be available, certain factors negatively affect the availability of medicines, non-availability of medicine is negative towards patient care outcomes, and suggestions for improving medicine availability in the Free State District Health Services.

### 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. 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 are available at all times (WHO 2011a, 2). From the Medical Depot's side, medicine is sufficiently available when they can satisfy 100 per cent 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 per cent 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.

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

The department stipulated that medicine availability should be at least at 95 per cent for essential medicines, including the following critical medicinal items: chronic treatment (diabetes, asthma, and hypertension), immunisation vaccines, anti-retroviral 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).

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 are critical and which the people cannot get.”

The average of 95 per cent was accepted as a provincial norm as the majority of participants agreed:

“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 on the department.”

The provincial target remains below the international and national norm of 100 per cent 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 are available at all times (WHO 2011a, 2).

## Medicine availability differs in each district

The availability for the year ending March 2011 was as follows in the different districts. 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. The 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 healthcare clinics, community health centres and district hospitals in the districts, as the skills and knowledge of medicine supply management differ as well as the type of medicine to be available.”

“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.”

Baloyi (2009, 94) reports that a shortage of medicine in primary healthcare 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 healthcare, 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).

### **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, antiretrovirals, medication for chronic diseases, and vaccines.

An expert supported the theme:

“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.”

One pharmacist emphasised:

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

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).

### **Certain factors negatively affect the availability of medicines**

The following were identified as factors affecting the availability: poor medicine stock management, late deliveries from the Medical Depot, poor communication among the role players, lack of electronic ordering system, duplication of patients, medicine theft, transport, and Department red tape.

There is an indication that the inadequate availability of pharmacists and pharmacist assistants in clinics and community health centres resulted in poor medicine stock management as the professional nurses were unable to render health

services while at the same time carrying out medicine ordering and stock control duties. This was highlighted by the following expert:

“Not all of them have pharmacist 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.”

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 taking (when the Medical Depot does not handle orders or issue medicine to any facilities). One participant said:

“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.”

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. This was confirmed by one participant:

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

Pure Health Consulting (2012, 129) noted that improved communication through involvement of all role players in medicine stock management including finance was necessary.

The lack of electronic ordering and monitoring systems increases the likelihood that those facilities that do not order consistently will not have medicines and the possibility that other facilities could be overstocked, while another facility in the same area is understocked due to lack of electronic monitoring systems. This is confirmed by the following expert:

“The clinics often have trouble to stay in contact with other facilities due to resource challenges [and] 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.”

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).

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. This is supported by the following expert:

"Patients prefer to see a doctor rather than nurses after being seen by a nurse in clinic A, the following day the same patient go to clinic B because they know the doctor is there and they get duplication of medicines."

The increase in the numbers of patients visiting primary healthcare due to health policy changes in the 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).

There have been few reported incidences of medicine theft in the Free State District Health Services. This is supported by this expert:

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

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. One participant said:

"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."

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 times, facilities may not have medicine because of lack of transport while the depot or the neighbouring facility has stock to supply.

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.

## Summary

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 pharmacist 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.

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

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

### RECOMMENDATIONS FOR THE FREE STATE 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, and use, distribution of medicines should be coordinated seamlessly without breakdown or separation (MSH 2011, 1–8). However, this is not the case in the Free State, as pharmaceutical services and the medical depot are located in different clusters. The provision of medicine in eight of the nine provinces is coordinated by one unit comprising pharmaceutical services and the medical depot together to promote efficiency and consistent medicine availability.

#### **Improve teamwork and communication among 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 be 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 introducing an 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, Andrew and Aursnes (2007, 86) report 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 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, which 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. Moreover, 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, among others, strategies to ensure 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, Ibrahim and Yousif 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 deal with 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 deal with 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 payments to 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 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 small, micro and medium enterprises (SMMEs), as well as exemption of medicines from the three-quotation requirement, as certain medicines are only available from one supplier.

## **RECOMMENDATIONS FOR DISTRICT HEALTH SERVICES**

### **Make provision for appointment of permanent pharmacists and pharmacist assistants across the District Health Services**

The province should ensure that there are sufficient posts for appointment of pharmacists and pharmacist assistants for all levels of care, including primary healthcare and community health centres, to enhance medicine availability and ensure that medicine stock ordering and management are 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, and lack of pharmacist 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 among 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 waiting delivery period.

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

## **RECOMMENDATIONS FOR FURTHER RESEARCH**

Further research should be conducted on the following:

## Strategies to improve medicine availability in district health services

As revealed in this study there are identified factors that contribute to poor availability of medicines in the Free State. Based on these results, certain strategies can be formulated in order to improve availability of medicines in the province. This can be achieved by reviewing certain strategies that are implemented in other provinces/countries to see if they work in this province. The existing paradigm for improving access to medicines is not working.

## Other provincial district health services on the factors affecting medicine availability

As this research was only done in the Free State province, more research can be conducted in other provinces conducting quantitative research to see if it will illicit the same or different results.

## 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 province. This cannot be generalised to the rest of South Africa. It is up to the readers of this article to attach meaning and understanding of factors affecting medicine availability, taking into account their own context as other provincial situations may be different.

## CONCLUDING REMARKS

The findings of this study have 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 advised that the provision of medicines be improved through recommendations from this study, including the deployment of pharmacists and pharmacist assistants to district health services facilities and also empowerment of managers for effective and efficient management of medicine supplies.

## ACKNOWLEDGEMENTS

The researchers would like to acknowledge the participants in this study, the University of South Africa for the bursary, and the Free State Department of Health for access and permission to conduct the research.

## REFERENCES

- Baloyi, L. F. 2009. "Problems in Providing Primary Healthcare Services: Limpopo Province." Master's dissertation, University of South Africa.
- Barbie, E. 2010. *The Practice of Social Research*. 12th ed. USA: Belmont Wadsworth.
- Bradshaw, D., N. Nannan, R. Laubsher, P. Groenewald, J. Joubert, B. Nojilana, R. Norman, D. Pieterse, and M. Schneider. 2000. "South African National Burden of Disease Study. Estimates of Provincial Mortality. Free State Province." <http://www.mrc.ac.za/bod/freestate.pdf> (accessed 13 June 2012).
- Cresswell, J. W. 2013. *Qualitative Inquiry and Research Design*. 3rd ed. Los Angeles: SAGE.
- De Vos, A. S., H. Strydom, C. D. Fouché, and C. S. L. Delpont. 2005. *Research at Grass Roots: For the Social Sciences and Human Service Professions*. 3rd ed. Pretoria: Van Schaik.
- Elamin, I. E., M. I. M. Ibrahim, and M. I. M. Yousif. 2010. "Availability of Essential Medicines in Sudan." *Sudanese Journal of Public Health* 5 (1): 32–37.
- Free State Department of Health. 2012a. *Availability of ARV and TB medicines in the Free State*. Bloemfontein, Free State. Republic of South Africa.
- Free State Department of Health. 2012b. *Annual Report 2011/2012*. Bloemfontein, Free State: Republic of South Africa.
- Free State Department of Health. 2010. *Strategic Plan 2010–2014*. Bloemfontein, Free State: Republic of South Africa.
- Free State Department of Health. 2009. *April Medicine Availability Report*. Bloemfontein, Free State: Republic of South Africa.
- Free State Provincial Government 2012: *Annual Report for 2012*. Bloemfontein, Free State: Republic of South Africa.
- Kangwana, B. B., J. Njogu, B. Wasunna, S. V. Kedenge, D. N. Memusi, C. A. Goodman, D. Zurovac, and R. W. Snow. 2009. "Short Report: Malaria Drug Shortages in Kenya: A Major Failure to Provide Access to Effective Treatment." *American Journal of Tropical Medicine and Hygiene* 80 (5): 737–738.
- Lufesi, N. N., A. Andrew, and I. Aursnes. 2007. "Deficient Supplies of Drugs for Life Threatening Diseases in an African Community." *BMC Health Services Research* 7 (86): 1–7. <https://doi.org/10.1186/1472-6963-7-86>

- Marshall, C., and G. B. Rossman. 2011. *Designing Qualitative Research*. 5th ed. Thousand Oaks, California: SAGE.
- Matse, P. M. 2006. "Factors Associated with Drug Shortages in PHC Facilities in the Mopani District of the Limpopo Province." Master's dissertation, University of the Witwatersrand.
- National Department of Health (Republic) South Africa. 2011a. *Annual Report 2010/2011*. Pretoria: NDOH.
- National Department of Health (Republic) South Africa. 2011b. *National Core Standards for Health Establishments in South Africa*. Pretoria: NDOH.
- National Department of Health (Republic) South Africa. 2009a. *Strategic Plan 2009–2014*. Pretoria: Government Printers.
- National Department of Health (Republic) South Africa. 2009b. *Health Programme of Action*. Pretoria: Government Printer.
- Oakland, J. S. 2011. *Tqm Text with Cases*. 3rd ed. Burlington: Elsevier.
- Ohuabunnwa, M. S. I. 2010. *The Challenges of Making Quality Essential Drugs and Supply Available for PHC Services in Nigeria*. <http://apps.who.int/medicinedocs/documents/s18398en/s18398en.pdf> (accessed 13 June 2012).
- Oxford South African Concise Dictionary*. 2007. Cape Town: Oxford University Press Southern Africa.
- Oxford Advanced Learner's Dictionary*. 7th ed. 2005. Oxford: Oxford University.
- Pure Health Consulting. 2012. *Pharmaceutical Management of TB in South Africa; Rapid Assessment Conducted in 7 Provinces*. Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health.
- QSRI. 2008. "XSight Data Analysis Software." <http://www.qsrinternational.com/products/xsight.aspx> (accessed 3 January 2012).
- Strengthening Pharmaceutical Services. 2008. *Report on the State of Availability and Delivery of Pharmaceuticals in the Northern Cape Province*. Pretoria: Strengthening Pharmaceutical Systems/Management Sciences for Health.
- Streubert, H. J., and D. R. Carpenter. 2011. *Qualitative Research in Nursing – Advancing the Humanistic Imperative*. 5th ed. Philadelphia: Lippincott Williams and Wilkins.
- The Survey Workshop. 2010. *Patient Satisfaction Survey in Provincial Health Care Facilities*. Bloemfontein: The Survey Workshop.
- Welman, J. C., F. Kruger, and B. Mitchell. 2005. *Research Methodology*. 3rd ed. Cape Town: Oxford University Press Southern Africa.
- Wimmer, R. D., and J. R. Dominick. 2006. *Mass Media Research an Introduction*. 8th ed. Belmont: Thomson Wadsworth.