

**IDENTIFICATION, RESOLUTION AND MONITORING
OF BARRIERS TO THE AVAILABILITY OF
ESSENTIAL DRUGS AT PRIMARY HEALTH CARE
FACILITIES IN LEJWELEPUTSWA DISTRICT,
FREE STATE PROVINCE**

MINI – THESIS

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STUDENT: VICTOR MOLOTO

**DEPARTMENT: PUBLIC HEALTH
FACULTY: COMMUNITY and HEALTH SCIENCES**

UNIVERSITY of the WESTERN CAPE

SUPERVISOR: DR. GAVIN REAGON

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LIST OF ABBREVIATIONS

CMS	Central Medical Store
DHIS	District Health Information Service
DM	District Manager
DMC	Drug Management Cycle
DMIS	Drug Management Information System
DP	District Pharmacist
ECDS	Eastern Caribbean Drug Services
EDL	Essential Drug List
EDP	Essential Drug Programme
EDs	Essential Drugs
FSMD	Free State Medical Depot
KPA	Key Performance Area
LA	Local Area 
LAM	Local Area Manager
MOH	Ministry of Health
NDP	National Drug Policy
NEDL	National Essential Drug List
OECS	Organization of Eastern Caribbean States
PHC	Primary Health Care
PTC	Pharmacy and Therapeutics Committee
RDM	Remote Demanders Module
SOP	Standard Operation Procedure

TNC	Trans -National Corporations
USAID	United States Agency for International Development
USPHS	United States Public Health Services
WHO	World Health Organization
ZEDAP	Zimbabwe Essential Drug Action Programme



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SUMMARY

The availability of Essential Drugs (EDs) at Primary Health Care (PHC) facilities seems to be influenced by barriers within the supply system. These barriers frequently result in poor availability of essential drugs at PHC facilities. Protocols and Standard Operation Procedures for the supply of EDs to PHC facilities have been developed and implemented by health authorities in an attempt to ensure availability of EDs, but they have had little success.

This mini-thesis aimed to identify and propose resolutions to the barriers within the supply system of EDs, in a systematic manner that is participatory, encompassing parties involved in the supply process, at Lejweleputswa District, in the Free State Province.



The study utilised an Action Research methodology. Data was collected by making use of available documents, personal experience, observations, and conducting interviews both with individuals and groups. A facilitator assisted with running the group interview. Analysis of data was done concurrently with data collection, inductively, and also using content analysis. Based on the available documentary evidence, observations undertaken, personal experience and interviews held, barriers to and solutions for improving the supply of EDs were identified and prioritised. Thereafter, a workshop was held where the identified barriers and preferred solutions derived from the earlier analysis were further discussed. After further discussion the workshop decided on which solutions would be implemented and also decided on the monitoring and evaluation process to be followed to assess the adequacy of those solutions and to monitor drug supply in future.

The study found that there are barriers that are linked to the drug management processes within the district, whilst other barriers are linked to processes outside the district, for example, barriers linked to the Central Medical Store (CMS). The barriers and solutions were analysed and discussed within the framework of the popularly used Drug Management Cycle (DMC) approach. The study has revealed that barriers exist throughout the entire drug management cycle of selection, procurement, distribution, use and management support. These barriers and tentative suggested solutions have been outlined in table 4.

Several of these barriers/problems and tentative solutions identified were then prioritised for implementation and detailed solutions to them were devised at a workshop involving key stakeholders. It was hoped to develop an information system for monitoring the implementation of solutions and the monitoring of the drug supply system but this was not feasible due to time constraints.

It is hoped that the outcomes of this research will help not only Lejweleputswa District to improve their EDs supply, but might also serve to guide other districts or provinces with similar drug supply systems, in their endeavours to improve the availability of EDs at their PHC facilities.

1. INTRODUCTION

1.1 Role and value of Drugs in Health Care and PHC

The importance of the availability of Essential Drugs at all health facilities has been emphasised worldwide. According to Antezana (1992), primary health care can only be truly effective if even the most remote health centre can rely on receiving regular supplies of affordable drugs of good quality. Nakajima (1992), also support this view by stating that unless there is a regular supply of safe and effective drugs, public trust – and interest – in primary health care will rapidly deteriorate.

1.2 Value of Essential Drugs concept

In 1975, WHO defined essential drugs as “indispensable and necessary for the health needs of the population. They should be available at all times, in the proper dosage forms to all segments of society.” In 1978, the WHO conference at Alma Ata recognised essential drugs as one of the eight elements of primary health care (WHO, 1977).

The essential drugs concept embraces guiding principles that are consistent with a public health perspective, and these are:

- that the majority of health problems for most members of the population can be treated with a small, carefully selected number of drugs.
- that training and clinical experience should focus on the proper use of few drugs

- that procurement, distribution and other supply activities can be carried out most economically and most efficiently for a limited number of pharmaceutical products
- that patients can be better informed about the effective use of drugs when the number of drugs they are confronted with is limited.

1.3 Problems with the provision of Essential Drugs in PHC

The poor availability of medicines at public sector primary health care facilities has always been a concern for managers at facility level as well as for senior management. At one particular stage in the year 2002, 60% of medications prescribed at primary care level in South Africa were not available for dispensing. The unavailability of medicines ranged from those meant for minor ailments such as paracetamol, to those meant for chronic ailments such as hydrochlorothiazide for high blood pressure, phenytoin for epilepsy, and metformin for diabetes.

The poor availability of medicines at primary level public health facilities is a serious issue that results in many patients defaulting or missing their scheduled medications, especially chronic medications. Consequently, many citizens who often rely on these health facilities for necessary medications are denied access to this basic service, and as such lose confidence in and end up not using the facilities with a resultant poor control of their disease/ill health condition.

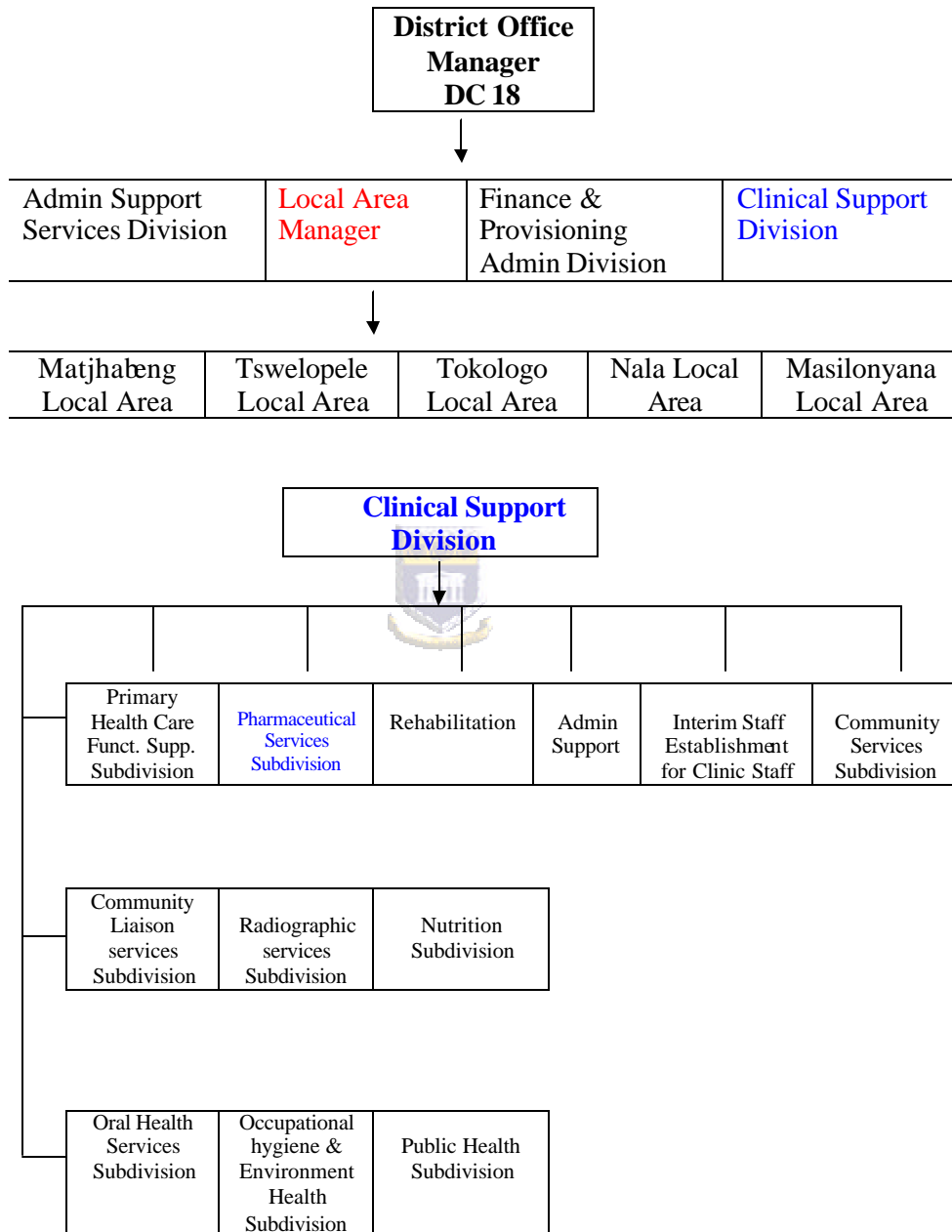
1.4 Overview of Lejweleputswa Health District

Lejweleputswa is one of the five health districts of the Free State province. The district management team is stationed in Welkom which is almost 160 km from the capital, Bloemfontein. This district is well known for its gold and diamond mining. All the gold and diamonds in the Free State are from towns located in this district such as Welkom, Virginia, Odendaalsrus, Allanridge and Theunissen, forming what is popularly known as the Free State Goldfields.

The population of Lejweleputswa is estimated as 741 546 for the year 2004, based on the 2001 census. The district consists of 16 towns spread over an area of 20 000 sq. km. There are 65 PHC facilities spread throughout the 16 towns. The names of the towns and the distances from the District Offices (Welkom), and from the capital Bloemfontein, are summarised in appendix 1.

The management structure of Lejweleputswa Health District is summarised in Figure.1 below:

Figure 1. Management Structure of Lejweleputswa Health District



The district is divided into 5 zones called Local Areas (LA). Each LA is under the supervision of a Local Area Manager (LAM). Clinic supervisors within a LA report to LAM, and the LAM reports to the District Manager (DM).

1.5 Overview of Pharmacy Services in Lejweleputswa Health

District

The Pharmaceutical Services component is responsible for the management of medicines supplies throughout the district. The District Pharmacist (DP) in the rank of a Chief Pharmacist heads this component. Procurement of medicines is done through the pull system. According to this system, clinics determine their needs of medicines and then send requisitions to the office of the DP. At the office of the DP, the requisitions get processed further, where they get captured and forwarded to the provincial medical depot electronically. The computer programme used for this processing is called the Remote Demanders Module (RDM). A financial committee that holds weekly meetings approves the finances for all procurement.

The pharmaceutical component ensures that standards in the management of medicines are maintained by health facilities. This is achieved through the development and implementation of guidelines and standard operation procedures (SOPs).

The management of medicines at 55 of the PHC facilities in Lejweleputswa Health District is done by nursing personnel, and at 10 PHC facilities it is done by qualified Pharmacist's Assistants.

Standard indicators within the EDPs are defined in the WHO manual called: ‘How to investigate Drug Use in Health Facilities’, (WHO/DAP, 1993). The manual defines twelve core and seven complementary drug use indicators. These indicators measure key aspects of drug prescribing, patient care, and availability of drugs and information at health care facilities. The core indicators are standardised and provide a simple tool for quickly and reliably assessing a few critical aspects of drug supply and use. The complementary indicators are less standardised and require defining variables specific to the country or location. Surveys are conducted to collect data for the indicators. The indicator survey is used to obtain a snapshot of current drug use practices to contrast with surveys from other areas or with “optimal” values for the indicators.



Figure 2 WHO Drug Use Indicators

Core Drug Use Indicators

Prescribing Indicators

1. Average number of drugs per encounter
2. Percentage of drugs prescribed by generic name
3. Percentage of encounters with an antibiotic prescribed
4. Percentage of encounters with an injection prescribed
5. Percentage of drugs prescribed from essential drugs list or formulary

Patient Care Indicators

6. Average consultation time
7. Average dispensing time
8. Percentage of drugs actually dispensed
9. Percentage of drugs adequately labelled
10. Patients' knowledge of correct dosage

Health Facility Indicators

11. Availability of a copy of essential drugs list or formulary
12. Availability of key drugs or tracer drugs

Complementary Drug Use Indicators

13. Percentage of patients treated without drugs
14. Average drug cost per encounter
15. Percentage of drug costs spent on antibiotics
16. Percentage of drug costs spent on injections
17. Prescription in accordance with treatment guidelines
18. Percentage of patients satisfied with the care they received
19. Percentage of health care facilities with access to impartial drug information.

Source: WHO/DAP 1993

According to the National Drug Policy document (1996), health care delivery in South Africa was characterised by a two-tier system of (1) private health care funded by medical schemes covering up to 20% of the country's population mostly whites, and (2) a public sector which was characterised by fragmentation, irrational use of resources, poor working conditions and inadequate infrastructure. The pharmaceutical sector, as a component of the health sector, reflected its deficiencies, most notably the lack of equity in access to essential drugs with a consequent impact on quality of health care.

The South African government tackled the pharmaceutical sector problem systematically through the development and implementation of a National Drug Policy (NDP) that forms an integral part of the National Health Policy, which aims at equity in the provision of health care for all.

The main aim of the NDP therefore, is to ensure an adequate and reliable supply of safe, cost-effective drugs of acceptable quality to all South African citizens. The NDP also attempts to ensure rational use of drugs by prescribers, dispensers and consumers. In January 1996, the Minister of Health launched the NDP followed by the Essential Drug Programme (EDP). The EDP is one element of the implementation of NDP aiming to provide the population of South Africa with EDs.

Surveys were carried out in all provinces between 1996 and 1998 to monitor the progress in the implementation of EDP. These were baseline studies and

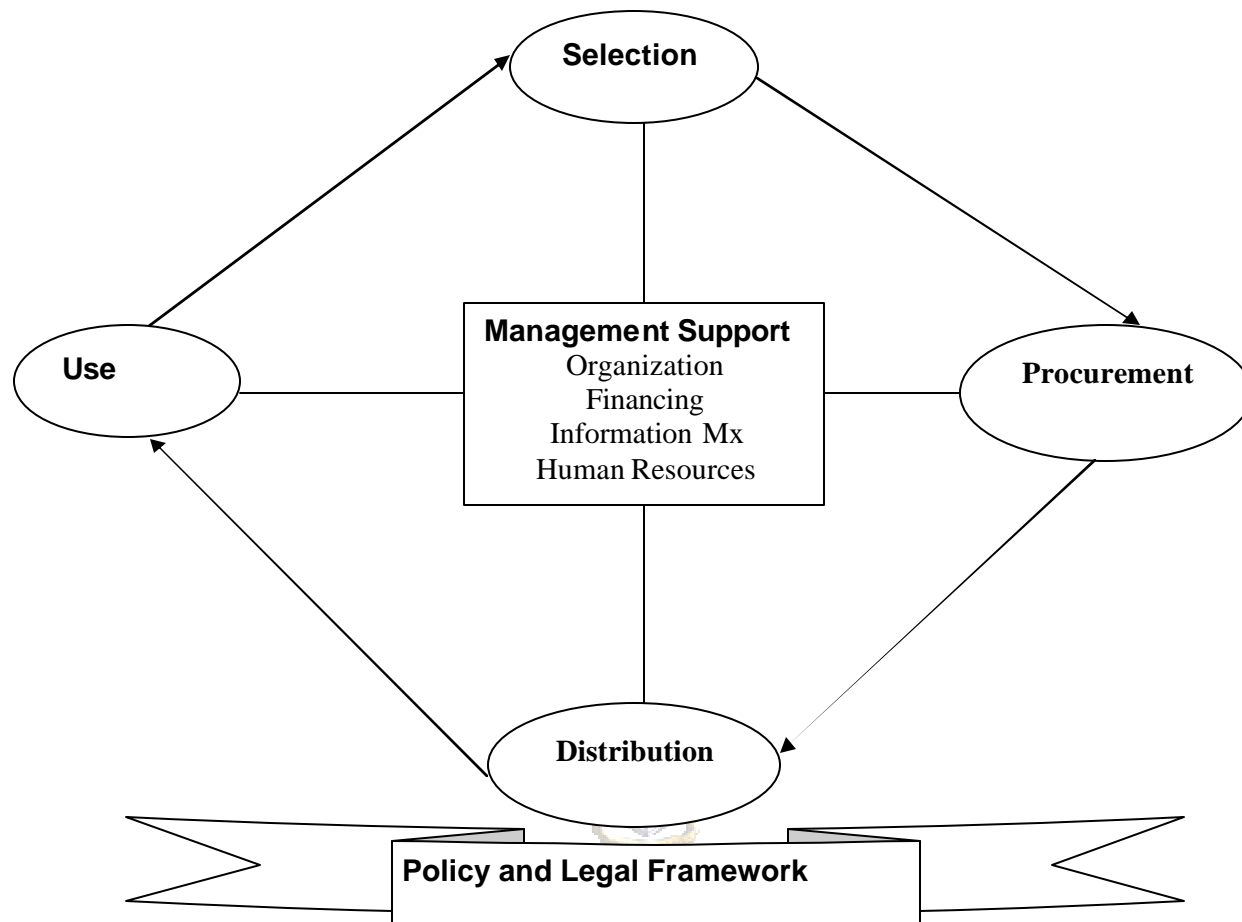
indicated a great room for improvement on the standard drug indicators. A national survey conducted in 2003 throughout the nine provinces served to continue the monitoring process of EDP implementation.

1.6 The Drug Management Cycle and its value

For the identification of barriers and solutions to the availability of EDs at health facilities, I used the comprehensive approach by analysing the Drug Management Cycle (DMC). DMC involves four basic functions, namely, selection, procurement, distribution, and use. It is a cycle in the sense that each function builds on the previous function and leads logically to the next. The four major functions mentioned above are supported by management systems centrally, and are directed by policies and legislation (MSH, 1997). Figure 4.5 illustrates the above explanation:



Figure 3. Drug Management Cycle



1.7 Common complaints about Essential Drugs supply in

Lejweleputswa Health District

Commonly complained about problems relating to EDs supply in

Lejweleputswa district include the following:

- many health facilities are poorly designed for proper stock storage, stock control and management
- drug supplies are managed by nursing personnel who are always torn
- between clinical and pharmaceutical functions resulting in poor

management of drugs

- too many steps in the ordering and supply processes that results in delays in the distribution
- receiving medicines from the medical depot that are close to their expiry date
- delivery of drugs from medical depot is erratic and confusing; uncertainty about the date of arrival of ordered drugs creates uncertainty in the distribution chain
- uncontrolled increase in the number of patients visiting the health facilities, resulting in difficulty in quantifying EDs needed for the health facilities
- there is a recurring 'end of year vacuum' with no funds being available to purchase drugs due to budgetary constraints and/or poor budgetary management; there is usually uncertainty regarding the availability of roll over funds to facilitate purchases during the financial year-end.

1.8 Common problems with Information Systems for Essential Drugs supply in Lejweleputswa district

The Drug Management Information System is not optimally designed. There is a lack of an information technology system that is capable of interfacing critical points in the supply chain. There is also a lack of performance indicators to measure utilisation, costs, and stock values.

The procurement, distribution and budgeting decisions are not based on reliable information, and this leads to poor planning, shortages and wastage of drugs purchased, and also leads to insufficient resources for logistics and general management.

2. PROBLEM STATEMENT

It has been noted that most PHC facilities and institutions such as hospitals in Lejweleputswa Health District, experience a persistent problem about the poor availability or shortage of EDs. The shortage at some stage was determined to be 60% based on the availability reports from the health facilities.

There are several possible causes for the poor availability of medicines at health facilities, these are:

- lack/poor drug management,
lack/poor inventory control system results in guessing the EDs needed by the health facility; little stock that will run out quickly might be ordered, or unwanted extra quantities of stock might be ordered.
- nil/small storage space,
this will lead to storage of EDs at different unsecured places within the facility resulting in loss through theft or damage due to poor storage conditions.
- lack/shortage of properly trained staff such as pharmacists/pharmacist's assistants,
nursing personnel is expected to perform both clinical and pharmaceutical duties at health facilities with the resultant negligence of the pharmaceutical duty because they are trained mainly clinically.
- lengthy procurement processes,

the procurement consists of different facets before delivery could be made, and these facets are time consuming and need extra staff.

- stock-outs at the medical depot,
there are instances where the medical depot would be out of stock of particular medications due to the failure of suppliers to honour their contracts.
- distribution/transport/ logistical problems and
transporting medicines from the medical depot to health facilities is by road and follows strict time schedule and determined routes; it happened that vehicles were not suitable in terms of capacity having to deliver part of the order.
- a poor drug management information system,
there is lack of accurate and timely information that coordinate the elements of a drug supply system, hence decisions making by managers is based mainly on intuition and not on information.
- expiry of drugs due to lack/poor drug management drugs, loss is frequently experienced at health facilities.
-

There is presently little knowledge about barriers in the distribution system associated with the poor availability of drugs at PHC facilities. Discussions that were held to discuss problems with the availability of EDs, always ended up with one section blaming the other, resulting in no solution to the problems. There has never been a systematic process for discussing problems encountered with the distribution of EDs in Lejweleputswa District. There is

therefore a need to systematically identify the barriers, and to devise implementable solutions, and to develop an Information system to monitor the supply system.

Therefore, the knowledge of the barriers could lead to recommendations that will result in the improvement of the availability of medicines at health facilities.

3. PURPOSE

The main purpose of this research is to improve the availability of EDs at PHC facilities by identifying barriers and implementing identified solutions in the process of ensuring that EDs are available at health facilities. The improved availability of EDs will be beneficial to patients in terms of health outcomes. Also, the outcome of this project will result in improved service at PHC facilities, and improved confidence by the community in the health services provided. Finally, other health departments or ministries endeavouring to improve the availability of drugs at PHC facilities could use the results of this study.

4. LITERATURE REVIEW

Drugs play an important, but limited, role in protecting, maintaining and restoring health (Brudon-Jacobowicz,1994). Also, according to Pécoul et al., (1999), drugs offer a simple and cost-effective solution to many health

problems in the world, provided they are available, affordable and properly used. Drugs save lives and improve health (Murray and López, 1994).

Mortality across developing countries reflect a huge burden of illness that can be substantially reduced if carefully selected, low-cost drugs are available and appropriately used. Drugs have a major impact on common causes of morbidity and mortality, including acute respiratory infections, measles, malaria, maternal and peri-natal mortality, sexually transmitted diseases, tuberculosis, and cardiovascular and other chronic diseases (Murray and López, 1994).

Around the middle of the twentieth century a lot was written about the revolution in medical care made possible by modern drugs, eg. Antibiotics on the verge of eradicating the killing infections such as pneumonia and septicaemia; cortisone to suppress painful inflammation; asthma yielding to isoprenaline; one vaccine after another was emerging to stop fatal epidemics. The word used mostly during this revolution was ‘miracle’, meaning miracle drugs are here (Dowling, 1997).

However, this was not a miracle for all. It was a miracle for the few affluent countries. In the rest of the world whole populations had little access to drugs, or they were struggling to cope with a maze of competitive products, many of which were obscure, over-priced, outdated, ineffective or dangerous. Two problems existed in many countries, namely, no drugs at all in the countryside, but thousands of drugs competing for customers’ attention in the cities; also medical and nursing staff in some areas worked without the

medicines they needed, while practitioners in other areas faced a flood of expensive products about which they had no reliable information or that their patients could not afford (Silverman, Lydecker and Lee, 1992).

The idea of concentrating first on a list of reliable drugs that meet most vital needs gradually emerged. The idea was to get a better understanding of these few reliable drugs, finding ways to pay for them, and finding ways to supply them to the people. The idea of working with a limited range of drugs had long been in use in places where there was no alternative; doctors had learned to carry 20 vital drugs in their bags, and ocean liners commonly carried 100 or fewer. Norway, whilst it was still poor, had a basic list of drugs that was extended to its population supplying them with affordable drugs to meet basic needs. The idea slowly developed to other places; Papua New Guinea had their policy based on 'essential drugs' by the early 1950s; Sri Lanka followed in 1959, and Cuba followed by 1963 (WHO, 1995).

The number of drugs on the list varied widely based on what was regarded as basic or essential. Sri Lanka and Norway chose to list 500 drugs. Whatever choice was made, it provided a starting point for what was later called 'Essential Drugs' (EDs). Countries committed to providing universal health care yet having the constraint of scarcity of resources, found that an essential drugs policy was useful means of moving forward in spite of obstacles. The essential drugs concept grew into a practical policy (WHO, 1995)

There were several specific problems that contributed to perceived and real need for EDs, and amongst others, these are :

- Cost

Many developing countries were spending a large proportion of their public health budget on drugs in the 1970s. In 1976 Thailand spent 30.4% of its health budget on drugs, and Bangladesh spent 63.7%.

However, the majority of people living in rural areas and urban slums, the principal victims of endemic and epidemic diseases, had no access to drugs (Kanji et al, 1992).

- Profit

The pharmaceutical industry was dominated by large trans-national corporations (TNCs). Fifteen of these each had world sales of US\$1 000 – 2 400 million in 1980. This figure is more than the gross national product of many developing countries. The TNCs marketing strategies varies from one country to another. Marked international differences exist in prices of the same drugs, indicating that the companies price their drugs according to what a particular national market will bear and the degree of control exercised by local authorities over cost; eg in Brazil, a parliamentary inquiry found several instances of overpricing ranging from 500% to 1000%; in Argentina, the price of drugs in eight sub-markets were found to be 143% to 3700% higher than the minimum prices at which the same products were imported by the same country. TNCs also maximised their profits from developing countries by over valuing the raw materials imported by their

subsidiaries from the parent firm, and to under value the products they export back to it (Kanji et al., 1992).

- Effectiveness

Medicines produced in the Western countries for export, did not always meet the same high standards of safety and efficacy as those intended for sale in the country of manufacture; eg drugs exported from Switzerland and Britain were specifically exempted from regulatory controls. Therefore, some drugs which had been superseded by more effective drugs in many Western industrialised countries continued to be available in developing countries. Harmful and ineffective drugs were withdrawn from the markets or never marketed in industrialised countries (Kanji et al, 1992).



- Quality

Most developing countries lacked the infrastructure to regulate the quality of drugs they imported. The information which was supplied by drug companies to regulatory authorities and prescribers to ensure the safe and proper use of their products was not always reliable, and differed markedly from country to country. Once a product was on the market, it was very difficult to restrict its usage even if hazards were identified, eg. It took at least ten years to restrict the use of chloramphenicol , a potent, potentially toxic antibiotic, the dangers of which had already been widely publicised.

- Efficiency

A picture emerged in the 1970s revealing an excessive waste of resources in the developing countries. The proliferation of drugs, in the absence of the necessary infrastructure and trained personnel for the efficient and safe distribution of medicines, led to the evolution of a chaotic and indiscriminate system of drug distribution and use. The situation was aggravated by the lack of accurate and objective drug information and inadequate or non-existent regulatory controls in most developing countries. Food supplements and tonics of dubious nutritional and pharmacological value often constituted a high proportion of the total drug bill. Irrational, expensive and dangerous combinations of drugs were common, and a serious mismatch existed between drugs needed to treat real health needs and those that were available.



Studies to determine the barriers to the availability of drugs at health facilities in the Free State province are not available. However, studies about the availability of drugs at health facilities around the world support the relevance of such research.

The availability of drugs at health facilities has been a topic for discussion in developed as well as developing countries for many years. The availability rates vary considerably among different regions in the world. According to MSH (2004) in their publication: Strategies for Enhancing Access to Medicines (SEAM), there is still a low availability of EDs at health facilities in many countries as determined by the tracer drug method. In El Salvador,

SEAM found that 84% of tracer drugs were available at PHC facilities and 70% were available at public hospitals. SEAM assessment in Cambodia found that the availability of EDs was low at both public and private health facilities, 59% in public facilities, 50% at nongovernmental organization (NGO) clinics, 56% at private clinics, and 66% at private pharmacies. In Brazil, SEAM assessment found that availability of EDs to be 47% at public health facilities, and 78% at private pharmacies. In Ghana, SEAM inventory studies indicated that availability stands at 68% in public hospitals and clinics, 66% at mission facilities, and 67% at private pharmacies. In India, the SEAM assessment found that financing of public-sector facilities is insufficient, resulting in irregular supplies. In Tanzania and Kenya, SEAM assessment found that the public health facilities rely heavily on the government Medical Store Department (MSD) for supplies. However the MSD has the capacity to meet only about 65% to 70% of customer needs, making it difficult for public facilities to get the EDs they require.

Poor drug availability can be caused by inadequate ordering, poor delivery process, poor stock management, theft, expiry of drugs and also inappropriate use of drugs including failure to select drugs in line with the disease pattern (MSH, 1997).

To improve the availability of drugs, an Essential Drug Programme (EDP) was introduced in many countries, sometimes with considerable effect, but often still hampered by drug management and logistic problems (MSH, 1997).

Drug management involves four basic functions, namely, selection, procurement, distribution, and use. Selection involves reviewing the prevalent health problems, identifying treatments of choice, choosing individual drugs and dosage forms, and deciding which drugs will be available at each level of health care. Procurement includes quantifying drug requirements, selecting procurement methods, and managing tenders. Distribution includes stock control, stores management, and delivery to medical depots and to health facilities. Use includes diagnosing, prescribing, dispensing, and proper consumption by the patient (MSH, 1997).

Below follows discussions about how the four basic functions of drug management were used by different countries to improve the availability of EDs at health facilities.



4.1 Selection

An Essential Drug List (EDL) names the drugs considered optimal treatment choices to satisfy the health care needs of a given population. It is used to indicate which drugs should be procured and prescribed by one health facility or a group of health facilities. In most countries the selection is done nationally by the ministry of health, and thus called the National Essential Drug List (NEDL).

Typically the list of the drugs on the NEDL can be critically reviewed to select a much shorter list of EDs. The Pharmacy and Therapeutics Committees

(PTCs) in individual health facilities can choose a treatment of first choice for that facility or district. The selection at the facility level is especially valuable when the NEDL is too long for individual facilities. The selection at the facility level will also ensure maximal involvement, acceptance, and compliance by the prescribers concerned (WHO/DAP, 1994).

A study in Bhutan showed that a participatory approach was used to update the NEDL. A form was developed, and health workers at all levels were invited to propose additions and deletions to the national list. The current list has 312 drugs and indicates their level of use (OECS/ECDS, 1994). In the United States Public Health Services (USPHS) drugs for the Oklahoma area are procured centrally based on the formulary list. Each hospital in the area has a PTC that reviews drug needs and drug utilization for the hospital and its health centres. The formulary is revised each year (WHO/PAHO, 1984). In Zimbabwe the NEDL was first produced in 1985 and contained 581 drugs with 224 allowed at the clinic level. Since 1994 the list has been revised three times and the number of drugs reduced to 409, and allowed at clinic reduced to 83. The revision process is continual and takes about two years. It restarts as soon as the new list is issued. All medical disciplines, pharmacists, buyers, and health economists are represented to arrive at the more economical choice with the widest possible coverage for medical conditions prevalent in Zimbabwe (WHO/DAP, 1994). In Kenya the review of the EDL and the development of clinical guidelines was done in 1992. The participants in the drug list workshop were mainly government pharmacists joined by a professor of clinical pharmacology, a clinical pharmacist, a senior nursing officer, and

head of the Kenya EDP. The conclusion was the approval of a revised list conforming to World Health Organisation (WHO, 1992) criteria. The list included 195 drugs, and that had fewer drugs than the 1981 list (WHO/DAP, 1994).

4.2 Procurement

An effective procurement process ensures the availability of the right drugs in the right quantities, at reasonable prices, and at recognised standards of quality. Systems for supplying drugs to public health care facilities include the central store, autonomous supply agency, direct delivery, prime vendor, and private pharmacy.

Key principles for pharmaceutical procurement practices include:

- Procurement by generic name
- Procurement limited to EDL or formulary
- Procurement in bulk
- Formal Supplier Qualification and Monitoring
- Competitive procurement
- Sole-source commitment
- Order quantities based on reliable estimate of actual need
- Reliable payment and good financial management
- Transparency and written procedures
- Separation of key functions
- Product quality assurance programme
- Annual audit with published results

- Regular reporting on procurement performance (FIP, 1992).

A study showed how the Eastern Caribbean Drug Services (ECDS) established in 1986 with the support of the United States Agency for International Development (USAID), managed the procurement process on behalf of the member countries of the Organization of Eastern Caribbean States (OECS). Prior to ECDS, the drug supply systems of OECS member countries had disorganised procurement and management functions and poorly trained staff. This contributed to a chronic shortage of drugs in health facilities. The ECDS procurement programme incorporated the key procurement principles mentioned above. The results of the ECDS procurement programme were positive, with participating members benefiting from an average 44% reduction in acquisition price for tender products (HID, 1988).



Transparent tender procedures are essential to attract the best suppliers and the best prices. When the pharmaceutical tender process is secretive, it tends to be perceived as corrupt or unfair. Problems with lack of transparency in tender procedures were experienced in one Latin American country. In the 1990s a survey of private sector pharmaceutical companies found complaints that the process for evaluating tender offers and awarding contracts was not transparent (World Bank, 1993a). The procurement office did not release competing prices or winning bid prices, so companies had no way of knowing whether their offers were competitive or whether they were rejected for reasons not related to price. One private sector company reported that the procurement office unilaterally cancelled a contract that had been awarded,

and a separate contract for the same item was awarded to another company. The original company had already manufactured the quantity ordered to Ministry of Health (MOH) specification for generic drugs (World Bank, 1993b).

A way of solving problems of an unsatisfactory government-run service is by contracting out. However, this has to be well managed, otherwise the unsatisfactory situation may be made worse (McPake and Ngalande – Bande, 1994). Studies done in Zimbabwe and Papua New Guinea reveal the risks of contracting out government services. In Zimbabwe, there has been a contract between the MOH and a private hospital to provide hospital service to a district on a fee-for-service basis. The assessment in 1993 of the actual cost of contract services versus the price the government paid and the service cost of a similar public facility showed that the recurrent costs in the public facility for both inpatients and outpatients were lower than in the contract service. Drug costs at the public facility were 26% of the drug costs from the contract service (McPake, 1993). In Papua New Guinea, a study in 1995 compared the cost-effectiveness and quality of a public hospital with that of a contracted hospital managed by a non-profit religious organization. The recurrent costs in the contracted hospital were 58% more than in the government hospital. Lack of managerial capacity, poorly drafted contract terms, and no reviews of the cost-effectiveness of the contracts led to uncontrolled expenditure on secondary care for a small number of people (Beracochea, 1995).

4.3 Distribution

Although complex, it is important to design a system for storing and distributing drugs and medical supplies. A significant component of a health budget consists of the storage and distribution costs. Transportation costs can represent several times the value of the drugs distributed to remote locations (Osterblad, 1990).

A well-designed and well-managed distribution system should:

- maintain constant supply of drugs
- keep drugs in good condition throughout the distribution process
- minimize drug losses due to spoilage and expiry
- maintain accurate inventory records
- rationalize drug storage points
- use available transportation resources as efficiently as possible
- reduce theft and fraud
- provide information for forecasting drug needs (Johnson and Wood, 1993).

A study in an eastern European country found that the heat-labile vaccines provided by WHO Expanded Programme on Immunization (EPI) were stored at room temperature for extended periods. The vaccines were distributed by railway, and delivery took up to sixteen days. Toxoids were exposed in transit to high temperatures in summer and to freezing conditions in winter. An


operational and cost-effectiveness study showed that the existing storage and transport system could not be improved within a reasonable period of time or at an acceptable cost. After investigating several storage alternatives, the parastatal pharmaceutical supply company was selected to provide the new storage facility. This company had an established logistic capability and adequate storage space (Battersby, 1992a).

The medical store and its management, the management of transport, and the management of drugs at health facilities play an important role in the distribution of drugs. The purpose of the store is to receive, hold, and dispatch stock. Transport is meant to deliver dispatched stock to health facilities.

Transport services require effective management. Drug management at health facilities directly affects the quality of health care. If drugs are constantly unavailable, patients suffer and staff lose motivation. Good inventory control makes ordering and drug management of drugs easier (Mulcahy, 1994).

A study in Zimbabwe in 1989 showed that inventory control systems have contributed to more efficient management of EDs at health facilities. The inventory control system is based on monthly ordering. An item is ordered if the stock on hand is less than the reorder level that is set at three months' consumption. The Zimbabwe Essential Drug Action Programme (ZEDAP) periodically assessed the implementation of the inventory control system. The first assessment showed that an inventory control system could not be taught through workshops alone. Fifty – two percent of the facilities had started keeping stock cards, and 27% kept stock books. Consequently, alternative

training strategies were developed, including on-the-job training and intensified support and supervision. Pharmacy technicians visited health facilities more often to assist with the organization of stocks in storerooms, verify stock records, and provide guidance on calculating stock levels. The on-the-job training included attachment of health facility nurses to the hospital pharmacy to work under supervision of pharmacy technicians. By 1991, record keeping at health facilities was reaching target levels, stock cards functioned well, and stock-on-hand balances agreed with physical counts. Storerooms were transformed by improved inventory control and ordering. Stock arrangements became excellent, overstocking was reduced and drug availability improved (WHO, 1991).

A study about route planning and vehicle selection was conducted in Zimbabwe. Drugs were distributed from five medical stores, and were distributed in three ways: direct delivery; delivered to an intermediate drop-off point and required transshipment; collection from medical store by provincial hospitals or larger health facilities. In 1993, ZEDAP survey showed that direct deliveries took an average of 7.3 days, and deliveries via drop-off points took an average of 12.9 days. Delivery by medical store vehicles increased between 1989 and 1993. During this period delivery times were cut from an average of 22 days to an average of 11 days (ZEDAP, 1994).

4.4 Use

Irrational use of drugs occurs with poly-pharmacy, the use of wrong or ineffective drugs, or with under-use or incorrect use of effective drugs. These actions have a negative impact on the quality of drug therapy and cost, and will lead to poor availability of drugs at health facilities. A study in Indonesia showed that during the early years of EDP efforts were directed on ensuring the availability of EDs in health facilities rather than on the inappropriate use of drugs. In 1988 when a utilization study was carried out, it transpired that inappropriate prescribing practices were common. A large proportion of drugs ended up being wasted through ineffective and sometimes harmful treatments. There was over-use of anti-microbials and injectables, and the existence of consistent patterns of inappropriate use of pharmaceuticals at various levels of health care. Training programmes on the rational use of drugs were developed and implemented in the late 1980s and the early 1990s (WHO, 1987).

Patient or consumer education plays an important role in promoting rational use of drugs. Inappropriate prescribing patterns may derive from the demands or misconceptions of patients, although prescribers to justify their prescribing habits often exaggerate these demands. In Indonesia, a module for consumers about the rational use of drugs was developed, field-tested, and implemented in Yogyakarta. The training uses information materials from package inserts of common over-the-counter (OTC) drugs. It is carried out in small groups through self-learning process facilitated by a pharmacist or health professional and has been implemented by women's grassroots organizations in

Yogyakarta province. It has reduced the inappropriate use of OTC medicines at the household level (Avorn and Soumerai, 1983).

4.5 Management Support

It was indicated earlier in the introduction that the four functions of selection, procurement, distribution, and use of drugs, are held together at the centre by support from management. Drug supply improvements involve change, and to manage change, managers must understand the internal and external forces of change, the sources of resistance to change, and the principles for successful change management. The management support process that is at the centre of the drug management cycle consists of three basic functions, namely, planning, implementation, and monitoring plus evaluation (Reynolds, Francisco, and Gearon, 1993).



Managers of drug programmes are concerned with getting the most out of scarce resources. This means, making the programme as efficient and as effective as possible. Therefore the managers must generate current and reliable information needed for decision-making. A baseline study conducted in Zimbabwe by ZEDAP in 1987 indicated severe shortage of EDs, long lead times, lack of standard stock control systems, lack of clinical training materials, and lack of training in drug management. To plan improvement of the supply system, justify budget requirements and monitor progress biennial surveys were conducted. Indicators and an appropriate instrument were developed using a participatory process involving managers from districts and

provinces, with support from the national essential drug programme and the WHO Action Programme on Essential Drugs. The core indicators assessed the availability of 36 indicator drugs and consumables. Using stock management indicators and observing stock-keeping practices checked implementation of the new national stock control system. To measure performance of the delivery system for supplies, the intervals at each step and total lead time were noted for the last three orders. Complimentary indicators were also incorporated to answer relevant questions. The data obtained were used at all levels. District supervisors found the core indicators useful for identifying individual centres that required training support or frequent supervision; the distribution system indicators led to reorganization of the distribution system; the stock control indicators led the ZEDAP team to revise training strategies, shifting from workshop to on-site job training. The indicators and the assessment methods were incorporated into routine supervision and served as the basis for local planning activities (ZEDAP, 1993). The indicators and data collected are shown in Figure 4 below:

Figure. 4 – ZEDAP Drug Indicators and Data

INDICATOR	1989	1990	1991	1993
Average availability of 36 indicator drugs (%)	56	80 - 85	78	64
Stock cards in use (%)	52	78	82	86
Correct stock balance (%)	47	-	72	53
Facilities with expired items (%)	56	39	77	54
Drugs arranged systematically (%)	58	30	89	78
Total lead time – monthly orders (days)	71	48	46	46
Prescribing by generic name (%)	85	92	94	92
Average number of drugs per patient	1.4	1.3	1.3	1.6
Antibiotic drugs (%)	22	22	29	30

5. AIM

To assess the level and types of preventable barriers to efficient supply of Essential Drugs to Primary Health Care facilities in the Lejweleputswa Health District, Free State Province, and to determine implementable solutions.

6. OBJECTIVES

1. To identify barriers to the availability of Essential Drugs at PHC facilities.
2. To develop practicable solutions to identified barriers.
3. To develop and implement an information system to monitor effectiveness of the solutions.
4. To make recommendations to Senior Management at Provincial level to apply the process to other districts with similar barriers based on the results of the study.



7. METHODOLOGY

7.1 Study Design

Realising the need to identify problems and helping to develop potential solutions in order to improve the situation of the availability of essential drugs, I decided to use Action Research for this study.

Action research is a style of research rather than a specific method (Meyer, 2000). It is particularly suited to identifying problems in clinical practice and helping develop potential solutions in order to improve practice. The strength of action research lies in its focus on generating solutions to practical problems and its ability to empower participants. Most definitions of action research incorporate three important elements, namely, participatory character, democratic impulse, and contribution to social science and social change.

Participation is fundamental to action research (Meyer, 2000). Participants must perceive the need to change and be willing to play an active part in the research and the change process. The level of commitment of participants in action research goes beyond simply agreeing to answer questions or be observed as with other research methods. The research design must be continually negotiated with participants, and the researcher needs to agree with participants on an ethical code of practice in order to guard against conflicts that may arise in the course of the research.

Participants are seen as equals in action research, thus the expression “democracy” in action research. The researcher is the facilitator or an extra person can be recruited to facilitate, consulting with participants not only on the action process but also on how to evaluate the process (Meyer, 2000). The findings are fed back to participants throughout the study for validation and to set the stage for the next phase of the study.

This method of research suitably focussed on generating solutions to practical problems within the Essential Drugs supply system. This was in line with the objectives of the study. Another advantage of this style of research compared to other methods is the feasibility in terms of time and resources. Because the study is less time consuming and readily calls for implementation of solutions, it was possible to bring about positive outcomes and improve the availability of essential drugs.

The study addressed questions like ‘why and how is there a shortage of EDs?’ and ‘what can be done to correct the situation?’ It was about discovering factors that are associated with shortage of EDs and also determined the perceptions and attitudes of those involved in the supply of EDs.

I used Action Research because of the need to identify barriers, develop solutions, implement solutions and develop an information system to monitor and identify barriers or breakdowns in the supply system in future. Other research methods cannot accomplish these.

7.2 Definition of Terms

Essential Drugs

- Essential Drugs are those that satisfy the priority needs of the majority of the population. They are selected with due regard to disease prevalence, evidence of efficacy and safety, and comparative cost-effectiveness. They are intended to be available within the context of functioning health systems at all times in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price the individual and the community can afford.



Tracer Drugs

- A small number of representative drugs also known as indicator drugs or index drugs, selected to be used with performance indicators to assess the performance of a drug supply system

Drug Management Information System (DMIS)

- The DMIS is an organised system for collecting, processing, reporting, and using information for decision-making.

Information for each subsystem is collected by means of:

- record-keeping documents, a combination of registers, ledgers, and filing systems, which typically are not circulated;

- data reporting forms, such as periodic status reports, which transmit data to other departments or levels for use in making management decisions;
- feedback reports, also called analytical reports which are usually provided to the units that collected the data

Distribution Systems

- A system of administrative procedures, transport facilities, storage facilities, and user facilities through which supplies move from a central point to the user facilities.

Drug Delivery System

- A drug distribution system in which the warehouse is responsible for providing transport of supplies from the warehouse to the health facilities.

Barrier

- Any condition that makes it difficult to make progress or to achieve an objective;

7.3 Study Population

The study population consisted of District Pharmacists; Central Medical Store Pharmacists; and nurses at PHC facilities.

7.3.1 District Pharmacists;

These are officials appointed by the department of health to establish and maintain the best pharmaceutical service within the province. They are directly involved with the supply of drugs within the province at district level. They travel throughout the districts visiting PHC facilities ensuring that all drug related problems are solved. The Free State province consists of five districts, hence the five District Pharmacists.



7.3.2 Medical Depot Pharmacists (manager, procurement and dispatch);

These pharmacists are stationed at Free State Medical Depot and are responsible for the supply of drugs to health facilities throughout the province. The manager is overall responsible for the efficient operation of the medical depot. The procurement pharmacist is responsible for the buying of drugs from manufacturers or other suppliers contracted to the province. He/she is also responsible for the processing of drug orders from health facilities within the province. The dispatch pharmacist is responsible for the picking of drugs from the shelves of the medical depot for each order from health facilities, ensuring that

everything is correctly issued. He/she ensures that the goods are loaded on trucks and are ready for delivery.

7.3.3 Nursing officers involved with supply of drugs.

These are nurses directly involved with the management of drugs at health facilities. They determine what needs to be ordered and how much to order. They are responsible also for the receiving of stock and for the proper storage. They are also involved in the prescribing and dispensing of drugs.

7.4 Sample Size and Criteria



Three District pharmacists, three Medical Depot pharmacist plus three nurses were selected. Therefore nine members formed the group. The group consisted of a mix of officials who are directly involved in the supply process of EDs. The group is neither small nor large; it falls within the recommended size for an Action Research group.

The criteria for choosing the above participants were based on the eagerness and authority to bring about positive change. Nurses from the PHC facilities were those from facilities experiencing the problem more and those with good supply. Furthermore the sample was chosen because of its knowledgeable character in the matter of drug supply.

7.5 Data Collection

It was important to explore all possible sources of information to obtain information for my research. Sources of information were both formal and informal.

The collection of data will have to be systematic (Varkevisser et al., 1991). If data are collected haphazardly, it will be difficult to answer the research question in a conclusive way. Again, according to the same author, there exist the following various data-collection techniques:

- Using available documents
- Personal experience
- Observations
- Interviews (face-to-face) individuals and groups
- Workshop

I have used the action research method because I need to identify barriers and solutions to the supply of EDs to health facilities. The solutions identified and the monitoring methods designed are to be implemented.

7.5.1 Document Analysis

Forms, records, reports, manuals and SOPs were collected from the health facilities and medical depot for analysis. The forms and reports with numbers were quantitatively analysed, for instance, percentage availability of tracer drugs. The District Health Information System (DHIS) reports (past and current) were analysed to determine and understand the information gathered about drugs in the district.

Minutes and records of past meetings where problems regarding the supply of EDs were discussed were collected and analysed qualitatively. The minutes and records were also used in the focus group discussions.



Newspaper reports (local) were obtained and analysed. These were also used in the group discussions.

7.5.2 Observations

Observation is a technique that involves systematically selecting, watching and recording behaviour and characteristics of living beings, objects, or phenomena (Varkevisser et al., 1991).

In this research it was necessary to observe what people were doing at their respective institutions. These included places like the medical depot, and the PHC facilities. This made it possible to see the environment in which people work, their daily interactions, and also made it possible for me to make inferences about the systems involved in the supply process of EDs to the health facilities. Observations also helped me to note the physical infrastructure of rooms and conditions where EDs are stored, status of communication like availability of telephones and computers, and also whether adequate records were made. Conversations were held with all relevant workers whilst on duty.

7.5.3 Interviews



An interview is a data-collection technique that involves oral questioning of respondents, either individually or as a group. The interviews can be conducted with varying degree of flexibility. The two extremes of flexibility are: high degree flexibility and low degree flexibility (Varkevisser et al., 1991).

The interviews were the main source of information and data. The interviews were non-structured. The interviewees were people with experience in the supply of medicines to the health facilities. The questions posed to the medical depot pharmacists and staff was about their daily tasks concerning the supply of medicines to the health

facilities. The questions posed to the district pharmacists were about problems experienced with the supply and availability of EDs at clinics. The nursing personnel were asked about the problems encountered with the supply of EDs. I asked all the respondents about the information system and the problems encountered daily. I used pen and paper to collect the data from the interviewees.

7.5.4 Personal Experience

As the District Pharmacist of Lejweleputswa Health District for the past seven years, I have intimate personal experience of most of the issues being investigated by this study. These experiences were as legitimate and useful to explore as were the opinions and views of other information-rich participants who were interviewed. However when utilising my own experience I was careful to ensure that it was not given any greater weight than the experiences of any of the other interviewees.

7.5.5 Discussion Group

I held a discussion group with district pharmacists and medical depot pharmacists and nursing personnel from health care facilities. This discussion group was considering and debating the topic of this research. I enlisted the help of a facilitator for group discussion. Tapes were used to record the discussion of the group.

7.5.6 Workshop

I convened a workshop to present and further discuss the barriers and possible solutions that the discussion group proposed adopted. The workshop was designed to culminate in proposed practically implementable solutions and monitoring mechanisms to assess the effects of implementing the solutions. A tape recorder was used to assist to record the conversations during the session.

I sought the help of a facilitator to assist me in the running of the workshop.

7.6 Data Analysis



According to Gifford (Undated), the core of all qualitative analysis is a three-step process of description, classification and connection. There should be detailed description of the information collected. Classification involves assessing the characteristics of descriptive data and assigning them to categories. Connections entail finding regularities in the relationships between and within categories as well as searching for variations

The data analysis was done concurrently with data collection. This ensured that gaps in understanding could be followed with additional data collection in the same setting. The process of concurrent analysis was systematic and comprehensive but not rigid. Keeping a set of analytical notes or memos

facilitated the concurrent data collection and analysis. These notes, reflected on the meanings of the data. The data was divided into relevant and meaningful units. The texts were content analysed. The main themes that emerged were summarised and illustrated with direct quotes from the discussions.

With the first observations, I drew upon sensitising concepts that were identified at the beginning of the study. I analysed the use of questioning that was meant to generate data; analysing the words or phrases or sentences; further analysis was through comparisons. I also used the ‘flip flop technique’, or systematic comparison of two or more phenomenon, or far-out comparison, or waving the red flag. The data analysis during the first observation stage followed a process defined as ‘iterative’. Hammersley & Atkinson (1995) described this process as follows: ‘observation followed by analysis, then formation of tentative ideas and more observation, leading to refinement of ideas and production of tentative propositions for testing and more observation, gradually moving toward a theoretical statement, to be modified and refined with more observation and perhaps interviewing.’

Data from the workshop was analysed the same as data from the interviews. The workshop group discussed what the interviewees had proposed as solutions to the barriers in supply of EDs. The analysis of data revealed trends and concepts of agreement or disagreement to what the interviewees proposed. Further the analysis revealed the agreed process of implementing the solutions and how monitoring was to be done.

7.7 Quality (Validity)

There is a considerable debate over the nature of the knowledge produced by qualitative research methods and how such qualitative research should be judged (Mays and Pope, 2000). These authors point to the arguments raised by the antirealists indicating the difference between qualitative and quantitative research, and that it is not possible to judge qualitative research by using conventional criteria such as reliability, validity and generalisability, unless these concepts are operationalised differently to take into account the distinctive goals of qualitative research.

There are various ways of improving quality in qualitative research, and according to Mays and Pope (2000) these are: triangulation, respondent validation, clear exposition of methods of data collection and analysis, reflexivity, attention to negative cases, and fair dealing.

The data collection process was monitored by myself to ensure that it took place as planned. A clear account of the process of data collection and analysis was provided to allow the reader to judge whether the interpretation proffered is adequately supported by the data.

Triangulation in this study takes place at two levels which are: 1) data level using the multiple informants who are knowledgeable in this field; these members provide a variety of the data sources; 2) researcher level where a

different researcher or evaluator is used. In this study the facilitator of the discussion group and the workshop was the other evaluator.

Respondent validation or ‘member check’ was used for checking quality by distributing copies of a provisional report to participants in order to obtain confirmation that the content was correct or whether it needed amendment, or needed to be extended upon to establish credibility.

I am the District Pharmacist for Lejweleputswa Health District. I am responsible for the implementation and monitoring of pharmaceutical services within the district. One of my key performance areas (KPA) is to ensure that EDs are available at all primary health care facilities in the district. I was sensitive to the way the research process shaped the collected data, taking into account my prior assumptions and experience that could influence the process. However I maintained a positivist approach because of being the expert in the field of drug supply in the district, and because of the background information obtained from the literature. This addressed the issue of reflexivity.

I also searched for, and discussed elements in the data that contradict, or seem to contradict the emerging explanation emerging under the study. Such ‘deviant case analysis’ helped to refine the analysis until it could explain all the vast majority of the data under scrutiny.

I ensured that the interviews and workshop discussions were conducted fairly so that the viewpoints of all participants were heard and recognised.

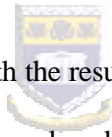
7.8 Generalisability

The approach to identifying barriers and solutions as well as some of the actual barriers and solutions may be generalisable to:

- districts with similar drug supply systems
- provinces in South Africa with similar drug supply systems

8. RESULTS AND DISCUSSIONS

8.1 Introduction



In this section I present both the results of the analysis and the discussion those results. The data was analysed concurrently as the study proceeded, hence the results are presented under the same headings and in the same order as the data was collected.

The discussions of the results are done concurrently with the presentation of the results in order to demonstrate the chronological unfolding of the findings and the phased way in which understanding of the pertinent issues unfolded. This amalgamation of the results section was deemed appropriate as the study grapples with social issues and complex linked processes, describing and interpreting them within a “soft” qualitative although positivist focus, rather than with “hard” numeric comparisons and statistical tests.

This Results and Discussion section is divided into three parts namely:

- A description of the participants and the data sources utilised during the document review, the interviews, personal experience introspection, observations and group discussions
- Presentation and discussion of the analysis arising from the document review, the interviews, personal experience introspection, observations and group discussions
- Presentation and discussion of the Workshop

8.2 Description of the Participants and the Data Sources

8.2.1 Documents Review

The documents that were reviewed during the research, are contained in Table – 1.



Abbreviations used

FSMD : Free State Medical Store

PTC : Pharmacy and Therapeutics Committee

DHIS: District Health Information Services

Table – 1. Documents Reviewed

Document	Description	Institution	Value
Stock/Bin cards	Cards/ledger used to record stock balances, issues, receipts, and outstanding orders	health facilities, FSMD	Essential in inventory decisions such as when and how much to order
Stock replenishment requests	Requests to procure and to begin the procurement cycle for specific items; sent at reorder level/interval	Health facilities, FSMD	Indication of pharmaceutical needs of facilities and the FSMD.
Delivery voucher	Signed receipt indicating that a specific shipment	Health facilities,	Indication that goods are checked on

	of drugs has been delivered intact	FSMD	arrival
Discrepancy reports	Reports about stock received either damaged, or less or extra, or expired.	Health facilities, FSMD	Indication that goods are checked before packing
Delivery schedule and routes	Timetable for deliveries and routes to be followed and order of deliveries	FSMD	Staff and vehicle efficiency; record of vehicle movements
Supply contracts	Statements of the terms of supply publicised with the call for offers, specifying exact drug requirements, dosage forms, quality standards, labelling and packaging, and delivery date.	FSMD	Specification of quality needed and timeframes set
Supplier cards	Record of experiences with individual suppliers	FSMD	Used in supplier selection
Order status records	Records of monitoring the status of outstanding orders	FSMD	Reduce lead times and supplier defaults
Facility ledger	Records indicating the quantity and costs of drugs issued to individual facilities	FSMD/Finance	For budgeting and estimating future needs
Drug Management Manuals	Compilation of policies, SOPs, circulars and other directives from pharmaceutical component	Health facilities, FSMD	Inform, support, and standardise procedures
Provincial PTC documents	Minutes, notices of meetings, postponement and cancellation notices	District Pharmacist, and Manager: Pharmaceutical Services	Drug selection for the province.
District PTC documents	Minutes, notices of meetings, postponement and cancellation notices	District Pharmacist	Drug selection for the district
Provincial Pharmaceutical Forum documents	Minutes, notices of meetings, postponement and cancellation notices	District Pharmacist, and Manager: Pharmaceutical Services	Pharmaceutical (drugs, human resource, and finance) problems in the province
District Pharmaceutical Forum documents	Minutes, notices of meetings, postponement and cancellation notices	District Pharmacist	Pharmaceutical (drugs, human resource, and finance) problems in the district

DHIS quarterly report	Report compiled from routine data from health facilities	District Health Information office	Inform and assist Management in making decisions
Task Teams reports	Notes and minutes of task teams established by Top Management to solve drug availability problems	District Pharmacist, and Manager: Pharmaceutical Services	Crisis management
Prescriptions	Notes written by prescribers indicating patients' pharmaceutical needs after diagnosing	Health facilities	Rational drug use
Newspaper reports	Reports by local newspaper on the availability of drugs	Newspaper offices	Inform everybody on the situation of drugs within the district.

8.2.2 Observations

Places that I visited to do observations are the following:

Table – 2. Venues for Observations

PLACE	OBSERVATION	DATE
Clinic (PHC facility)	How stock is received How stock is dispensed How security is maintained How orders are generated and written up How inventory is controlled	09/01/2005
FSMD (Procurement)	How stock is ordered from suppliers How payments are processed How orders are chased	29/12/2004
FSMD (Distribution)	How orders from the district are transferred into the CMS system How invoices are generated and transferred to the storage area How payment is received from facilities	30/12/2004
FSMD (Receiving)	How shipment is received How shipment is moved to storage areas How discrepancies are handled	03/01/2005

FSMD (Storage)	How stock is stored How stock is picked How stock is prepared for dispatch How inventory is controlled	03/01/2005
FSMD (Dispatch)	How stock is released for dispatch How stock is loaded for delivery	03/01/2005

8.2.3 Personal Experience

I was employed in the public sector as a District Pharmacist in 1997 by the department of health, Free State provincial government. I am still in this position during this time of this research. As a district pharmacist, I am responsible for the establishment and maintenance of pharmaceutical services within the district.



My main purpose therefore is to ensure that the Essential Drug Programme is implemented in line with the objectives of the National Drug Policy of South Africa. A district pharmacist must ensure that medicines are available and accessible to all citizens of the district.

I have experienced on several occasions, a shortage of medicines in my district. There are various causes of such shortages, and this research is aimed at finding these problems and also finding solutions for them. Pertinent first hand experiences with several issues in each of the themes are described in the rest of the results section

8.2.4 Interviews

For the purpose of this research I interviewed the following people some as individuals, others in small groups:

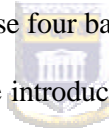
Table – 3. Description of Interviewees

INTERVIEWEE	DESCRIPTION	Indv/Grp
Manager: Pharmaceutical Services in the province	This interviewee is in-charge of the Free State pharmaceutical services, and reports to the senior manager: health and support services; more than ten years experience in the position	I
Manager: Central Medical Store	This interviewee is in-charge of the Free State CMS, and reports to the senior manager: finance; more than ten years experience in the position	I
2x District Pharmacists	These interviewees are responsible for pharmaceutical services in their districts; one has six years experience and the other has 8 years experience	G
Local government Pharmacist	This interviewee is responsible for pharmaceutical services in the local municipality clinics, and reports to Director of health of the municipality; has 6 years experience in the post	G
2x CMS Pharmacists	These interviewees are responsible for the receiving, storage, and dispatch areas, and report to the CMS manager; both have 4 years experience in the posts; one principal, one chief pharmacist.	G
2x Hospital Pharmacists	These interviewees are responsible for pharmaceutical services at their hospitals, and report to the CEO of the hospitals; they are both 3 years experienced in the posts of senior pharmacists	I
3x Nursing personnel	Clinic supervisors who are responsible for pharmaceutical services in their clinics; all have more than 10 years experience	I
3x Pharmacist's Assistants	They are responsible for pharmaceutical services in their	I

	clinics; 3 years experience; report directly to clinic supervisors, indirectly supervised by district pharmacist	
District Health Information Officer	This interviewee is responsible for the collation and analysis of data from health facilities in the district and compilation of quarterly report, reports to district manager; more than 10 years experience.	I

8.3 Presentation and Discussion of the Analysis

I analysed the data collected during the document review, observations and interviews using thematic constructs congruent with four basic functions in the Drug Management Cycle. These four basic functions listed below, were explained in some detail in the introduction and literature review sections.



- Selection
- Procurement
- Distribution
- Drug management at PHC facilities
- Use

I also analysed data collected through the other system linked to the four basic functions of the Drug Management Cycle (DMC), that is:

- Management Support system

I found this approach to be the best because it systematically covered all aspects involved in the management of drugs as demanded by the objectives of the National Drug Policy of South Africa. Other methods that have been used in the past Free State province, could not solve the problem of drug availability, because (in my view) those methods used did not cover all aspects of this multifaceted problem. I found this approach to be comprehensive in identifying barriers to the supply of medicines and the resolutions to the barriers.

The results are presented and discussed below within the framework of the DMC and under the headings of the key supply functions identified by the DMC.



8.3.1 Selection of EDs:

Selection involves reviewing the prevalent health problems, identifying treatments of choice, choosing individual drugs and dosage forms, and deciding which drugs will be available at each level of health care.

The process described above, is basically the establishment process of an Essential Drug List (EDL). This is a number of EDs that are deemed to satisfy the health care needs of the majority of the population and that should be available at all times in appropriate dosage forms and strengths. The list for EDs could be for one or more health facilities or it could be for the whole country.

In South Africa, the EDL was developed through the guidance of the National Drug Policy (NDP). The criteria for the selection of EDs for PHC, were based on the WHO guidelines for drawing up a national EDL (National Drug Policy, 1996).

According to Essential Drugs Programme – South Africa: Standard Treatment Guidelines and Essential Drug List (PHC), (2003):

“The implementation of the concept of essential drugs is intended to be flexible and adaptable to many different situations. It remains a national responsibility to determine which medicines are regarded as essential.”



It further indicates how the flexibility and adaptability can be effected by saying:

“It should be noted that the Primary Health Care Drug List (EDL) reflects only the minimum requirements for PHC level facilities. In keeping with the objectives of the NDP, provincial and local Pharmacy and Therapeutics Committees (PTC) may provide additional drugs from the Hospital level EDL based on the services offered and the competency of the staff at each facility.”

8.3.1.1 Personal experience and observations

The provincial PTC does exist. Members of this committee are the following:

- General Manager (Chairperson)
- Manager Pharmaceutical Services (Secretariat)
- Manager Medical Depot
- District Pharmacists
- Chief Pharmacists of Regional Hospitals
- Heads of Departments (Free State University, Medical School)

This committee is scheduled to meet bi-monthly. At the beginning of every year, the secretariat distributes scheduled dates for the meetings after considerable consultations with the members. Out of the six scheduled dates, only two or three meetings will materialise. Meetings are cancelled or postponed indefinitely because of members who are unable to attend.

The provincial PTC is basically having one point on its agenda, which is the consideration of motivations submitted to add non-EDL medicines to the Free State formulary. The motivations are mainly submitted by the heads of the departments of the medical school. Therefore, should there be no such motivations, then apologies will be submitted and the meeting will be cancelled or postponed indefinitely.

Therefore, the provincial PTC is ineffective because it has limited itself to one aspect. It has neglected the major functions, like: reviewing the prevalent

health problems, reviewing drug supply problems and reviewing the restrictions placed on EDs that inappropriately restrict and prohibit their availability at different levels (primary, secondary, tertiary) of health care.

The Local/District PTCs were established during the years of 1998 and 1999, under the guidance of the provincial pharmaceutical services. However, these committees at present do not exist or are non-functional.

8.3.1.2 Interviews

The manager: provincial pharmaceutical services, tasked with the scheduling for and convening of the PTC, had this to say about the provincial PTC:

“This PTC story is not working! The people are not serious. They just make apologies at random. Its frustrating”

When I asked about the purpose and functions of the PTC, the answer was:

“We are only adding more medicines to the list without removing any. That’s all we do! Where will this process stop? I don’t think we are doing the right thing as a PTC. We are lacking direction totally”

The group interview had this to say about the provincial PTC: an expression by one of the members who got the support of the group:

“The provincial PTC is dominated by intellectuals, these professors who basically determine the agenda for the meeting. There is little that other members can do except to just listen and agree on what is being requested”.

The group had this to say about the local/district PTCs: again an expression by one member and supported by the group:

“Aha! That could be the problem causing the provincial PTC not to function effectively! It is because the district PTCs are not existing, they are dead, so there is nothing feeding the provincial PTC. Nothing comes from the grass roots so as to have bottom-up approach and not top-down”.

The group gave the following reasons for the non-existence or no-functioning of the local/district PTCs:

“Lack of expertise, and or leadership. Lack of commitment by elected members”.

The group also identified certain operational aspects that are discouraging the local participation in the PTCs, for example, the form that must be filled in when motivating to add a drug to the EDL or local formulary. One the members of the group said:

“Everything favours the intellectuals; look at the form which should be completed when motivating to add a drug, its very complicated, even myself (pharmacist) feel inadequate to complete it”.

Also the group identified the marketing problem and said:

“The marketing of drugs by manufacturers/distributors is done to the intellectuals who then become obliged to make business for that manufacturer/distributor by motivating for the inclusion of those drugs in the formulary”.

It was interesting to hear what the manager said about the district PTCs when I asked what should be done to render them functional:

“As a motivation, I am making an offer, and that will be to give my one month salary to any district that will establish and run a PTC, because I don’t know where the problem is, we have given the best training we could get but nothing gets going”

8.3.1.3 Documentations

The notices issued to postpone or cancel meetings are a testimony of how seldom the provincial PTC is convened. Copies of minutes are a testimony to the issues discussed in the meeting, which are overwhelming the motivations to add drugs to the formulary.

The approval of the drugs by the provincial PTC will indicate the level of health care where the drugs will be prescribed. In most instances these drugs are restricted to the secondary and tertiary levels. However, once prescribed at those levels, they have to reach the patient at the primary level. Most of the time this is met with logistic problems.



Comments:

The questions arising from the analysis of the above presentations are:

- are PTCs misdirected in their functioning?
- are PTCs the real answer to the selection of drugs?
- are PTC lacking the expertise that will enable them to make informed decisions ?

The emerging barriers here are:

PTCs – both provincial and district - are necessary and they can play a vital role in the selection of EDs for use at different levels of health care.

- Currently the district PTCs are non-functional, and the provincial PTC is ineffective and manages to convene at the most twice a year.
- The PTCs are only focusing on one aspect of the selection process, and that is, the addition of non-EDs to the Free State formulary
- The provincial PTC is dominated by tertiary level academics, who are the only ones able to motivate for the selection of drugs – mostly non-EDs.
- Other members of the PTC are powerless to oppose or suggest otherwise because of lack of expertise.
- The marketing of drugs by manufacturers/suppliers is strategically directed at the academics because of their dominance in the PTC.

Solutions emerging from the discussions were the following:

- District PTCs to be revived by the active involvement of the District Pharmacist and District Medical Officer.
- The role of the district PTC be to make recommendations to the provincial PTC around appropriate EDs. The National Department of Health have issued guidelines on the establishment and roles of both district and provincial PTCs.

- Membership to the PTC drug selection team should be representative of all levels of care (nursing personnel at primary health facilities and hospitals – particularly good in the selection of medical consumables and equipments; doctors from all three levels of care – doctors at clinics are always criticising the choice made by the PTC; district medical officers; district pharmacist; hospital pharmacists; manager: central medical store; manager: pharmaceutical services; senior/general manager: clinical services; heads of departments: medical school.
- Decisions to select drugs should be based on the following:
 - # the drug should be relevant to the prevailing disease pattern.
 - # cost implication
 - # proof of safety and efficacy
 - # quality
 - # consensus

8.3.2 Procurement

Procurement is defined as the process of acquiring supplies from private or public suppliers or through purchases from manufacturers, distributors, or agencies such as the United Nations Children’s Fund (UNICEF), the World Health Organisation (WHO), or bilateral aid programmes (MSH, 1997).

Procurement includes quantifying drug requirements, selecting procurement methods, managing tenders, establishing contract terms, ensuring adherence to contract terms, and assuring drug quality.

An effective procurement process should

- procure the right drugs in the right quantities;
- obtain the lowest possible purchase price;
- ensure that all drugs procured meet recognised standards of quality;
- arrange timely deliveries to avoid shortages and stock-outs;
- ensure supplier reliability with respect to service and quality;
- set the purchasing schedule, formulae for order quantities, and safety stock levels to achieve the lowest total cost at each level of the system;
- achieve these objectives in the most efficient manner possible.

It is very important to realise that the procurement system is a major determinant of the availability of drugs and also a major determinant of the total health cost. Bearing this in mind, it becomes very important that the procurement process be handled by trained staff using very good procedures, working in adequate offices with good communications, and with access to reliable inventory and consumption information. Good procurement management demands medical, pharmaceutical, managerial, economic, and often political expertise.

Different models of procurement may be used, for example, annual purchasing, scheduled purchasing, or perpetual purchasing. A combination of these models may be used at different levels of the system or for different drugs. Also, there are different methods used for procuring drugs, and these are: open tender, restricted tender, competitive negotiation, and direct procurement.

8.3.2.1 Personal experience and observations

In the Free State, the supply system is the type with a Central Medical Store (CMS) called the Free State Medical Depot (FSMD), that distributes EDs to all health facilities. The FSMD purchases drugs through annual restricted tender. The procurement staff work in adequate offices with good communication equipment such as telephones, fax and computers.

Prior to the year 1999, the pharmaceutical sub-directorate was also responsible for the procurement of the medicines for the province. This meant that the procurement component, namely, the Free State Medical Depot, fell under the pharmaceutical sub-directorate. It was however decided in 1999 to shift the procurement of medicines to the finance directorate. Despite this shift there was virtually no improvement in the procurement of EDs, and the FSMD is still experiencing considerable shortages of EDs.

8.3.2.2 Interviews

Was this then the right decision? This is what the Head of Pharmaceutical Services (HOPS) had to say when I asked that question:

“I doubt if that was the right move, I foresee problems in the delivery of service. The entire process of managing medicines should fall under one component in order that every problem regarding medicines is handled by the same people who will understand better”.

I asked whether reasons were given for the decision, and this is what the HOPS said:

“I was totally not convinced by the reasons given”.

Some questions arising from the above analysis are: did the supply of medicines to the health facilities improve or deteriorate following the shift of the procurement component to the finance directorate, or, did the management of finances and the procurement of medicines improve or deteriorate since the shift? Was there an improvement in the expenditure (decline) of medicines?

The CMS frequently experiences stock-outs of the very important chronic medications for example, hydrochlorthiazide, enalapril, and insulins. I therefore asked the CMS manager why this was allowed to happen. The answer received was:

“Contractors are not honouring their contract agreements. They simply tell you that the demand exceeded the production capacity, and they are very sorry!”

If someone does not honour an agreement entered into with other parties, I would expect that something be done to the culprit party to make up for the

failure. I therefore asked the manager of CMS what steps they take against the unreliable supplier, and the answer was:

“Well, nothing in particular, we only blacklist such supplier, with the result that such supplier will never be offered a tender. However, the problem comes with sole supplier of a particular medicine, where we become forced to beg and just wait”

The manager further highlighted a serious constraint in the drug supply system that limit a successful procurement by saying:

“We are unable to accurately quantify pharmaceutical needs because we don't get accurate past consumption data from all the customers we supply. One month the facilities order a huge amount of a drug, and then nothing for the next two months, and then half the quantity thereafter. This is very confusing for us and we can't keep enough stock as a result”.

I asked the depot manager if there was any improvement in the procurement of medicines since the shifting into finance component? The answer given by the manager was:

“Yes, things are more streamlined and direct. There are new things to do that may cause some delay in service delivery but we are coping and happy”

The group interview revealed the following constraints in the drug supply system that limit a successful procurement with the following comments:

Budget:

“Every year during the last quarter, the poor availability of drugs in the province reaches crisis point! We are told the old story of shortage of money to buy medicines. There's a serious problem with this budget allocation”.

Introduction of new systems:

“New systems in the procurement process are just introduced without ensuring that all concerned parties are properly trained. Many problems get discovered along the way with untold untoward effects – crisis!. Look at what happened now with the introduction of the Logis and the BAS systems, we were virtually at a standstill with no medicines at CMS and health facilities, we had to revert to the old system. We were moving backwards and forwards, indicating poor planning.

Comments:

Problems that emerged from the procurement discussions are the following:

- The consumption data from the health facilities is not reliable
- Budget allocation for medicines is not a transparent process and it does not include/involve key role players like district pharmacists, and hospital pharmacists.
- New procurement systems or finance procedures are introduced at random.
- Drugs are been considered the same as any other commodity by the supply chain management sections. Drugs save life and improve health and thus need to receive preferential treatment in the supply chain process.
- Contractors are not honouring their contract agreements and very little is done to make them comply.

The possible solutions to the above problems are:

- District pharmacists and hospital pharmacists should ensure that reliable consumption data is submitted monthly to the Central Medical Store (CMS)

- Budget allocation to be done in an open forum and also encourage frank debates. Explanations should be given when the allocation is different from what was requested
- Sufficient planning and piloting be conducted before any new system and/or changes are introduced. The plan should clearly specify what the new system entails or what changes need to be done, and most important, the plan should specify what should be done should the new system fail.
- Standard Operation Procedure (SOP) for buy-outs (the buying of goods from other suppliers when the contracted one is unable to supply) be developed.
- Alternatively, the contract should be split between two suppliers. If it is the question of sole supplier, then a substitute drug(s) must be identified already, and the information of such substitute be conveyed to the facilities immediately the supplier fails to deliver.

8.3.3 Distribution

After the procurement of drugs, the distribution process must follow. The distribution cycle begins when drugs are dispatched by the manufacturer or supplier. It ends when drug consumption information is reported back to the procurement unit (Osterblad, 1990).

The major activities of the distribution cycle include the following:

- Port clearing or dispatch by suppliers
- Receipt and inspection
- Inventory control
- Storage
- Requisition of supplies
- Delivery
- Dispensing to patients
- Consumption reporting

Port clearing or dispatch by suppliers is not of any relevance in this study.

Dispensing to patients and consumption reporting will be discussed under the “Usage” section as depicted in the Drug Management Cycle.

The other activities in the distribution cycle, that is, receipt and inspection, inventory control, storage, requisition of supplies, and delivery are all taking place at FSMD.

Receipt and inspection must be carried out by the staff of FSMD immediately when stock is delivered. The new stock must be kept separate until the inspection has been completed. The receiving staff or inspectors must check for damaged items, missing items, compliance with contract conditions concerning drug type, quantity, presentation, packaging, labelling and any special requirements.

The inventory control system is used for requisitioning and issuing of drugs, financial accounting, and preparing the consumption and stock balance reports necessary for procurement. Accurate and detailed record keeping must prevail in order that an audit trail that traces the flow of drugs and funds can be established (Compton, 1985).

Storage facilities are meant to house all the procured drugs and are meant to maintain drug quality, minimize loss through theft and also maintain a regular supply to health facilities.

The requisition system may be manual or computerised, but should always be designed to simplify distribution by facilitating inventory control, providing an audit trail for tracing the flow of drugs, assisting in financial accounting, and listing drugs issued. The supply system may operate under a pull or a push system.

Delivery can be done by Central Medical Store (CMS), or the health facilities can collect. Stock can be transported in many ways, eg road, railway, and air. The CMS can provide its own transport or it can outsource it. Cost-effective choices for transport method need to be made by the CMS management.

A well-managed CMS is characterised by the following:

- store that is divided into zones that provide a range of environmental conditions and degrees of security

- zones to suit every item to be stored
- arranged stock within each zone according to some orderly system
- stock stored on pallets or shelves
- good handling equipment
- good housekeeping – cleaning, disposal of expired drugs and damaged stock, and the management of security.
- clearly defined management structure
- appropriately qualified staff, trained, disciplined, and rewarded
- good working conditions and facilities for staff.

8.3.3.1 Personal experience and observations



The Free State Medical Store (FSMS) is receiving massive stocks of drugs from different suppliers. These shipments are all delivered by road using trucks. The receiver checks the number of cartons against a delivery note and signs it and keeps a copy. The goods are referred to as in-transit goods. The goods are later pushed into the store where they get packed on the shelves. Inspection is limited to checking damaged cartons only. The repercussions of this shortcoming by CMS is reflected at the health facilities who are receiving poorly packed drugs (leaking bottles of oral liquids; leaking jars of ointments).

The supply system at the CMS operates under the “pull” system, that is, the health facilities determine their needs and then send requests for stocks on an

approved requisition form. The CMS will issue all that is requested depending on availability.

Delivery of medicines to health facilities is outsourced to a private company. This private company uses its own vehicles and own personnel.

The CMS does have qualified staff who are mainly pharmacists. The rest of the staff gets trained on the job.

The working conditions for those working at receiving, storage, and dispatch areas are not good. In winter the areas become very cold and in summer they become unbearably hot. This results in a lot of absenteeism. The FSMD building was acquired from a private company that was using it for other industrial operations. In other words, the building was not originally built to serve as a medical store/depot. The building is situated amongst other similar buildings in the industrial area of Bloemfontein. Shortcomings experienced in this building such as extreme temperatures; security; spatial flows not conducive to work patterns, and despatch process, have been highlighted on several occasions at different forums. There were promises that the matter would receive attention very soon. Security was attended to after suffering losses due to theft; but nothing could be done structurally to improve the temperature controls, although staff were provided with protective clothing, which however did very little to solve the problem. The medication as such is also exposed to these extreme temperatures, consequently resulting in the deterioration of the quality of medicines stored there. Talks about whether to

renovate the existing building or to erect a new suitable building for the storage of medicine have been surfacing, and according to the FSMD manager, major renovations are envisaged. It is very quite unclear why this problem has perpetuated that long, however, it could be speculated that there was lack of or insufficient commitment from all stakeholders.

8.3.3.2 Interviews

The CMS has on several occasions fallen behind schedule with issuing of medicines to the health facilities. During an interview with the pharmacist responsible for the issuing of stock he said the following:

“We are highly short staffed. We are caught up, or we are so to say in a catch 22 situation, where we are training support personnel, and you find more than half of them away from work, studying. During such times the packing of orders virtually comes to a halt. We are still trying to find a way of solving this problem, and most probably could be solved by hiring temporary workers, of-course we need permission from higher up for that”.

The pharmacist went on further to comment about overtime work by saying:

“Yes, we have tried the overtime strategy and it seems to be counter productive and costly. We don't want this to become a norm as people will just slow down hoping to do overtime”.

Districts have also assisted the FSMD on many occasions, by sending personnel to come and fetch medicines for their facilities. I therefore asked the pharmacist whether the FSMD has the capacity to handle the whole province:

“I would say no, it would be better to decentralise and perhaps have at-least two CMSs, because you know, the bigger the institution the bigger the staff needed and the more the problems of theft and the like. Again you must remember that people are highly unionised and some misuse the privileges and that leads to unending disciplinary hearings”.

The group discussions also reiterated the fact that the working conditions are poor for staff working at receiving, storing and dispatch areas:

As one member puts it:

“The conditions there at the back are encouraging absenteeism and a lot of moving out of the building which is a security risk, when people think of coming to work the following day they just feel sick”.

The group also had the same thinking about the capacity of the FSMD to handle the orders of the whole province:

“Why not create three CMS or sub-stores, one in the east the other in the north and the present one could only serve the central Free State”.

Comments:



Problems that emerged from the distribution facet are the following:

- The Free State Medical Depot (FSMD) is the sole supplier of drugs to the whole Free State province, and therefore under tremendous pressure to deliver a service. The slightest problem encountered by the CMS affects the whole province.
- The working conditions at FSMD are not pleasant and contribute to absenteeism by those staff members who are receiving, packing and dispatching stock. Extreme temperatures are the biggest problem – very cold in winter and very hot in summer. These extreme temperatures are also not proper for the storage of drugs and will result in drugs that are spoiled and ineffective.

- Staff shortages are experienced at FSMD as a result of absenteeism – as explained earlier - and also as a result of the training programmes (training as pharmacist’s assistants).

Possible solution to the problems in the distribution facet are:

- The FSMD should be decentralised, with the establishment of sub-depots for each region. There are government buildings that have been abandoned and could be used for this purpose in order to save the cost of building new structures; or certain hospitals could also be earmarked to serve as sub-depots
- Reduce absenteeism by improving working conditions at FSMD. The cost to do the improvements should be determined and be budgeted for. The improvements are necessary because this will also satisfy the requirements for the storage of drugs.
- Training schedules at CMS must be streamlined so as to avoid staff shortage.

8.3.4 Drug Management for Health Facilities

Drugs are used at health facilities in response to the clinical needs of the patients. However, for these drugs to be available at the facilities, they have to be ordered from the suppliers, in this case, the CMS. The determination of quantities to be ordered is based on the consumption information. At PHC

facilities, the nursing personnel or pharmacist's assistants are responsible for the ordering of drugs, and in hospitals the pharmacists are responsible.

Every health facility, however large or small, needs to store and manage its drug stock. There must be systems to ensure

- secure storage
- storage in correct environmental conditions
- accurate record keeping
- effective reordering
- effective stock rotation and expiry monitoring
- effective fire and theft prevention

A Drug Supply Management (DSM) course has been developed and nursing personnel at PHC facilities are trained on this course. DSM is actually a simplified form of an inventory control system. The elements of the DSM process are the following:

- How to choose and prepare a medicine store
- How supplies are arranged in the store
- How records are kept
- How supplies are ordered
- How supplies are received
- How supplies are dispensed

Having received the DSM training, the nursing personnel return to their facilities with the mandate of applying or putting into action all they have learnt.

8.3.4.1 Personal experience and observation

There is poor inventory control at the PHC facilities. The stock cards at most clinics are incomplete and/or with inaccurate information. Supplies are not checked immediately when they are received, and could be checked some weeks later. Discrepancies are discovered late for reporting, and FSMD does not accept liability for that. According to FSMD, discrepancies must be reported within 48 hours of receiving stock. The training on Drug Supply Management (DSM) that was done for each nursing and support personnel is not practiced because of staff shortages and resultant overworked staff.

8.3.4.2 Interviews



In an interview with some of the nursing personnel who underwent DSM training, I wanted to know why is this knowledge not used or why is DSM not practiced successfully, and the answer was:

“We really don’t have time to write up all those papers. You keep on telling yourself that you will do it after a certain time and we never get to that. It is too much work for us really”.

I was eager to know how they quantify their pharmaceutical needs if they do not practice proper inventory control at the facility:

“Most of the time we just estimate. We check on previous orders and just increase the quantity of items a little”.

“What is the point of having accurate stock record because we never get what we ordered on time from the CMS. Stock comes here in bits and drabs you even loose track of what you ordered”.

“We can be out of stock for months and then one day you get a huge quantity of stock and you end up not knowing where to store it”.

“We end up not knowing how much to order because we don’t get a regular delivery. For example, if I order this month and I don’t receive what I ordered, what should I do, just sit and wait for the next month? No, I submit another order because I don’t know what happened to the previous one. You know, I don’t want to be blamed for not ordering medicines”.

The group discussions pointed out that inventory control is not practiced at PHC facilities because the nurses do not see the benefit of doing it:

“I think the nurses tell themselves this: we do it and then what – nobody comes to check anyway, and if something is wrong whom are they going to blame we are all going into that store”



Comments:

Problems that emerged from Drug Management at PHC facilities are the following:

- The management of drugs at health facilities, especially PHC facilities, is very poor. Inventory control is not done adequately and therefore the quantification of pharmaceutical needs is not justified.
- Nursing personnel not motivated to do proper inventory control; or they are overstretched by the roles they play in the clinics.

- Storage capacity of PHC facilities is inadequate, in most cases very small. This renders the storage of drugs problematic, and drugs are subsequently stored all over the clinic and just on the floor.
- Security of drugs at PHC facilities is not adequate because of the stores being managed by many people.

Possible solutions to the problems in the Drug Management at PHC facilities are the following:

- The benefits of good inventory control should be highlighted at all times, and facilities that are practising good inventory control be used as examples so as to encourage others.
- Training of new nursing personnel at clinics on inventory control (Drug Supply Management) to be conducted.
- The building of proper dispensaries/pharmacies be prioritised and be funded. All equipment needed for proper storage of drugs be acquired and be installed. The cost should be determined and be budgeted for. District Pharmacist should draw up priority list, and clinics that need urgent attention should be targeted first.
- The training of pharmacist's assistants must be speeded up as much as possible. The ratio of tutor to trainee of 1:3 as specified by the South African Pharmacy Council (SAPC), be increased to 1:5. SAPC does allow for such deviation if fully

motivated for. Tutors to be encouraged to take up the challenge of supervising extra trainees.

8.3.5 Use of EDs

This is the last step in the drug management cycle. This step refers to the rational use of drugs, and gives examples of the irrational use of drugs and the adverse effects that can result.

Now that drugs have been delivered and received at the health facilities, they must be rationally used by the prescribers, dispensers, and the consumers (patients).



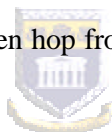
The rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community (MSH, 1997).

Irrational drug use occurs with poly-pharmacy, with the use of wrong or ineffective drugs, or with under-use or incorrect use of effective drugs. These actions have an adverse impact on the quality of drug therapy and cost, and may cause adverse reactions or negative psycho-social impacts.

8.3.5.1 Personal experience and observations

The prescribers are using the Standard Treatment Guidelines (STG) and Essential Drug List (EDL) more often and rational drug use has improved. Private doctors employed on temporary basis are also using the STG/EDL manuals. From the District Health Information reports, the average items per prescription ratio is 2 which is good. This is also what I observed during my visits to some of the clinics.

The main problematic area in drug use is the consumers or the public. The public still believe that they should be given a lot of medicines for every clinic visit. If they do not get medicines from prescribers and dispensers who practice rational drug use, they will often hop from one clinic to the other.



8.3.5.2 Interviews

During an interview with one of the nursing personnel who was prescribing to patients I was told the following with regards to patients demands of medicines:

“These patients are very rude, they tell us to give them the damn medicines because they want it, whether sick or not. Some even go to the extent of trying to assault you should you keep on refusing to give medicines”.

One followed up and said:

“When we tell them that there’s no medicines they howl at us and say we must take out the medicines we are hiding because

we want to take them home for our families and they should die. It sometimes becomes scary to work here. People don't respect us you know!"

Another one said:

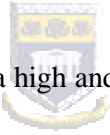
"If we have the medicine we just give for the sake of peace; our safety comes first".

One commented on the free service people receive at clinics:

"I so wish that one day people will be made to pay something for this medicines; we cannot carry on like this forever! People are very unthankful, they waste so much money by coming to clinic everyday and demanding medicine. Uh! This country will be bankrupt I tell you!"

Comments:

The problems that emerged from this phase of drug management are:

- 
- The public has a high and often inappropriate demand for medication with on occasion the demand being expressed aggressively.
 - If the demands for medication are not fulfilled then patients frequently resort to hopping from one clinic to the other with the hope of having their medication demands satisfied at one of the clinics.

Possible solutions to the usage of drugs problems are:

- Introduction of public education campaigns on drug use

- Introduction of patient monitoring measures for instance, introducing patient held cards on which their diagnoses and summary treatment are recorded.

8.3.6 Management Support

For a wheel to cycle or rotate properly without wobbling or losing direction, a very strong axle should support it at the centre. This is also true for the Drug Management Cycle (DMC).

A great deal of attention has been given, up to now, to the cycling parts of the DMC namely, selection, procurement, distribution, and use. It is now time to focus at the centre of the cycle where we find the axle, namely Management Support.



The management support systems hold the DMC together. Although individual parts of the cycle may function independently for a short time, the cycle as a whole will soon cease to operate if there is a lack in Management Support. Management support is therefore of utmost importance and is needed to keep the cycle turning (MSH, 1997).

Management support systems consist of the following parts:

- functional organization structure
- adequate financing
- reliable management information


- motivated staff

8.3.6.1 Personal experience and observations

The financing of medicines is not adequate. The process of financing medicines is not transparent. Information to management is lacking and/or unreliable.

8.3.6.2 Interviews

The group discussed the issue of who should be involved in determining the budget for medicine and said:



“The District Pharmacist should be involved in the determination of of the budget for medicines, right now we don’t know what’s happening, they ask for inputs and you give them the figure, but they will allocate half of what you indicated”

“Then, towards the end of the year they tell you that there is no money to buy medicines”

“I wish somebody can come and tell us how this financing works, you remember the time of the previous MEC, when they said there’s no money, money came from somewhere and medicines were bought for the next four months; I mean currently the CMS was saying that it can’t pay its suppliers!”

Regarding information to management, the group indicated as follows:

“We seem not to be knowing what to report to management at the same time, management does not know what information to ask for routinely. It is only when we face a crisis that information will be sought”

“Most of the time very little is done about the information demanded during a crisis. We run around looking for information that should have been coming regularly to management”

I asked whether there was enough support from management so as to motivate staff:

“Very little support we get, look now what’s happening, the newspapers reported the very same thing we reported, nothing was done when we reported but when the newspaper reported it became a big issue. We are told to do things it doesn’t matter how and when, we can claim for overtime worked, something which you can’t do normally. It’s discouraging you know!”

Is management really taking pharmaceutical services serious, I asked?

“No! I don’t think they ever dream of us! And they forget that we are responsible for the most important commodity in the province – medicine, everybody is looking for medicine, young and old”

Comments:



The problems that emerged from this section are:

- There is little visible support from management
- There is a perception that management does not engage itself with continuously assessing pharmaceutical problems. They only react when there is a crisis, and after the crisis they disappear.
- There is no routine information actively sought by management about pharmaceutical services
- The information given to management about availability of medicines in the districts is unreliable.

The possible solutions to the problems are:

- Management to develop indicators for routine reporting by the pharmaceutical services. Management should institute procedures which would allow them to be aware of what the pharmaceutical services is doing and what problems they are encountering.
- Drug availability reports must be standardised and everyone involved in the collection, collation and analysis of data should be adequately trained

8.4 Conclusions reached after analysing data from documents, observations, personal experience and interviews,

I conclude this section by tabulating the identified major problems/barriers and the potential solutions.

Table – 4. Summary of Barriers and Solutions

PROBLEMS/BARRIERS	SOLUTIONS
Selection	
District PTCs are non-functional	Revive district PTCs
Provincial PTC not effective	Provincial PTC to convene more often
PTCs only focusing on adding medicines to the formulary	PTCs to consider other issues of selection for example, determining the disease patterns, determining which hospital medicines can be shifted to PHC level of care
Provincial PTC dominated by tertiary level academics	Membership to the provincial PTC to be representative of all levels of care, and selection to be based on set criteria

Marketing of medicines by suppliers is directed at academics because of their strategic position in the PTC.	Marketing information to be made available to the pharmaceutical component as well.
Procurement	
The consumption data from the health facilities sent to CMS is not reliable	District and/or hospital pharmacists to ensure that data sent to CMS is reliable
Budget allocation is not a transparent process and does not include key role players. New procurement systems or finance procedure introduced at random	Budgeting to be transparent and to include key role players Sufficient planning and piloting to be conducted before introducing new procurement systems
No priority given to medicines by the supply chain management section	Supply chain management component to be briefed on the prioritisation of medicines during procurement
Contractors/suppliers not honouring their contract agreements and nothing gets done to them	SOP on buy-outs to be in place; alternatively, contracts to be split between suppliers; for sole supplier alternative drugs to be identified.
Distribution	
The CMS is the sole supplier of drugs to the health facilities and thus over-stretched	The idea of sub-stores be explored and be researched fully
The working conditions at CMS not pleasant and contribute to absenteeism – eg. extreme temperatures	Working conditions be improved at CMS
Training of support personnel result in staff shortage at CMS	Training of staff be streamlined and be organised in a more systematic manner
Drug supply management/inventory control at health facilities handled very poorly	The benefits of good inventory control be highlighted and facilities practicing good inventory control be used as examples
Nursing personnel not motivated to do inventory control and over-stretched by other roles	Training of new nursing personnel on inventory control be conducted
Storage capacity at health facilities is inadequate, in most case very small	Facilities with inadequate storage capacity be identified, cost of improvements be determined and be budgeted for.

Security at health facilities inadequate for medicines	Security for medicines at health facilities be upgraded according to policy and legal requirements
Use	
High and inappropriate demand for medicines by the public	Educating the public on the safe and proper use of medicines.
Management Support	
There is little visible support from management	Management representative to attend pharmaceutical meetings more often
There is a perception that management does not engage itself with continuously assessing pharmaceutical problems	Management to provide feedback on problematic issues presented it
There is no routine information actively sought by management about pharmaceutical services	Management to develop indicators for routine reporting on pharmaceuticals.
The information presented to management about the availability of medicines at health facilities is unreliable.	A reliable information system for pharmaceuticals be developed and implemented

The above problems and potential solutions served as inputs for the workshop held to refine the solutions and discuss the feasibility of implementing them in a phased manner using the approach that high priority and easily implementable solutions would be implemented first. The workshop also deliberated on and suggested ways of monitoring the implementation of solutions as well as ways of monitoring drug supply.

8.5 The Workshop

A workshop was held in order to confirm that the tentatively identified barriers during the analysis were indeed barriers, to ascertain if there were any other barriers, to determine if the tentative solutions were appropriate and applicable, to identify alternative solutions or to modify and flesh out the solutions, to lay the groundwork for implementation and to initiate the development of a monitoring system for tracking the implementation of solutions as well as the tracking of the overall drug supply system. The workshop format was used as it was time efficient and it allowed the inclusion of several other stakeholders in the drug supply process, thereby broadening the range of views and increasing the likelihood of solutions being implemented.



The workshop is described below in 2 sections. Firstly a summary of participants and the procedures followed is outlined and secondly the outcome of the workshop is described in detail.

8.5.1 Description of the Workshop

A summary description of the participants at the workshop and the procedures followed during the workshop are listed below.

- **Numeric and staff category description of participants:**

District Pharmacists	3
Pharmacist from CMS	1
District Hospital Pharmacists	3
Pharmacist's Assistants	7
Clinic Supervisors (Prof. Nurses).....	7

Other Prof Nurses (Prescribers)	10
District Medical Officer	1
District Manager	1
Assistant Manager Finance	1
IT & Communications Supervisor	1
District Procurement Officers	3
Total	38

Apologies due to other commitments were as follows:

Manager: Provincial Pharmaceutical Services

Senior Manager: Health Support Services

- Procedures followed:
 - (a) I welcomed the participants and asked for self introduction by the participants
 - (b) I then introduced the subject and the purpose of the workshop.
 - (c) I asked the participants to peruse the identified barriers and potential solution that were drafted and circulated to all participants before the workshop.
 - (d) Thereafter, I opened the session for discussion of the barriers and solutions. The discussions were meant to assess if the suggested barriers were indeed barriers and if so whether the solutions proposed were

appropriate, likely to be implemented and if implemented likely to succeed.

- (e) Following from this discussion the workshop was able to prioritise a few problems with their associated tentative solutions. It was then agreed that the remainder of the workshop would be devoted to fleshing out these tentative solutions with the aim of making them implementable, attach objectives to them and devise ways of monitoring them.
- (f) The workshop was then split into five groups. Each group was allocated 3 problems to concentrate on. Several of the problems were allocated to more than one group in order to broaden the breadth of proposed solutions. The groups were required to assess and modify the solutions as and if required, to come up with practical steps around how to implement the proposed solutions, and how to monitor the implemented solutions.
- (g) Each group had a spokes-person who presented the deliberations of the group to the plenary session of the workshop.
- (h) The plenary session of the workshop then further discussed the proposals of the groups and based on consensus finalised proposed solutions, and considered how they could be monitored. I then asked the

participants to study for about 10 minutes the identified barriers and potential solution that were drafted and circulated.

- (i) Thereafter, I then asked for discussions. The discussions were meant to analyse the drafted barriers and solutions and to make decision on the solutions to be implemented
- (j) The solutions agreed upon were divided amongst the participants who were divided into five groups. The groups were to analyse the solutions and come up with practical steps of how to implement the solutions, and how to monitor the implemented solutions. I gave the groups 45 minutes for this group discussion.
- (k) Each group had a spokes-person who presented to the whole group for further discussions
- (l) The whole group also discussed the implementation process.

8.5.2 Outcomes of the workshop

After in-depth deliberations, the workshop decided to adopt the all the problems/barriers and solutions that were identified during the first phase of observations and interviews. A further problem and namely that the privatised transport system used for delivery of drugs from the FSMMD to the facilities was slow and inefficient. The proposed solution for this problem was that the

transport system should be examined more closely, that is should be made transparent, that the awarding of the distribution tender be equitable, that the sharing of the tender between 2 or more companies be considered in order to stimulate competition and that management should institute oversight procedures for this privatised service. None of the workshop participants suggested that the service revert to the health department rather than being privatised. This seems to indicate that although there are problems, they are likely to be less than existed before the service was privatised, or the participants assumed that reverting the service to the health department is unlikely to result in the problems being solved.

An additional solution of introducing a fee at PHC facilities, aimed at curbing the inappropriately high demand for drugs by the public, was suggested. This idea was mainly supported by the professional nurses who are prescribers at the clinics. However, this idea was later abandoned after it was noted that the introduction of such a fee would affect those that cannot afford to pay the a fee. It was feared that the majority of the population - from previously disadvantaged communities – could eventually be excluded from receiving health care services, while the wealthier group of patients who can afford and who are more likely to abuse the system, would then have inequitably higher access to public health care services.

The workshop had intended to kick-start the development of a monitoring system for tracking the implementation of solutions and for tracking the overall drug supply system, but was unable to attend to this task due to time constraints. To address this shortfall in the initial aim, the workshop decided to propose the formation of a Monitoring and Evaluation Team (MET). This team will be responsible for planning, supervising and analysing the monitoring and evaluation information. It was decided that MET be constituted by the following people:

- District Pharmacist
- Pharmacist's Assistant x1
- Local Area Manager
- District Health Information Officer
- Clinic Supervisor x1
- Procurement Officer x1



Prioritised problems and associated solutions were dealt with in detail by the workshop via small groups and in plenary session. The solutions were fleshed out in order to make them more likely to be implemented and objectives for each of the phases of the solution were devised. A summary of the phased objectives of those solutions are tabulated below:

Solution 1: Establishment of a district PTC

Solution Objectives	Monitoring Objectives	Evaluation Objectives
To establish a district PTC	<ol style="list-style-type: none"> 1. Membership and structure of PTC to be in place. 2. Members to be officially notified. 3. Members to have received notice of meeting and agenda by specific date. 4. First meeting of PTC to convene by a specific date. 	Whether a district PTC is established within the timeframes set.

Solution 2: Valid and accurate consumption information is supplied to Central Medical Store in a timeous manner.

Solution Objective	Monitoring Objectives	Evaluation Objectives
To ensure that consumption information sent to CMS is valid accurate and timeous	<ol style="list-style-type: none"> 1. Determine what the current information is, and what type of information is needed 2. Develop data collection tool by specific date. 3. Train 65 data collectors by specific date 4. Collect data from all clinics by specific date. 5. Data analysed and information sent to CMS by specific date 	Information sent to CMS is valid accurate and timeous

Solution 3: Budgeting to be transparent and all key role players are included in the budgeting process.

Solution Objective	Monitoring objectives	Evaluation Objectives
To ensure that budgeting is transparent and all key role players are included in the budgeting processes.	<ol style="list-style-type: none"> 1. Identify and inform all role players. 2. Schedule budget training or information session by specific date. 3. Receive budget inputs from all role players by specific date. 	Budgeting is transparent and all role players are included.

Solution 4: First priority to be given to medicine orders

This solution has already been partly attended to by the recent appointment of three procurement officers who specifically deal with medicine procurement.

These procurement officers are stationed in the office of the District

Pharmacist. All orders from PHC facilities in Lejweleputswa district are sent

to the office of the District Pharmacist for processing, and these orders are

thus handled immediately by these officers. The delay previously experienced

during the processing of orders was significantly reduced. It is now possible to

completely process orders the same day that they are received.

Solution 5: Improve management of inventory control at PHC facilities

Solution Objective	Monitoring Objectives	Evaluation Objectives
Increase to 100% the number of facilities with good inventory control mechanism.	<ol style="list-style-type: none"> 1. Do baseline study to determine facilities not practising good inventory control. 2. Identify the problems encountered in practicing inventory control by specific date. 3. Conduct training on specific gaps identified by specific date. 	100% PHC facilities with good inventory control mechanisms.

Solution 6: Storage capacity at PHC facilities to be improved to meet the demand.

This solution is currently been attended to by both Provincial and District managements through a programme called Clinic Upgrading and Building Programme (CUBP).

The CUBP has a committee that meets every month to discuss and assess inputs from the district regarding structural changes needed at PHC facilities. The committee members are appointed by the Head of the Health Department based on their skills and knowledge of management and building construction, for example, an architect. The team visits all the facilities indicated as needing improvement to assess. Thereafter, the team will approve and then prioritise.



The CUBP have a budget which is the responsibility of the committee. The committee after approving everything invites tenders to do the upgrading. This is a slow process, and currently there is a backlog on identified and submitted needs. Appeals to fast-track the process have been submitted, with no or little visible success.

Solution 7: Upgrading of security measures at PHC facilities

This solution is also currently attended to by CUBP. This is actually coupled to the upgrading process. Security measures here means the installation of bugler proof at doors and windows of medicine stores. Yale locks or similar locks must also be fitted to all medicines cupboards used by the nursing

personnel. This process is fast tracked by the use of local procurement process of buy-outs and the engagement of local artisans to do the fitting.

Security in terms of access by the public or unauthorised staff members is addressed through training of the responsible clinic supervisor or pharmacist's assistant. Ins pections are performed at random by the District Pharmacist and/or Local Area Managers to determine compliance and to re-emphasize the need for security at areas where medicines are stored or kept. Key policies are developed and implemented.

Solution 8: E ducating the public on the proper use of medicines.

Solution Objective	Monitoring Objectives	Evaluation Objective
Educate and train the public on the proper and appropriate use of medicines.	<ol style="list-style-type: none"> 1. Prepare education materials on appropriate drug use. 2. Conduct opportunistic education in the waiting rooms of facilities on the appropriate use of drugs. 3. Provide pertinent information on medication when attending to patients, prescribing drugs and when dispensing drugs. 4. Widely distribute education materials on appropriate drug use. 	Decreased inappropriate demand for drugs by the patients.

9. LIMITATIONS OF THE STUDY

The research was on two occasions overtaken by crisis events where the availability of EDs at health facilities had reached crisis point, and a solution was sought very urgently. Meetings were held and tasks given, and this resulted in a lot of derailment of the time scheduled for this research. The respondents were very busy with the tasks given to find the short-term solution and it was difficult to find time to adequately interview them.

The crisis may have also resulted in the following:

- it might have affected the views of the interviewees
- it might have made it easier for the interviewees to voice complaints
- it might have influenced the interviewees to minimise the positive things and induce them to look for faults.



I had to do individual interviews and interviews of small groups rather than just individual interviews, because of time constraints.

Although it was hoped to develop practically implementable solutions, it was not possible to develop many of the solutions to the level of detail required for them to be implementable.

The workshop was unable to allocate responsibility to relevant individuals for ensuring that for those problems for which sufficiently detailed solutions to allow effective implementation were identified, actually get implemented. The workshop was unable to do this as it had no authority to assign responsibilities to individuals.

The objective of developing an information system for ongoing monitoring and evaluation of the drug supply system, could not be attended to due to time constraints and may have been too ambitious an objective for this mini-thesis, given the amount of time that had to be devoted to the other objectives of the mini-thesis.



10. CONCLUSION

This study aimed to identify barriers to the availability of Essential Drugs at health facilities, to identify implementable solutions to those barriers, to develop a monitoring system for tracking implementation of solutions and for tracking drug supply.

There are barriers that are linked to the drug management processes within the district, whilst other barriers are linked to processes outside the district, for example, barriers linked to the Central Medical Store (CMS). The study has revealed that barriers exist throughout the entire drug management cycle of selection, procurement, distribution, use and management support. These barriers and tentative suggested solutions have been outlined in table 4.



Several of these barriers/problems and tentative solutions identified were then prioritised for implementation and detailed solutions to them were devised at a workshop involving key stakeholders. It was hoped to develop an information system for monitoring the implementation of solutions and the monitoring of the drug supply system but this was not feasible due to time constraints.

It is hoped that the outcomes of this research will help not only Lejweleputswa District to improve their EDs supply, but might also serve to guide other districts or provinces with similar drug supply systems, in their endeavours to improve the availability of EDs at their PHC facilities.

11. RECOMMENDATIONS

I recommend the following:

1. That Lejweleputswa District Management actively supports the implementation of the solutions that have been identified at the workshop, and takes ownership of the implementation of them as well as the monitoring and evaluation process.
2. That the first meeting of the proposed Monitoring and Evaluation Team be held as soon as possible.
3. The provincial management should actively support the implementation of suggested solutions.
4. The provincial PTC should be representative of all levels of health care.
5. CMS should institute procedures to terminate the contracts of contractors who are unable to honour their contracts.
6. The working conditions at CMS should be improved.
7. The idea of pharmacy sub-depots should be further explored or researched fully.

8. Management should be actively involved in all the processes of drug management and supply.



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Appendix 1.

Distance of towns from Bloemfontein (Head Office & FSMD) and Welkom (Lejweleputswa Health District Office)

TOWNS IN DISTRICT LEJWELEPUTSWA	BLOEMFONTEIN (Head Office)	WELKOM (District Office)
	KM	KM
Allanridge	200	40
Boshoff	100	240
Bothaville	240	80
Brandfort	60	100
Bultfontein	98	75
Dealsville	50	220
Hennenman	170	37
Hertzogville	130	197
Hoopstad	148	99
Odendaalsrus	178	18
Soutpan	40	190
Theunissen	110	55
Ventersburg	150	54
Verkeerdevlei	80	150
Virginia	140	24
Welkom	160	0
Wesselsbron	150	45
Winburg	130	100