Improving Pharmaceutical Service Delivery at Provincial Primary Health Care Clinics in the Ethekwini South Sub-District

by

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Confidentiality Clause

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To whom it may concern

Re: Confidentiality Clause

Due to the strategic importance of this research, it would be appreciated if the contents remain confidential and not be circulated for a period of five years.

Sincerely

V Naicker

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Abstract

The Department of Health adopted the District Health System as a means to unify South Africa's fragmented health services into a comprehensive, integrated National Health System (NHS). The Primary Health Care (PHC) approach is the driving force in promoting equity and accessibility to essential PHC services. Successful implementation of the PHC approach is in part, dependent on the availability of essential drugs, which impacts on patient quality of care and well-being. According to a report compiled by Pillay, McCoy and Asia in 2001, the pharmaceutical component of the health sector reflected deficiencies in terms of the lack of equity in access to essential drugs, irrational use of drugs, poor security and cost-ineffective procurement and logistic practices. This study utilised a case study approach to examine the suitability, acceptability and feasibility of implementing a Public-Private Partnership (PPP) between the KwaZulu-Natal Department of Health (KZN DOH) the private provider, to improve pharmaceutical service delivery at provincial PHC clinics in the Ethekwini South Sub-District (ESSD). Participative observations and semi-structured interviews conducted at PHC clinics in the target area provided valuable insight into problems of drug management supply, adherence to effective and rational prescribing and dispensing practices and additional training needs of the nurses. This study found the proposed PPP complementary to the mission and objectives of the Provincial DOH and suitable within the socio-political environment, in which the private provider operates. Recommendations were made to improve upon weaknesses inherent in the value chain and address deficient resources, capabilities and competences necessary to attain the PPP's critical success factors. The implementation of the proposed PPP rests on the ability of the private provider, to prove to the Provincial DOH and the National Treasury that the PPP is affordable, represents value for money and is in keeping with the goals of the NHS. Therefore, recommendations for management of these and other key stakeholders were made. On completion of all necessary modifications to the proposed model, the revised PPP to improve pharmaceutical service delivery at PHC clinics in the ESSD was found to be suitable, acceptable and feasible to both the KZN DOH and the private provider.

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Glossary of Abbreviations

AHC = Amalgamated Health Care

AIDS = Acquired Immunodeficiency Disease Syndrome

ASO = Auxiliary Service Officer

CPI = Consumer Price Inflation

DCF = Discounted Cash Flow

DHS = District Health System

DOH = Department of Health

DOH-L = Department of Health in Limpopo Province

DSM = Drug Supply Management

EDL = Essential Drug List

ESSD = Ethekwini South Sub-District

FCRA = Functional Resource and Capability Analysis

HASA = Hospital Association of South Africa

HIV = Human Immunodeficiency Virus

HSA = Health Science Academy

HST = Health Systems Trust

ISDS = Initiative for Sub-District Support

KZN = KwaZulu-Natal

LC = Local Community

LG = Local Government

MARSCA = Medicines Control Act 101 of 1965

MPC = Monetary Policy Committee

NDOH = National Department of Health

NHS = National Health System

NDP = National Drug Policy

NGO = Non – Governmental Organisation

PDOH = Provincial Department of Health

PG = Provincial Government

PHC = Primary Health Care

PMMH = Prince Mshiyeni Memorial Hospital

PMSC = Provincial Medical Supply Centre

RBV = Resource Based View

RDP = Reconstruction and Development Programme

RSA = Republic of South Africa

TB = Tubercolosis

TU = Trade Union

SAPC = South African Pharmacy Council

SLA = Service Level Agreement

UNICEF = United National Children's Fund

VCA = Value Chain Analysis

WHO = World Health Organisation

Glossary of Definitions

For the purpose of this study the following definitions applied:

Anti-psychotics (Wikipedia, 2003):

The term anti-psychotic is applied to a group of drugs used to treat psychosis. Common conditions with which anti-psychotics might be used include schizophrenia, mania and delusional disorder; although anti-psychotics might be used to counter psychosis associated with a wide range of other diagnoses. Anti-psychotics also have some effects as mood stabilisers, leading to their frequent use in treating mood disorders (particularly bipolar disorder) even when no signs of psychosis are present.

Category A Municipality (LG, 1998):

A municipality that has exclusive municipal executive and legislative authority in its area. It includes metropolitan government with ward committees and metropolitan government with metropolitan sub-structures.

Category B Municipality (LG, 1998):

A municipality that shares municipal executive and legislative authority in its area with a Category (C) municipality within whose area it falls. It includes urban municipalities, amalgamated urban-rural municipalities and rural municipalities.

Category C Municipality (LG, 1998):

A municipality that has municipal executive and legislative authority in an area that includes more than one municipality. It includes district government.

Clinic (KZN DOH, 2000):

A facility at and from which a range of primary health care services is provided and that is normally open eight or more hours a day based on the need of the community to be served.

Community Health Centre (KZN DOH, 2000):

A facility that normally provides primary health care services, 24 hour maternity, accident and emergency services and beds where health care users can be observed for a maximum of 48 hours and which normally has a procedure room but not an operating theatre.

District Hospital (KZN DOH, 2000):

A hospital, which receives referrals from and provides generalist support to clinics and community health centres with health treatment administered by general health care practitioners or primary health care nurses.

District health system (Harrison, 1997):

The vehicle for providing quality primary health care to everyone in a defined geographical area. It is a system of health care in which individuals, communities and all the health care providers of the area participate together in improving their own health.

Environmental health services (KZN DOH, 2000):

The anticipation, identification, evaluation, monitoring, promotion and prevention or control of all physical, chemical, biological and aesthetic factors, which affect the development, health or well-being, and survival of a person or community

Essential drugs (DOH, 1996):

Drugs that are required to treat the majority of conditions that are prevalent in a country in a cost-effective and efficient manner.

Health district (Harrison, 1997):

A well-defined part of a province in which:

a) primary health care is delivered to all the people in that area

b) one health authority is responsible for PHC, including community based services, clinics and district hospitals

c) decisions about health care for that district are made by that district's health authority, and not at a higher level of the health department
d) communities have a real say over their own health care.

Pharmacotherapy (American Heritage® Dictionary of the English Language, 2003): Treatment of disease through use of drugs.

Primary Health Care Services (KZN DOH, 2000)**:**
Accessible first level health services included as part of the package of basic essential health services.

Provincial Tertiary Hospital (KZN DOH, 2000)**:**
A hospital, which receives health care users from and provides sub-specialist support to a regional hospital and requires the expertise of clinicians working as sub-specialists.

Regional Hospital (KZN DOH, 2000)**:**
A hospital which received referrals from and provides specialist support to a district hospital and where health care users require the expertise of teams led by resident specialists.

Scheduled substance (RSA Government Gazette No.7871, 1997):
Any medicine or other substance prescribed by the minister under section 22A.

Specialised hospital (KZN DOH, 2000)**:**
A hospital which provides care for specified groups of health care users.

Tertiary Institution (KZN DOH, 2000)**:**
Any institution providing health education at a tertiary level within the Province.

Chapter 1: Introduction

Health care delivery in South Africa, prior to 1994, was characterised by a two-tier system of private health care funded by medical schemes, which covered up to 20% of the country's population and a public sector, which was characterised by fragmentation of approximately fourteen health authorities. This resulted in the irrational use of resources, poor working conditions and inadequate infrastructure (Pillay *et al.*, 2001).

In keeping with the overall decision by the South African government to decentralise governance and management, the Department of Health (DOH) decided to create a unified but decentralised national health system via deconcentration, devolution, delegation and privatisation (Pillay *et al.*, 2001). This District Health System (DHS) model is based on a quality Primary Health Care (PHC) approach, aimed at improving efficiency and responding effectively to local health conditions and demands. One of the principles that DHS should comply with is a strict referral system whereby a patient visits a PHC centre first and is then referred to a district hospital, regional hospital and central hospital depending on the severity of the condition.

The pharmaceutical component of the health sector reflected deficiencies in terms of the lack of equity in access to essential drugs with a consequent decrease in the quality of care, rising drug prices, evidence of the irrational use of drugs, losses through malpractice and poor security and cost-ineffective procurement and logistic practices (Pillay *et al.*, 2001).

Therefore, the South African government implemented a NDP to address these deficiencies with the aim of 'ensuring an adequate and reliable supply of safe, cost-effective drugs of acceptable quality to all citizens of South Africa and the rational use of drugs by prescribers, dispensers and consumers' (DOH, 1996).

Success of the government's initiatives rests on the ability of health care workers to implement these policy changes effectively and efficiently. Adequate training and understanding of the underlying principles is essential.

The aim of this study was to evaluate the suitability, acceptability and feasibility of implementing a private public partnership (PPP), to manage the pharmaceutical needs of patients visiting PHC clinics.

1.1. Background

Prince Mshiyeni Memorial Hospital (PMMH) is a regional hospital situated in the district of Durban/Ethekwini. In keeping with the characteristics of the DHS, this hospital is classified as a regional hospital and currently manages eighteen provincial PHC clinics viz. Umnini, Imfume, Magabeni, Danganya, Nsimbini, Umzomuhle, D-clinic, Inkwali, Odidini, Osizweni, Folweni, Umbumbulu, Kwamakhutha, K-clinic, Ekuphileni, U21-clinic, V-clinic and Baniyena (KZN DOH, 2005a).

According to Pillay *et al.,* (2001), the DHS is based on quality PHC aimed at assisting the majority of people in preventative rather than curative care, thereby being more cost effective.

The District Health Management Development programme undertaken in KwaZulu – Natal (KZN) and run by the Centre for Health and Social Studies (CHESS), aimed 'to develop the delivery and management capacity of primary health care managers, administrators and service providers at the district level' (HST, 1997). On appraisal of four primary health care facilities, the following areas were identified as potential areas for action on quality:

i. Improving the availability of basic resources:

A checklist of essential infrastructure and equipment was devised and each facility was 'scored' as to the availability of these basic resources including buildings, supplies, staff and equipment;

ii. Addressing the 'process' of care in facilities:

A number of criteria were used to assess the quality of the care being provided. These included:

- Whether facilities provided integrated daily care,
- Appropriate patient flows,
- The percentage of patients suffering from Tuberculosis (TB), who completed treatment,
- The quality of care for other chronic diseases,
- The quality of child care services and
- Interactions between staff and patients;

iii. Meeting the needs of users and

iv. Improving management and support systems.

In light of the above criteria, the focus of this study was on the efficacy of drug supply management at provincial PHCs, the availability of essential drugs and the quality of maintenance therapy for people suffering from chronic diseases such as diabetes, hypertension and epilepsy.

The referral system for the target catchment area is as follows (elaborated on in chapter three):

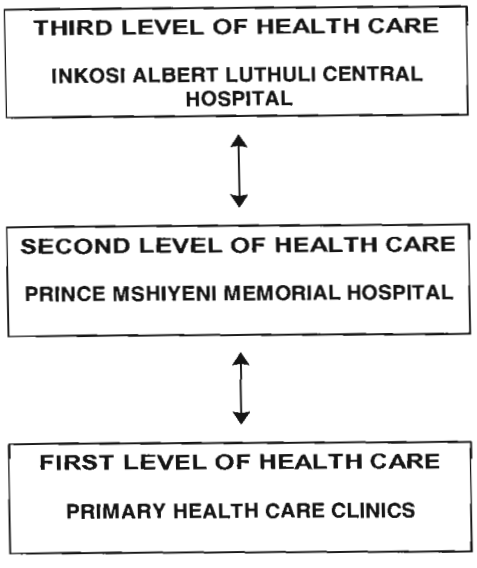


Figure 1.1: Referral System for Ethekwini South Sub-District
(Source: Adapted from: Balwanth, 2003)

Due to the unavailability of a community health centre or district hospital in the catchment area, patients are referred from primary health straight to regional hospital level. Chronic care patients are stabilised and referred back to PHC clinics for management. Therefore, it is essential that these clinics are efficient in drug procurement and supply and that qualified staff are available to dispense the appropriate medication, correctly (personal observation).

Research conducted by Aarti Kishuna in 1997 based on the level and quality of pharmaceutical services provided at PHC clinics in KZN, unveiled the following problems:

i. Poor stock control, especially with regard to maintaining the quality of drugs due to non-adherence to recommended storage conditions, as well as the use of expired medication;
ii. Poor dispensing practice in terms of filling out prescriptions and labelling of medication;
iii. Inadequate training of staff in stock management;
iv. Inaccessibility to updated sources of drug information for prescribers and
v. Inadequate supervision and support of clinic staff by hospital–based pharmacists.

It was recommended that the hospital–based pharmacists play a more active role in rural areas by training and supervising nursing and pharmaceutical support staff (Kishuna, 1997).

This is the model approved by the provincial administration and implemented by local government at local authority clinics. However, due to time constraints, a heavy workload and a shortage of pharmacists at PMMH, the above problems have not been alleviated and conditions are deteriorating.

Historically, within many countries, the responsibility for social service delivery has rested primarily with the government. However, the private sector is playing an increasingly important role in the delivery of services and governments are exploring ways in which to involve the private sector in health service delivery without compromising public interest.

South Africa has a long history of public-private interactions (PPIs) within the health system. This includes contracts with both profit and non–profit providers supporting the delivery of TB, psychiatric and secondary level hospital care for public patients. However, although South Africa currently has high total healthcare expenditure (8.5% of GDP), its health status ranks poorly with respect to countries spending as much or lesser on healthcare (Wadee *et al.*, 2004). This can be associated with inefficiency within the health system; and the government is always thinking of creative ways of using the resources in the private sector to generate a more coherent and useful public–private mix within the health system (Pillay *et al.*, 2001).

In this study, the proposed PPP would be in the form of purchased services, which refers to the public sector purchase of private clinical services and includes the outsourcing of clinical care to a for-profit organisation. The main drivers included budgetary constraints with the need to improve service delivery; the need to improve access, low morale and public expectations; a fragmented health system and the staff exodus abroad and to the private sector (Wadee *et al.*, 2004). The aim of this PPP would be to reduce costs, enhance efficiency, improve the quality of health care, retain staff and strengthen the health system.

Amalgamated Healthcare's (AHC) procurement and distribution model currently used in the Limpopo Province was proposed as a means to alleviate drug supply management (DSM) problems in the Ethekwini South Sub-District (ESSD) of KZN. Outsourcing introduces the private aspect into the mix, where aspects of the organisation that add to increased costs and do not provide value for money, can be outsourced to a private provider (Hitt *et al.*, 2003). In the case of AHC, distribution and service is outsourced and the government provides the human resource, medical supplies and the infrastructure.

This proposed model was evaluated in terms of suitability, acceptability and feasibility. According to Johnson et al., (2005), suitability is concerned with whether a strategy addresses the circumstances the organisation finds itself operating in, acceptability is concerned with the expected performance outcomes classified according return, risk and stakeholder reactions and feasibility is concerned with whether the organisation has the resources and competences to deliver the strategy.

Implementation of the proposed model would only be considered if both stakeholders i.e. the private provider and the public's interests were safeguarded.

1.2. Motivation

PMMH services a large catchment area and on average, the pharmacy attends to approximately 1800 patients per day. A shortage of staff coupled with poor infrastructure compromises service delivery, placing added pressure on to the existing staff. One of the aims of the DHS and the referral system is to decrease overcrowding and congestion at the hospital. This is reliant on the ability of the PHC clinics to provide a reliable and safe supply of drugs.

Since the implementation of the referral system in January 2005, the pharmacy department has seen a 10% decrease in the number of patients attended to per month from January to June. However, increasingly patients are returning to the hospital complaining that the

clinics have run out of stock of their medication; as well as the instructions on how to take their medication being unclear. This has resulted in a gradual increase in the number of patients attending PMMH pharmacy (5% in December 2005) instead of their nearest PHC clinic. Nurses at these PHC clinics complain of overwork and are unwilling to manage chronic care patients. This defeats the purpose of the DHS and necessitates a re-evaluation of its implementation (personal observation).

1.3. Value of the Project

This study helped identify problems of drug supply and utilisation encountered by nurses managing the PHC clinics. It was hoped that building a model to address these problems, would reduce wastage and improve efficiency and effectiveness, thereby improving budgetary control. Although this study was based on the ESSD district of KZN, the model proposed could be adapted to any other district in KZN.

1.4. Problem Statement

According to Mr S. Buthelezi, acting financial manager at PMMH, provincial PHC clinics in the ESSD spent 32% more than their allocated budget for medicines in the financial year 2004/2005 (Personal Communication, 5 July 2005). Pharmacists employed at the provincial depot PMSC, do not monitor drug supply and distribution at the PHC clinics and have not investigated reasons for the over expenditure. According to the clinics surveyed, pharmacists at PMSC have resorted to managing the PHC clinics remotely by rationing the requested supplies to remain within budget. This has resulted in clinics running short of medication and patients returning to their base hospital, PMMH for monthly collection; as evidenced by the 5% increase in the number of patients seen at PMMH pharmacy since the implementation of the referral system. This represents 50% of the total amount of patients referred since January 2005 (personal observation).

Rebound congestion experienced at PMMH due to an increasing number of patients expecting sub-optimal service at provincial PHC clinics, ignoring referral pathways and reporting to their nearest hospital instead, defeats the purpose of the South African government's vision of a DHS based on quality PHC (Pillay *et al.*, 2001). In addition, this hinders achievement of the broader goals of the NHS (elaborated on in chapter two). Not only does this impact on the efficiency or cost-effectiveness of the PHC approach but also the unavailability of a timeous supply of medication hinders equity, coherence and quality of care due to complications experienced by interruptions in patient therapy.

A PPP between the private provider and the KZN DOH was proposed to improve pharmaceutical service delivery, by managing drug procurement and distribution to the provincial PHC clinics in the ESSD. The aim of this PPP would be the provision of 100% timely supply of safe, cost-effective drugs of acceptable quality to all citizens of South Africa at the primary health level and the promotion of the rational use of drugs by prescribers, dispensers and consumers, thereby achieving the objectives of the NDP (DOH, 1996).

1.5. Objectives of the Study

The aim of this study was to evaluate the implementation of a PPP to manage patients at provincial PHCs in the ESSD. To achieve this aim the following objectives were defined:

- To assess the current provision of pharmaceutical services at provincial PHC clinics in the ESSD of KZN;
- To identify deficiencies in the pharmaceutical services provided at these PHC clinics;
- To evaluate the proposed PPP in terms of suitability, acceptability and feasibility in addressing the highlighted deficiencies.

1.6. Limitations of the Study

In the evaluation of the business model (PPP), the following limitations were encountered:

1.6.1. The model was developed for the ESSD of KZN utilising current statistics. Therefore, the problems encountered are unique to this district and cannot be implied to any other district without further research.

1.6.2. Due to access constraints, only provincial PHC clinics in the ESSD/PMMH catchment area were surveyed resulting in a sample size of seventeen. Therefore, statistical analysis was restricted to non-parametric tests for significance based on ordinal or nominal data.

1.6.3. The business model proposed establishment of a new business venture and therefore certain financial statistics were not available for analysis. Therefore, tests for acceptability of the proposed PPP were restricted to managing stakeholder reactions. However, Discounted Cash Flow Analysis was performed to test financial feasibility in chapter five on presentation of the revised model.

Other possible biases are discussed in chapter three under data quality issues.

1.7. Negotiating Access

This research area falls under the auspices of the Pharmacy Department at PMMH. Permission was granted by Ms M.T. Mkhize, the then Pharmacy Manager to undertake the study on presentation of the research proposal. At the time of the study, the Director General of Health's post in KZN was vacant and permission to undertake the study was unobtainable from the provincial DOH.

1.8. Structure of the Study

The following chapters are presented in this research dissertation:

1.8.1. Chapter 2

The purpose of this chapter is to firstly, introduce the concept of PPPs and discuss their role in health sector reform in South Africa. Secondly, all the theories and models relevant to this study in terms of their usefulness and limitations are discussed. An existing PPP is presented as a possible solution to problems encountered with the provision of health care to patients in the rural areas. The theoretical framework constructed is used to analyse the data collected and the case study presented.

1.8.2. Chapter 3

The research methodology is discussed including data collection and analysis. A case study describing the services offered by PMMH and its PHC clinics is presented, based on the theoretical framework established in chapter two. The clinics as well as the average number of patients served are introduced. Statistics describing the health care status of the population and the health care resources available are discussed. All policies, procedures and charters pertaining to PPPs and PHC clinics are discussed.

1.8.3. Chapter 4

The participative observations and semi-structured interviews conducted with the sisters-in-charge are analysed using descriptive statistics to determine the nature and frequency of the problems inherent in the DHS at the PHC level. Relationships are explored using the Kruskall-Wallis test for significance and inferences to the rest of the population are discussed. The aim is to safeguard public and private interest, therefore the business model proposed is evaluated in terms of suitability using Pest, Five Forces and Value Chain analysis; acceptability using stakeholder mapping; and feasibility using Functional Capability and Resource and Discounted Cash Flow analysis.

1.8.4. Chapter 5

Any problems identified in chapter four, not adequately addressed by the proposed model and the modifications necessary to alleviate them are discussed and a revised model presented. Discounted Cash Flow analysis is conducted as a test for financial feasibility, once all necessary modifications are accommodated. Practical recommendations suggested are supported by theoretical and empirical research conducted.

1.9. Summary

The South African government's answer to the upliftment of the nation is documented in the Reconstruction and Development Programme (RDP), and is aimed at improving the standard of living and quality of life for all South Africans (DOH, 2002). This includes the provision of quality health care to its people by implementation of the DHS involving both public and private providers of goods and services, with a focus on PHC.

This study proposed a PPP for improving pharmaceutical service delivery at the PHC clinics under the control of PMMH. The proposed model was assessed in terms of its ability to alleviate existing problems in the present system, brought into focus during the participative observations and semi-structured interviews conducted and highlighted in the case study; and a revised model was constructed. The model should be suitable, acceptable and feasible to both the public and private stakeholders in order to be efficient and effective at improving the quality of and equity in health care.

Chapter 2: Literature Review

2.1. Introduction

In 1987, the World Bank recommended that governments 'encourage the management sector (including non-profit groups, private physicians, pharmacists and other health practitioners) to provide health services for which consumers are willing to pay' (Austin, 2004). In addition, the World Bank recommended in its 1993 World Development Report that governments 'shift elements of service provision from the public to the private, for-profit sector' (Austin, 2004).

According to a STAT-USA report complied by Bheki Ndimande in 2004, historical interaction between the public and private sectors in South Africa resulted in a strong negative net effect on the public sector. This was due to rapid expansion of the private hospital sector, which has undermined public provision by recruiting large numbers of highly skilled staff out of the public hospital system. In addition, public hospitals were exploited by insured patients who claimed to be uninsured and did not recompense for care received at public hospitals; and those patients whose benefits were exhausted and were referred to public hospitals. An inadequate regulatory environment exacerbated this situation (Ndimande, 2004).

At present, a huge imbalance still exists between public and private health care sectors. Out of the total national health budget, only 10% of total health care expenditure is in the public sector, which represents approximately 80% of the total population (Ndimande, 2004).

The government has taken steps to raise the standard of health care by increasing Public-Private Interactions (PPIs). In 1997, the White Paper on the Transformation of the Health Sector stated that 'the activities of the public and private health care sectors should be integrated in a manner that makes optimal use of all available health care resources' (Ndimande, 2004). PPIs are seen as one way to tap into the concentration of private resources to the benefit of all citizens of South Africa.

The purpose of this chapter is to introduce the concept of PPIs and to establish a framework for understanding their role in health sector reform in South Africa. A strategic framework for evaluating the ability of an existing PPI to alleviate the problems highlighted in the case study (presented in chapter three) and the data collected from visits to PHC clinics (presented in chapter four) is constructed. The proposed model is presented in the form of a value chain to highlight the organisation's value creating activities.

2.2. Public – Private Interactions

2.2.1. An International Overview of Public-Private Interactions

Health economists traditionally view the relationship between the public and private sectors with respect to service delivery in terms of two key functions, financing and provision; by which the responsibilities of the public and private sectors are delineated (Wadee *et al.*, 2004). Figure 2.1 is useful in highlighting possible relationships that may exist between the public and private sectors where there is a clear role for each sector with respect to financing and/or provision.

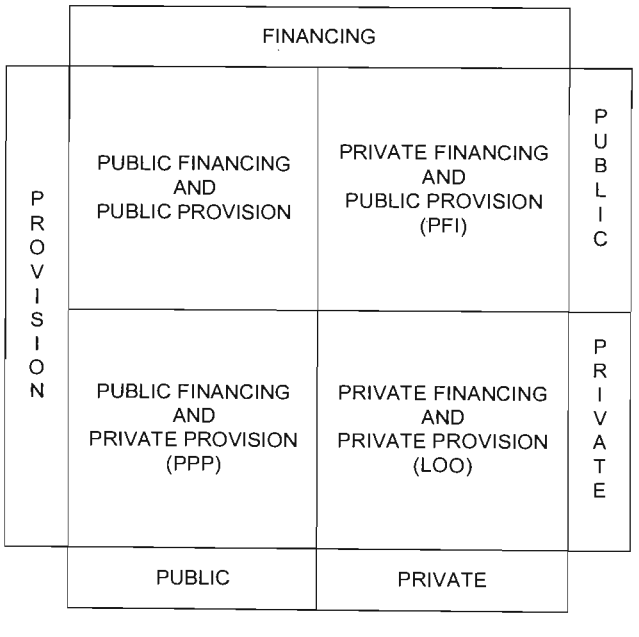


Figure 2.1: Public and Private Roles in Financing and Provision
(Source: Wadee *et al.*, 2004, p.10)

There are traditionally three main types of PPIs namely, Public-private Partnerships (PPPs), Public Finance Initiatives (PFIs) and Lease, Own and Operate Schemes (LOOs).

2.2.1.1 Public-Private Partnerships

Internationally, contracting out of clinical or non-clinical services is the simplest form of partnership. Some examples include, public sector hospitals in Thailand that have contracts with the private sector to provide and maintain expensive medical technology. Public clinicians use the technology, and the private company is paid a proportion of the user charges collected from patients at the public hospital (Wadee *et al.*, 2004).

The Lebanese government contracts with private hospitals to reserve space for public patients. This represents a public finance/private provision relationship, which has led to escalating costs and increasing demands by the private sector for greater investment in the public sector (Wadee *et al.*, 2004).

The developing world has greater PPI experience with Non-Governmental Organisations (NGOs) than the private sector. Cambodia has begun contracting out district level services including direct service provision, welfare activities and supply of drugs to NGOs. NGOs receive support from private foundations e.g. churches and governments through subsidies and drug and equipment donations (Wadee *et al.*, 2004).

Contracting of clinical services is more common in high-income countries where the public sector is equipped to finance private provisions and monitor performance and outputs. For example, in New Zealand private providers are contracted to provide PHC representing a clear distinction between purchasing and provision of services (Austin, 2004).

2.2.1.2. Private Finance Initiatives

Public sector can have a management contract with the private institution in which the government pays the private institution a fee. For example, in the United Kingdom, the National Health Service is allowed to build, upgrade and equip National Health Service hospitals and PHC facilities by design, build and finance (DBF) or design, build, finance

and operate (DBFO) schemes. DBFO arrangements include provision of services like maintenance and catering whilst the government provides clinical services (Wadee *et al.*, 2004).

2.2.1.3. Lease, Own and Operate (LOO) Schemes

This form of interaction involves leasing existing spare public sector capacity to the private sector. For example, the private sector leases wards in public hospitals where the private sector manages the wards and operates the wards by providing services to private patients. Costs are recovered by charging users and paying the public sector to allow it to render its private service. In South Africa, Medical Schemes opted to choose Public Hospitals as a Preferred Provider which was allowed due to the amendment of the Medical Schemes Act in 2003 (Fourie, 2005).

This public-private finance/provision framework was useful in categorising public and private functions within a defined set of alternatives. However, it did not capture the full complexity of relationships, which are often encountered in PPIs in South Africa. This is due to the overlapping and sharing of functions with respect to financing and provision.

2.2.2. Classification of Public-Private Interactions in South Africa

In understanding PPIs in the South African context, it is essential to consider both the policy environment in which the PPIs are occurring and the blurred boundaries that may exist between public and private sectors (Figure 2.2).

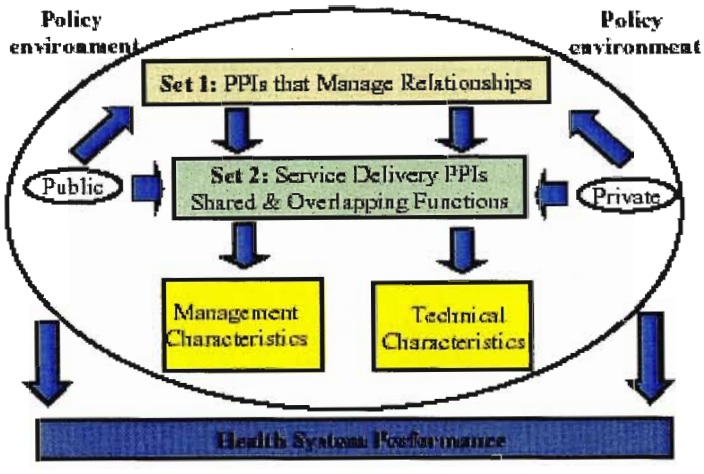


Figure 2.2: Functions of the Public and Private sectors in Relation to Health Sector Service Delivery
(Source: Wadee *et al.*, 2004, p.14)

a) Overview of Each of the Components:

- Policy Environment: the context in which the PPI is taking place, the key stakeholders, the roles they play and their objectives.
- PPIs managing relationships consider formal and informal dialogue that exists in facilitating the development and implementation of PPIs.
- PPIs delivering service distinguish between management (Table 2.1) and technical characteristics (Table 2.2) of PPIs.

Table 2.1: Management Characteristics of PPIs

MANAGEMENT CHARACTERISTICS	KEY FEATURES
Level of Management	National, provincial, local and facility
Service of Focus	Clinical and/or non-clinical; Hospital and/or clinic service
Private Agent	Private funder, hospital group, non-clinical service provider, private clinician

(Source: Adapted from Wadee *et al.*, 2004, p.15)

Table 2.2: Technical Characteristics of PPIs

TECHNICAL CHARACTERISTICS	KEY FEATURES
Capital/Recurrent Financing	These functions are often not clear-cut and boundaries between functions are often blurred with overlapping and/or sharing of financing between the sectors
Capital Ownership	Boundaries of ownership may be blurred, with overlapping and/or sharing of ownership between sectors
Healthcare Provider	May be public and/or private
Demand Decision Maker	The agent/ individual responsible for purchasing clinical care. Could be government, individual payer or insurance/medical aid scheme

(Source: Adapted from Wadee *et al.*, 2004, p.15)

In order to unravel the complex nature of shared functions, management and technical characteristics of the PPP is elaborated upon on presentation of the proposed model.

The government's attempt at raising standards of health care uncovers considerable potential for collaboration and co-operation between the public and the private health care sectors. However, experience with PPIs has revealed that such engagements can in some instances undermine health system goals (Health Summit, 2001). The next section discusses the principles developed by the DOH based on the vision and goals of the NHS to guide consideration of PPIs.

2.2.3. Principles Guiding Public-Private Interactions in South Africa

The 1999-2004 Strategic Framework indicates that the mission of the DOH is:

> *To consolidate and build on the achievements of the past five years in improving access to health care for all and reducing inequity, and to focus on working in partnership with other stakeholders to improve the quality of care at all levels of the health system, especially preventive and promotive health, and to improve the overall efficiency of the health care delivery system* (Health Summit, 2001).

The Strategic Framework also indicates that: 'Our vision is a caring and humane society in which all South Africans have access to affordable, good quality health care' (Health Summit, 2001).

Recent health policy documents (discussed in the case study presented in chapter three) stress four key goals viz. equity, coherence, quality of care and efficiency that provide a useful guideline for evaluating PPIs. Table 2.3 provides a description of each of these goals, highlights the major health system problems that these goals need to address and outlines some pre-requisites for meeting these goals, in line with the overall health system vision.

According to the Health Summit discussion paper (2001), five sets of principles are used in assessing the merits of the proposed PPP with respect to achievement of health system goals viz. the overall sustainability of the entire national health system, promoting equity of access to primary health care, promoting equity of access to affordable hospital care and strengthened public hospital care, promoting equity in financing of health services and promoting financial sustainability in the public sector. Every PPI is assessed in terms of promotion of financial sustainability and one or more of the other four principles.

The PPP used in this study involved improving pharmaceutical service delivery at provincial PHC clinics in the ESSD. Therefore, this model would be assessed with respect to promotion of equity of access to PHC and the promotion of financial sustainability. In addition, the success of the proposed model would be evaluated in terms of suitability, acceptability and feasibility whilst taking into the guidelines and principles governing PPPs.

Table 2.3. Goals of the NHS, Existing Problems and Requirements to Meet the Goals

GOAL	DESCRIPTION	EXISTING PROBLEMS	REQUIREMENTS TO MEET GOAL
Equity	Ensuring access to a nationally affordable package of health care for all the population of South Africa, where health care entitlement is not based on the ability to pay	▪ Growing mal-distribution of financial, human and other resources between the public and private sectors, relative to the populations they serve ▪ Mal-distribution of the health care resources available to different socio-economic groups within the population ▪ Mal-distribution of all health care resources between and within provinces, which has been increasing over the past few years	▪ The resources available within the public and private sectors are used for the benefit of the whole population, wherever they live ▪ The healthy, younger and more wealthy population groups cross-subsidise an adequate level and quality of care for the sick, elderly and poorer groups
Coherence	The development of a health system which is coordinated and unified across the diverse public and private agents involved in provision and financing health care	Fragmentation of the health system, based on separate financing and provision arrangements for different socio-economic groups, that prevents the development of efficient cross-subsidisation arrangements, and coordinated service delivery	▪ The population uses a coordinated and unified provider system for all levels of care ▪ Public health system is the provider of choice for most people (all levels of care)
Quality of care	Good quality care is care that meets acceptable technical standards as well as the needs and expectations of users and communities	▪ Decline in the (perceived) quality of care of public hospitals ▪ Drain of health professionals from the public to the private sector ▪ Poor quality of care provided by private practitioners and in some private hospitals, in terms of understaffing, unnecessary investigations etc.	▪ Health professionals choose to work in the public sector and are motivated to provide caring and technically good quality care ▪ Private practitioners and hospitals provide good quality care for defined services (all levels of care)

(Source: Health Summit, 2001)

Table 2.3. continued...

GOAL	DESCRIPTION	EXISTING PROBLEMS	REQUIREMENTS TO MEET GOAL
Efficiency/ Cost-effectiveness	▪ Technical efficiency: Maximising health service outputs at the lowest possible cost, while maintaining quality of care ▪ Allocative efficiency: Distribution of limited resources between different types of services to maximise health outcomes (health status improvements)	▪ Mal-distribution of resources between levels of care relative to the health needs of the population ▪ Inefficient use of resources within the public sector due to poor management ▪ Increasing levels of cost-inflation in the private sector due to over-servicing	▪ Adequate levels of resources are invested in health services, especially primary health care services ▪ Resources are used efficiently in the public and private sectors ▪ Cost-escalation in the private sector is controlled

(Source: Health Summit, 2001)

2.3. Evaluation of the Proposed Public-Private Partnership

2.3.1. Suitability

Suitability is concerned with whether the proposed model addresses the circumstances in which an organisation operates and takes into account the policy environment of the PPP.

A strategy is regarded as suitable if:

- Opportunities are exploited and threats are avoided or minimised in the environment
- Strengths are capitalised on and weaknesses are improved upon and
- Expectations are addressed (Johnson *et al.*, 2005).

In addition, the proposed PPP should be concordant with the vision and mission of the DOH (as discussed previously).

The PEST, Five Forces and Value Chain frameworks were utilised to assess the suitability of the proposed PPP. Expectations are addressed later in this chapter, under acceptability.

2.3.1.1. The PEST Framework

An organisation's macro-environment can significantly affect its ability to operate efficiently and effectively. Figure 2.3 categorises environmental influences into four main types: politico/legal, economic, social and technological and is useful for identifying structural drivers of change in the environment as well as opportunities and threats (Johnson *et al.*, 2005).

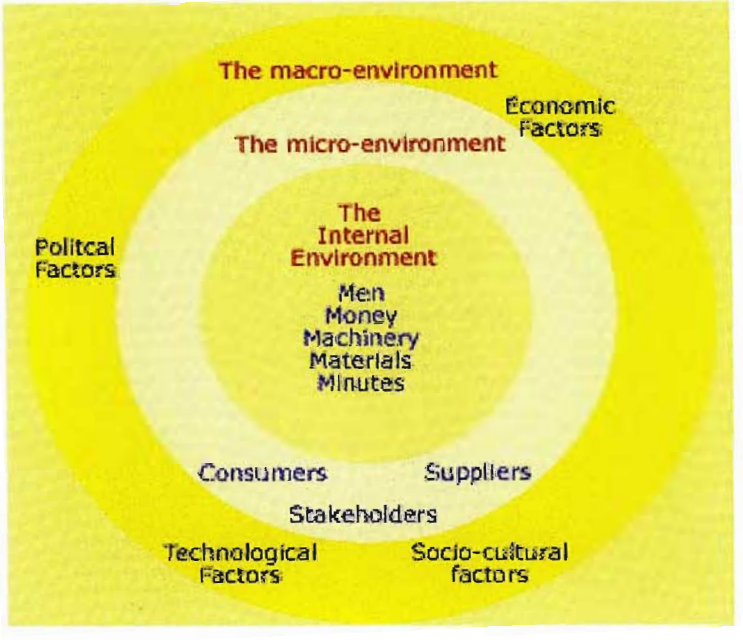


Figure 2.3: The External or Macro-Environment
(Source: Marketing Teacher, 2005)

a) Overview of Each of the Segments:

- Political/Legal: This segment of the general environment relates to identifying government policies at local, provincial and national level, which can affect an organisation's ability to act, as well as relations between the government and the organisation, which could influence the organisation's corporate strategy.
- Economic: This segment indicates the distribution and use of resources within the society. Economic variables, for example interest rates and inflation rates can greatly influence the functioning of an organisation in terms of transport and communication costs. Therefore, identifying, monitoring and forecasting these variables are of prime importance.
- Social: This segment describes characteristics of the social context in which the organisation operates and includes demographics, literacy rates, education levels, age distribution, geographic distribution, lifestyles etc. Ethical norms describe the behaviour that individuals and organisations expect of one another, and are considered. The

organisation should monitor and evaluate this segment's impact on its strategic direction and help build the organisation's reputation amongst all relevant stakeholders.

- Technological: This segment includes activities involved in creating new knowledge and translating that knowledge into new outputs, products, processes and materials (Hitt *et al.*, 2003). Organisations should identify and monitor the effects of technological change on its corporate strategy.

The success of performing environmental analyses rests on the ability to avoid misperceptions and minimise inaccuracies and uncertainties about the environment (Johnson *et al.*, 2005). Thorough research including communication with key stakeholders and participant observation minimised these potential weaknesses.

According to Bensoussan and Fleisher (2003), successful environmental analyses are linked conceptually and practically to current planning operations and establishes the strategic direction the organisation will take. The focus was on identifying existing and potential strengths, weaknesses, opportunities and threats suggested by the different segments of the firm's environment and taking proper timely actions to yield good results in the long term.

Compared to the macro-environment, the industry environment has a more direct impact on an organisation's profit potential. The five forces framework helped identify sources of competition in an industry/sector.

2.3.1.2. Five Forces Framework

The industry environment has a direct effect on an organisation's strategic competitiveness. According to Johnson *et al.*, (2005), traditionally in business, this entails gaining advantage over competitors. However, in the public sector this involves demonstrating excellence within the sector and/or an advantage in the procurement and handling of resources.

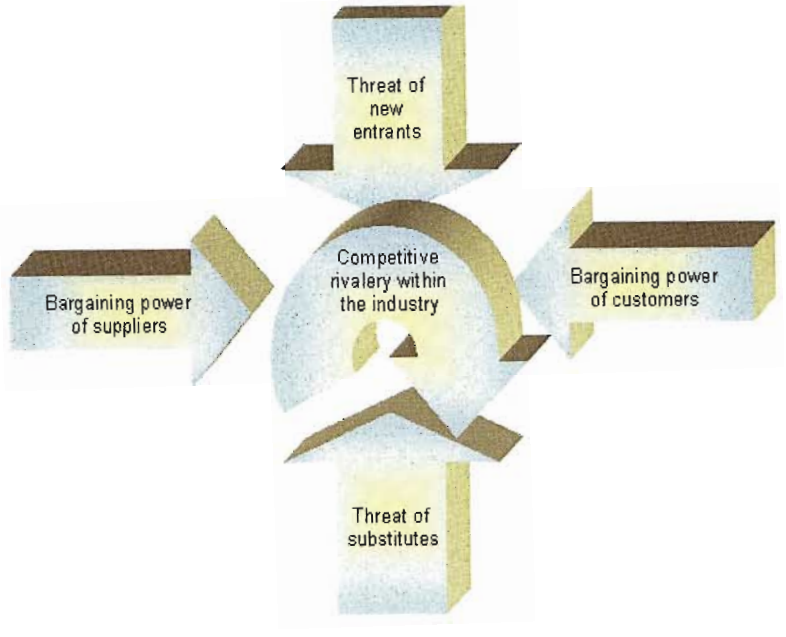


Figure 2.4: The Five Forces Framework
(Source: Recklies, D., 2001a)

The five forces framework (Figure 2.4) was used to analyse major economic and technological forces that influence an industry's attractiveness and formed the foundation for bridging the strategic gap between the firm's external environment and its resources (Bensoussan and Fleisher, 2003).

a) Overview of each of the forces:

- Threat of New Entrants: New entrants enter the marketplace when profit margins are attractive and barriers to entry are low thereby adding capacity to the industry, increasing demands and prices for inputs resulting in lower industry profitability (Bensoussan and Fleisher, 2003). Applicable barriers to this study included access to supply or distribution channels, customer or supplier loyalty, experience, legislation or government action and differentiation.
- Threat of substitutes is determined by the possibility of substitution, the relative price/performance trade-off and low switching costs.

- Competitive Rivalry is the most influential of all the forces. Rivalry intensifies when market growth rate is low, a high fixed cost structure exists and barriers to exit the industry are high.
- Bargaining power of buyers refers to the extent buyers can influence pricing by comparison shopping or raising quality expectations (Bensoussan and Fleisher, 2003). Highly differentiated services, a high concentration of buyers, low switching costs and backward integration of buyers increases buyer bargaining power.
- Bargaining power of suppliers refers to the extent suppliers can influence the cost and availability of input to the industry (Bensoussan and Fleisher, 2003). A high concentration of suppliers, high switching costs, supplier organisations e.g. cartels and forward integration of suppliers increases supplier bargaining power.

According to Bensoussan and Fleisher (2003), the five forces model concentrates on cross-sectional problems focusing on what makes an industry attractive and not on longitudinal problems addressing why or how certain organisations are able to gain a competitive advantage and sustain it over a period of time. Technological breakthroughs and dynamic market entrants may completely change business models, entry barriers and relationships along the supply chain within short times and the Five Forces model may not provide useful information on preventive actions (Recklies, 2001b).

Furthermore, according to Recklies (2001a), this model assumes a 'classic perfect market' in that the more an industry is regulated, the less meaningful insights the model can deliver. In addition, there is a risk of overlooking the impact of socio-political factors e.g. government on competitive forces in the industry. However, government represents a strong force with respect to the proposed PPP between the KZN DOH and the private provider and was taken into consideration when diagnosing competitive strategy.

Porter's five forces model is based on competitive strategy and the quest for competitive advantage and does not consider strategies for example, strategic alliances and electronic linking of information systems of all companies along a value chain (Recklies, 2001b).

However, the five forces model did provide a logical and structured framework for analysing the health sector and helped craft the private provider's positioning strategy to cope with competitive pressures.

The bargaining powers of buyers and suppliers have similar effects on the financial attractiveness of an organisation as they collectively represent the value network within which an organisation operates. The value network is the "set of inter-organisational links and relationships that are necessary to create a product or service" (Johnson, Scholes and Whittington, 2005). Organisations can achieve competitive advantage by analysing their unique value chain, capitalising on their strengths and improving on their weaknesses.

2.3.1.3. Value Chain Analysis

According to Michael Porter (1985, cited in Patterson, 1995), 'superior value stems from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price.'

Porter's Value Chain Analysis (VCA) is a framework 'that takes the knowledge about a business and structures the knowledge to provide new insights into the business' (Ambrosini *et al.*, 1998). Organisations competing in the same industry or sector are likely to have similarly configured value chains. However, according to Partridge and Perren (1994), it is the differences in the configuration of competing organisations that have the potential to provide competitive advantage. Therefore, organisations should adjust their activities in their value chain to create a value package that provides low cost differentiation and/or superior products or services in order to maximise the difference between value and cost.

This is achieved by identifying cost drivers and linkages in the value chain. According to Booth (1997), cost drivers are those factors that influence cost and may either be general factors (e.g. scale, experience, complexity) or quite specific (e.g. the number of returns).

Two levels of the value chain were explored:

- Porter's technique identifies value-creating activities and positions them according to five primary and four support activities (Figure 2.5). For the purposes of this study, only four primary activities viz. inbound logistics, operations, outbound logistics and service were applicable.
- Segmented VCA reveals the value chain for each customer segment. Three customer segments affected the core business processes at the PHC: chronic care patients, psychiatric patients and acute patients visiting the provincial clinics for PHC.

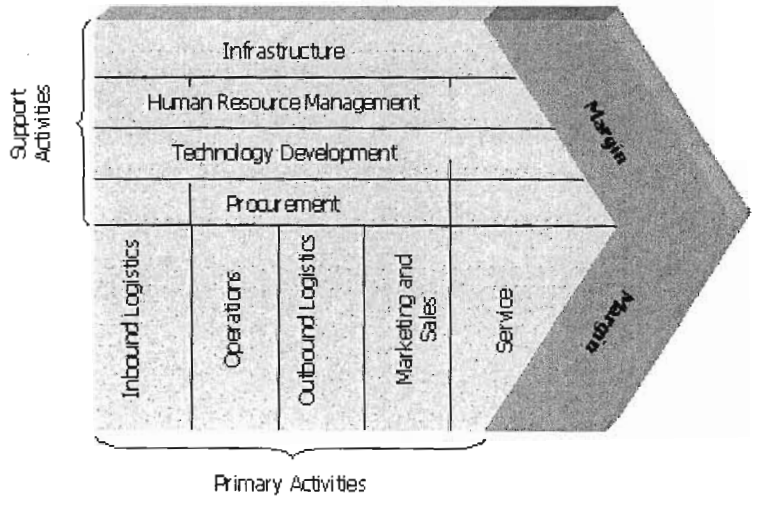


Figure 2.5: The Basic Value Chain
(Source: Recklies, D., 2001b)

Most organisations operate within a vertically integrated chain of manufacture and supply resulting in insulation from the marketplace and end user perception. According to Porter (1985, cited in Partridge and Perren, 1994) this is known as the value system or supply chain.

Coordination of activities and management of relationships in the supply chain can be a significant source of competitive advantage and bring additional value to the customer. According to Patterson (1995), it is increasingly becoming more advantageous to manage

and/or integrate selected activities across organisations in the supply chain and eliminate services that don't add value. Furthermore, cooperative relationships that stem from inter-organisational linkages with upstream and downstream suppliers and consumers can create very positive win-win situations. Effective management of inter-organisational linkages in the supply chain can contribute to lower cost within budgets, improved quality of service, expanded technology, faster speed of delivery, improved support, better availability and stronger competitive positioning (Patterson, 1995).

Apart from inter-organisational linkages, linkages between activities in the value chain can create competitive advantages by dealing with quality issues at the linkages rather than at the end of the organisation's supply chain. Porter (1985, cited in Partridge and Perren, 1994), suggests that Japanese manufacturing techniques for example, Just-in-time (JIT) and Total Quality Management (TQM) are a result of careful consideration between activities. 'JIT aspires to create a seamless flow across activity boundaries, thus reducing work-in-progress and giving instant feedback of quality problems to the previous activity' and 'TQM devolves quality issues to all operatives and empowers them to act' (Partridge and Perren, 1994).

Bowman and Faulkner (1992, cited in Partridge and Perren, 1994), state that organisations should avoid trying 'to do everything' and should rather identify core competencies in order to distinguish between products or services that can be performed in-house and those that should be outsourced.

VCA is a useful tool for analysing the strengths and weaknesses of an organisation and its competitive positioning in relation to key customers and suppliers. In addition, VCA represents a realistic cost or value analysis that identifies all cost drivers or value-creating activities that deliver value to the customer (Bensoussan and Fleisher, 2003).

Difficulty arises from the extensive data requirements that underlie comprehensive VCA as the focus is on assets that can be clearly measured, which is not always possible. For the purposes of this study, VCA was undertaken without quantification of the value added and

was utilised in conjunction with Functional Capability and Resource analysis to suggest how internal core competences could be integrated with the external competitive environment in order to generate competitive advantage.

2.3.2. Acceptability

Acceptability is concerned with the expected performance outcomes of a strategy and is classified according to return, risk and stakeholder reactions. Due to the difficulty in quantifying benefits and the probability and consequences of failure, stakeholder mapping was used to understand stakeholder reactions to the proposed model, the ability to manage these reactions and hence the acceptability of the strategy.

2.3.2.1. Stakeholder Mapping

Stakeholder mapping enhances understanding of the political context in which an organisation operates and leads to the development and implementation of politically viable and rational strategies (Ambrosini, Johnson and Scholes, 2003).

According to Blair *et al.*, (1990, cited in Brugha and Varvasovszky, 2000), stakeholder analysis has been used in health management as a tool for 'organisations to achieve specific advantages and goals in its dealings with other organisations, through identifying potential allies and building alliances or attenuating potential threats.' For the purposes of this study, stakeholder analysis was used to assess the likelihood of adopting a PPP between the KZN DOH and the private provider/provider.

In health management, identification of an organisation's important stakeholders is the first step in stakeholder analysis. According to Fottler *et al.*, (1989, cited in Brugha and Varvasovszky, 2000), this is usually performed through structured surveys of a known group of key stakeholders, where inclusion of others as important stakeholders is determined by the percentage of respondents that identify them.

However, according to Frost *et al.*, (1995, cited in Brugha and Varvasovszky, 2000), caution should be exercised with respect to premature judgements and exclusion of apparently minor stakeholders who have an interest and/or can exert power over decisions affecting the implementation of the proposed PPP.

According to Morgan and Taschereau (1996), a stakeholder is defined as 'persons, groups, organisations, systems, etc., that have a 'stake' in a change effort (e.g. a development project) and that are either likely to be affected by the change, whose support is needed or who may oppose the change.'

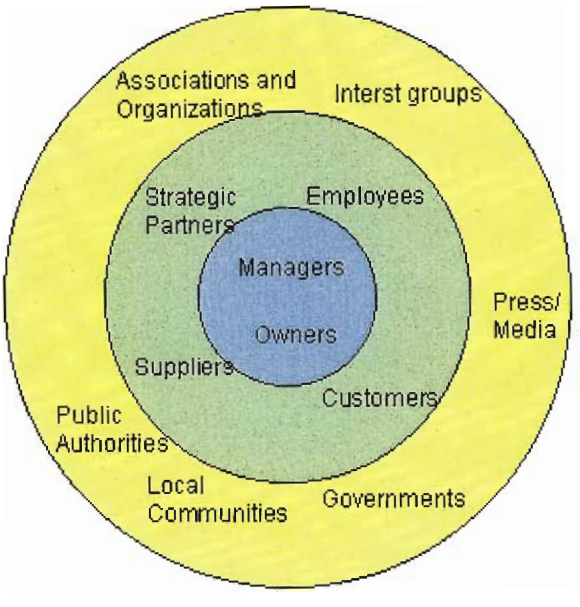


Figure 2.6. The Stakeholder Environment
(Source: Recklies, D., 2001c)

Figure 2.6 gives a general overview of possible stakeholders and their impact on organisations. Both internal and external stakeholders were considered.

A study conducted by Wadee *et al.*, (2004), on PPIs in the South African health sector, revealed the intentions and rationales of key actors in PPIs in South Africa. Postal questionnaires, in-depth informant interviews and media analysis identified the key actors' stated objectives for entering into PPIs; as well as the key drivers underlying their interest

in PPIs. The key actors identified were considered in the development of a stakeholder map for the proposed PPP, presented in chapter four.

Stakeholders are classified according to the power they can exert and the level of interest they are likely to show in supporting or opposing a particular strategy (Figure 2.7).

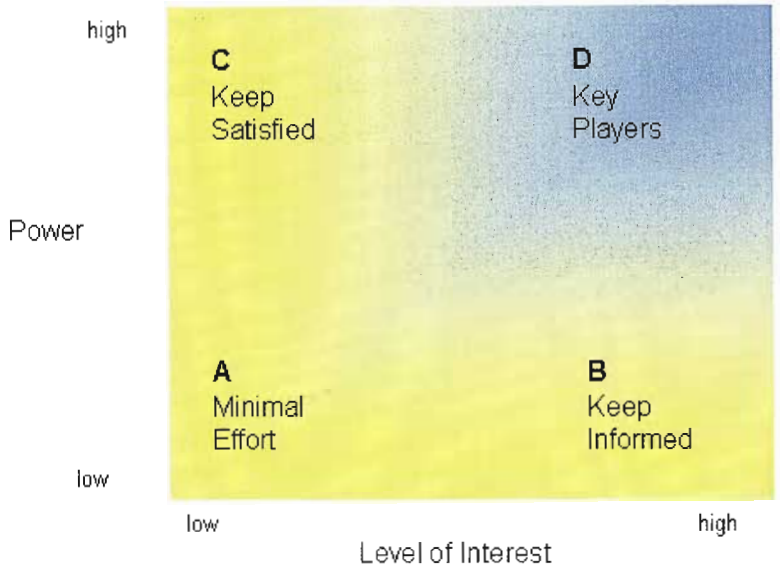


Figure 2.7: Stakeholder Mapping: Power-Interest Matrix
(Source: Recklies, D., 2001c)

Two maps one showing the stakeholders' current stance and the other showing the required stance for successful strategy development provides a good basis for comparison. It establishes political priorities and helps identify appropriate styles of managing stakeholder relationships. This would be crucial to the success of this particular business venture as it involves a partnership between the department of health and the private provider.

According to Recklies (2001c), grouping of stakeholders in the matrix can reveal recommendations for relationships with particular stakeholders, identification of supporters and opponents of a project, necessary repositioning of stakeholders and measures to keep stakeholders in favourable positions.

Stakeholder analysis is carried out cross-sectionally over a limited period and the policy environment as well as stakeholder interests and influences are subject to change. Similarly, the political context of the proposed PPP is frequently unstable, especially in developing countries and is subject to sudden, unexpected changes. For example, a stakeholder analysis to facilitate the development of public-private sector malaria control strategies in an urban area of India had to take into account the impact of three different Municipal Commissioners on the project over a period of one year (Brugha and Varvasovszky, 2000). This highlights the importance of an appropriate time frame, for stakeholder analysis to maintain relevance. The analysis of stakeholders affecting the implementation of the proposed PPP was for a period of one year within which the results obtained were applied.

Stakeholders can be difficult to forecast, predict, and ultimately manage. The accuracy of forecasting was increased by using a variety of sources of information, including constant environmental scanning and monitoring.

Addressing the above-mentioned limitations increased the utility of stakeholder analysis in considering both competitors and complementers and helped identify potential strategic partnerships as a means to superior value creation, at a reduced cost. It is borne in mind that the stakeholders were mapped in relation to a particular strategic development and not a general view of the power or interest of the stakeholder with respect to the organisation (Ambrosini *et al.*, 2003).

2.3.3. Feasibility

Feasibility is concerned with whether an organisation has the resources and competences to deliver a strategy. According to Van Auken (2001), more emphasis is placed on resources (in particular resource deployment) and collaborative relationships as key drivers of distinctive capability and financial success. This is known as the Resource Based View (RBV), where according to Hoskisson (1999, cited in Miller, 2002), each organisation has a

distinctive 'bundle of resources' inextricably linked to macro-environmental and industry demands, that contribute to sustained competitive advantage.

2.3.3.1. Resource Deployment

A resource deployment assessment is used to judge the extent to which an organisation's current capabilities need to be modified to achieve or maintain 'threshold' requirements for a strategy; as well as the core competences needed to sustain competitive advantage (Johnson *et al.*, 2005). Functional capability and resource analysis (FCRA) was used to assess the gap between the firm's resources and critical success factors (CSFs) and formulate future strategies to invest in, upgrade or leverage its competitively valuable resources (Bensoussan and Fleisher, 2003).

FCRA combines external competitive analysis and internal organisational scrutiny to identify resource deficiencies hindering growth and diversification. However, a potential weakness lies in the ambiguity of the classification used to categorise resources as potential sources of competitive advantage, which can decrease the accuracy of the analysis (Bensoussan and Fleisher, 2003).

For the purposes of this study, resources were considered the means by which the firm generated economic rent and the firm's strategy was seen as the continuous search for opportunities where the resources available to the firm were applied in order to obtain economic rents (Rumelt [cited in Haanx, 1998]).

RBV theory defines four broad categories of resources as potential sources of competitive advantage viz. tangible assets, intangible assets, organisational capabilities and core competencies. However, not all resources are competitively valuable, as they will not necessarily generate a competitive advantage to ensuring economic rent. Therefore, all identified assets, capabilities and competencies were analysed to determine their competitive value according to the value, rarity, inimitability and organisation (VRIO) model originally described by Barney (1991, cited in Bensoussan and Fleisher, 2003).

According to Bensoussan and Fleisher (2003), a resource is valuable, if it provides a net increase in revenues or a net decrease in costs to the organisation; rare, if the number of firms that have the resource is small enough to allow for monopolistic or oligopolistic economic returns; and inimitable, if the valuable and rare resource is sustainable over a period of time. Lastly, the organisation should have the capability to take advantage of the valuable, rare and inimitable resource for the resource to be considered a competitively valuable resource.

Once the organisation's resources are identified and evaluated, the competitively valuable resources are compared to the CSFs, which are necessary to secure and sustain competitive advantage. Rockhart (1979, cited in Bensoussan and Fleisher, 2003), identified four major source of CSFs which include macro-environmental characteristics, industry characteristics, competitive position and firm specific success factors. Current and future strategies are diagnosed by identifying any gaps between the CSFs and the organisation's competitively valuable resources.

The focus was on the feasibility of these future strategies in terms of scale, quality of resource and timescale of change to achieve the objectives of the strategy in question.

2.3.3.2. Discounted Cash Flow Analysis

Discounted cash flow (DCF) analysis highlights the feasibility of the proposed model in financial terms taking into account the funding requirements of the business. According to Lesonsky (1998), the cash flow statement enables tracking of cash flows in and out of the business and reveals causes of cash flow shortfalls and surpluses.

The private provider will only proceed with the PPP if the model generates future cash flows in excess of the costs associated with the development and running of the project. According to Illkova and Donnelly (2001), the Net Present Value (NPV) is considered to be

the best available technique for making capital budgeting decisions based on profit potential as it takes into account the time value of money and the risks associated with the investment, reflected in the discount rate used to equate all future cash flows to present day.

However, in order for the cash flow to be useful, accurate and timely financial information is needed. This was achieved by gathering up-to-date information and consulting with financial experts in the field. According to Lyle (2004), choosing an appropriate discount factor that takes into account the required rate of return (RRR) on the initial capital investment increases the accuracy of DCF. The RRR is a function of the weighted average cost of capital (WACC) and the business risk (BR) associated. Business risk is the degree of operating leverage (DOL) and is based on the structure or mix of fixed costs and variable costs incurred in the business. General inflation, measured by changes in the consumer price index (CPI) i.e. estimated expenditure of an average family on a basket of consumer goods, was also taken into account in calculation of the discount factor, using Fisher's Equation (Lyle, 2004).

DCF analysis using a NPV approach was conducted and is presented in chapter five as an adjunct to test the feasibility of pursuing the revised PPP with the KZN DOH, from the private provider's perspective, taking into account all necessary modifications to the model.

The techniques presented above were utilised to evaluate the success of the proposed PPP in improving pharmaceutical service delivery at PHC clinics in the area of study. The proposed PPP is presented in the next section.

2.4. Proposed Public-Private Partnership

According to a report compiled by Ngobeni *et al.*, (2004), the Limpopo Province faced a critical drug shortage at their PHCs as drug deliveries were found to be inadequate.

The department advertised the tender for procurement, warehousing and distribution with the main aim of capacitating government employees to take over at the end of the contract. Amalgamated Healthcare Limited (AHL) was awarded the contract and is involved in a PPP with the Department of Health in the Limpopo Province (DOH-L). Since AHL took over there has been great improvement in drug management supply at PHCs with 83.78% patients satisfied with the services rendered (Ngobeni *et al.*, 2004).

Figure 2.8 depicts AHL's value creating activities in a value chain.

Bearing in mind that PPPs delivering service distinguish between management and technical characteristics, the level of management in this proposed PPP is provincial as each health department is responsible for health care delivery in their respective provinces. The private organisation is a clinical service provider for both hospitals and clinics. The department of health (public) purchased the facility or premises whilst AHL (private) purchased the delivery vehicles. Recurrent financing is in the form general taxation of the public, from which levies are paid to AHL for procurement, warehousing and distribution. Capital ownership is both public and private. AHL leases the warehouse from the government but owns the equipment used. The healthcare provider is both public and private. The DOH-L decides on the suppliers and manages the pre-packing unit. AHL is responsible for procurement, warehousing and distribution. Finally, the demand decision maker is public as the DOH-L purchases services from AHL (Personal Communication, 8 August 2005).

The area of focus would be the Outbound Logistics and Service part of the value chain. The aim of the proposed PPP would be to assume responsibility for the distribution of drugs to the PHC clinics. This would include both chronic medication and psychotropics on a per patient basis and the provision of essential drugs. Furthermore, medicine usage at clinics would be to be monitored to ensure safe, effective and efficient drug supply management, as ensconced in the NDP (DOH, 1996).

The proposed PPP will be evaluated in terms of suitability, acceptability and feasibility in chapter four, modifications will be recommended in chapter five and a revised PPP between the KZN DOH and the private provider to improve pharmaceutical service delivery at provincial PHC clinics in the Ethekwini South Sub-District will be constructed.

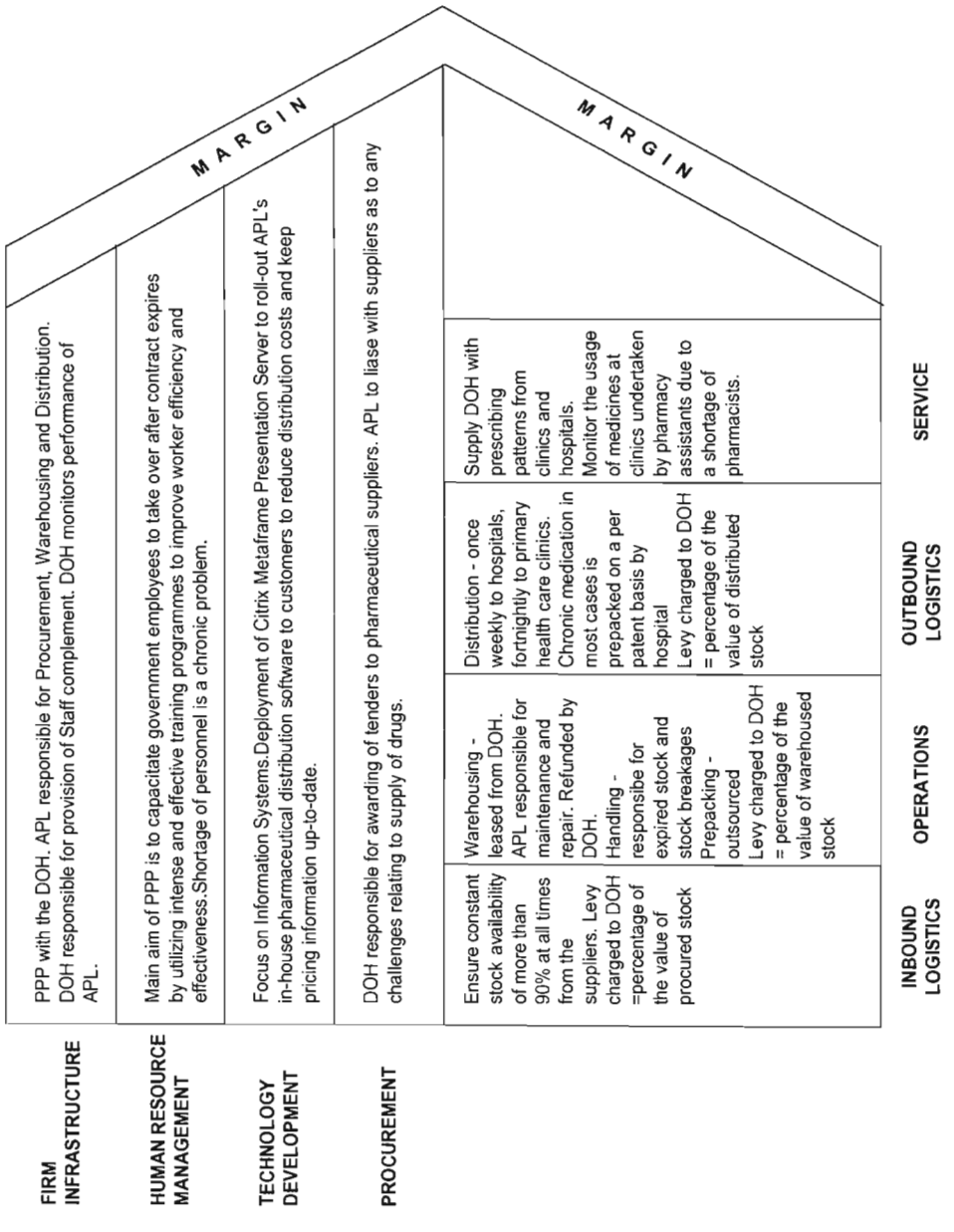


Figure 2.8: Amalgamated Healthcare Limited Value Chain

(Source: Adapted from Makhado, Personal Communication, 8 August 2005 and Hitt *et al.*, 2003, pp.93-95)

2.5. Summary

Successful implementation of the proposed PPP, in part rests on its ability to exploit opportunities and minimise threats present in the policy environment, whilst capitalising on its strengths and overcoming its weaknesses. The strategic models discussed aimed to provide a structured approach to achieving the PPP's goals, which are to create value and provide optimal pharmaceutical service delivery.

Figure 2.9 summarises the theoretical framework that was used to analyse the case study and the data collected from research conducted at provincial PHC clinics in the ESSD.

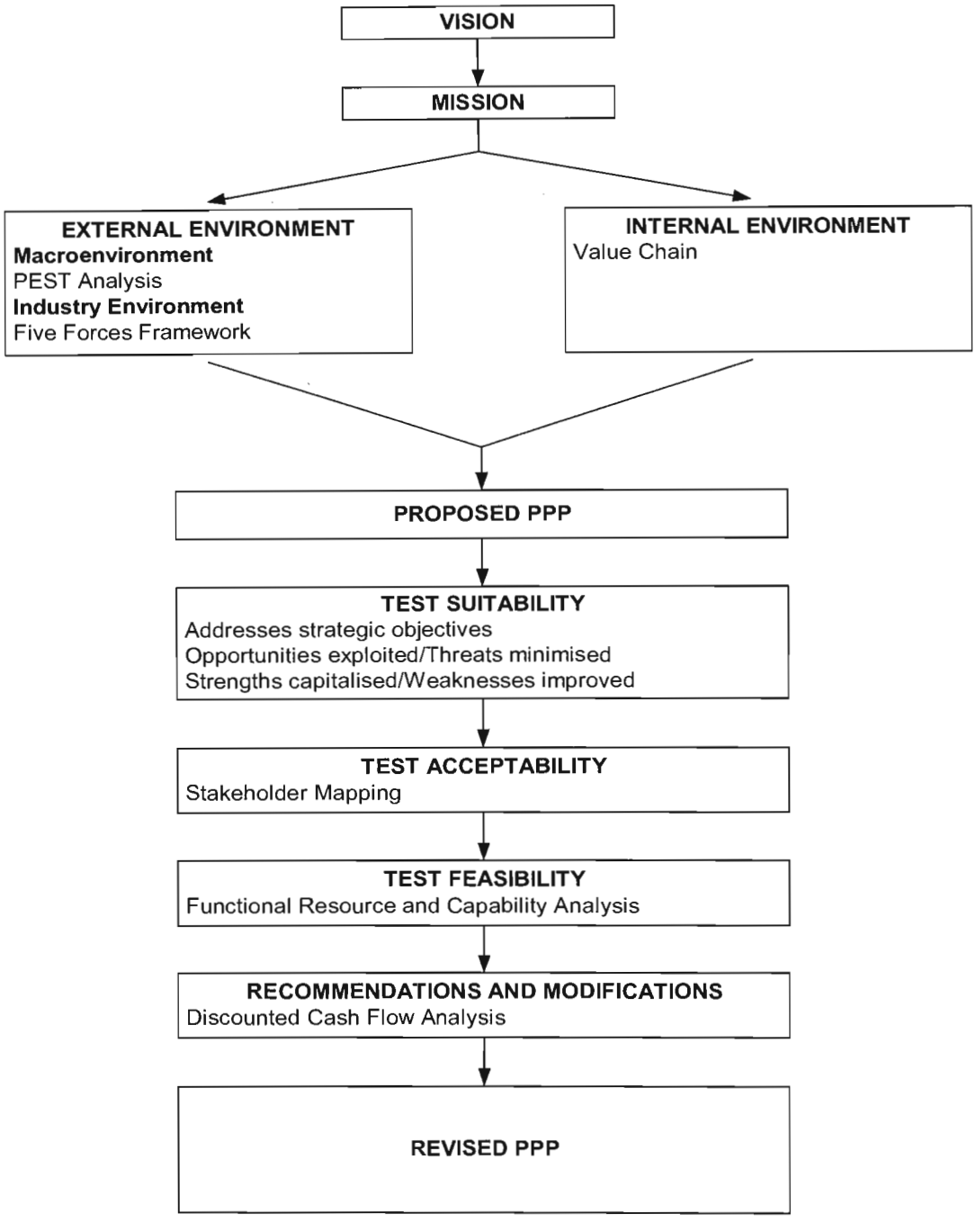


Figure 2.9: Theoretical Framework of study
(Source: Adapted from Hitt *et al.*, 2003, p.20)

Chapter 3: Research Methodology

3.1. Introduction

The objectives of this study were to assess the current provision of pharmaceutical services at provincial PHC clinics in the ESSD, identify deficiencies and assess the suitability, acceptability and feasibility of implementing a PPP to address these deficiencies. This chapter addresses the former two objectives, by firstly explaining the research methodology used to collect and analyse the primary data gathered from the PHC clinics and the interviews conducted with key personnel, in order to assess service delivery and viability of PPPs in KZN. Secondly, the current scenario of pharmaceutical service delivery at PHC clinics is presented using the theoretical framework constructed in the chapter two in order to identify deficiencies in DSM.

3.2. Research Methodology:

3.2.1. Research Strategy

The research strategy has both inductive and deductive elements. Analytical induction using *participative observation* was used to define research questions and objectives and provided a clear theoretical framework to help organise and direct the data analysis (Saunders *et al.*, 2003).

A *case study* approach used existing theory to refine the theoretical framework that was devised to help organise and direct the data analysis. This represents a deductive approach to problem solving where the main variables, components, themes and issues in this research project were identified.

3.2.2. Enquiries

Enquiries were descriptive and exploratory in nature, in order to portray an accurate profile of DSM practices and to seek new insights into the problems encountered at PHC clinics.

This included a search of the literature, talking to experts in the pharmaceutical services field and conducting semi–structured interviews with the sisters–in–charge at the primary health care clinics.

Valuable insight was gained and first-hand knowledge of experiences at PHC clinics was explored through interviews conducted with Dr Ntshangase, a session doctor stationed at one of the PHC clinics under study and Mrs O. Shandu, clinic supervisor of all clinics in the ESSD. In addition, an interview with Mr S. Buthelezi, acting financial manager at PMMH provided valuable financial information regarding PHC clinic budgets and expenditure. Mrs A. Alan, stationed at St. Augustine's Hospital (finance department) in Durban, was consulted on financial information used in the DCF analysis of the revised PPP presented in chapter five (Personal Communication, 10 November 2005).

3.2.3. Sampling

The population was defined as all provincial primary health care clinics in the Ethekwini district of KwaZulu-Natal. This study focused on the Ethekwini South Sub-District (ESSD), which is responsible for eighteen PHC clinics. Only seventeen of the eighteen PHC clinics were surveyed as the eighteenth clinic, Baniyena is currently managed by PMMH but the uMgungundlovu district assumes financial responsibility. Negotiations with both districts and the Baniyena community are currently underway to hand over Baniyena PHC clinic to the uMgungundlovu health district, in order to maintain the geographic divisions as defined by the Municipal Demarcation Board (KZN DOH, 2005c).

This type of sampling represents purposive sampling as specific cases were selected to enable the research objectives to be fulfilled. Time, access constraints and the specific area under study led to a homogenous sample of provincial PHC clinics in the ESSD. For the purposes of this study, the seventeen clinics were divided into three regions based on geographical location and distance from PMMH: region one included seven clinics in the

Umlazi area; region two included four clinics in the Umbumbulu and Kwa-Makutha area and region three included six clinics in the uMgababa and Umzinto area.

3.2.4. Collection of Primary Data

3.2.4.1. Personal and Participative Observation

Personal observation provided valuable hands-on experience as patient complaints are often dealt with by the researcher, supervisor of PMMH Pharmacy's Outpatients Department. Minutes of meetings between hospital and district management discussing the problems encountered at PHC clinics were made available to the researcher and provided valuable insight into the case study. Participative observations conducted at PHC clinics generated: primary observations noting specific events, secondary observations involving observer's interpretations and experiential data noting perceptions and feelings experienced, while researching and factors material to the research setting e.g. organisational structures and communication patterns. A checklist (Appendix I) was used to ensure all participative observations undertaken at the PHC clinics included the indicators used in assessing pharmaceutical service delivery. These indicators are presented in the case to follow.

Data collection and analysis were performed simultaneously in order to identify 'promising lines of enquiry' that were followed up in the semi-structured interviews (Saunders *et al.*, 2003).

3.2.4.2. Semi-Structured Interviews

Semi-structured interviews were used to probe responses for complex and open-ended questions and led the discussion into areas that were not previously considered, but were relevant to the research question and objectives (Saunders *et al.*, 2003). It also provided the opportunity for the nurses to receive feedback and personal assurance about the way in which the information gathered was to be used. The nurses at these PHC facilities often feel overworked and unappreciated and an interview established personal contact where the problems encountered were adequately addressed. An interpreter was available where a language barrier existed. The interpreter was Mr L. Luthuli, a qualified learner basic

pharmacy assistant (with the Health Science Academy) with adequate training in the field of study, who was tasked with helping to improve DSM at the provincial PHC clinics in the ESSD (A copy of the interview schedule is available in Appendix II).

Participant observation and the semi-structured interviews enabled triangulation of data for greater reliability and were conducted on two days from eight o'clock in the morning to three o' clock in the afternoon, on two consecutive months. This was to allow time between the observations and interviews for further research and finalisation of the questions to be used in the semi-structured interviews. The clinic supervisor, Mrs O. Shandu informed the sisters-in-charge of the impending visit but not of the exact date. Only those nurses who gave their informed consent in writing were interviewed, which included sisters-in-charge or their deputies.

3.2.6. Collection of Secondary Data

3.2.6.1. Literature Review

A literature review helped generate and refine research ideas and gave good insight and understanding into relevant previous research and the trends that have emerged. Primary literature resources e.g. government white papers were utilised as well as secondary literature resources e.g. books and journals.

3.2.6.2. Internet Search

The internet provided the most current, available literature on all the relevant topics, including the latest research in this particular field. This method of data collection facilitated contact with experts in this field who provided valuable insight and experience. For example, Mr M. Makhado, chief pharmacist at AHC's Limpopo Depot, provided information on the PPP currently in existence with the Limpopo Department of Health (DOH-L), tasked with procurement and distribution of drugs to hospitals and PHC facilities in the Limpopo Province.

3.2.5. Data Quality Issues

Validity refers to the extent to which the researcher gains access to the participants' knowledge and experience, and is able to infer a meaning that the participant intended from the language used. The participant observations were high in ecological validity as they were conducted in their natural context i.e. at the PHC clinics. The semi-structured interviews allowed meanings to be probed, topics to be covered from a variety of angles and questions made clear to respondents (Saunders *et al.*, 2003).

The research findings were specific to the catchment area being investigated. Although inferences could be made to the rest of the provincial PHC clinics in Ethekwini, *generalisations* could not be made about the entire population i.e. all the primary health care clinics in South Africa. *Subject error* was avoided, as the subjects chosen are normal examples of the population under study.

There was a possibility that that the nurses interviewed provided a *'partial' picture* of the situation and could cast themselves in a 'socially desirable role' or the organisation in a positive or negative light. This was borne in mind and all non-verbal cues and gestures were taken into account (Saunders *et al.*, 2003).

Respondent bias was minimised by triangulation of data collected from the participant observations and semi-structured interviews conducted. This helped secure information that some respondents could have considered mundane and irrelevant. Results were compared to a survey undertaken by Karasaridis *et al.*, in 2003 of all PHC facilities in KZN (Karasaridis *et al.*, 2004).

3.2.7. Data Analysis

The checklist used in participative observation of the PHC clinics and the semi-structured interviews conducted with the sister-in charge or deputy were coded partly at data collection and after data collection as some likely responses were unclear. Data was captured using SPSS version 11.5 software and subject to descriptive statistical analyses to show the nature and frequency of specific variables/indicators.

Non-parametric statistical tests were used to test significance as the coded data was nominal or ordinal in nature. The chi square test was used to determine whether the proportion of responses per category for each question was statistically different. A significant level of 95% level was used where $p<0.05$ i.e. there is only a 5% chance of the result occurring by chance alone. Statistical significance helps rule out the possibility of a result occurring due to a random variation in the sample i.e. the probability of making a Type I error was minimised. The higher the chi square value, the lower the p-value. All results with a p-value<0.05 were deemed to be significantly different.

Due to the small number of provincial clinics in the area of focus viz. the ESSD, results in terms of the different indicators obtained from the participative observations and semi-structured interviews were compared across the three different regions at a 95% confidence interval, using the Kruskall-Wallis Test. The Kruskall-Wallis test is a one way analysis of variance by ranks test that is particularly useful in testing significance in studies consisting of sample sizes below thirty (Cooper and Schindler, 2003). All results with a p-value<0.05 were deemed to be statistically different across the three regions and therefore could not be extrapolated to the rest of the population i.e. all provincial PHC clinics in the Ethekwini district.

Analysis of the data collected from participative observations and the semi-structured interviews revealed deficiencies in pharmaceutical service delivery at the PHC clinics and is discussed in chapter four.

The following case presents the current scenario of pharmaceutical services at the PHC clinics as well as the policies and procedures representing optimal service delivery that should be taken into account in the evaluation of drug supply management at the PHC clinics.

3.3. Case of Drug Supply Management at Primary Health Care Clinics in the Ethekwini South Sub-District

3.3.1. Background

The World Health organisation created the concept of the District Health System as the vehicle to deliver Primary Health Care in developing countries which was later adopted by South Africa as the basis for restructuring the health system in 1994 (Sankar, 2002).

PHC is defined as:

> *Essential health care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination* (WHO–UNICEF, 1978).

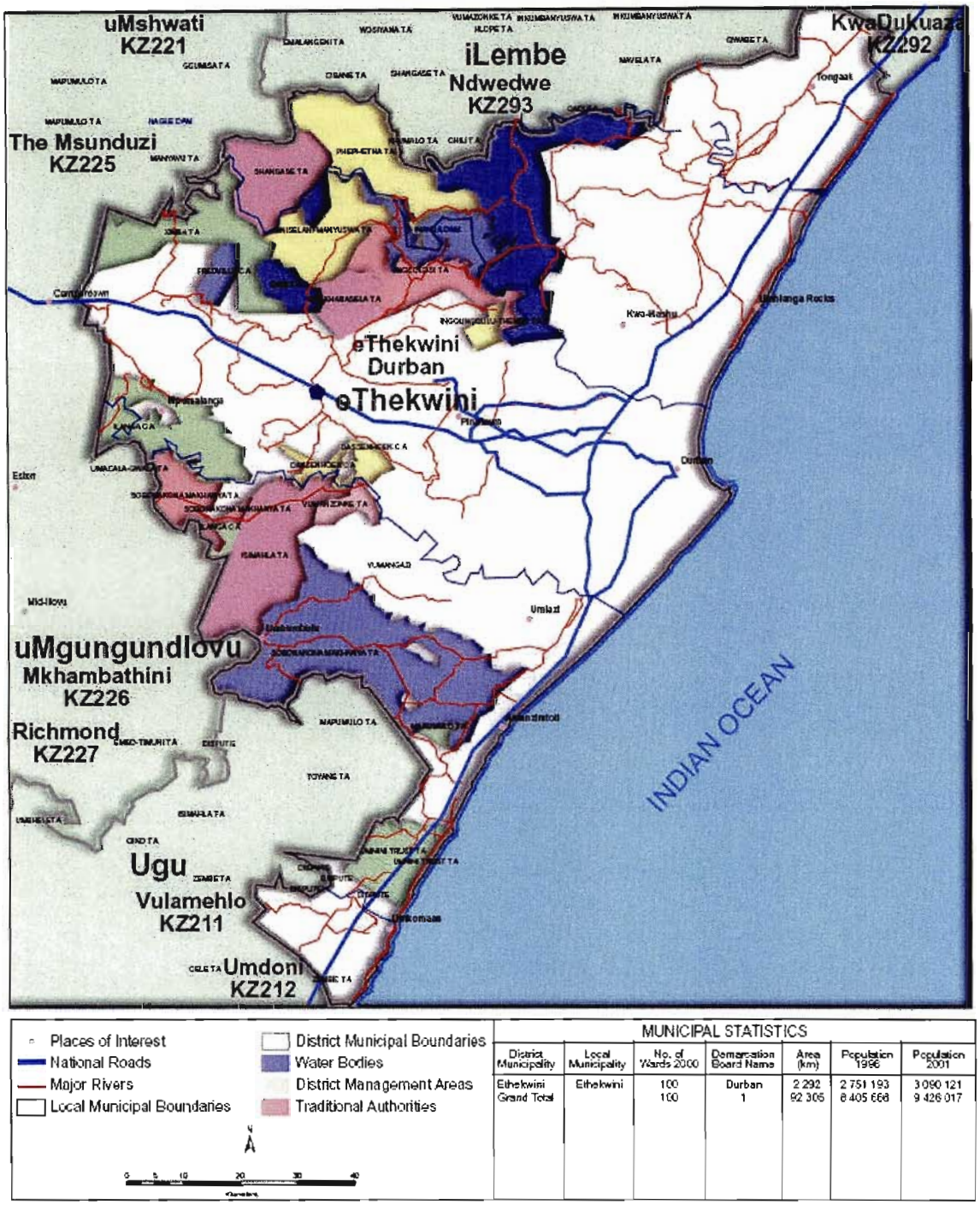
The PHC package consists of services provided by clinics, community health centres and community based services and includes health promotion and environmental health (Sankar, 2002). Provision of essential drugs is an important element of PHC and a necessary component of equitable health care.

DHS policy entails the organisation of health service delivery at the local level as a system of Health Districts that co-ordinate, facilitate and provide PHC to the community within a geographically defined area.

In keeping with this internationally and nationally accepted health care approach, the KZN DOH maintains the following strategic focus:

- *Vision*: 'To achieve optimal health care status for all persons in the province of KwaZulu-Natal' (KZN DOH, 2005b).
- *Mission*: 'To develop a sustainable, co-ordinated, integrated and comprehensive health system at all levels, based on the primary health care approach through the district health system' (KZN DOH, 2005b).

KZN consists of one metropolitan (Category A), ten district (Category C) and fifty local (Category B) municipalities (Figure 3.1). District Health services are jointly provided by the Provincial Department of Health and the Local Government authority, with the former contributing 60% and the latter 40% (KZN DOH, 2005c). The area of study was the ESSD consisting of twelve local and eighteen provincial PHC clinics. The focus was on pharmaceutical service delivery at seventeen of the provincial PHC clinics, attached to PMMH and managed by Mrs O. Shandu, clinic supervisor stationed at Emaweleni in Umlazi, south of Durban.



District Municipality	Local Municipality	No. of Wards 2000	Demarcation Board Name	Area (km)	Population 1996	Population 2001
Ethekwini	Ethekwini	100	Durban	2 292	2 751 193	3 090 121
Grand Total		100	1	92 305	8 405 668	9 426 017

Figure 3.1: Ethekwini District Municipality
(Source: KZN Department of Economic Development, 2005)

In keeping with the principles of DHS, a strict referral system exists (as depicted in Figure 3.2) to aid the government's decongestion strategy for hospitals and increase availability and equitable provision of health care to the majority of people living in KZN.

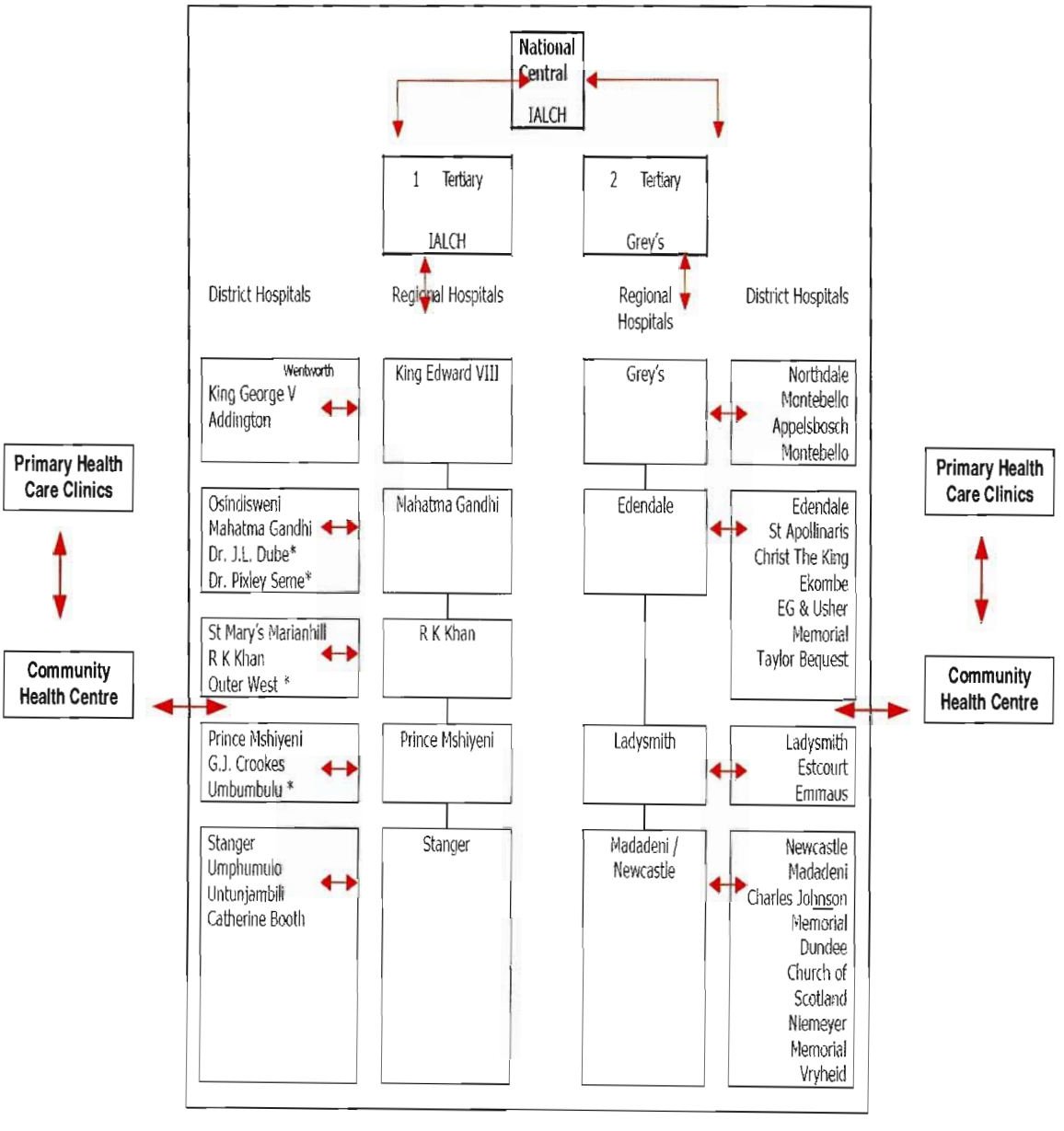


Figure 3.2: Referral System for KwaZulu-Natal
(Source: Adapted from: KZN DOH, 2005c)

Table 3.1 depicts travelling distances from the respective PHC clinics in the ESSD to the nearest hospital, which is PMMH: a 1200-bedded facility that offers health services to the surrounding area up to and including part of the Eastern Cape, at regional and district levels. Poor road infrastructure and mountainous terrain exacerbates the accessibility of patients residing in rural areas, to PMMH.

Table 3.1: Clinics and Approximate Distances from Prince Mshiyeni Memorial Hospital

Clinic	Distance in kilometres (km)
Region 1	
V-Clinic	3
D-Clinic	6
Umzomuhle "H"	8
Osizweni "Q"	8
U21	8
Ekuphileni "L"	9
K	10.5
Region 2	
Kwa-Makutha	20
Nsimbini	20
Folweni	25
Umbumbulu	28
Region 3	
Umnini	30
Inkwali	30
Danganya	32
Imfume	32
Odidini	35
Magabheni	40

(Source: Shandu, O., Personal Communication, 3 June 2005)

The success of implementing the DHS and adhering to the strict referral system lies on the ability to provide an integrated PHC package, including reliable, safe and timeous supply of medicines at the PHC clinics, to avoid patients ignoring referral pathways and reporting to their nearest hospital instead.

Against this backdrop, the following section analyses the external environment with the aim of uncovering opportunities and threats and highlighting key drivers of change in the health sector.

3.3.2. External Environment

3.3.2.1. PEST Analysis

a) Politico/Legal

Policies and regulations are an important aspect of the business environment and can affect the way the organisation performs. The discussion that follows highlights some of the key aspects affecting the health sector and particularly drug supply management (DSM) and PPPs.

South Africa's health system is undergoing one of its most significant periods of transformation. Local government is entering a phase of stability following the boundary changes of the Municipal Demarcation Board and the passing of the Municipal Structures and Systems Act (HST, 2005).

The Municipal Structures Act allocates the function of Municipal Health Services i.e. environmental health services excluding malaria, port health and control of hazardous substances, to Category A (metropolitans) and C (district) municipalities. PHC is now the full responsibility of the provinces with the possibility of assigning some or all of these functions to LG through SLAs (Sankar, 2002).

In KZN, the decentralisation of services has taken the form of deconcentration with District Management Structures reporting to the provincial office. LG manages fifty-eight PHC clinics in the Ethekwini district, twelve of which are situated in the PMMH catchment area (ESSD) as opposed to the forty-nine managed by provincial government (PG), eighteen of which are situated in the ESSD. As stipulated in the National Health Act (Act 61 of 2003), the municipalities concerned have entered into a SLA with the DOH for rendering PHC (KZN DOH, 2005b). This agreement allows the delegation or assignment of functions from provincial to local government (Hall, 2004).

However, this framework of PHC delivery detracts from the international definition of the DHS, as provincial and not local government is assigned the responsibility for the provision of PHC. Furthermore, it hinders the goal of providing co-ordinated and integrated health care, as stipulated in KZN's strategic focus for 2005 (KZN DOH, 2005b); as more than one authority viz. local and provincial are responsible for PHC delivery, which is managed by the district office reporting to PG.

According to the White Paper on Local Government (1998) the choice of *service delivery* is guided by nine principles viz. accessibility, affordability, quality, accountability, sustainability and value for money. PPPs are seen as one of the mechanisms of service delivery which allows horizontal cooperation between municipalities to exploit economies of scale and vertical cooperation to improve coordination at the point of delivery (LG, 1998).

According to Regulation 16 of the Public Finance Management Act (RSA Government Gazette No. 25915, 2004), all PPP agreements should be approved by the National Treasury. Approval is firstly, subject to the PPP agreement being affordable i.e. the financial commitments incurred by the public institution can be met. Secondly, the PPP agreement should represent value for money i.e. provision of the institutional function or use of state property results in a net benefit to the institution; defined in term of cost, price, quality or technical, financial and/or operational risk transfer from public to private or a combination thereof.

PPPs involving supply chain management should adhere to regulations stipulated in the Framework for Supply Chain management published by the National Treasury of South Africa. Some of the more applicable aspects to this study included the establishment of supply chain units, training of supply chain management officials, letting of state assets, maintaining ethical standards, avoiding abuse of the supply chain system and reporting of supply chain information (RSA Government Gazette No. 25767, 2003).

Futhermore, according to the Preferential Policy Framework Act 5 of 2000 (RSA Government Gazette No. 20854, 2000), tenders or PPP proposals are awarded according to specific goals. These include the contracting with persons or categories of persons historically disadvantaged by unfair discrimination on the basis of race, gender or disability and implementation of the programmes of the Reconstruction and Development Programme (RDP) of 1994.

The RDP proposes the restructuring of the health system: "One of the first priorities is to draw all different role players and services into the [National Health System]. This should include both public and private providers of goods and services and should be organised at national, provincial, district and community levels" (DOH, 2002). Health services to be targeted and applicable to this study, include programmes to treat priority diseases e.g. TB, hypertension and diabetes; emphasis on chronic disease care; provision of essential drugs to all PHC facilities and a shift in the budget in favour of PHC (elaborated later in this chapter under economic factors affecting the organisation).

In addition, the goal of the *National Drug Policy* (1996) is to "ensure an adequate and reliable supply of safe, cost-effective drugs of acceptable quality to all citizens of South Africa and the rational use by prescribers, dispensers and consumers" (DOH, 1996). Prompt, efficient, timely and equitable distribution of essential drugs to all health care institutions is one of the key health objectives of NDP. Provinces are to use their own discretion in choosing distribution arrangements to ensure drugs are distributed in a cost-effective manner and are encouraged to contract distribution to the private sector, where appropriate. It is stipulated that in addition to essential drugs, this system is expanded on, to include supply of drugs to patients with chronic illnesses, referred patients and national disease control programmes such HIV/AIDS and TB.

One of the major implications of the Medicines and Related Substances Control Act (MARSCA) 101 of 1965, amended and implemented as of the 1st July 2005 is the issue of

dispensing medicines: "Any health professional, other than a pharmacist, who dispenses medicines, will be required to obtain a licence to do so" (KZN DOH, 2005b). PHC facilities are primarily run by nurses and as there is a currently a shortage of pharmacists, all PHC nurses are required to undergo an accredited effective prescribing and dispensing training course.

The NDP views pharmacists as having a critical role to play in quality assurance and the promotion of the rational use of drugs especially in PHC settings (DOH, 1996). The policy specifically makes allowances for pharmacy technicians to be trained in the management of drug supply at PHC clinics under the indirect supervision of a district pharmacist.

b) Economic

South Africa's real *gross domestic product* (GDP) grew 2.6% in 2004, and was forecasted to grow 3.2% in 2005. Approximately 8.5% of the GDP is spent on the health sector (HST, 2003). Table 3.2 depicts trends in provincial health expenditure. Since 1998/99, the department has shifted funds from higher level services to more cost effective lower level services e.g. PHC services reflected in an approximate 13% increase per annum. As stated previously, this is in accordance with the goal of the RDP to shift budgets to favour PHC.

According to Buthelezi (Personal Communication, 5 July 2005), PHC clinics overspent by 32% in the 2003/2004 financial year. The over-expenditure was recovered from other allocations e.g. equipment applicable to PHC clinics not utilised for the respective financial year. However, according to Buthelezi (Personal Communication, 5 July 2005), the budget allocation process is still under development and is in the process of being finalised.

Conservative government fiscal policies have reduced the double-digit *inflation* that South Africa experienced in the 1980s. Consumer price inflation (CPI) was 1.4% in 2004 and was forecasted at 3.0% for 2005 (KZN DOH, 2005b). This increase was partly due to an increase in international crude oil prices, which has in turn caused inflationary effects on other sectors, especially the cost of transport.

Table 3.2: Trends in Provincial Public Health Expenditure for KZN (R million)

Expenditure	2001/02 (actual)	2002/03 (actual)	2003/04 (actual)	Annual Percentage Change	2004/05 (estimate)	2005/06 (MTEF projection)	2006/7 (MTEF projection)	2007/08 (MTEF projection)
Current prices[1]								
Total[2]	7,030,301	7,495,572	8,212,659	8.08	8,875,985	-	-	-
Total per person	R745.84	R789.77	R857.46	7.22	R918.29	-	-	-
Total per uninsured person	R847.55	R897.47	R974.39	7.22	R1,043.51	-	-	-
Constant (2004/05) prices[3]								
Total[2]	8,562,907	8,312,589	8,639,717	0.45	8,875,985	10,379,202	11,466,566	12,347,152
Total per person	R908.43	R875.86	R902.05	(0.35)	R918.29	R1,073.81	R1,186.31	R1,277.41
Total per uninsured person	R1,032.31	R995.29	R1,025.06	(0.35)	R1,043.51	R1,220.24	R1,348.08	R1,451.60
% total spent on:								
DHS	47.32	44.88	45.92	(1.49)	46.54	44.62	46.68	47.65
PHS	28.74	29.92	31.31	4.36	28.14	28.69	26.92	26.69
CHS	7.91	12.93	9.32	8.52	9.86	9.58	10.23	9.96
All personnel	5,129,192	4,899,678	4,902,144	2.24	5,339893	6,154,242	6,796,366	7,380,262
Capital[2]	R656,503	R257,663	R269,015	(35.99)	R309,894	R529,463	506,293	521,179
Health as a % of total provincial expenditure	28.1	26.1	24.1	7.39	22.2	22.8	22.9	22.7

(Source: KZN DOH, 2005b, p.19)

In August 2004, the South African Reserve Bank's Monetary Policy Committee (MPC) lowered *interest rates* by 50 base points (KZN DOH, 2005b). If CPI remains low and the currency remains stable, further rate cuts may be made in the future, which decreases the cost of capital and promotes Small to Medium Business Enterprises. However, according to ABSA economists Markus and Maisela (2005), inflation is expected to increase to 4% in 2006 due to possible increases in fuel costs. The MPC might increase interest rates in an effort to curb borrowing, decrease demand and hence keep inflation at bay.

The economic objectives of the *NDP* include lowering the cost of drugs in both public and private sectors, promoting the cost-effective and rational use of drugs and establishing

complementary partnerships between government bodies and private providers in the pharmaceutical sector.

c) Socio-cultural

Approximately 88% of the population of KZN is uninsured and rely on Public Health services for their health care needs, with the *population* visiting each PHC facility approximately 16553 patients (Table 3.3).

Table 3.3: Health Service Facilities in the Ethekwini District

Health District	Facility type	No.	Population	Population per PHC facility or per hospital bed	Per capita Utilisation Rate
eThekwini (Urban Node) Incl. i.e. Inanda & KwaMashu	Non fixed clinics:		3 152 405		
	Mobile Teams	24		5 877	3.96
	Visiting Points	353		399	3.96
	Fixed Clinics	133		16 553	2
	CHC's	6		123 248	0.5
	Sub-total Clinics + CHC's	163		48 595	2.1
	District Hospitals	4		370 535	0.94

(Source: KZN DOH, 2005b, p.31)

Elderly patients are becoming the backbone of communities especially with the care of HIV/AIDS orphans. The DOH aims to strengthen the diagnosis and management of chronic diseases through screening programmes and ensuring availability of chronic medication at all health facilities including PHC clinics. In addition according to the Mental Health Care Act of 2002, management of mental health will be decentralised and integrated into PHC services (Nkonyeni, 2005).

Although 53% of the population is urbanised, a high proportion live in informal settlements and the rest in rural settlements. This places added pressure on the current staff complement and exacerbates the *staff shortage* presently experienced (depicted as vacancy rates in Table 3.4). The recruitment of staff to the rural areas remains a major obstacle towards attainment

of adequate, appropriately utilised, competent and motivated health workers in the Health Services Cluster.

Table 3.4: Personnel in District Health Services

Health District	Personnel Category	Posts Filled	Posts Approved	Vacancy Rate (%)	Number in post per 1000 uninsured people
eThekwini	**PHC facilities**				
	Medical Officers	9	28	68	-
	Professional Nurses	585	717	18.4	-
	Pharmacists	9	26	65.4	-
	Community Health Workers	988	1 119	11.71	.38
	District Hospitals				
	Medical Officers	62	126	51	.026
	Professional Nurses	687	1 106	38	.204
	Pharmacists	29	39	26	.008

(Source: KZN DOH, 2005b, p.33)

According to Evans *et al.*, (1994, cited in Foladori, 2004), *poverty* and ill-health are inter-twined in that poverty breeds ill-health and ill-health exacerbates poverty, which in turn puts severe pressure on the health system. KZN records the highest population density and is ranked as one of the poorest provinces in the country. Ethekwini in particular, has a poverty rate of 31.5% and an unemployment rate of 37% (Table 3.5).

Table 3.5: Poverty and Unemployment Rates in KwaZulu-Natal

District	No of persons living in Poverty	Poverty Rate (%)	Blacks in Poverty (%)	Urbanisation Rate (%)	Unemployment Rate (%)
Ugu	393,966	60.2	68.0	14.7	48.2
Ethekwini	970,345	31.5	44.9	82.6	37.0
Uthukela	350,414	64.1	68.5	30.1	57.2
Iiembe	335,857	62.5	67.9	20.7	48.5
Umgungundlovu	486,639	51.1	61.8	61.8	45.5
Uthungulu	648,221	63.7	67.4	18.1	53.1
Zululand	494,027	72.4	74.4	17.8	65.7
Umzinyathi	468,157	69.6	71.7	12.2	66.4
Umkhanyakude	426,795	77.1	78.0	2.4	66.5
Sisonke	219,330	71.6	75.1	13.6	52.2
Amajuba	262,018	56.8	62.7	59.9	48.0
Total	5,065,769	53.0	62.4	45.5	41.9

Source: Statistics SA Census 2001 data

(Source: KZN DOH, 2005b, p.14)

These problems remain the focus of health priorities discussed in KZN's strategic plan, which includes strengthening PHC and support services, as well as developing human capability and promoting job creation.

d) Technology

The aim of the DHS and PHC is to provide equitable, quality health care to all citizens of South Africa. However, the transition to a fully functional DHS is bound to be slow due to the gross infrastructural deficiencies in the rural areas. Poor communication is a major cause of frustration exacerbating the isolation experienced by rural health care workers. The successful implementation of a DHS is essentially dependent on providing an effective and efficient means of communication.

Technological developments in the health sector revolve around improving electronic communication. One of the strategic goals for the KZN DOH is to invest in infrastructure development in health technology and communication. The aim is to improve information

systems and drug procurement and distribution, through the provision of equipment and the development of appropriate skills (KZN DOH, 2005b).

Three initiatives viz. The Initiative for Sub-District Support's (ISDS) partnership with HealthLink, AHL's employment of Citrix and PMSC's Remote Demanders Module were of particular importance for the area of focus.

ISDS has recognised that electronic communication has become an essential tool that is efficient, cost-effective and offers huge advantages especially in areas with geographical and infrastructural constraints. Accordingly, ISDS has embarked on a strategic partnership with HealthLink to enable all health care workers and managers to have access to e-mail and computer facilities. Through appropriate training and skills development, this will result in greater access to health information and more efficient health service delivery (HST, 1997). Some of the envisaged benefits include support for statistic collection, electronic medicine requisitioning, and access to information for clinical support viz. Standard Treatment Guidelines and educational support for continuing professional development.

As part of its strategy to deploy information faster to its customers, AHL has chosen Citrix Metaframe Presentation Server software as its access infrastructure solution. The Limpopo depot is in the process of deploying the software to provincial hospitals to help rollout its in-house pharmaceutical distribution software. It is hoped that electronic ordering will reduce bandwidth and distribution costs and keep pricing information up-to-date. Once network connections are established, each hospital will make use of a wireless connection to the internet to connect to AHC's server. The Citrix solution allows all computers to access AHC applications regardless of processing power. Plans are in place to allow health care professionals at PHC clinics with no access to telephones to dial into the system using cellular phones and notebook computers (Livewired Communications, 2004).

KZN's medicines depot, PMSC is currently in the process of implementing its Remote Demanders Module (RDM) in public hospitals designed to alleviate the problems associated with the printing and faxing of orders to PMSC. Each order will be downloaded off the server, checked by the responsible pharmacist at PMSC and assigned a requisition number. In addition, a usage history will be built up over six months and thereafter any orders in excess of this will be automatically flagged. It is up to the discretion of the responsible pharmacist to accept the order or to reduce quantities ordered (Redman *et al.*, 2002).

The industry analysis to follow looks at potential forces affecting the private provider's profit potential in the health sector based on current legislature and business practices.

3.3.3. Industry/Sector Environment

The industry/sector environment analysis focused on the distribution aspect of DSM as the proposed PPP deals with provision of reliable, safe and effective drugs to the end-users i.e. chronic, psychiatric and PHC patients visiting the rural clinics (elaborated on later in this chapter under current value chain).

3.3.3.1. Five Forces Framework

a) Threat of New Entrants:

The threat of new entrants is considered a weak force, as once the government grants the PPP exclusive access to distribution channels, renewal of the contract upon expiry is dependent on attainment of goals as stipulated in the SLAs between the KZN DOH and the private provider.

b) Threat of Substitutes:

According to the minutes of meetings held between PMMH and district management, possible solutions to the drug supply problem currently experienced at PHC clinics include converting Clairwood hospital, situated in the South of Durban close to PMSC, into a

chronic hospital to prepare chronic medication on a per patient basis. However, it is not stipulated how these medications will be delivered to the PHC clinics. This potential solution addresses the issue of chronic medicine preparation on a per patient basis currently unable to be provided by pharmacy staff at PMMH, due to staff shortages and capacity constraints. This represents a moderate force as the problem of the shortage of skilled staff, control of drug use and maintenance of safety and efficacy in dispensing practices, still remains a problem.

c) Competitive Rivalry

International DHS policy envisages PHC devolved to LG. Due to financial and capacity constraints; the DOH has maintained PHC as a provincial responsibility. The threat of competitive rivalry is in the form of local authority clinics run by LG that have drug supply management practices in place that cater for the needs of chronic and PHC patients. There are currently eighteen provincial and twelve LG clinics currently functioning in the ESSD. LG has signed SLAs with the KZN DOH to continue managing their respective clinics.

This threat can be regarded as moderate as depending on future government legislation, provincial clinics could be handed over to LG. However, a report compiled by Kathryn Strachan (1999), suggests that that the greatest challenge in streamlining provincial and local authority clinics is reorganising medicine supplies. Whereas, provincial clinics draw medicine supplied form a central source (PMSC), local authority clinics have a multitude of suppliers and budget sources. For example, chronic medication is pre-packed on a per patient basis at a government institution known as Esplamed, which caters for the supply of chronic medication to all local authority clinics in the Ethekwini region (HST, 1999).

d) Bargaining Power of Buyers

The buyer refers to the end-user, in this case the patients visiting the PHC clinics. Once the proposal is accepted by the KZN DOH, the PPP will be implemented. In terms of profit potential, the end-user exerts little/no effect on the organisation. However, to ensure renewal of the contract on expiry as well as maintenance of the SLA, end user perception is

very important and quality service delivery should be maintained. Therefore, bargaining power of suppliers is regarded as weak.

e) Bargaining Power of Suppliers

The supplier refers to the PG, as a SLA will be entered into with the KZN DOH. As in the case of DOH-L, levies for handling and distribution will be agreed upon and quality of service will be stipulated. Supplier bargaining power is strong as the acceptance of the proposed PPP rests on the ability to convince the DOH and the National Treasury that the potential advantages of implementing the PPP outweigh the costs associated.

Bargaining power of suppliers (KZN DOH) represents the strongest threat to the successful implementation of the proposed PPP and this relationship should be appropriately managed This will be elaborated on in chapter four under stakeholder mapping.

The focus now shifts to the analysis of the internal environment where the variable or indicators used to identify deficiencies in pharmaceutical service delivery are highlighted.

3.3.4. Value Chain Analysis

An overview of the value chain for drug procurement and supply in KZN DOH is presented in figure 3.3. PMSC undertakes procurement, warehousing and distribution of pharmaceuticals. It operates on a Medicines Trading Account and utilises a computerised stock procurement system known as MEDSAS. Distribution to hospitals is fortnightly and monthly to Community Health Centres and PHC clinics and is undertaken using the services of a contracted courier company. The project to deliver directly to all PHC clinics in KZN is 95% complete with the remaining 5% to be handed over by the relevant district authorities (KZN DOH, 2004a).

The emphasis, as discussed in chapter two, was on outbound logistics and pharmaceutical service provision to the end user i.e. the patients visiting provincial PHC clinics in KZN.

Two different consumer segments, acute and chronic care including psychiatric patients were identified. Acute care patients were defined as patients visiting clinics for PHC e.g. minor ailments, family planning and mother and childcare. For the purposes of this study, patients suffering from TB were regarded as acute care patients. Chronic care patients were defined as those patients suffering from chronic diseases e.g. hypertension, diabetes, epilepsy and other psychiatric disorders.

To highlight the strengths and weaknesses in the current value chain DSM principles are discussed, to provide a benchmark with which to compare current drug procurement and supply practices at provincial PHC clinics belonging to the ESSD.

Figure 3.3: Drug Procurement and Supply Value Chain for KwaZulu-Natal
(Source: Adapted from KZN DOH, 2005b, KZN DOH, 2004a and Hitt *et* al., 2003)

3.3.4.1. Drug Supply Management Principles

According to the DSM module available from the Health Science Academy as part of their pharmacy assistant training programme (HSA, 2004), DSM has eight components viz. procurement and receipt of supplies, monitoring and maintenance of supplies, cold chain maintenance, appropriate storage of products, maintaining relevant documentation and issuing of supplies.

Procurement of medication is achieved using standard stock levels, calculated from average consumption and buffer stock required and minimum reorder levels, which help determine quantity and frequency of orders. According to Gray *et al.*, (1998), the correct use of stock control cards ensures availability of essential drugs and avoids overstocking and expiry. In addition, stock control cards provide necessary information to monitor and improve DSM (HSA, 2004).

Incoming stock should be properly received and approved and each product placed in its proper storage location under conditions that ensure that the stability and security of the product is maintained. Supplies are stored according to routes and form of preparation, in alphabetical order, using first-in-first-out principles. Expired drugs are recorded in the appropriate manner and disposed using a reliable hazardous waste disposal company, or as stipulated by local regulations (HSA, 2004).

Cold chain maintenance is crucial to vaccine potency. On receipt of fridge-line items, the vaccine carrier or cooler box should be checked for damaged packaging. Cold chain monitor cards and/or freeze watch indicators are checked, their condition immediately recorded and stored with the vaccines received. Food and drinking water should not be stored in the vaccine fridge. The temperature of fridges should be checked and recorded twice daily on a temperature chart. Any fluctuations outside the acceptable range, indicated on the fridge should be investigated (HSA, 2004).

Relevant documentation including stock control cards, requisition forms, out of stock items, discrepancy reports and 'returned goods' forms should be maintained. Maintenance of a running tally facilitates monthly stock take, which should be performed before each requisition is made. Discrepancies should be accounted for to rule out theft.

Issuing of supplies should be systematic and orderly to maintain adequate stock control. Access to the dispensary should be restricted with only one nurse in charge of dispensary at any given time. Policies for topping–up of open stock used by nurses in consultation rooms should be established (HSA, 2004).

In addition to DSM principles effective prescribing and dispensing is essential to maintain safety and efficacy in drug utilisation.

3.3.4.2. Effective Prescribing and Dispensing

According to Section 38A of the Nursing Act No 50 of 1978(RSA Government Gazette No. 547, 2004), any nurse who is in the service of the Department of Health, a provincial administration, a local authority or any organisation performing any health service and authorised by the Director General of Health, may perform: the physical examination of any person; the diagnosing of any physical defect, illness or deficiency in any person; the keeping of prescribed medicines and the supply, administering or prescribing of such medicines for the promotion of family planning.

The dispensing nurse should evaluate the patient's medicine related needs by determining the indication, safety and effectiveness of the therapy prescribed. All relevant information regarding the safe and efficacious use of the medication prescribed should be conveyed to the patient. All medication should be dispensed in appropriately labelled containers as stipulated in Section 8 of the MARSCA 101 of 1965 (RSA Government Gazette No.7871, 1997).

Currently, majority of the nurses in the ESSD have registered for and are completing a dispensing course in order to achieve a dispensing license as stipulated in Section 22C (1a) of the MARSCA 101 of 1965 (RSA Government Gazette No.7871, 1997). In the interim, those nurses who provide PHC services and issue pre-packed medication to their patients and/or dispense medicines, can do so provided that each nurse has a letter signed on behalf of the head of the department, authorising them to provide the service in terms of Section 38A of the Nursing Act (HASA, 2005) (Appendix V).

Pharmacists are an essential component of a drug management system. According to the National PHC facilities survey conducted by Karasaridis *et al.* in 2003, the availability of pharmacists at PHC facilities (which include community health centres, not a part of this study) is 100000 people per pharmacist (Karasaridis *et al.*, 2004). Due to the chronic shortage of pharmacists experienced throughout KZN especially in rural areas, professional nurses now assume full responsibility for management of the PHC clinics and DSM is incorporated into their PHC training programme.

Professional nurses place medicine orders for essential drugs from schedule one to four once monthly via fax utilising the EDL order form supplied by PMSC (Appendix IV). Orders are compiled at PMSC and are purported to be delivered within a week, directly to the PHC clinics as per SLA, using an outsourced courier service. Pharmacists working at PMSC do not visit PHC clinics and monitor drug usage remotely.

Those patients requiring more specialised drugs not on the EDL formulary either are referred every month to PMMH pharmacy for collection of medication or have a visiting doctor visiting to their respective clinics that orders and collects chronic medication from PMMH pharmacy, where medication is prepared on a per patient basis.

Schedule five medicines are more strictly controlled using registers as per Section 30(2) of the MARSCA 101 of 1965 (RSA Government Gazette No.7871, 1997). Procurement of schedule five medicines used primarily in the treatment of psychiatric conditions is

achieved using one of two mechanisms. Some clinics place orders utilising schedule books, which are first authorised by medical practitioners at Emaweleni and then sent to PMMH pharmacy for issuing and collection, at stipulated dates and times. Other clinics refer patients monthly for collection of medication from PMMH pharmacy.

The National Primary Health Care survey found that the majority (62%) of clinics surveyed in KZN, resided in rural areas with at least one professional nurse as facility manager. Eight out of ten nurses had at least one fridge used exclusively for the storage of vaccines and fridge items with a temperature record chart for daily monitoring of temperature. Robberies were reported in 18% of the facilities and six out of ten facilities were judged to have adequate security measures i.e. double-locking doors and burglar barred windows.

To prevent over-prescribing, a drug register is utilised to keep a record of the types of drugs being prescribed. In KZN, 94% of clinics had an up-to-date drug register. The mean number of drugs dispensed per patient was 2.6 compared to 2.0 nationally. On the day of the interview, 6% of the facilities had expired stock present proving that maintenance of adequate stock levels whilst avoiding wasteful overstocking remains a challenge. There was an increase in the unsafe disposal of expired medication by means of disposal in pits in KZN (79%) since the 2000 survey. According to the training register, fewer nurses in KZN received training updates on selected PHC topics during the 12 months preceding the survey (Karasaridis *et al.*, 2004).

The results obtained from this survey will be compared to the results obtained in this study on analysis of the data collected, and presented in chapter four.

3.4. Summary

In order to assess the current provision of pharmaceutical service delivery in the ESSD, the macro-, industry- and internal environment were taken into account to identify potential threats and opportunities as well as strengths that could be capitalised on and weaknesses

that could be minimised or improved upon. Political dictate was the strongest force highlighting the necessity of strict adherence to governmental policies and procedures.

In addition, indicators for optimal service delivery were clarified and centred around adherence of professional nurses, often PHC facility managers to DSM principles viz. procurement, drug supply complaints, cold chain maintenance and storage conditions as well as adherence to effective prescribing and dispensing practices, general working conditions and additional training needs.

These indicators were used to analyse the data collected at the PHC clinics and results of the findings are presented in chapter four.

Chapter 4: Evaluation

4.1. Introduction

The aim of this chapter is to analyse the results obtained from the participative observations and semi-structured interviews conducted at the PHC clinics in order to identify strengths and weaknesses in terms of pharmaceutical service delivery. The results obtained are, where possible compared to those of the National Primary Health Care Survey in 2003. The ability of the proposed model to address any deficiencies identified from the results obtained is evaluated. In addition, strategic evaluation is undertaken to assess the suitability, acceptability and feasibility of implementing the proposed model in light of the issues addressed in the case study.

4.2. Results of Participant Observations and Semi-structured Interviews

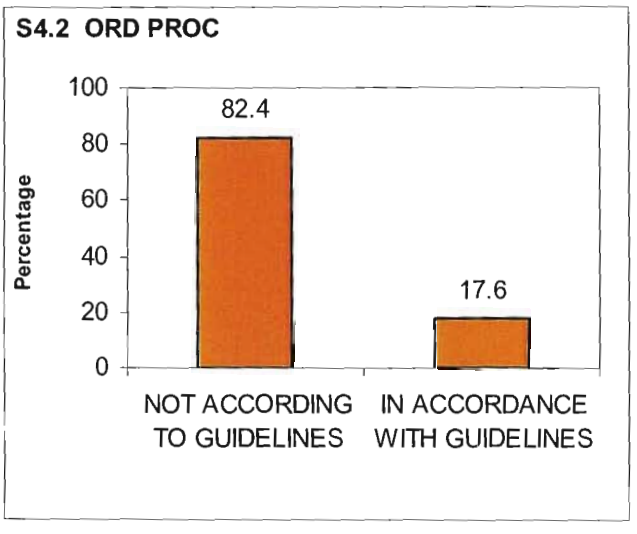
Review of the results obtained is structured according to three categories: adherence to principles of drug supply management; adherence to effective and rational prescribing and dispensing regulations and general working conditions experienced by nurses at PHC clinics.

A significance level of 95% was used for the chi square test, where all p-values <0.05 indicated that the proportion of responses per category were deemed statistically different.

4.2.1. Adherence to Drug Supply Management Principles:

As discussed in chapter three, DSM principles include procurement and receipt of supplies, monitoring and maintenance of supplies, cold chain maintenance, appropriate storage of products, maintaining relevant documentation and issuing of supplies.

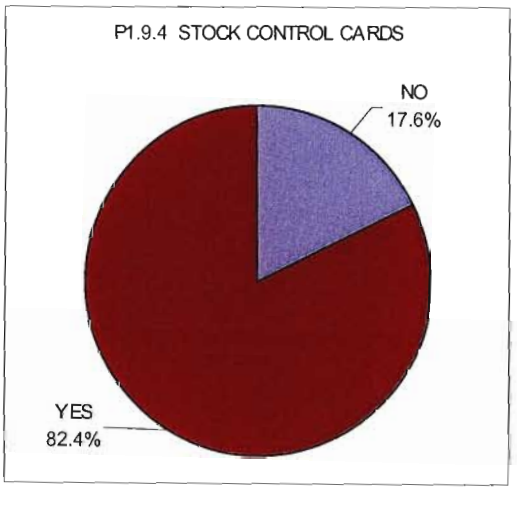
Figure 4.1 indicates the adherence to proper *procurement* procedures.



There was a significant difference in the proportion of clinics that followed proper procurement procedures to those that did not (p=0.008). 82.4% did not follow proper procurement procedures.

Figure 4.1. Adherence to Procurement Procedures

Figures 4.2, 4.3 and 4.4 illustrate the percentage of clinics with up-to-date stock control cards and calculated re-order levels.



Fourteen out of the seventeen clinics had stock control cards in place but only 52.9% where up-to-date.

Figure 4.2. Stock Control Cards Present

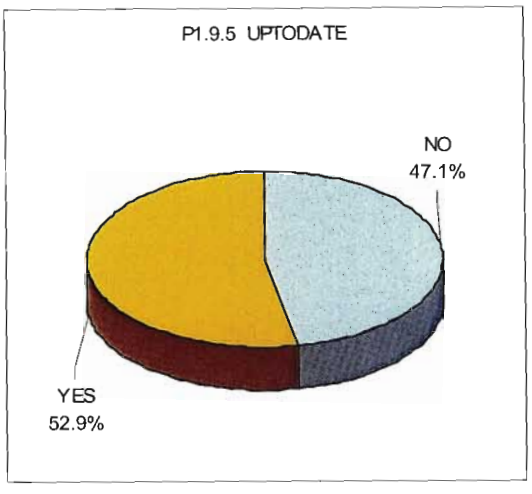
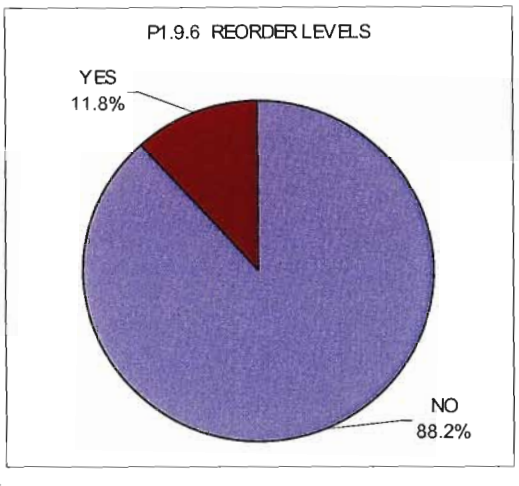


Figure 4.3. Up-to-Date Stock Control Cards Present



Only 11.8 % of the clinics had reorder levels calculated to aid in *monitoring and maintaining adequate supply of drugs* at all times. The results obtained were significant at a 95% level (p=0.008 and p=0.002 respectively).

Figure 4.4. Reorder Levels Calculated

According to the DSM principles discussed in chapter three, non-adherence to proper procedures in the procurement of stock can lead to either a shortage of stock, excess stock that in turn leads to stock expiring or out of stock situations.

Tables 4.1 and 4.2 depict the number of clinics that have handled excess or expired stock.

Table 4.1. Frequency Table for Handling of Expired Stock

Q6.7.1 EXPIRED STOCK

		Frequency	Percent
Valid	NOT ACCORDING TO GUIDELINES	5	29.4
	IN ACCORDANCE WITH GUIDELINES	1	5.9
	99	11	64.7
	Total	17	100.0

Table 4.2. Frequency Table for Handling of Excess Stock

Q6.7.2 EXCESS STOCK

		Frequency	Percent
Valid	NOT ACCORDING TO GUIDELINES	3	17.6
	99	14	82.4
	Total	17	100.0

Approximately 35% (p=0.011) and 17% (p=0.008) of the clinics encountered expired and excess stock respectively. In addition, only 5.9% of the clinics disposed of expired stock according to DSM guidelines as compared to the provincial average of 21% that was reported in the National PHC Survey conducted in 2003.

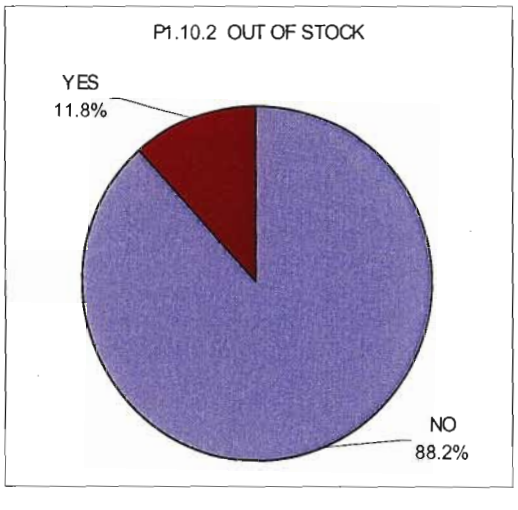


Figure 4.5 depicts that 11.8% of the clinics reported incidences of medication being out of stock (p=0.002). Reasons cited by the nurses at the PHC clinics inspected included improper ordering procedures or irregular delivery lead times from the supplier (p=0.028).

Figure 4.5. Percentage of Out of Stock Incidences

Figure 4.6 depicts that the proportion of *drug supply related complaints* experienced at the clinics was significant (p=0.008). 82.4% of the clinics had drug supply related complaints.

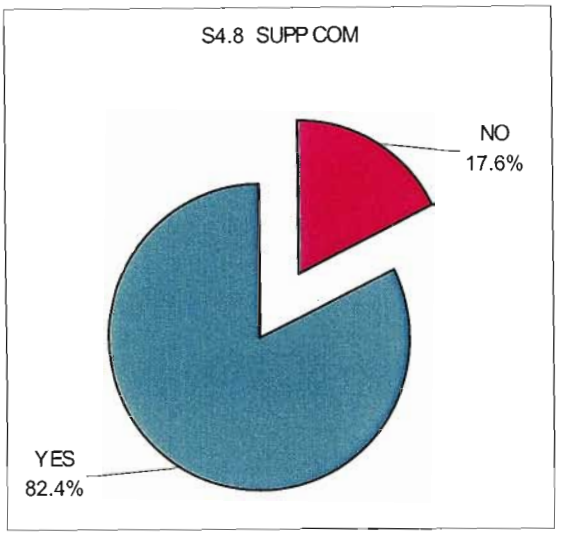


Figure 4.6. Proportion of Drug Supply Related Complaints

Tables 4.5, 4.6 and 4.7 depict the number of complaints concerning receipts of stock from suppliers.

Table 4.5. Frequency of Receipt of Expired Stock

Q4.7.1 EXP

		Frequency	Percent
Valid	NO	14	82.4
	YES	3	17.6
	Total	17	100.0

Three, one and four out of the seventeen clinics reported receipt of expired (p=0.08), damaged (p=0.0005) or short (p= 0.029) stock respectively.

Table 4.6. Frequency of Receipt of Damaged Stock

Q4.7.2 DAM

		Frequency	Percent
Valid	NO	16	94.1
	YES	1	5.9
	Total	17	100.0

Table 4.7. Frequency of Receipt of Short Stock

Q4.7.3 SHORT

		Frequency	Percent
Valid	NO	13	76.5
	YES	4	23.5
	Total	17	100.0

Other complaints included PMSC supplying less than the required quantity as well as the issuing of frequent 'to follow notes'. In addition, nurses report a shortage of intravenous fluids supplied from PMMH. This could be attributed to frequent out of stock situations from suppliers.

Another drug supply related complaint, was the irregular supply of drugs used in chronic and psychiatric conditions. Patients are initiated on chronic medication by either, the session doctor visiting particular clinics, referral to other clinics visited by session doctors or referral to PMMH.

Those patients seen by doctors at PMMH are referred back to their respective clinics for management. Prescribed medication listed on the EDL can be ordered by PHC nurses via PMSC. If patients are prescribed medication that is not listed on the EDL, either they visit PMMH every month for replenishment or their chronic cards are sent to PMMH pharmacy for supply of non-EDL items only, on a per patient basis. The latter case only applies to patients visiting clinics managed by Dr Bhika, who then collects the medication at least once a month and delivers the stock to the respective clinics.

As depicted in figure 4.7, 41.2% of the patients received medication from both PMMH and PHC clinics. The p-value is 0.467 and indicates that there is no significant difference in the proportion of responses.

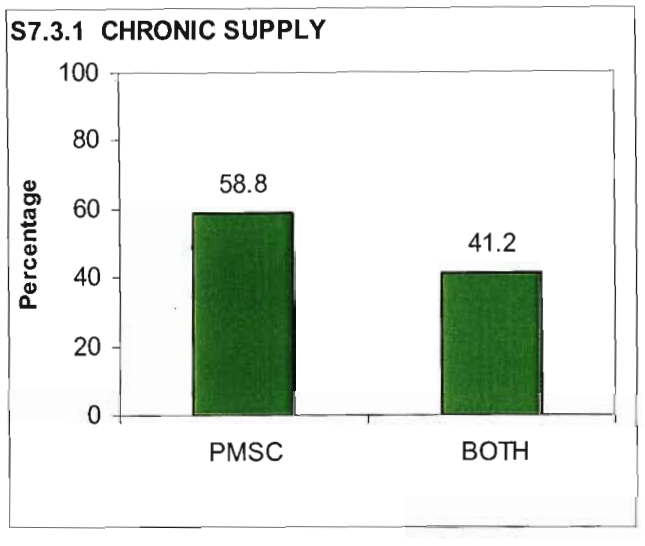


Figure 4.7. Suppliers of Chronic Medication

Figure 4.8 depicts the chronic delivery frequency of which 23.5% was irregular (p=0.001). Reasons cited by the nurses included nurses not ordering on time before the patient's next refill was due or Dr Bhika on a leave of absence and as a result medication was not fetched from PMMH pharmacy.

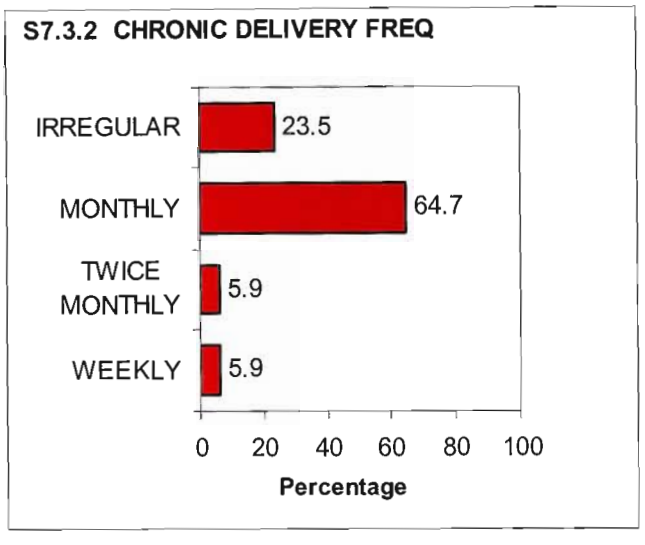
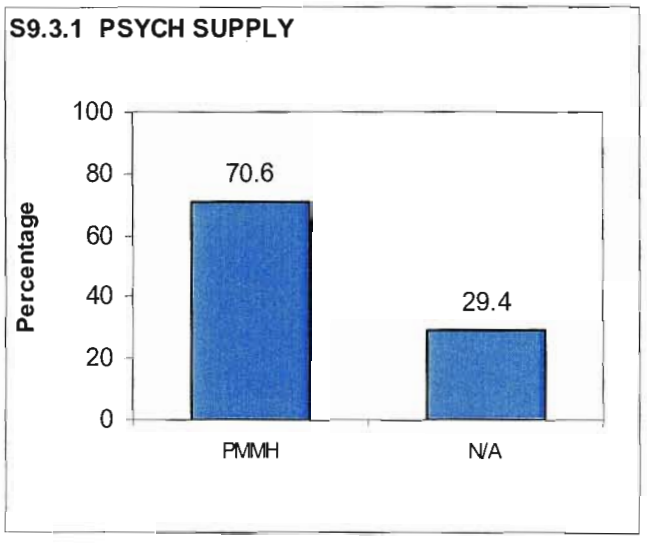


Figure 4.8. Delivery Frequency of Chronic Medication

Supply of drugs used in the treatment of psychiatric conditions is depicted in figure 4.9.



Majority of the drugs used to treat psychiatric conditions are schedule five and were collected from PMMH pharmacy according to the procedure discussed in the case study presented in chapter three. However, 29% of the clinics did not issue Psychotropics and referred their patients to PMMH for collection every month (p=0.011).

Figure 4.9. Supply of Psychotropics

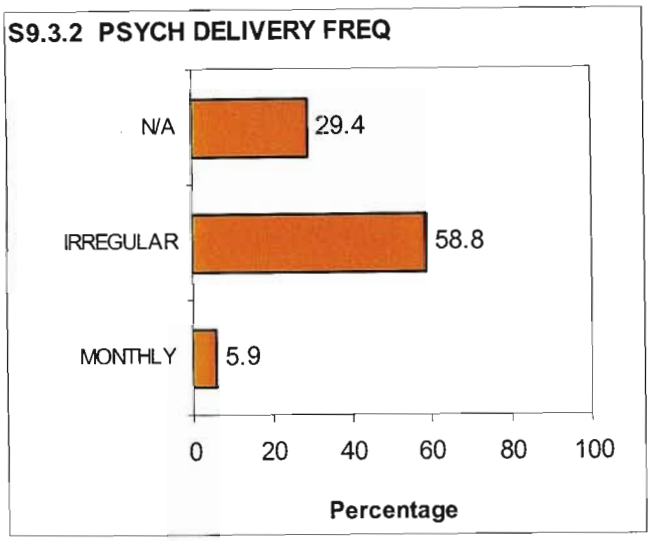


Figure 4.10. Delivery Frequency of Psychotropics

Figure 4.10 depicts that 58.8% of the clinics received an irregular supply of psychotropics. This result was significant at the 95% level (p=0.005). Reasons cited by the nurses included the lack of transport and misplacement of schedule order books en route to PMMH pharmacy. Nurses complained that the collection of schedule five medicines was a long drawn out process that did not promote efficient time utilisation.

Nurses were unaware of medical items discontinued or no longer available on the Essential Drug List as requests for medication not or no longer listed on the EDL were cited under drug supply complaints during the interviews. This could be attributed to a lack of communication between district management and nurses at PHC clinics. Many nurses felt that they are not informed of key changes in policy or procedures. For example, most nurses were not aware that the Pharmacy and Therapeutics Committee of KZN decided to halve the dosage of Hydrochlorthiazide 25mg (HCT) used to treat hypertension, as no added therapeutic benefit was found in the use of one tablet daily (personal observation). Nurses only became aware of the change, when enquiries were made to PMSC on receipt of HCT pre-packed in fourteens, instead of the regular calendar pack of twenty-eight.

Issues of maintaining effective communication and flow of information regarding medication between all relevant stakeholders, were not addressed in the development of the proposed PPP, and should be considered.

Majority of the clinics had both a -40°C fridge and a domestic fridge, which were in a good condition.

Table 4.8. Distribution of Responses for Storage of Vaccines and Handling of Vaccines According to Guidelines

S5.4 VACCINES HANDLING * P2.4 STORAGE VACCINES Crosstabulation

			P2.4 STORAGE VACCINES		
			NOT ACCORDING TO GUIDELINES	IN ACCORDANCE WITH GUIDELINES	Total
S5.4 VACCINES HANDLING	NOT ACCORDING TO GUIDELINES	Count	5	0	5
		% of Total	29.4%	.0%	29.4%
	IN ACCORDANCE WITH GUIDELINES	Count	0	12	12
		% of Total	.0%	70.6%	70.6%
Total		Count	5	12	17
		% of Total	29.4%	70.6%	100.0%

The comparisons depicted in table 4.8 show similarities in the responses for handling and storage of vaccines. 5% of the clinics did not adhere to cold chain management guidelines as opposed to 12% that did. The p-value is 0.090 and indicates that there is no significant difference in the proportion of responses. However, the possible reasons for non-adherence to *cold chain management* practices as discussed in DSM (in chapter three), are depicted in figures 4.11 and 4.12.

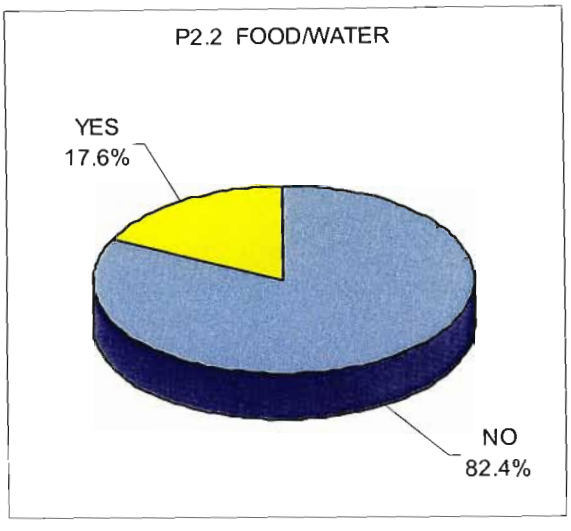
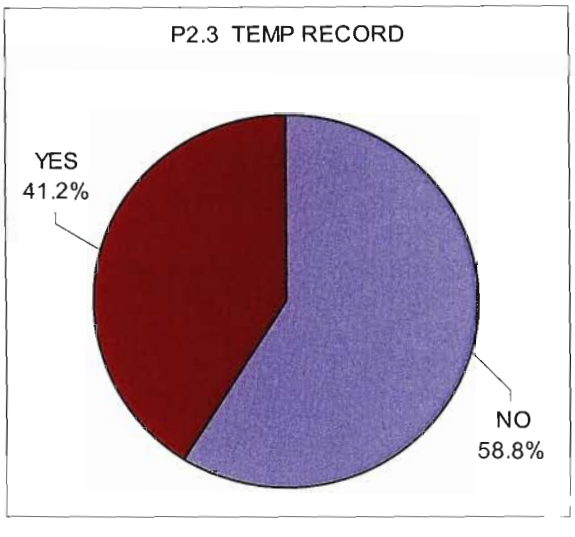


Figure 4.11 depicts a significant 17.6% of the clinics stored food and drink with medication, which is against regulation as this could result in contamination of medication (p=0.008).

Figure 4.11. Proportion of Clinics Storing Food and Water with Medication



In addition, only 41.2% of the clinics maintained daily temperature records, as depicted in Figure 4.12. The p-value is 0.467 and indicates that there is no significant difference in the proportion of Yes and No responses.

Figure 4.12. Proportion of Clinics Maintaining Daily Temperature Records

The proportion of clinics that did not store food and drink with medication is slightly higher (82.4%) than the National PHC survey of KZN facilities, which was 80% whilst the proportion of clinics maintaining daily temperature recordings is much lower (41.2%). This highlighted the need for the additional training of nurses (to be discussed later in this chapter under general working conditions).

Storage conditions were investigated by inspecting the condition of the dispensary i.e. whether any medication was stored on the floor, the appearance of the shelves as well as assessment of the security measures in place. Table 4.9 depicts that 58.8% of the clinics stored medication on the floor. However, the proportion of responses were not significantly different at the 95% confidence interval (p= 0.467).

Table 4.9. Frequency Table for Stock Stored on Dispensary Floor

Q1.9.1 FLOOR

		Frequency	Percent
Valid	NO	7	41.2
	YES	10	58.8
	Total	17	100.0

This is against DSM principles but according to the nurses, this was sometimes necessary due to the space constraints experienced at some of the clinics.

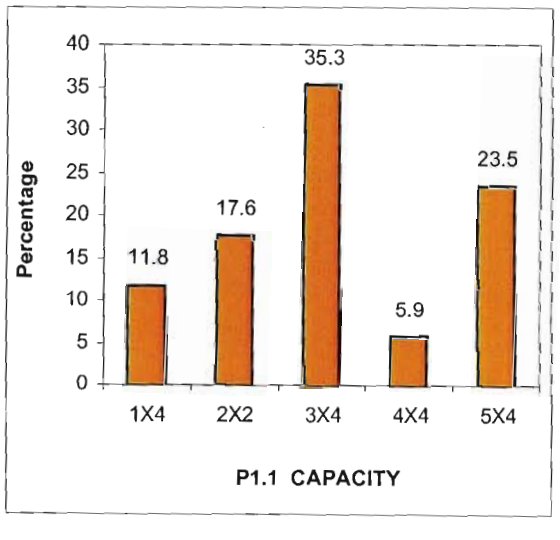


Figure 4.13. Capacity of Dispensaries at Clinics

Figure 4.13 depicts the capacity of the dispensaries at the clinics. This result was not significantly different at the 95% level (p=0.248). Only 29.4% of clinics had dispensaries $\leq 2m^2$, which did not account for 58.8% that stored medication on floors. Those clinics that did have space constraints had the option of storing their stock on wooden pallets, instead of directly onto floors.

Table 4.10 depicts that 35.3% of the clinics did not store medicines according to DSM guidelines i.e. shelves were untidy and not in alphabetical order. However, the proportion of 'Not According to Guidelines' and 'According to Guidelines' responses was not significantly different (p=0.225).

Table 4.10. Frequency Table of Appearance of Shelves

Q1.9.3 SHELVES

		Frequency	Percent
Valid	NOT ACCORDING TO GUIDELINES	6	35.3
	IN ACCORDANCE WITH GUIDELINES	11	64.7
	Total	17	100.0

All clinic managers had undergone PHC training. However, approximately 95% were not DSM trained. This reiterates the additional training needs of nurses (to be discussed later under general working conditions).

Table 4.11 depicts the proportion of clinics that did not have adequate security measures in place, in the dispensary.

Table 4.11. Frequency of Clinics with Double-Locking Burglar Guarded Doors

Q1.2 DOORS

		Frequency	Percent
Valid	NO	5	29.4
	YES	12	70.6
	Total	17	100.0

Approximately 30% of the clinics inspected did not have double-locking burglar guarded doors in the dispensary. The proportion of Yes and No responses were not significantly different (p-value=0.09). However, this did represent a 10% increase in security measures installed since 2003.

Issuing of supplies deals with the distribution and storage of medication issued to each prescribing nurse for use in consultation rooms and is depicted as a cross-tabulation in table 4.12. In terms of issuing of supplies, only four out of the seventeen clinics inspected, had order forms designed for nurses to top-up their open stock every morning. DSM guidelines stipulate that stock used in consultation rooms should be stored in lockable trolleys or cupboards. Only six out of the seventeen clinics inspected adhered to this guideline. In summary, only 17.6% of the clinics adhered to guidelines regarding the issuing of supplies.

Table 4.12. Cross-Tabulation of Distribution vs. Storage of Stock

S6.2 DISTRIBUTION * P3.1.1 STORE CONS ROOM Crosstabulation

			S6.2 DISTRIBUTION		
			NOT ACCORDING TO GUIDELINES	IN ACCORDANCE WITH GUIDELINES	Total
P3.1.1 STORE CONS ROOM	NOT ACCORDING TO GUIDELINES	Count	10	1	11
		% of Total	58.8%	5.9%	64.7%
	IN ACCORDANCE WITH GUIDELINES	Count	3	3	6
		% of Total	17.6%	17.6%	35.3%
Total		Count	13	4	17
		% of Total	76.5%	23.5%	100.0%

In part, monitoring drug usage entails organising the distribution of stock between nurses at the PHC clinics by devising specific protocols for each clinic based on their unique requirements. The proposed PPP would be responsible for ensuring adherence to guidelines governing the issuing of supplies.

4.2.2. Adherence to Effective Prescribing and Dispensing Regulations

Effective prescribing and dispensing is governed by regulations contained in Section 38A of the Nurses Act 50 of 1978 (Government Gazette No. 547, 2004) and Section 8 of the Medicine and Related Substances Act 101 of 1965 (Government Gazette No 7871, 1997).

Each nurse should diagnose, prescribe and dispense to each patient seen in order to maintain accountability. It is against regulation for a nurse to diagnose and prescribe and hand over to another nurse to dispense the medication, as was the case in two out of the seventeen or 11.8% of the clinics surveyed, depicted in figure 4.14 (p=0.001).

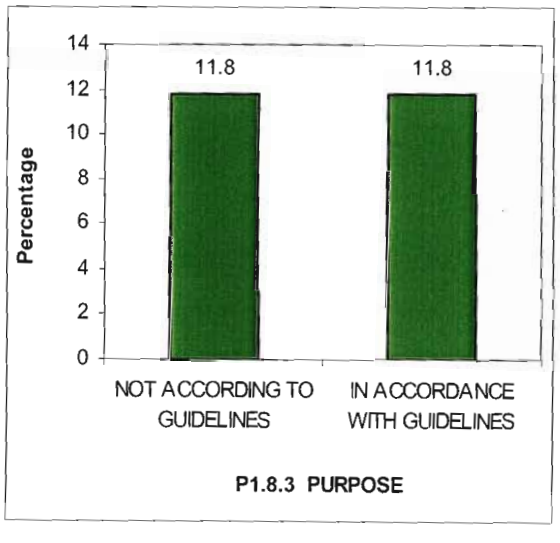


Figure 4.14. Use of Dispensary Hatches

Dispensary hatches can only be used to *dispense* chronic medication or anti-psychotics. The proposed PPP could ensure that this is strictly adhered to and ensure more efficient work practices by effectively making uses of dispensary hatches (elaborated on in chapter chapter five).

Nurse's PHC *consultations* with patients were observed and the results in figure 4.15 show that 76.5% of the nurses did not perform according to regulations (as discussed in chapter three). This result was significant at the 95% level (p=0.029).

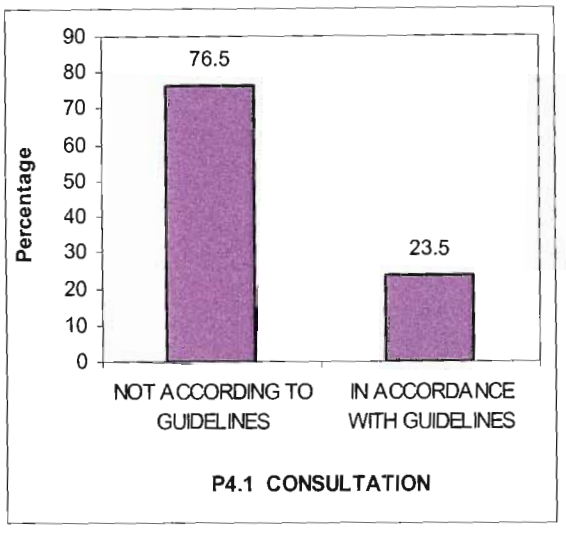


Figure 4.15. Consultations Performed

Reasons for non-adherence to regulations included improper reconstitution of antibiotics, insufficient directions on use of medication and the unhygienic handling of medication.

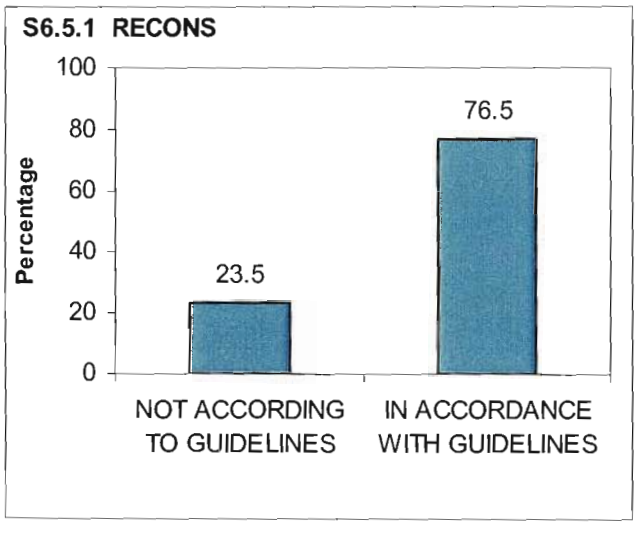


Figure 4.16 depicts that 76.5% of the nurses did not perform proper reconstitutions either due to unavailability of measuring cylinders, use of non-sterile water or a failure to indicate a two week expiry date on the bottle (p=0.029).

Figure 4.16. Reconstitutions

Table 4.13. Frequency of Availability of Measuring Cylinders

Q6.5.2 MEASURING CYLINDERS

		Frequency	Percent
Valid	NO	13	76.5
	YES	4	23.5
	Total	17	100.0

Table 4.13 depicts that only 23.5% of the clinics had measuring cylinders, the rest used medication cups or estimated (p=0.029).

Insufficient directions were partly due to the unavailability of labels with which to indicate the directions of use.

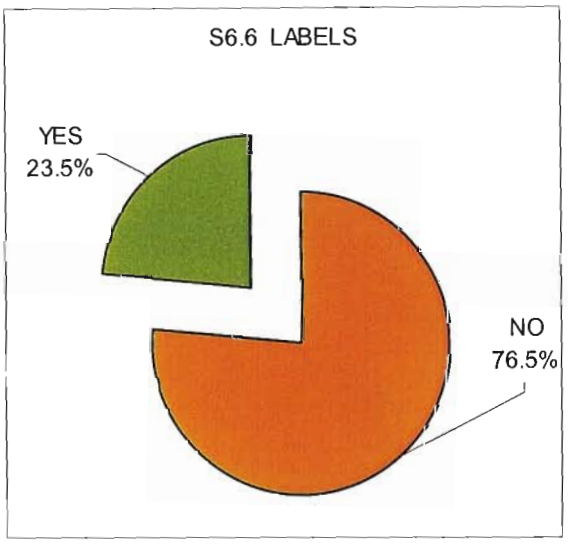


Figure 4.17 depicts a significant difference in the percentage of clinics with stock of labels available from PMSC (p=0.029). 76.5% of nurses were not aware labels could be ordered, as the stock item did not appear on the EDL list (Appendix IV).

Figure 4.17. Availability of Labels

Another reason for non adherence to effective prescribing and dispensing practices (as discussed in chapter three), was negligence on the part of the prescribing nurse who did not sufficiently counsel the patient.

Unhygienic handling of medicines was due to the unavailability of tablet counting trays.

Table 4.14. Frequency Table for Pre-Packing of Medication

Q6.4.1 PACKING

		Frequency	Percent
Valid	NO	14	82.4
	YES	3	17.6
	Total	17	100.0

Table 4.15. Frequency Table for Availability of Counting Trays

Q6.4.2 COUNTING TRAYS

		Frequency	Percent
Valid	NO	16	94.1
	YES	1	5.9
	Total	17	100.0

According to the frequency tables depicted in table 4.14 and 4.15, three out of the seventeen clinics pre-packed medication and only one had a counting tray.

According to regulation, all drugs issued to PHC clinics should be pre-packed in appropriate pack sizes. However, when these pack sizes are out of stock or unavailable, nurses re-pack medication to ensure continuation in patient therapy.

Maintaining adequate equipment viz. measuring cylinders and counting trays at PHC clinics is a responsibility of the KZN DOH and not the proposed PPP. In addition, the proposed PPP did not make provisions for the supply of labels.

4.2.3. General Working Conditions

The aim of the PHC approach is to ensure that health care is always available to every patient that requires it. However, as depicted in figure 4.18, 23.5% of the clinics had specific days for management of chronic disease conditions including the issuing of medication, which is against PHC policy.

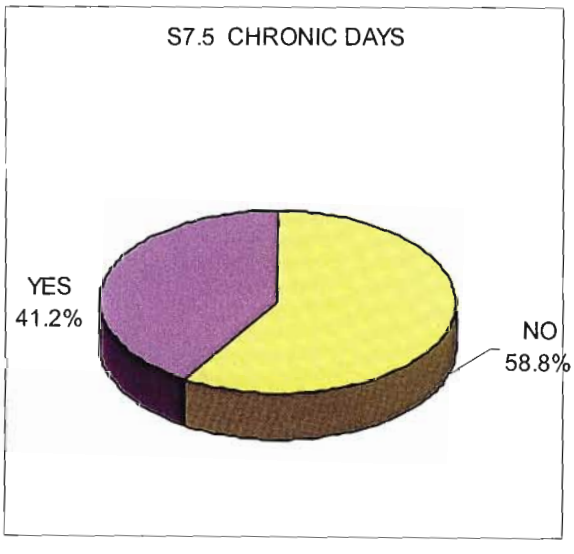


Figure 4.18. Proportion of Clinics with Specific Days Dedicated to the Different Chronic Conditions

According to the nurses, this was practiced in order to manage to the daily workload experienced at PHC clinics. Figure 4.19 depicts workload distribution for the seventeen clinics.

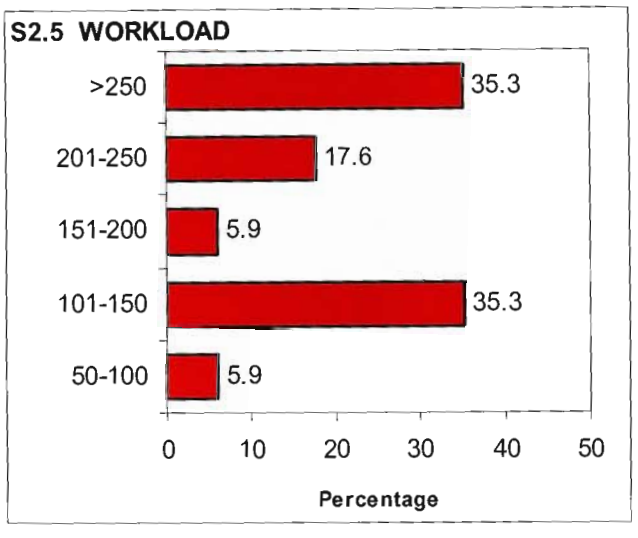


Figure 4.19. Distribution of Workload at the Clinics

In addition Table 4.16 depicts that 82.4% of the nurses felt the staff complement was not adequate for the workload (p=0.008).

Table 4.16. Comparison of Workload vs. Adequate Staff

S2.5 WORKLOAD * S2.6 ADEQUATE STAFF Crosstabulation

			S2.6 ADEQUATE STAFF		
			NO	YES	Total
S2.5 WORKLOAD	50-100	Count	1	0	1
		% of Total	5.9%	.0%	5.9%
	101-150	Count	3	3	6
		% of Total	17.6%	17.6%	35.3%
	151-200	Count	1	0	1
		% of Total	5.9%	.0%	5.9%
	201-250	Count	3	0	3
		% of Total	17.6%	.0%	17.6%
	>250	Count	6	0	6
		% of Total	35.3%	.0%	35.3%
Total		Count	14	3	17
		% of Total	82.4%	17.6%	100.0%

These nurses felt that due to a shortage of pharmacists and pharmacist assistants in the rural areas especially at PHC clinics, their responsibilities have increased leaving little time to enjoy the work they do. All the nurses interviewed felt that a pharmacist or pharmacy assistant could take over drug procurement and distribution leaving the nurses to concentrate on the dispensation of PHC, which would lead to decreased patient waiting times.

In addition, 94% of nurses interviewed felt that they were not adequately trained in the various PHC courses and a more practical orientation was necessary, as depicted in figure 4.20.

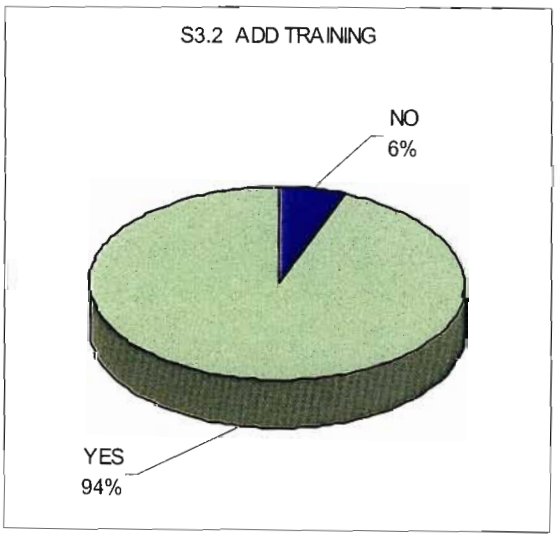


Figure 4.20. Proportion of Nurses with Additional Training Needs

Table 4.17 depicts that sixteen out of the seventeen nurses interviewed felt that additional training was necessary in PHC, effective prescribing and dispensing, DSM principles, Cold Chain Management and Management of Tuberculosis and HIV.

Lack of training was evident with respect to the adherence to DSM principles e.g. drug procurement, CCM and issuing of supplies. In addition, 76.5% of nurses did not effectively prescribe and dispense medication.

Pharmacists can provide hands on training on all of these subjects. However, the proposed PPP did not take this into account and it should be considered, as provision of an added benefit by the private funder.

Table 4.17. Cross-tabulation of Various Training Courses vs. the Need for Additional Training

Report

		S3.2 ADD TRAINING		
		NO	YES	Total
S3.1.1.1 PHC	Mean	3.00	3.62	3.59
	N	1	16	17
	Std. Deviation	.	3.243	3.144
S3.1.1.2 PHC UNDERGOING	Mean	.00	.06	.06
	N	1	16	17
	Std. Deviation	.	.250	.243
S3.1.2.1 EPD	Mean	3.00	1.00	1.12
	N	1	16	17
	Std. Deviation	.	2.805	2.759
S3.1.2.2 EPD UNDERGOING	Mean	.00	3.38	3.18
	N	1	16	17
	Std. Deviation	.	3.612	3.592
S3.1.3.1 DSM	Mean	.00	.38	.35
	N	1	16	17
	Std. Deviation	.	1.500	1.455
S3.1.3.2 DSM UNDERGOING	Mean	.00	.00	.00
	N	1	16	17
	Std. Deviation	.	.000	.000
S3.1.4.1 CCM	Mean	.00	1.38	1.29
	N	1	16	17
	Std. Deviation	.	3.052	2.974
S3.1.4.2 CCN UNDERGOING	Mean	.00	.06	.06
	N	1	16	17
	Std. Deviation	.	.250	.243
S3.1.5.1 TB	Mean	3.00	1.06	1.18
	N	1	16	17
	Std. Deviation	.	1.181	1.237
S3.1.5.2 TB UNDERGOING	Mean	.00	.19	.18
	N	1	16	17
	Std. Deviation	.	.750	.728
S3.1.6.1 HIV	Mean	2.00	2.38	2.35
	N	1	16	17
	Std. Deviation	.	2.918	2.827
S3.1.6.2 HIV UNDERGOING	Mean	.00	.13	.12
	N	1	16	17
	Std. Deviation	.	.342	.332

Table 4.18 depicts the results obtained from the participative observations and semi-structured interviews grouped according to the seven indicators discussed in chapter three

viz. order procurement, drug supply complaints, cold chain maintenance, storage conditions, adherence to prescribing and dispensing regulations general working conditions and additional training needs (G1-G7).

Table 4.18. Comparison of Data According to Indicators Assessing Pharmaceutical Service Delivery at Provincial PHC Clinics in the ESSD

Test Statistics[a,b]

	Chi-Square	df	p
G1	1.992	2	.369
G2	3.678	2	.159
G3	4.457	2	.108
G4	2.833	2	.243
G5	3.266	2	.195
G7	12.992	2	.002
G6	7.290	2	.026

a. Kruskal Wallis Test

b. Grouping Variable: AREA

All p-values were greater than 0.05 except for general working conditions and additional training needs (p=0.026 and 0.002 respectively). This indicates that there was no significant difference in adherence to drug supply management principles and effective prescribing and dispensing practices across the three different regions and the results obtained could be extrapolated to the entire population viz. all provincial PHC clinics in the Ethekwini region.

The following section evaluates the proposed PPP strategically in terms of suitability, acceptability and feasibility.

4.3. Strategic Evaluation of the Proposed Public-Private Partnership

The goal of the private provider in the proposed PPP with the provincial DOH would be to generate profit for the private provider, whilst improving DSM at provincial PHC clinics. The decision to adopt the proposed PPP, in part would rest on the ability of the private

provider to prove to the KZN DOH that the PPP would be suitable with the KZN DOH's strategic vision and acceptable in terms of the expected outcomes from the PPP.

Furthermore, the private provider would be concerned with whether the proposed PPP exploited opportunities, minimises threats, capitalises on strengths and improves upon weaknesses in the macro- and micro-environment. In addition, the proposed PPP should be feasible for the both the private provider and the KZN DOH. The private provider should have the necessary resources and competences to deliver the specified goals and the PPP should, according to the Public Finance Management Act (RSA Government Gazette No. 25915, 2004), be affordable and represent value for money.

4.3.1. Suitability

Improving drug supply management at PHC clinics delivers part of the objectives of the NDP that is, to provide an adequate and reliable supply of drugs (DOH, 1996). This impacts on providing a 'sustainable, co-ordinated and integrated' DHS and ultimately helps provide 'optimal health care status for all persons', which is in concordance with the KZN DOH's strategic vision (KZN DOH, 2005b).

Political dictate represented either a strong threat to or a valuable opportunity for implementation of the proposed PPP.

International DHS policy designates health care delivery as a local government responsibility (Sankar, 2002). This posed a potential threat to the proposed PPP as the Ethekwini district currently has fifty-eight clinics managed by local government, with drug supply management systems in place. Pharmacists and pharmacy assistants are directly involved in procurement and supply of drugs to PHC clinics thereby making optimal use of scarce resources. Supply of chronic medication, which remains a problem at provincial PHC clinics, is on a per patient basis to LG clinics via Esplamed (KZN DOH, 2005b).

According to new regulation ensconced in the Municipal Structures Act (HST, 2005), PHC is now the responsibility of provincial governments, which can assign some or all of the functions relating to the provision of PHC to LG, through SLAs (Sankar, 2005). Therefore, the remaining provincial PHC clinics could be handed over to LG to manage. However, there are forty-six provincial clinics currently managed by the provincial government and twelve in the ESSD. LG does not have the financial capacity to take over management of these clinics, given that their budget sources are varied. Furthermore, majority of the LG clinics are situated in or very close to urban areas with a small percentage servicing previously disadvantaged communities. Therefore, management are not accustomed to coping with transport and infrastructural deficiencies currently experienced at majority of provincial PHC clinics.

Economic forces represented threats beyond the control of the private provider but should be accounted for. High fuel costs could cause inflationary pressures on the cost of transport and could impact on the timely provision of drugs to the PHC clinics. In order to curb the effects of high inflation, the MPC could increase the interest rates, which could increase the cost of debt. The private provider has no control over inflation or the interest rates and the possible increase in the cost of fuel is factored into the funds flow analysis conducted on the revised model in chapter five.

One of the economic objectives of the NDP is the promotion of the cost-effective and rational use of drugs. According to the MRSC Act 101 of 1965 (RSA Government Gazette No.7871, 1997), this means prescribing the right medication, for the right condition in the correct dosage form according to the right dosing frequency 'for the purposes of the treatment or prevention of a disease or for some other definitive or curative purpose'.

Furthermore, prescribing should be according to national Standard Treatment Guidelines and the Essential Drug List (DOH, 1998). At present these functions are performed by registered nurses, as stipulated in Section 38A of the Nursing Amendment Act 5 of 1995 (RSA Government Gazette No. 547, 2004). This allows nurses to physically examine a

patient visiting the PHC clinic, diagnose any physical defect, illness or deficiency and supply, administer or prescribe thereof on the prescribed conditions. This is provided they have a licence or are given special permission, in writing to do so by the Director-General of Health (as discussed in chapter three). The proposed model of the PPP between the KZN DOH and the private provider did not aid in rational and cost-effective prescribing and this was therefore seen as a potential avenue to explore.

According to the KZN strategic plan for 2005-2009/10 (KZN DOH, 2005b), a high proportion of the population of Ethekwini live in informal and rural settlements. With an unemployment rate of 37%, majority of the population cannot afford private insurance and rely on PHC facilities for their health care needs. Approximately 16553 patients visit PHC facilities per month, which exacerbates the staff shortage experienced across all health care facilities.

In addition, according to KZN strategic plan and the Mental Health Care Act of 2002 (Nkonyeni, 2005), the DOH aims to ensure availability of chronic medication and psychotropics at PHC level. In the proposed PPP, chronic medication is pre-packed on a per patient basis by the referral district/regional hospital and delivered to the PHC clinics whilst psychiatric patients are referred to their nearest hospital. The staff complement at PMMH currently does not have the capacity to fulfil this function and this was seen as a weakness in the proposed model.

Technological developments are focussed on improving electronic communication as part of KZN DOH's strategic goal to invest in infrastructure development in health technology and communication (Nkonyeni, 2004). AHC is utilising Citrix Metaframe as their server to roll out their in-house pharmaceutical distribution software. The proposed PPP should make provisions for software development in keeping with PMSC's RDM in order to minimise weakness in this area of the value chain.

The strongest threat from an industry perspective was the bargaining power of suppliers. As discussed in chapter three, the implementation of the proposed PPP would rest on the ability of the private provider to prove to the KZN DOH and the National Treasury that the PPP is necessary to improve DSM at provincial PHC clinics.

According to Regulation 16 of the Public Finance Management Act (RSA Government Gazette No. 25915, 2004), PPP proposals should be affordable i.e. the financial commitments incurred by the public institution can be met and should represent value for money i.e. provision of the institutional function or use of state property results in a net benefit to the institution defined in term of cost, price, quality or technical, financial and/or operational risk transfer from public to private or a combination thereof.

Trends in provincial public health care expenditure show a shifting of funds from higher to lower, more cost-effective levels of service with PHC showing a 13% increase in the budget (KZN DOH, 2005b). This implies that the KZN DOH can afford to adopt the PPP agreement. Therefore, the proposed PPP is affordable. The private provider aimed to lease warehousing from the government, which would result in a net benefit to the KZN DOH in terms of cost. The private provider would assume technical and operational risk for 100 % timely drug supply to all PHC clinics under its management. These were seen as strengths, which could be capitalised on, on presentation of the business venture to the National Treasury.

Furthermore, supplier bargaining power was strong in terms of negotiation of the SLA between the private provider and the KZN DOH and would rest on the ability to motivate for changes to the agreement.

Analysis of the current value chain presented many strengths and weaknesses in current drug supply management at the provincial PHC clinics in the ESSD. Leasing of the warehouse from the KZN DOH ensured cost containment as according to Makhado (Personal Communication, 8 August 2005), government leasing rates are much cheaper

than in private industry and any repairs performed are reimbursed by the KZN DOH. This was seen as a strength that could be capitalised on in the modified PPP.

PMSC is keeping abreast of technological developments in the electronic communications industry with the use of its stock procurement system (MEDSAS) and the roll out of its RDM to hospital pharmacies (Redman *et al.*, 2002). The proposed PPP should ensure investments are made in software development to support these technological developments.

PMSC is a public organisation and therefore, staffing remains the responsibility of the KZN DOH. Staff shortage remains a chronic problem with the KZN DOH unable to recruit trained and skilled personnel to public service as depicted in the vacancy rates of 91.4% for pharmacists and 56.4% for professional nurses in table 3.4 (KZN DOH, 2005b). This represented a weakness, which could impact on service delivery i.e. the provision of a safe and reliable supply of drugs to PHC clinics. In addition, monitoring of drug usage at PHC clinics is undertaken remotely at PMSC due to the staff shortage and the fact that transport and delivery is outsourced to a courier company.

Furthermore, according to the SLA agreement (KZN DOH, 2004) between KZN DOH and PMSC, the benchmark is to ensure constant stock availability to the end user approximately 95% of all times. Actual performance is 93% with a two week delay in most cases of out of stock items. Only 95% of PHC clinics receive their medication directly from PMSC. This was seen as a weakness, which could impact on DSM and should be improved upon by the proposed PPP.

In evaluation of the results in the first part of this chapter, 58.8% of the nurses reported an irregular supply of Psychotropics and 23.5% reported an irregular supply of chronic medication. In addition, 82.4% of nurses reported an inadequate staff complement for the workload experienced. According to minutes of meetings held with PMMH management, the clinic supervisor of the ESSD and the Ethekwini district health manager (PHC Services,

2005), pre-packing of medication for psychiatric and chronic patients will help alleviate the heavy workload experienced by PHC nurses and improve supply of drugs. In the proposed model, provincial hospitals in Limpopo pre-pack medication on a per patient basis for chronic disease sufferers. This is not practiced at PMMH due to the chronic staff shortage and represented both a weakness in the supply chain and an opportunity for the private provider to pursue.

In analysing the suitability of the proposed PPP, many opportunities and threats were uncovered in the macro- and industry environment, which should be considered by the private provider. In addition, strengths and weaknesses in the current value chain were highlighted and should be utilised as opportunities for exploitation or possibilities for improvement for the private provider, in the proposed PPP with the KZN DOH.

4.3.2. Acceptability

The establishment of the proposed PPP would rest on the ability of the private provider to manage all relevant stakeholders' expected performance outcomes of the partnership between the KZN DOH and the private provider. Stakeholder mapping clarifies stakeholder reactions and suggests techniques in handling them. Likely political priorities are discussed by plotting stakeholders according to the level and nature of their interest and extent of power. The preferred stance of all stakeholders for acceptance of the proposed PPP is then plotted and a strategy for managing expectations is devised in chapter five.

According to Wadee *et al.*, (2004), the key stakeholders affecting PPPs in South Africa are dividing into public sector actors, private sector actors and social actors.
For the proposed PPP, public sector actors included the National DOH, the Provincial DOH, LG Health Departments and the National Treasury. The private actor would be the private provider proposing the PPP and the social actors included Trade Unions, Nurses (as part of the team of health care workers) and the local community. Table 4.19 depicts these stakeholders' political objectives and drivers.

Table 4.19. Key Stakeholders, their Political Priorities and Key Drivers vis-à-vis Proposed PPP

ACTORS	OBJECTIVES	DRIVERS
National Department of Health (NDOH)	1. Strengthening the health system 2. Cost containment in the health sector 3. Revenue generation 4. Improving equity of financing and access 5. Improving efficiency	1. Fragmented health system 2. Cost escalation in the private sector 3. Budgetary constraints 4. Mal-distribution of resources across public/private sector relative to population served, leading to poor coverage and access for poorest income groups, as well as poor value for money of South African health system (as shown by low rating in World Health Report 2001) 5. Budgetary constraints; under utilised resources within the system
Provincial Department of Health (PDOH)	1. Improving efficiency 2. Improving equity 3. Improving quality of care 4. Strengthening the health system 5. Revenue generation 6. Staff retention in especially rural areas	1. Budgetary constraints, need to improve service delivery, under-utilised resources within the system 2. Need to improve access 3. Low morale, public expectations 4. Fragmented health system 5. Budgetary constraints, need to improve service delivery 6. Staff exodus abroad
Local Government Health Departments (LG HD)	1. Reduce costs 2. Enhance efficiency 3. Equity	1. Budgetary Constraints 2. Budgetary constraints, need to improve service delivery, under-utilised resources within the system 3. Improving access
National Treasury (NT)	1. Shifting risk to private sector 2. Value for money	1. Budgetary constraints 2. Budgetary constraints
Trade unions (TU)	1. Strengthening the public sector 2. Improving equity 3. Protecting workers	1. Declining budgets, deteriorating public sector 2. Lack of access to health care 3. Fear of job loss and job insecurity with PPIs
Nurses	1. Provide optimal service delivery to local community 2. Adhere to regulations	1. Relieve heavy workload experienced 2. Additional training needs
Local Community	1. Equitable access to quality health care	1. Expectation of improved service delivery

(Source: Adapted from Wadee *et al.*, 2004)

The stakeholder map depicted in figure 4.21 depicts the likely political priorities of the external stakeholders viz. public and social actors that could affect the establishment of the PPP.

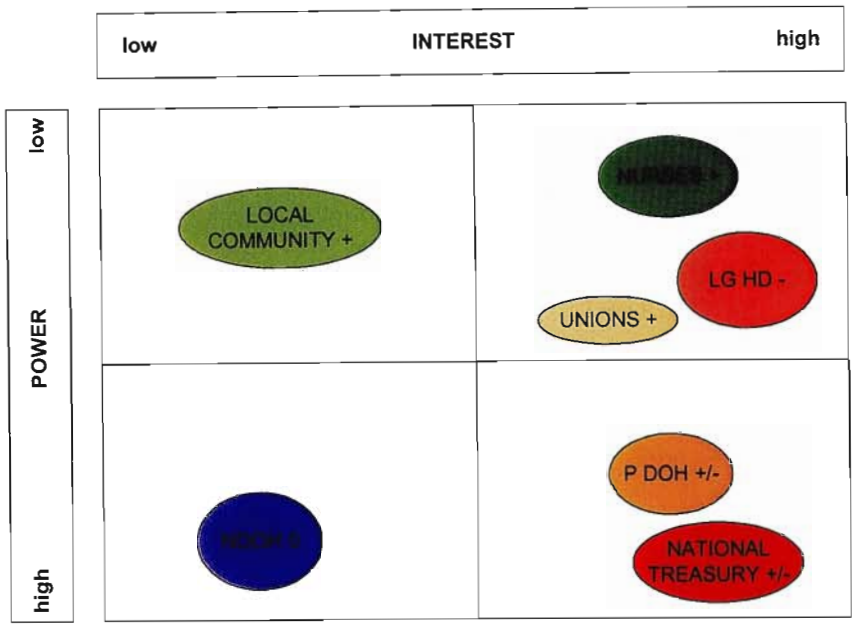


Figure 4.21. Stakeholder Map of Likely Political Priorities
(Source: Adapted from Ambrosini *et al.*, 2003, p.153)

The *NDOH* could exert a high level of power but their level of interest in the proposed PPP would be low, as according to the NDP (DOH, 1996), provinces are given the freedom to use their own discretion in choosing distribution arrangements. Therefore, the NDOH would be considered a neutral party.

The *PDOH* could exert a high level power and would have a vested interest in the outcomes of the proposed PPP. The NDP encourages provincial administration to utilise private resources via PPIs (DOH, 1996). Therefore, the adoption of the proposed PPP would rest on the ability of the private provider to convince the PDOH that the PPP would improve DSM at the PHC clinics, thereby increasing reliable access to safe drugs (elaborated on in chapter five). Hence, the level of interest could be for or against the proposed PPP and the extent of power high.

Every proposal for a PPI should seek approval from the *South African National Treasury*. According to Trevor Manuel, Minister of Finance, 'where the transfer of financial and/or operating risk to a private partner through a PPP gives [the government] an affordable, cost-effective solution for a service, [the national treasury] will pursue it' (National

Treasury PPI Unit, 2004). Therefore, the level of interest could be for or against the proposed PPP depending on the proposal presented by the private provider, and level of power high.

Trade unions are generally be opposed to PPIs for fear of associated job losses with improved efficiency. Their level of interest would be high as they are committed to ensuring equitable access to health care (table 4.17) but the extent of their power low, as ultimately the decision to implement the PPP would rest with first the PDOH and then the National Treasury. In addition, the private provider aimed to create jobs by hiring and training relevant personnel.

Local Government Health Departments form part of the district health team that report to PDOH and district management often consult with LG management on health related issues. LG is often present at meetings held over provincial PHC clinics. Given the SLAs with DSM systems in place, servicing local authority clinics in the ESSD, LG will be consulted with regards to the supposed benefits of the proposed PPP between KZN DOH and the private provider. LG would likely be against the proposed PPP, as the possibility exists for private provider to take over management of LG clinics in the future. Although their level of interest could be considered high, the extent of their power is low.

The *local community* would expect improved service delivery but their level of interest and extent of power would be low, as their interests with regards to the decision to implement the proposed PPP would be safeguarded by the PDOH and the National Treasury.

In terms of the decision to adopt the proposed PPP, *nurses* would have a high level of interest but low extent of power to impress expectations on the organisation. The PDOH would consult with the nurses, but ultimately the decision rests with the former. According to the results of the participative observations and semi-structured interviews conducted at the provincial PHC clinics in the ESSD, nurses' priorities centred around relief of the heavy workload experienced by taking over the role and responsibilities of pharmacists, which is to ensure adequate and reliable supply of drugs, as ensconced in the NDP (DOH, 1996). In

addition, nurses expressed the additional practical (in the field) training needs required and advocated access to consultation with pharmacists who have extensive knowledge on pharmacotherapy, to promote the rational prescribing of drugs.

Figure 4.22 depicts the preferred situation for all external stakeholders once the PPP is adopted.

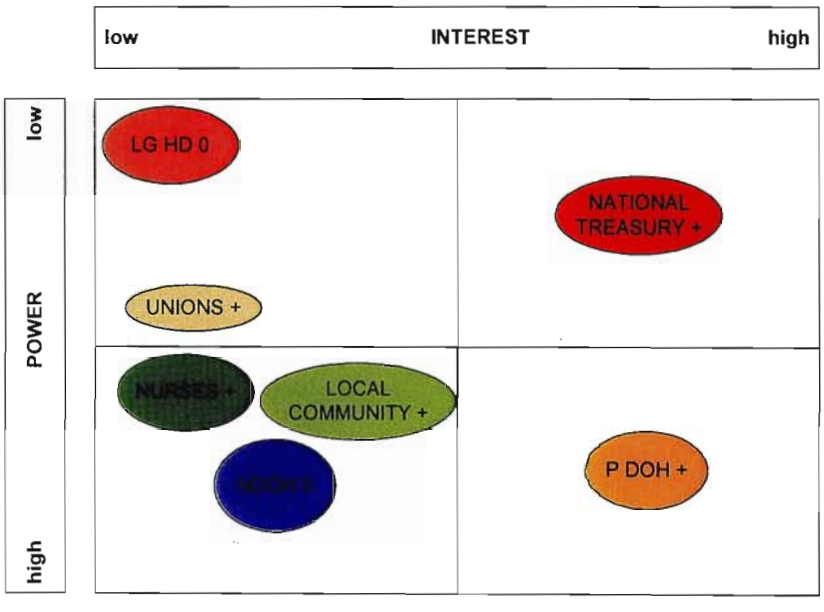


Figure 4.22. Stakeholder Map of Preferred Political Priorities
(Source: Adapted from Ambrosini *et al.*, 2003, p.153)

Recommendations for managing stakeholder relationships in order to achieve the preferred situation depicted in figure 4.22 are discussed in chapter four.

In summary, the acceptability of the proposed PPP would rest on ability of the private provider to convince first the PDOH and then the National Treasury of the perceived benefit of implementing the PPP with the KZNDOH in improving pharmaceutical service delivery at provincial PHC clinics in the KZN (discussed in chapter five).

4.3.3. Feasibility

Feasibility of the proposed PPP was evaluated by identifying the resources and capabilities needed for implementation of the business venture. Functional capability and resource analysis structures the determination of feasibility according to six different stages. First, the organisation's critical success factors (CSFs) are determined then resources are identified and evaluated using the VRIO test discussed in chapter two, for competitive value. The PPP is a proposed business venture therefore resources were estimated based on AHC's model presented in chapter two. Gaps between the organisation's competitively valuable resources and CSFs were identified to diagnose the feasibility of the proposed PPP.

Table 4.20 depicts three competitively valuable resources that the proposed PPP possessed viz. leasing of the warehouse from the government, the service level agreement as part of the proposed PPP between KZN DOH and the private provider and access to usage levels of the clinics. All three competitively valuable resources would contribute to effective management of the distribution channels to provide 100% reliability in drug supply to all PHC clinics entrusted to the private provider, which would contribute to maintenance of the SLA agreement. In addition, the honouring of agreements stipulated in the SLA would ensure adherence to the National Drug Policy. Furthermore, access to and direct monitoring of usage levels of the PHC clinics would ensure replenishment based on actual usage and contribution to customer satisfaction through a feedback mechanism. If the government were satisfied with the outcomes of the PPP, drug supply to PHC clinics would remain the responsibility of the private provider and PDOH and the possibility of handing over to established LG Health Departments would decrease.

However, keeping abreast of technology, maintaining an adequate staff complement that is familiar with the geographical location of the PHC clinics and the firm specific CSF of promoting teamwork were not accounted for.

FCRA depicts the feasibility of pursuing a strategy by identifying resources and competences needed for that particular strategy. However, funds flow forecasting depicts the financial feasibility of pursuing a strategy and will be presented in chapter five, once the necessary modifications are made to the model currently used by AHC and adopted for this study.

Table 4.20. Functional Capability and Resource Analysis for the Proposed Business Venture

CRITICAL SUCCESS FACTORS	PROPOSED RESOURCES	VRIO TEST	COMPETITIVELY VALUABLE RESOURCES
MACROENVIRONMENT	TANGIBLES		
1. PHC remains provincial responsibility	1. Warehouse	VRIO	YES
2. Adherence to NDP	2. Fittings	V	NO
3. Maintenance of PPP agreement between private provider and KZN DOH	3. Computers and networking	V	NO
4. Keep abreast of developments in Technology viz. move to electronic communication	4. Software development and licensing	V	NO
5. Adequate staff complement	5. Vehicles	V	NO
INDUSTRY	6. Stationery		NO
1. Distribution channels to cover all PHC clinics	INTANGIBLES		
2. Transport and delivery – staff required to be familiar with geographical location	1. Service Level agreement as part of PPP with KZN DOH. Ability to gain large contracts and manage such assignments once agreed. Deliver on time to an agreed standard and within the agreed budget.	VRIO	YES
COMPETITIVE	2. Trained Auxiliary Service Officers	V	NO
1. Feedback mechanisms in place to gauge customer satisfaction and evolve as industry changes	3. Access to and monitoring of usage levels of clinics in order to replenish based on stats	VRIO	YES
FIRM SPECIFIC	4. Reputation for reliability in drug supply	V	NO
Teamwork in order to achieve the organisation's objectives	ORGANISATIONAL CAPABILITY		
	1. Knowledge of geographical location	VR	NO

Table 4.19. continued...

CRITICAL SUCCESS FACTORS	PROPOSED RESOURCES	VRIO TEST	COMPETITIVELY VALUABLE RESOURCES
	2. Just-in- time inventory management	V	NO
	3. Knowledge of DSM principles	V	NO
	4. Efficient delivery schedules	VR	NO
	5. Effective corporate culture with an emphasis on teamwork and a patient focussed, service orientated mindset	V	NO
	COMPETENCES	V	NO
	1. 100% supply of essential drugs to all PHC clinics in the catchment area could result in expansion of distribution to other districts	VRI	NO

4.4. Summary

The aim of this chapter was to firstly, review the results obtained from the participative observations and semi-structured interviews conducted at the provincial PHC clinics, according to the seven pharmaceutical service indicators discussed in chapter three, to identify problems encountered. Secondly, the ability of the proposed PPP between the KZN DOH and the private provider to utilise the strengths and address the deficiencies highlighted, was evaluated in terms of the theoretical framework discussed in chapter two.

The Kruskall-Wallis test showed that the results obtained for five of the seven indicators were not significantly different for the three regions and could therefore be extrapolated to the rest of the population. On average, 82.4% of the PHC clinics did not follow proper procurement procedures, 35.3% did not adhere to correct cold chain maintenance practices, 47.1% did not store medication according to stipulated guidelines, 71.6% did not adhere to stipulated regulations governing the effective dispensing and prescribing to patients and 82.4% of the nurses had drug supply related complaints.

Although, results obtained for general working conditions and additional training needs could not be extrapolated to the rest of the population, the Chi-square test showed that the proportion of responses per category for each of the applicable questions were significant at the 95% level of confidence as p-values were <0.05. Results showed that 53% of the nurses operated in poor working conditions whilst 94% of the nurses had additional training needs. Recommendations for addressing the problems encountered are dealt with in chapter five.

Although some of the above results indicated that only a small proportion of the clinics did not adhere to certain stipulated guidelines and regulations, these results were significant as in terms of health related issues, 100% adherence is essential. Therefore, customised solutions should be provided for each PHC clinic, taking into account unique problems encountered.

In addition, PHC clinics were viewed holistically in assessing whether the proposed PPP adequately addressed the deficiencies and utilised the strengths uncovered in the strategic evaluation undertaken.

Although the objectives of the proposed PPP were suitable to the mission and objectives of KZN DOH, political dictate represented either a strong threat or a valuable opportunity for the proposed PPP. Implementation of the proposed PPP would rest on the ability to convince the KZN DOH that the proposed PPP could provide an invaluable service to the district of Ethekwini and alleviate many of the problems currently encountered in terms of pharmaceutical service delivery.

Managing stakeholders' expectations would be essential to acceptance of the proposed PPP. The PDOH and the NT could exert a high level of power and interest and should be effectively managed. Recommendations on how to manage all relevant stakeholders in presented in chapter five.

FCRA showed that in terms of critical success factors, the proposed business venture would effectively manage the distribution channels, ensure adherence to the NDP and provide customer feedback mechanisms. However, in order for the proposed PPP to be deemed feasible, issues of keeping abreast of technology, maintaining an adequate staff complement and promoting teamwork should be addressed. In addition, the proposed PPP should be financially feasible and this is addressed in the next chapter.

Chapter Five: Recommendations and Conclusions

The purpose of this chapter is to find practical solutions to deficiencies in pharmaceutical service delivery identified in the analysis of the participative observations and semi-structured interviews in the first part of chapter four. These deficiencies in addition to the issues not adequately addressed in the strategic evaluation of the proposed PPP, between the KZN DOH and the private provider are incorporated into the revised model and presented at the end of this chapter.

5.1. Addressing Deficiencies in Pharmaceutical Service Delivery at PHC Clinics

As discussed in chapter two, one of the goals of the NHS is to promote efficiency or cost-effectiveness (Health Summit, 2001). The proposed PPP aimed to increase technical and allocative efficiency in DSM, via strict monitoring of drug usage at PHC clinics, to prevent unnecessary wastage from expired or excess stock and adherence to allocated budgets to promote equity and access to PHC for the community.

Non-adherence to DSM principles could be attributed to a lack of supervision and insufficient training reinforced by 94% of the nurses surveyed who felt that additional training was necessary, especially practical on site training. According to Makhado (Personal Communication, 8 August 2005), chief pharmacist in charge of AHC's Limpopo depot, monitoring is not currently undertaken due to a shortage of staff as well as transport problems. Stock is replenished by pharmacy assistants, due to a shortage of pharmacists, based on minimum or re-order levels. Although, this is not the case in all clinics as some nurses place orders directly with the supplier, AHC.

The DOH is responsible for maintaining an adequate staff complement and are still grappling with recruitment and retaining of skilled staff to relieve the chronic staff shortage

as depicted by the 91.4% vacancy rates for pharmacists at PHC clinics and district hospitals in 2005 (KZN DOH, 2005b). In the ESSD, pharmacists at the main supplier PMSC manage the PHC clinics remotely and ration the medication issued to the PHC clinics to remain within budget as attested to by 23.5% of the clinics surveyed. Transport problems are exacerbated by contracting out of deliveries to courier companies in that pharmaceutical personnel do not have the means to visit the PHC clinics especially those situated in underdeveloped, rural areas.

This highlights the need for the proposed PPP to have adequately trained and sufficient staff to effectively manage DSM at the PHC clinics by making regular visits, addressing any problems encountered and providing practical training and review sessions with the nurses. It is recommended that the private provider be responsible for the recruitment, training and retaining of staff to service the PHC clinics in the catchment area. An added advantage would be to recruit staff well acquainted with the ESSD region.

If staffing became the responsibility of the private provider, one of the drug supply complaints viz. lack of communication between district management and PHC nurses could be addressed. The proposed PPP could ensure effective communication channels were forged to ensure the nurses at the PHC clinics had timely access to information regarding key changes in policies and procedures.

The aim of the proposed PPP would be to procure stock from the main distributor (PMSC) and distribute to the PHCs, based on usage levels and statistics provided. Once the proposed PPP took over the procurement function, any increase in stock required would be motivated with records of statistics to decrease unnecessary rationing of medication issued. In addition, a buffer stock would be maintained to address any out of stock situations that could arise with the supplier.

In this case, it would be the responsibility of PMSC and not the proposed PPP to maintain adequate stock levels at the depot. In their annual 2003/2004 report, PMSC stated that

maintaining a sufficient stock holding to prevent out of stock situations as well as the absorption of delays in delivery from suppliers, was one of their key challenges (KZN DOH, 2004). Their long term objective was to increase their standard stock account and decrease stock turnover to an acceptable level of 8 (current stock turnover is 4.4).

According to Makhado (Personal Communication, 8 August 2005), chronic medication is prepared on a per patient basis at district or regional hospitals in the Limpopo Province and delivered to the PHC clinics whilst psychiatric patients are referred to their nearest hospital. The staff complement at PMMH currently do not have the capacity to pre-pack chronic medication and nurses at the PHC clinics either issue medication listed on the EDL to referred patients or refer the patients to PMMH for collection every month. Only certain clinics fetched schedule five medications used to treat psychiatric disorders directly from PMMH due to the problems discussed in chapter three.

As discussed in chapter one, since the inception of the referral system in January 2005, PMMH pharmacy experienced a 10% decrease in the number of chronic patients attended to (personal observation). However, the frequent out of stock situations and short supply of medication from PMSC to the PHC clinics resulted in patients bypassing the referral system devised to relieve workload and congestion at PMMH and visiting the hospital directly, as evidenced by the gradual increase in the number of patients attended to, at PMMH pharmacy (December 2005 = 5%).

Irregular supply of chronic medication and drugs used to manage psychiatric conditions impacts on patient health and well-being as patients run short of medication. Nurses expressed concern over patients who do not have the funds or transport to travel to PMMH pharmacy every month. The long waiting times at PMMH exacerbates the problem and results in patients defaulting on their medication and the inadequate management of health conditions. This not only hinders the provision of equity in health care but also impacts on the quality of health care as the needs and expectations of users and the community are not

met. This can ultimately increase health expenditure due to additional health complications experienced by patients who have relapsed due to interrupted therapy.

It is recommended that the proposed PPP handle the supply of chronic medications and psychotropics by pre-packing on a per patient basis at a remote facility and delivering directly to the PHC clinics twice monthly. This should promote efficient time utilisation for the PHC nurses who would not need to travel to PMMH every month to fetch schedule five medication and could concentrate on providing other PHC services e.g. family planning and ante-natal counselling. Furthermore, this should relieve the heavy workload experienced by 82.4% of the nurses at the PHC clinics surveyed, who felt that the staff complement was not adequate to handle drug procurement and distribution, as added responsibilities.

In addition, this would also achieve one of the DOH's objectives, which is to strengthen the diagnosis and management of chronic diseases by ensuring availability of chronic medication at all health facilities including PHC clinics. In addition, this would aid in the decentralisation and integration of mental health into PHC services according to the Mental Health Care Act of 2002 (Nkonyeni, 2005). Furthermore, it sets the scene for the envisaged hand over of management of HIV/AIDS to PHC services according to the NDP (1996).

Maintaining *security* of stock in terms of double-locking doors and burglar-barred windows in the dispensary and maintenance of *equipment* is the responsibility of the DOH. However, in clinics that lacked adequate security measures and essential equipment e.g. measuring cylinders, motivations could be made by the proposed PPP for greater security measures to be installed and the necessary equipment to be provided.

The proposed PPP aimed to handle all drug supply related facets of PHC to improve service delivery. According to the Kruskall-Wallis test performed in chapter four, the majority of the problems experienced at the clinics were similar in nature but due to varying existing infrastructure, staffing complements and working conditions, deficiencies should be

addressed by the proposed PPP on a per clinic basis whilst adhering to the regulations that govern management of PHC clinics in KZN.

Non-adherence to regulations governing *effective prescribing and dispensing* could be attributed to insufficient training and experience, verified by 76.5% of the nurses who did not dispense according to stipulated guidelines. All PHC nurses were undergoing training with respect to prescribing and dispensing but expressed a desire for continuing education especially with respect to Standard Treatment Guidelines and dosage regimes, in the form of case studies and refresher seminars.

According to Section 38A of the Nurses Act 50 of 1978 (Government Gazette No. 547. 2004), it is against regulations for a nurse to dispense and prescribe and hand over to another nurse to dispense the medication to the patient. It is recommended that the proposed PPP institute policies regarding use of the dispensary hatches at the PHC clinics. Nurses could check patient blood pressure and/or blood sugar levels monthly before referring to the dispensary where the nurse in charge would dispense the chronic and/or psychiatric medication prepared by the proposed PPP on a per patient basis. This would leave more time for the nurses to practice PHC and could relive the heavy workload experienced.

The unavailability of labels stating directions for use is a cause for concern as this is contrary to regulations ensconced in the MARSCA 101 of 1965 Section 8 (RSA Government Gazette No. 7871, 1997) which states that in order to maintain safety and efficacy of therapy prescribed, all medication should be dispensed in appropriately labelled containers.

It is recommended that the private provider should control procurement and distribution of medication, where monthly orders would be placed with PMSC strictly based on the statistics provided by each PHC clinic and usage levels. PMSC would deliver the stock

ordered to the warehouse leased from the government by the private provider, where the medication would be pre-labelled before distribution to the respective PHC clinics.

5.2. Enhancing Suitability, Acceptability and Feasibility of the Proposed Public-Private Partnership

In terms of suitability, current legislation regarding provision of PHC services is favourable for the private provider. Both, The White Paper on Local Government (LG, 1998) and the NDP (DOH, 1996) supports the establishment of PPIs to encourage the utilisation of private resources and help eradicate inequitable service provision inherited from the previous political regime. In addition, the Municipal Structures Act (HST, 2005), currently designates PHC a provincial and not local government responsibility.

It is recommended that the private provider should use current policies as leverage and put forward the proposal for management of drug supply for provincial clinics to the district health manager who reports to the provincial DOH, while the above policies favour the implementation of the proposed PPP. Long term planning should include the possibility of managing drug supply to all PHC clinics (LG-run and provincial) to improve equity in health care service delivery and intergovernmental relations thorough integrated service provision. This would exploit economies of scale, ensure vertical co-operation and improve co-ordination at the point of delivery.

By assuming responsibility for continuing education and training of the nurses at the PHC clinics, one of the economic objectives of the NDP which is the promotion of cost-effective and rational use of drugs would be fulfilled, i.e. ensuring the right medication is prescribed, for the right condition in the correct dosage form according to the right dosing frequency 'for the purposes of the treatment or prevention of a disease or for some other definitive or curative purpose' (RSA Government Gazette No. 7871, 1997).

In terms of managing stakeholder expectations, PDOH would remain a key player as the partnership is between the KZN DOH and the private provider. A relationship built on trust should be developed and maintained between the parties concerned by adhering to the SLA agreed upon and effectively managing the PPP agreement according to the Public-Private Partnership Manual (NT PPP Unit, 2004).

Once approval is granted by the NT, the relationship with the private provider would change whereby as stipulated in the PPP Manual (NT PPP Unit, 2004), the Auditor-General should be allowed to perform financial, performance and forensic audits and should be kept informed.

The NDOH has the power to introduce new laws affecting the functioning of the PPP. The private provider should constantly scan the environment for new developments. This stakeholder should be kept satisfied via participation and communication with the PDOH.

As discussed in chapter four, the PPP would aim to serve the local community by ensuring a reliable supply of drugs to patients at the respective PHC clinic visited. This includes chronic medication and psychotropics to prevent patients travelling long distances to their nearest hospital, PMMH for monthly replenishment. Although, the local community does not exert any power in the decision to implement the PPP, the ability to keep patients satisfied would become a prime objective for the private provider on implementation of the PPP, as patients have the power to impress expectations on the organisation.

Nurses should first be informed of the existence of SLA and the scope of practice of the proposed PPP to prevent unrealistic expectations. Nurses form part of the health care team and should be receptive to any changes implemented by the private provider on implementation of the PPP. Nurses should be convinced that these changes are in the best interest of the patients and trust should be gained and thereafter maintained. Nurses should be satisfied with the level of service from the private provider as they have the ability to voice objections to the PDOH.

On implementation of the PPP, TUs would have little or no interest or power as the PPP would not be a political priority. Therefore, minimal effort would be required to manage this stakeholder.

Local Government would cease to be involved with implementation of the PPP, as the private provider would service provincial and not local authority clinics. Although minimal effort would be required to maintain this stakeholder based on the current legislation, the political environment, as in the case of managing the NDOH should be continually scanned for developments in terms of scope of responsibility of LG and KZN DOH with respect to delivering PHC.

In terms of feasibility, FCRA revealed that keeping abreast of technology, maintaining an adequate staff complement familiar with the geographical location and promoting teamwork were not accounted for in the proposed PPP. The latter two issues have been addressed respectively, earlier in this chapter under addressing deficiencies in pharmaceutical service delivery and managing stakeholder expectations of nurses. The private provider should be aware of technological developments in terms of electronic communication. All software utilised should be compatible with the main supplier, PMSC's Remote Demanders Module (Redman *et al.*, 2002). Therefore, it is recommended that the private provider, lease software from PMSC for a monthly management fee.

5.3. Revised Model of Public-Private Partnership between the KwaZulu-Natal Department of Health and the Private Provider to Improve Pharmaceutical Service Delivery at Primary Health Care Clinics in the ESSD

As discussed in chapter three, the implementation of the proposed PPP between the KZN DOH and private provider, would rest in part on the ability of the private provider to prove to the KZN DOH and the NT that the PPP is financially feasible for the KZN DOH.

According to Regulation 16 of the Public Finance Management Act (RSA Government Gazette No. 25915, 2004), this implies that the financial commitments incurred by the public institution could be met. In addition, the PPP should represent value for money i.e. provision of the institutional function or use of state property would result in a net benefit to the institution defined in terms of cost, price, quality or technical, financial and/or operational risk transfer from public to private or a combination thereof.

Figure 5.1 depicts the revised value chain for the PPP between the KZN DOH and the private provider.

It is envisaged that by 2010, approximately 2.5 million patients would be serviced at PHC facilities (personal observation, statistics PMMH pharmacy). The service level agreement would include a handling fee of 10% per clinic, levied by the private provider, which would cover DSM of PHC clinics and continuing education and experiential training for the nurses. In addition, a charge of R5 per chronic and R7 per psychiatric prescription would be levied for individual preparation of medication. The private provider would ensure 100% stock availability to the PHC clinics. This would partially be dependent on availability of stock from PMSC. However, a buffer stock and timely substitution of therapy should minimise interruptions in patient therapy.

The private provider would lease warehouse capacity and software capabilities from the government, which would result in a net benefit to the KZN DOH in terms of cost. Rates and taxes for the warehouse could be worked into the SLA with the KZN DOH and allocated a government responsibility. As in AHC's model, the KZN DOH would reimburse any repairs carried out by the private provider.

In terms of the classification of PPP in South Africa (as discussed in chapter two), the level of management would be provincial as each health department would be responsible for health care delivery in their respective provinces. Services would be provided to PHC clinics and the private agent would be the clinical service provider. The department of

health (public) would purchase the facility or premises whilst the private provider would purchase equipment e.g. tablet pre-packing machines and labelling machines or leases delivery vehicles from other private companies. Recurrent financing would be in the form general taxation of the public from which levies would be paid to the private provider for warehousing, distribution servicing of the PHC clinics. Capital ownership would be both public and private. The private provider would lease the warehouse and software capabilities from the government but would own certain equipment used in the warehouse. The healthcare provider would be both public and private. The KZN DOH would decide on the suppliers and would be responsible for availability of stock. The private provider would be responsible for procurement of stock from PMSC, warehousing, distribution and service. The demand decision maker would be public as the KZN DOH would purchase services from private provider.

Figure 5.1. Revised Model of the PPP between the KZN DOH and the Private Provider to Improve Pharmaceutical Service Delivery in the Ethekwini South SubDistrict.

(Source: Adapted from Hitt *et al.*, 2003)

Appendix VI contains the discounted cash flow statement for the revised PPP and has taken into account all necessary modifications, as discussed above. The positive NPV suggested that the returns of the business would be adequate to support the funding requirements, thus contributing to financial liquidity. The required rate of return on investment, which is a function of business risk, was relatively low and therefore the PPP was viewed as a favourable business venture for both the KZN DOH and the private provider. The NPV of approximately 2.5 million shows that the proposed business venture would be financially feasible. However, its implementation would be dependent on the whether the KZN DOH and the NT deems the PPP 'value for money' in terms of Regulation 16 of the Public Finance Management Act (RSA Government Gazette No. 25915, 2004).

As discussed in chapter three, trends in provincial public health care expenditure show a shifting of funds from higher to lower more cost-effective levels of service with PHC showing a 13% increase in the budget which implies that the KZN DOH could afford to adopt the PPP agreement. In addition, the private provider would assume technical and operational risk for 100 % timely drug supply to all PHC clinics under its management. Therefore, in terms of the goals used to assess PPP, as discussed in the Health Summit of 2001, the revised PPP would provide financial sustainability and promote equity of PHC.

Based on the objectives cited in chapter one, it could be concluded that the majority of the clinics surveyed, did not adhere to stipulated guidelines regarding the DSM and effective prescribing and dispensing practices. Furthermore, 82.4% of PHC nurses encountered problems in drug supply and required additional continuing education and training.

The revised PPP between the KZN DOH and the private provider aimed to address these deficiencies thereby maintaining the goals of the NDP i.e. "to ensure an adequate and reliable supply of safe, cost-effective drugs of acceptable quality to all citizens of South Africa and the rational use of drugs by prescribers, dispensers and consumers" (DOH, 1996). In addition, strategic evaluation in terms of suitability, acceptability and feasibility and the subsequent recommendations for improvement in the proposed model, showed that

this PPP would fulfil the broader objectives of the National Health System i.e. equity, coherence, quality of care and efficiency or cost-effectiveness.

Therefore, this study found that the PPP suggested between the KZN DOH and private provider to improve pharmaceutical service delivery at PHC clinics, would be a valuable contribution to the health care sector of South Africa and would provide a workable solution to the inadequate service delivery experienced by majority of the people in the ESSD.

Bibliography

Alan, A. (2005) *Cash Flow Statement for the Proposed PPP,* 10 November. Personal Communication. Durban, St. Augustine's Hospital.

Ambrosini, V., Johnson, G. and Scholes, K. (1998) *Exploring Techniques of Analysis and Evaluation in Strategic Management*. Europe, Prentice Hall.

American Heritage® Dictionary of the English Language. (2003) [Internet]. Fourth Edition. Houghton Mifflin Company. Available from: <http://www.thefreedictionary.com/pharmacotherapies> [Accessed 8 January 2006].

Austin, C. (2004) *The Public and Private Interface in New Zealand Primary Health Care* [Internet], August. Available from: <http://www.rnzcgp.org.nz/NZFP/Issues/Aug2004/Austin_Aug04.pdf> [Accessed 17 June 2005].

Balwanth, M. (2003) *District Health System.* Circular. Durban, Ethekwini District Office.

Bensoussan, B.E. and Fleisher, C.S. (2003) *Strategic and Competitive Analysis: Methods and techniques for analysing business competition*. New Jersey, Prentice Hall.

Booth, R. (1997) Appreciating the value before counting the cost. *Management Accounting: Magazine for Chartered Management Accountants* [Internet], January, 75(1), pp.54, Available from: <http://search.epnet.com/login.aspx?direct=true&db=buh&an=9701226758> [Accessed 7 December 2005].

Brugha, R. and Varvasovszky, S. (2000) Stakeholder Analysis: A Review. *Health Policy and Planning* [Internet], 15(3), pp.239-246. Oxford, Oxford University Press. Available from: <http://www.heapol.oxfordjournals.org/ content/vol15/issue3/index.dtl> [Accessed 7 December 2005].

Buthelezi, S. (2005) *Expenditure for Clinics Situated in the Ethekwini South Sub-District from April 2004 until March 2005*, 5 July. Personal Communication. Durban, Prince Mshiyeni Memorial Hospital.

Cooper, D.R. and Schindler P.S. (2003) Business Research Methods. Eighth Edition. New York, McGraw Hill/Irwin.

DOH. (2002) *A synopsis of Health Policies and Legislation: 1994 – 2000* [Internet], July. Available from: <http://www.doh.gov.za/docs/policy/synopsis.html> [Accessed 9 October 2004].

DOH. (2001) *Authority under Section 38A of the Nursing Act 50 of 1978* [Internet]. Available from: <http://www.doh.gov.za/pharmis/forms/authority.pdf> [Accessed 20 November 2005].

DOH. (1998) *Standard Treatment Guidelines and Essential Drugs List*. Pretoria, National Department of Health.

DOH. (1996) *National Drug Policy for South Africa* [Internet], January. Available from: <http://www.doh.gov.za/docs/policy/drugsjan1996> [Accessed 9 October 2004].

Foladori, G. (2004) *Can PPPs in Health Cope with Social Needs?* [Internet], Centre for Science, Policy, & Outcomes. Available from: <http://www.cspo.org/home/cspoideas/know_flows/Rock-Vol1-3.PDF> [Accessed 28 November 2005].

Fourie, L. (2005) *SAAHIP Portfolio Reports 2005*. South African Pharmaceutical Journal, 17(6) July, pp.26.

Gray, A. *et al.*, (1998) *Using Stock Cards to Improve Drug Management* [Internet], August. Available from: <http://www.hst.org.za/uploads/files/kwiksk13.pdf > [Accessed 29 July 2005].

Haanx, K. (1998) *Strategic Resources in Action: A Case Study of the Dynal Biotech Joint Venture* [Internet], April, Norwegian School of Management: Department of Strategy. Available from: <http://www.bi.no/papers/dp0197.pdf> [Accessed 25 October 2005].

Hall, W. ed. (2004) *Summary Bulletin 11-DHS-LG Discussion List: First Quarter 2004* [Internet], April. Available from: <http://www.hst.org.za/generic/60> [Accessed 19 November 2005].

Harrison, D. (1997) *A Pocketguide to District Health Care in South Africa* [Internet], March. Available from: <http://new.hst.org.za/pubs/index.php/31> [Accessed 31 May 2005].

HASA. (2005) *Registered Nurses are Allowed to Dispense Medicines in Hospitals* [Internet], August. Available from: <http://www.doh.gov.za/docs/pr/2005/pr0623.html> [Accessed 20 November 2005].

Health Summit. (2001) *PublicPrivate Interactions: Discussion Paper* [Internet]. Available from: <http://www.doh.gov.za/docs/misc/hsummit01/section2d.pdf > [Accessed 20 May 2005].

Hitt, M.A., Ireland, R.D. and Hoskisson, R.E. (2003) *Strategic Management Competitiveness and Globalisation*. Fifth Edition. USA, Thomson Learning, South Western.

HST. (2005) *District Health and Local Government*, November. Available from: <http://www.org.za/generic/20> [Accessed 9 October 2004].

HSA. (2004) *Drug Supply Management*, Pharmacists Assistants Training Programme, Module 4 and 7. Edition 4.2. Randburgh, Health Science Academy Ltd.

HST. (2003) *Health Minister Calls for Better Health Results in SA*, March. Available from: <http://www.hst.org.za/news/20030323> [Accessed 31 May 2005].

HST. (1999) *Integration of Health Care Service* [Internet], August, HST Update Issue No. 45. Available from: <http://www.hst.org.za> [Accessed 19 November 2005].

HST. (1997) *What Really Improves the Quality of Primary Health Care?* [Internet], July. Available from:<http://www.hst.org.za/uploads/files/improcar.pdf> [Accessed 20 May 2005].

HST. (1997) *A Communication Strategy for the Impendle/Pholela/Underberg Health Districts in KwaZulu-Natal: A Discussion Document* [Internet], June. Available from: <http://www.new.hst.org.za/pubs/index.php/17> [Accessed 20 May 2005].

Illkova, E. and Donnelly, S. (2001) *Basic Principles of Financial Management*. Course Guide, 2002. Durban, Natal Business School Publishers.

Johnson, G., Scholes, K. and Whittington, R. (2005) *Exploring Corporate Strategy*. Seventh Edition. Essex, Pearson Education Limited.

Karasaridis A. *et al.*, (2004) *A National Primary Health Care Facilities Survey 2003: KwaZulu-Natal* [Internet], September. Available from: <http://www.hst.org.za> [Accessed 20 May 2005].

Kishuna, A. (1997) *Pharmaceutical Services at Primary Care Clinics in KwaZulu – Natal.* MPharm. thesis, Univesity of KwaZulu – Natal.

KZN Department of Economic Development. (2005) *KwaZulu-Natal Top Business Portfolio: Ethekwini District Municipality* [Internet]. Available from: <http://www.kzntopbusiness.co.za> [Accessed 20 November 2005].

KZN DOH. (2005a) *Prince Mshiyeni Memorial Hospital* [Internet]. Available from: <http://www.kznhealth.gov.za/princemshiyenihospital.htm> [Accessed 10 October 2004].

KZN DOH. (2005b) *KwaZulu-Natal Department of Health Strat Plan 2005 - 2009/10* [Internet], April. Available from: <http://www.kznhealth.gov.za/strat/2005> [Accessed 14 July 2005].

KZN DOH. (2005c) *eThekwini (Durban) District* [Internet], November. Available from: <http://www.kznhealth.gov.za/ethekwini.htm> [Accessed 16 November 2005].

KZN DOH. (2005d) *Requisition for Supplies Form* [Internet], November. Available from:<http://www.healthweb.kznhealth.gov.za> [Accessed 25 November 2005].

KZN DOH. (2004a) *Health Care Support Services: KwaZulu-Natal Department of Health* [Internet], Annual report, 2003/2004. Available from: <http://www.kznhealth.gov.za/0304report.htm> [Accessed 14 July 2005].

KZN DOH. (2004b) *Policy for the Supply of Chronic Medicines* [Internet], April, Circular 621/2004. Available from: <http://wwwhealthweb.kznhealth.gov.za> [Accessed 20 November 2005].

KZN DOH. (2000) *KwaZulu-Natal Health Act* [Internet]. Available from: <http://www.kznhealth.gov.za/healthact.pdf> [Accessed 16 November 2005].

Lesonsky, R. (1998) *Start Your Own Business: The Only Start-Up Book You'll Ever Need* [Internet]. Available from: <http://www.entrepreneur.com/Your_Business/YB_Node/0,4507,413,00.html> [Accessed 4 December 2005].

LG. (1998) *The White Paper on Local Government* [Internet], March. Available from: <http://www.dplg.gov.za> [Accessed 27 July 2005].

Livewired Communications. (2004) *Amalgamated Healthcare chooses Citrix for quick service delivery,* [Internet], August. Available from: <http://www.itweb.co.za/offie/citrixsystems/0408260843.htm> [Accessed 8 June 2005].

Lyle, S.M.S. (2004) *Advanced Investment Appraisal and Decision Making.* Course Guide. Durban, The Graduate School of Business, University of KwaZulu-Natal.

Makhado, M. (2005) *PPP between Amalgamated Healthcare and the Department of Health in the Limpopo Province*, 8 August. Personal Communication. Durban.

Marketing Teacher. (2005) *The Marketing Environment*, [Internet]. Available from: <http://www.marketingteacher.com/Lessons/lesson_marketing_environment.htm> [Accessed 10 August 2005].

Markus, R and Maisela, D. (2005) *Absa Econotrends: CPIX Surprises on the Downside* [Internet] 23 November. Available from: <http://www.absa.co.za/asacoza> [Accessed 28 November 2005].

Miller, S. (2001) *With Reference to Specific Analytical Processes, Techniques and Models, Evaluate the Potential Contribution of Strategic Analysis of the 'External Environment', 'Industry' and 'Firm' to Effective Strategic Management: MBA MGT510 (Assignment 2)* [Internet]. Available from:<http://www.3la.com.au/mba/FIN521_a.htm> [Accessed 20 November 2005].

Morgan, P. and Taschereau, S. (1996) *Capacity and Institutional Assessment: Frameworks, Methods and Tools for Analysis* [Internet], June. Canadian International Development Policy Branch. Available from: <http.www.acdi-cida.gc.ca/INET/IMAGES.NSF/vLUImages/CapacityDevelopment/$file/1996-06-02Tools(Wkshp6).pdf> [Accessed 20 November 2005].

National Treasury PPI Unit. (2004) *Public-Private Partnership Manual* [Internet]. Available from: <http:www.finance.gov.za/organisation/ppp/PPP%20Manual/Main%20Intro+Contents.pdf> [Accessed 26 May 2005].

Ndimande, B. (2004) *International Market Research – Health Care Services* [Internet]. Available from: <http://www.strategis.ic.gc.ca/epic/internet/inimr-i.nsf/en/gr112182e.html> [Accessed 26 May 2005].

Ngobeni, O.N. (2004) *Health Systems Trust Initiative for Sub-District (ISDS) Exit Report for Bohlabela District Municipality Limpopo Province* [Internet], August. Available from: <http://www.hst.org.za> [Accessed 26 May 2005]

Nkonyeni, N.P. (2005) *Address by MEC for Health for KwaZulu-Natal on the Presentation of the KwaZulu-Natal Health Budget in the Provincial Legislature on 6 May 2005* [Internet], May. Available from: <http://www.kznhealth.gov.za/speeches/budget2005.pdf> [Accessed 26 May 2005].

Nkonyeni, N.P. (2004) *Appointment of New MEC for Health* [Internet], November. Available from: <http://www.kzntopbusiness.co.za/2005/Top-Business-Portfolio/ Public-Services/KZN%20Department%20of%20Health.htm> [Accessed 20 November 2005].

Partridge, M. and Perren, L. (1994) Assessing and Enhancing Strategic Capability: A Value–Driven Approach. *Management Accounting: Magazine for Chartered Management Accountants* [Internet], June, 72 (6), pp.28-29. Available from: <http://search.epnet.com/login.aspx?direct=true&db=buh&an=9412073251> [Accessed 7 December 2005].

Patterson, J. (1995) Adding Value by Managing Supply Chain Activities. *Marketing News* [Internet], July, 29(15), p.6. Available from: <http://search.epnet.com/login.aspx?direct=true&db=buh&an=9507203719> [Accessed 7 December 2005].

PHC Services. (2005) *Decongestion Strategy* [Minutes of Meeting], 20 August. Umlazi, Emawelini.

Pillay, Y., McCoy, D. and Asia, B. (2001) *The District Health System in South Africa: Progress Made and Next Steps* [Internet], July. Available from: <http://www.doh.gov.za/docs/policy/dhsystem.html> [Accessed 4 October 2004].

Recklies, D. (2001a), *Porter's Five Forces* [Internet], June. Available from: <http://www.themanager.org >[Accessed 25 October 2005].

Recklies, D. (2001b) *The Value Chain* [Internet]. Available from: <http://www.themanager.org >[Accessed 25 October 2005].

Recklies, D. (2001c) *Stakeholder Management* [Internet], April. Available from: <http://www.themanager.org/resources/ Stakeholder%20Management> [Accessed 25 October 2005].

Redman, N. *et al.*, (2002) *Remote Demanders Module* [Internet]. Available from: <http://www.saahip.org.za/conf/1999/p9.htm> [Accessed 19 September 2005].

RSA Government Gazette No. 547 (2004) *Nursing Amendment Act 5 of 1995* [Internet], April. Available from: <http://www.doh.gov.za/docs/legislation/ acts/1995/act95-005.html> [Accessed 28 November 2005].

RSA Government Gazette No. 25915 (2004) *Public Finance Management Act 1 of 1999 Final Amended Version of Regulation 16* [Internet], 16 January. Cape Town. Available from: <http://www.polity.org.za/pdf/notice37.pdf> [Accessed 28 November 2005].

RSA Government Gazette No. 25767 (2003) *Regulations in Terms of the Public Finance Management Act 1999: Framework for Supply Chain Management* [Internet], December. Pretoria. Available from: <http://www.finance.gov.za/organisation/sf/Regulations.pdf> [Accessed 28 November 2005].

RSA Government Gazette No. 20854 (2000) *Preferential Policy Framework Act 5 of 2000* [Internet]. Available from:<http://www.info.gov.za/gazette/acts/2000/a5-00.pdf > [Accessed 24 November 2005].

RSA Government Gazette No.7871 (1997) *Medicine and Related Substances Act 101 of 1965* [Internet]. Available from:

<http://www.doh.gov.za/docs/legislation/acts/1997/act90.pdf> [Accessed 28 November 2005].

Sankar, U. (2002) *Devolution of Primary Health Care Services to the Local Government* [Internet]. Available from: <http://www.imfo.co.za/Documents/ Journal/Winter%202002%2011-20.pdf > [Accessed 16 July 2005].

Saunders, M., Lewis, P. and Thornhill, A. (2003) *Research Methods for Business Students*. Third Edition. Essex, Pearson Education Limited.

Shandu, O. (2005) *Clinics in the Ethekwini South Sub-District,* 3 June. Personal Communication. Durban, Amawelini.

Strachan, K. (1999) *Channelling the Flow of Medicines* [Internet], Health Systems Trust, August. Available from: <http:// www.hst.org.za> [Accessed 20 November 2005].

The Society of Management Accountants of Canada (1996) Value Chain Analysis for Assessing Competitive Advantage, *CMA Magazine* [Internet], July/August, 70(6), p.28. Available from: http://search.epnet.com/login.aspx?direct=true&db=buh&an=9608260862 [Accessed 15 September 2005].

Van Auken, S. (2001) Resources and Relationships: New Drivers of Marketing Thought. *Journal of Economic and Social Research* [Internet], 3(1) 2001, pp.29-41. Available from: http://www.jesr.journal.fatih.edu.tr/JESR.auken.pdf [Accessed 19 September 2005].

Wadee, H. *et al.*, (2004) *Public – Private Interactions in the South African Health Sector: Experience and Perspectives from National, Provincial and Local levels*, Health Systems Trust [Internet], March. Available from: http://www.hst.org.za/uploads/files/ppi.pdf [Accessed 19 October 2004].

Wikipedia (2005) *Anti-psychotics* [Internet]. Available from: <http://www.en.wikipedia.org/wiki/Psychotropic> [Accessed 20 November 2005].

WHO-UNICEF (1978) *Report of the International Conference on Primary Health Care held at Alma Ata. Geneva* [Internet]. Available from: <http:// www.emro.who.int/Publications/EMHJ/0604/16.htm> [Accessed 10 November 2005].

Appendix I: Participative Observation Checklist

PARTICIPATIVE OBSERVATIONS

1. Medicine Store-room

1.1. Capacity _____

1.2. Double – locking burglar guarded entrance door [Y] [N]

1.3. Burglar – guarded windows [Y] [N]

1.4. Ventilation:

_____

1.5. Responsible Professional Nurse _____

1.6. How many staff members are responsible for the keys? [ ]

1.7. Temperature Control _____

1.8.1. Dispensing hatch. [Y] [N]

1.8.2. Is it used? [Y] [N]

1.8.3. Purpose?

_____

_____

_____

_____

1.9. Medicine storage.

1.9.1. Stock stored on the floor [Y] [N]

1.9.2. Evidence of stock rotation [Y] [N]

1.9.3. Appearance of shelves

_____

_____

1.9.4. Stock control cards in place [Y] [N]

1.9.5. Stock quantities up – to – date?

_____

_____

1.9.6. Re-order levels calculated | Y | N |

1.10. Records filed and maintained

1.10.1. Medicine order receipts	Y	N
1.10.2. Out of stock medicines	Y	N
1.10.3. Expired medicines	Y	N
1.10.4. Missing or stolen medicines	Y	N

2. Cold Chain Maintenance

2.1. Are the fridge rubber door seals intact? | Y | N |

2.2. Any food or drinking water in fridge _____

2.3. Daily temperature record _____

2.4. Storage of vaccines _____

_____

2.5. Additional comments

_____

_____

_____

_____

3. Consulting Rooms

3.1. How are medicines stored in the consultation rooms? Are there medicine trolleys/ storage cupboards? Are they lockable?

_____

_____

_____

3.2. Is the room well ventilated?

_____

4. Consultations

4.1. Patient 1:

4.2. Patient 2:

4.3. Patient 3:

5. General Observations:

Appendix II: Semi-Structured Interview Schedule

SEMI – STRUCTURED INTERVIEWS

Facility:_____ ***Date:***_____

Person Interviewed:_____ ***Designation:***_____

1. Communication Tools:

1.1. Telephone ☐
1.2. Fax ☐
1.3. Radio ☐
1.4. Email ☐

2. Staff Establishment including work schedules:

2.1. Number of Professional Nurses ☐

_____

2.2. Number of Enrolled Nurses ☐

_____

2.3. Number of Enrolled Nursing Assistants ☐

_____

2.4. Number of Clerks ☐

_____

2.5. On average, how many patients do you see per day?

_____

_____

2.6. Do you feel that the staff complement is adequate for the workload at this facility? Are there any additional requirements?

_____

_____

_____

_____

3. Human Resource Development

3.1. How many nurses have undergone/ are currently undergoing formal training in the following:

Courses	Formal Training Completed	Currently Undergoing Training
3.1.1. Primary Health Care		
3.1.2. Effective Prescribing and Dispensing		
3.1.3. Drug Supply Management Training		
3.1.4. Cold Chain Management		
3.1.5. TB Diagnosis and Treatment		
3.1.6. HIV/AIDS Counsellors		

3.2. Are there any additional training needs?

_____

_____

_____

_____

_____

_____

4. Drug Procurement

4.1. Who is responsible for placing orders?

_____

4.2. Please explain how orders are placed?

_____

4.2. How often are orders placed?

_____

4.3. What is the delivery lead time?

_____

4.4. What period of safety stock do you keep?

_____

4.5. Who receives medicine orders?

_____

4.6. Have you ever received expired, damaged or a shortage of stock?

_____

4.7. Do you have any drug supply related complaints?

_____

_____

_____

_____

_____

_____

5. Cold Chain Management

5.1. Are there frequent electrical power supply interruptions?

_____

_____

_____

5.2. Fridges available:

TYPE	NUMBER	CONDITION

5.3. Do you have any back –up generators?

_____

5.4. Explain how vaccines are handled on receipt from PMSC?

_____

_____

_____

_____

_____

_____

_____

6. Drug Handling

6.1. How many consulting rooms are currently being used? Purpose?

_____

_____

_____

_____

_____

6.2. Explain how medication is distributed to each prescribing nurse?

_____

_____

_____

_____

_____

_____

_____

_____

6.3. Does each prescribing nurse have a PHC EDL book?

_____

6.4. Are any drugs packed locally? Which drugs? Do you have any counting trays available?

_____

6.5. How are antibiotics reconstituted? Do you have any measuring cylinders available?

_____

6.6. Do you have pre-printed labels for directions on proper usage of medication?

_____

_____

_____

_____

6.7. How do you handle expired/ excess stock?

_____

_____

7. Chronic Medication

7.1. Do you issue chronic medication to patients at this facility?

_____

7.2. Who initiates the treatment?

_____

7.3. Who supplies the medication and how often are these medicines delivered?

_____

7.4. Who issues chronic medication to patients?

_____

7.5. Are there specific days for each disease condition?

_____

7.6. Do you keep a regular list of chronic medication patients?

_____

8. TB Medication

8.1. Do you deal with TB patients at this facility?

_____

8.2. Is there a separate TB consultation and waiting room? Is this room well – ventilated?

_____

_____

_____

9. Psychiatric Medication

9.1. Do you issue psychiatric medication to patients at this facility?

_____

_____

_____

_____

9.2. Who initiates the treatment?

_____

9.3. Who supplies the medication and how often are these medicines delivered?

_____

_____

9.4. Who issues psychiatric medication to patients? Is there a separate consultation room? Are there specific days?

_____

_____

_____

9.5. Do you keep a regular list of patients on psychiatric drugs?

_____

10. Schedule 5 and 6 Drugs

10.1. Do you keep any S5 and S6 drugs? Where are these drugs stored? How are they handled?

_____

_____

_____

_____

_____

11. Are they any additional medicine – related problems encountered at your facility?

_____

_____

_____

_____

_____

_____

12. Do you have any suggestions for improving drug supply at your facility?

_____

_____

_____

Appendix III: Interview Schedule for Interviewees

Interviewee 1: Mr M. Makhado

Questions:

1. Full name and designation
2. Is AHC the main supplier of drugs to the Limpopo Province?
3. Please explain the complexities of the PPP in terms of procurement, warehousing, distribution and management.
4. How long has this PPP been in existence? You state the main aim " was to capacitate the government employees such that they can take over at the end of the contract". Has any progress been made towards ensuring this?
5. Please explain DSM at the PHC clinics. How is stock replenished at the clinics – are there pharmacists responsible for topping up used stock or do the nurses place orders directly with the supplier? How does your organisation "monitor the usage of medicines at the clinics"?
6. Are Chronic/Psych/TB and HIV/AIDS patients now handled by clinics or do these patients still have to go to their referral hospital for their monthly medication? Does your organisation handle the issuing of chronic medication on a per patient basis?
7. Can you elaborate on the levies charged?
8. Does your organisation lease warehouse capacity from the government?
9. Can you elaborate on the pre-packing process? Does your organisation supply bulk stock to the department who then handles the pre-packing?

Interviewee 2: Dr Ntshangase

Issues Discussed:

1. Lack of communication between PMMH and the clinics in the ESSD.
2. Confusion with regard to ordering procedures.

3. Lack of reinforcement/training with respect to guidelines/protocols.
4. No patient feedback once referred to PMMH.
5. Lack of record-keeping and reporting.
6. Failure of programme to fight TB.

Interviewee 3: Mrs O. Shandu

Issues Discussed:

1. Map to clinics, contact telephone numbers and sisters-in-charge.
2. Functioning of district health office, Amawelirii and PMMH.
3. Problems encountered with the DHS in the ESSD.

Interviewee 4: Mr S. Buthelezi

Issues Discussed:

1. Budget allocation process for clinics supervised by PMMH.
2. Problems encountered with respect to financing needs of clinics in the ESSD.
3. Clinics to be handed over to other regions.
4. Medicines expenditure for clinics in the ESSD from April 2004 to March 2005.

Interviewee 5: Mrs A. Alan

Issues Discussed:

1. Cash flow statement for the proposed PPP.
2. Industry averages/trends.

Appendix IV: Requisition for Supplies Form to PMSC from PHC Clinics

PROVINCE OF KWAZULU- NATAL **DEPARTMENT OF HEALTH**	ISIFUNDAZWE SEKWAZULU-NATALI **UMNYANGO WEZEMPILO**	PROVINSIE VAN KWAZULU-NATAL **DEPARTEMENT VAN GESONDHEID**

REQUISITION FOR SUPPLIES **SUPPLY FROM:**

Enquiries Tel.No.

Supply To:

Address:

.....
Signature and Designation of Requisitioning Officer

.....
Signature and Designation of Authorizing Officer

Date.....

Demanders Code	Responsibility Code	Objective Code	Auto/manual req. number

ROQ / PC	Catalog No.	DESCRIPTION		Unit of Issue	Cost	Stock / hand	Stock Reqd	Stock Issued
	3008410	Condoms	500's	CO	0.00			
	3022053	Dalcept 250 Short	1's	Each	33.00			
	3022054	Dalcept 375 Long	1's	Each	30.79			
		TABLETS AND CAPSULES						
	6107028	Amitriptyline 25mg Tabs	28's	CO	2.92			
	6206012	Amoxycillin 250mg Caps	15's	CO	2.65			
	6206035	Amoxycillin 500 mg Caps.	15's	CO	5.43			
	6206310	Amphotericin B Lozenges	20's	CO	42.41			
	6114012	Aspirin Soluble 300 mg Tabs.	14's	CO	1.74			
	6207818	Atenolol 50 mg Tabs. 28's		CO	3.32			
	6118020	Chlorpheniramine 4 mg Tabs.	10's	CO	0.55			
	6121914	Cimetidine 400mg Tabs	14's	CO	2.71			
	6221135	Ciprofloxacin 500 mg Tabs.	10's	CO	4.39			
	6206920	Co-Artemether Tablets (for Malaria)	24's	CO	44.46			
	6122040	Co-Trimoxazole 80:400 mg Tabs	40's	CO	2.56			
	6122052	Co-Trimoxazole 80:400 mg Tabs	56's	CO	4.50			
	6128014	Doxycycline 100 mg Caps.	14's	CO	1.97			
	6231740	Enalapril 10mg Tabs.	28's	CO	3.60			
	6130019	Erythromycin 250 mg Tabs/Caps	20's	CO	12.32			
	6130040	Erythromycin 250 mg Tabs/Caps	40's	CO	24.47			
	6130056	Erythromycin 250 mg Tabs/Caps	56's	CO	34.26			
	6130112	Erythromycin 250 mg Tabs/Caps	112's	CO	68.52			
	6132028	Ferrous Sulphate Co. Tabs.	28's	CO	1.68			
	6133020	Flucloxacillin 250 mg Caps.	20's	CO	11.65			
	6134028	Folic Acid 5 mg Tabs. 28's		CO	1.53			
	6140028	Glibenclamide 5 mg Tabs	28's	CO	1.66			

P.H.C. ORDER FORM (1) **November 2005**

ISSUED BY:..... RECEIVED BY:.....

PROVINCE OF KWAZULU- NATAL
DEPARTMENT OF HEALTH

ISIFUNDAZWE SEKWAZULU-NATALI
UMNYANGO WEZEMPILO

PROVINSIE VAN KWAZULU-NATAL
DEPARTEMENT VAN GESONDHEID

REQUISITION FOR SUPPLIES

SUPPLY FROM:

Enquiries Tel.No.

Supply To:

Address:

.....
Signature and Designation of Requisitioning Officer

.....
Signature and Designation of Authorizing Officer

Date.....

Demanders Code	Responsibility Code	Objective Code	Auto/manual req. number

ROQ / PC	Catalog No.	DESCRIPTION		Unit of Issue	Cost	Stock / hand	Stock Reqd	Stock Issued
	6140056	Glibenclamide 5 mg Tabs.	56's	CO	3.32			
	6141928	Gliclazide 80mg Tabs	28's	CO	3.80			
	6239110	Gliclazide 80mg Tabs	56's	CO	9.06			
	6142014	Hydrochlorothiazide 25 mg Tabs 14's		CO	1.38			
	6146015	Ibuprofen 200 mg Tabs.	15's	CO	1.32			
	6246010	Isosorbide Dinitrate Sublingual 5mg	50's	CO	4.91			
	6153030	Loperamide HCl 2mg Tabs. 30's		CO	2.72			
	6103020	Magnesium Trisil. Co. Tabs.	24's	CO	8.42			
	6249350	Mebendazole 500mg tablets	1's	CO	1.59			
	6156056	Metformin 500 mg Tabs.	56's	CO	9.05			
	6156086	Metformin 500 mg Tabs.	84's	CO	12.43			
	6158056	Methyldopa 250 mg Tabs.	56's	CO	13.79			
	6161005	Metronidazole 400 mg Tabs.	5's	CO	0.94			
	6161014	Metronidazole 400 mg Tabs.	15's	CO	0.84			
	6247230	Microval	28's	CO	4.37			
	6166020	Nalidixic Acid 500 mg Tabs.	20's	CO	22.64			
	6166090	Nicotinamide 100mg Tabs	84's	CO	3.15			
	6263030	Nordette	28's	CO	4.05			
	6169028	Orphenadrine 50mg Tabs	28's	CO	5.16			
	6265030	Ovral	28's	CO	4.87			
	6172010	Paracetamol 500 mg Tabs.	10's	CO	0.57			
	6172060	Paracetamol + Codeine Tabs	20's	CO	3.59			
	6174019	Penicillin V 250 mg Tabs	20's	CO	3.99			
	6178628	Prednisone 5 mg Tabs.	28's	CO	1.60			
	6179028	Pregamal	28's	CO	1.76			
	6178450	Praziquantel tablets 600mg	50's	CO	242.83			
	6184090	Pyridoxine 25mg Tabs	28's	CO	2.40			

P.H.C. ORDER FORM (2) **November 2005**

ISSUED BY:..... **RECEIVED BY:**.....

PROVINCE OF KWAZULU- NATAL
DEPARTMENT OF HEALTH

ISIFUNDAZWE SEKWAZULU-NATALI
UMNYANGO WEZEMPILO

PROVINSIE VAN KWAZULU-NATAL
DEPARTEMENT VAN GESONDHEID

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SUPPLY FROM:

Enquiries Tel.No.

Supply To:

Address:

.....
Signature and Designation of Requisitioning Officer

.....
Signature and Designation of Authorizing Officer

Date.....

Demanders Code	Responsibility Code	Objective Code	Auto/manual req. number

ROQ / PC	Catalog No.	DESCRIPTION		Unit of Issue	Cost	Stock / hand	Stock Reqd	Stock Issued
	6188023	Senna Std. 7 mg Tabs.	12's	CO	3.32			
	6195128	Thiamine 100mg Tabs	28's	CO	10.88			
	6297130	Triphasil	28's	CO	3.98			
	6198028	Vitamin B. Compound Tabs.	28's	CO	0.75			
		INJECTIONS						
	6414251	Ceftriaxone 250 mg	5ml	Vial	6.27			
	6414255	Ceftriaxone 1G		Vial	13.79			
	6448240	Medroxyprogesterone 150 mg / 1 ml		Vial	5.68			
	6460230	Norethisterone 200 mg / ml		Vial	8.88			
	6462530	Oxytocin 10 IU/ml	1ml	Amp	6.41			
	6466510	Penicillin Benzathine 1.2 mu		Vial	3.32			
	6466520	Penicillin Benzathine 2.4 mu		Vial	2.98			
	6466535	Penicillin Benzyl 1 mu		Vial	2.42			
	6466540	Penicillin Benzyl 5 mu		Vial	7.79			
	6469013	Phytomenadione 2 mg / 0.2 ml		Amp	6.58			
	6477020	Quinine HCl. 300 mg / 1 ml		Amp	5.34			
	6482050	Sodium Chloride 0.9%	10 ml	Amp	0.98			
	6488510	Syntometrine	1 ml	Amp	6.60			
	6499340	Water for Injection (Plastic)	10 ml	Amp	0.71			
		POWDERS and DIAGNOSTIC TESTS						
	6677235	Accutrend Strips	50's	CO	103.40			
	6677238	ACCU-CHEK Active Strips	50's	CO	64.16			
	6677230	Glucostix	50's	CO	48.24			
	6628530	Disinfect./Deterg. Sachet 3 g	1000's	CO	109.56			
	6628550	Disinfect./Deterg. Sachet 6 g	1000's	CO	163.90			
	6643940	Oral Rehydration Powder 26 g	50's	CO	23.83			
	6677440	Urine Test Strips – 9 tests	100's	CO	27.95			
	6677210	Pregnancy Test strips	25's	Kit	20.88			
		MIXTURES and SOLUTIONS						

P.H.C. ORDER FORM (3) **November 2005**

ISSUED BY:..... RECEIVED BY:.....

PROVINCE OF KWAZULU- NATAL
DEPARTMENT OF HEALTH

ISIFUNDAZWE SEKWAZULU-NATALI
UMNYANGO WEZEMPILO

PROVINSIE VAN KWAZULU-NATAL
DEPARTEMENT VAN GESONDHEID

REQUISITION FOR SUPPLIES

SUPPLY FROM:

Enquiries Tel.No.

Supply To:

Address:

.....
Signature and Designation of Requisitioning Officer

.....
Signature and Designation of Authorizing Officer

Date.. .....

Demanders Code	Responsibility Code	Objective Code	Auto/manual req. number

ROQ / PC	Catalog No.	DESCRIPTION	Unit of Issue	Cost	Stock / hand	Stock Reqd	Stock Issued
	6800210	Acetic acid 1% in normal saline ear drops 10ml	Bot	2.68			
	6800215	Acetic acid 2% in 50% alcohol ear drops 10ml	Bot	3.25			
	6803220	Albendazole Susp.100 mg / 5 ml 20 ml	Bot	7.65			
	6805820	Amoxycillin 125 mg / 5 ml 100 ml	Bot	3.74			
	6805830	Amoxycillin 250 mg / 5 ml 100 ml	Bot	5.71			
	6812830	Benzyl Benzoate Emuls. 100 ml	Bot	1.26			
	6812820	Benzyl Benzoate Emuls.50ml in 100ml	Bot	0.92			
	6814181	Budesonide 100mcg inhaler 300 doses	Bot	37.91			
	6814530	Calamine Lotion 100 ml	Bot	1.09			
	6817810	Chlorhexidine 0.2% mouthwash 100ml	Bot	8.32			
	6817910	Chlorhexidine 0.5% in alcohol 70% 5L	Bot	58.35			
	6819210	Chlorpheniramine Syr.2mg / 5ml 50ml	Bot	2.00			
	6821032	Cocillana compound syrup 100ml	Bot	2.11			
	6823330	Co – Trimoxazole Suspension 100 ml	Bot	2.53			
	6823030	Cough Mixture for Infants 100 ml	Bot	1.89			
	6832020	Cytofix Aerosol 100 g	Can	56.13			
	6828010	Erythromycin Estolate 125 mg/5 ml 100ml	Bot	10.33			
	6830845	Fenoterol Inhal.Soln. 0.5mg / 2ml 60's	Box	66.15			
	6830850	Fenoterol Inhal.Soln. 1.25mg / 2ml 60's	Box	70.56			
	6831725	Ferrous Gluconate Syrup 100ml	Bot	10.19			
	6831820	Ferrous lactate drops 25mg/ml 10ml	Bot	27.32			
	6832610	Flucloxacillin Syrup 125 mg/5ml 100ml	Bot	10.83			
	6835030	Gentian Violet Soln. 0.5% / 1% 20 ml	Bot	1.30			
	6835610	Glutaraldehyde Solution 5 L	Bot	22.38			
	6849530	Mercurochrome soln. 1% 20ml	Bot	1.28			

P.H.C. ORDER FORM (4) **November 2005**

ISSUED BY:..... RECEIVED BY:.....

PROVINCE OF KWAZULU- NATAL
DEPARTMENT OF HEALTH

ISIFUNDAZWE SEKWAZULU-NATALI
UMNYANGO WEZEMPILO

PROVINSIE VAN KWAZULU-NATAL
DEPARTEMENT VAN GESONDHEID

REQUISITION FOR SUPPLIES

SUPPLY FROM:

Enquiries Tel.No.

Supply To:

Address:

.....
Signature and Designation of Requisitioning Officer

.....
Signature and Designation of Authorizing Officer

Date.....

Demanders Code	Responsibility Code	Objective Code	Auto/manual req. number

ROQ / PC	Catalog No.	DESCRIPTION		Unit of Issue	Cost	Stock / hand	Stock Reqd	Stock Issued
	6851605	Metronidazole Susp. 200 mg/5ml	50ml	Bot	6.98			
	6851610	Metronidazole Susp. 200 mg/5ml	100ml	Bot	10.26			
	6852430	Multivitamin Syrup	100 ml	Bot	2.59			
	6852810	Nalidixic Acid Syr. 250mg/5ml	100 ml	Bot	33.31			
	6856810	Nystatin Suspension	20 ml	Bot	5.08			
	6860530	Oxymetazoline nasal soln. 0,025%	Paed.	Bot	8.86			
	6824066	Oxymetazoline nasal spray 0,05% Adult		Bot	7.71			
	6862430	Paracetamol Elixer 125mg/5ml	50 ml	Bot	1.09			
	6862830	Paraffin Liquid ml	200	Bot	3.14			
	6863210	Penicillin V Syr. 125 mg/5 ml	100 ml	Bot	3.30			
	6868730	Povidone iodine 10% solution 1L		Bot	17.68			
	6874020	Salbutamol Metered Inhaler	300 dose	Can	13.63			
	6877620	Sodium Chloride 0.9% Nose drops	10ml	Bot	2.63			
	6879820	Spersallerg Eye Drops	10 ml	Bot	4.47			
		OINTMENTS and CREAMS						
	7001510	Amethocaine cream 1%	25 g	Tube	8.73			
	7008490	Lubricant surgical jelly (KY Jelly)	1's	Sachet	0.21			
	7010010	Chlorhexidine obst. Cream 1%	100ml	Bot	10.17			
	7014760	Aqueous Cream	500 g	Jar	3.04			
	7004030	Benzoic Acid Co. Ointment	25 g	Jar	0.64			
	7004230	Benzoyl Peroxide Gel 5%	40g	Tube	19.60			
	7052910	Bismuth Subgall. Co. Ointment	25g	Tube	14.36			
	7009010	Chloramphenicol Eye Ointment	3.5 g	Tube	2.40			
	7011820	Clotrimazole cream	20g	Tube	1.93			
	7056020	Clotrimazole Vaginal Tablet 500mg	1's	CO	9.87			
	7014660	Emulsifying Ointment wide mouth	500g	Jar	9.23			

P.H.C. ORDER FORM (5) **November 2005**

ISSUED BY:..... RECEIVED BY:.....

PROVINCE OF KWAZULU- NATAL
DEPARTMENT OF HEALTH

ISIFUNDAZWE SEKWAZULU-NATALI
UMNYANGO WEZEMPILO

PROVINSIE VAN KWAZULU-NATAL
DEPARTEMENT VAN GESONDHEID

REQUISITION FOR SUPPLIES

SUPPLY FROM:

Enquiries Tel.No.

Supply To:

Address:

.....
Signature and Designation of Requisitioning Officer

.....
Signature and Designation of Authorizing Officer

Date.....

Demanders Code	Responsibility Code	Objective Code	Auto/manual req. number

ROQ / PC	Catalog No.	DESCRIPTION		Unit of Issue	Cost	Stock / hand	Stock Reqd	Stock Issued
	7020018	Hydrocortisone Cream 1%	20g	Tube	4.64			
	7022510	Lignocaine Hcl. Gel 2%	20 ml	Tube	19.62			
	7026020	Methyl Salicylate Ointment	28 g	Tube	0.53			
	7026110	Miconazole oral gel 20mg/gm	30g	Tube	51.58			
	7030020	Nystatin ointment	15 g	Tube	8.34			
	7080020	Paraffin Gauze Dress. 10cmx10cm	10's	Box	21.20			
	7033510	Povidine Iodine Cream 5%	500g	Jar	15.04			
	7033520	Povidine Iodine Ointment 10%	25g	Tube	2.15			
	7043520	Zinc and Castor Oil Ointment	25 g	Tube	0.95			
		MISCELLANEOUS						
	7401020	Bag, Plastic, Condom	1000's	Pack	111.31			
	7401040	Bag, Plastic, Paisley	1000's	Pack	125.74			
	7480020	Frosted Glass Slides	50's	Box	25.65			
		EMERGENCY DRUGS						
	6400730	Acetylcysteine 200mg/ml	10ml	Amp	93.82			
	6401507	Adrenaline (1 – 1000)	1 ml	Amp	1.41			
	6408010	Atropine Sulphate injection 0.5 mg / ml		Amp	0.84			
	6410510	Biperiden inj. 5mg/ml	1ml	Amp	12.64			
	6412040	Calcium gluconate inj. 10%	10ml	Amp	3.07			
	6216230	Captopril tablets 25mg	60's	CO	5.60			
	6620004	Charcoal, activated 50g in 500ml bottle		Bot	36.99			
	6058010	Diazepam inj. 10mg/ml	2ml	Amp	1.96			
	6832820	Fluorescein Sod. Eye drops 2%:0.5ml	20's	Box	168.77			
	6432010	Furosemide 20 mg / 2 ml		Amp	0.77			
	6434220	Glucose Infusion 50%	20 ml	Amp	8.60			
	6061050	Haloperidol inj. 5mg/ml	1ml	Amp	16.59			
	6436520	Hexoprenaline inj. 2.5mcg/ml I.V.	10ml	Amp	9.77			
	6438523	Hydrocortisone Sod. Succ. 100 mg		Vial	6.99			

P.H.C. ORDER FORM (6) **November 2005**

ISSUED BY:..... RECEIVED BY:.....

PROVINCE OF KWAZULU- NATAL **DEPARTMENT OF HEALTH**	ISIFUNDAZWE SEKWAZULU-NATALI **UMNYANGO WEZEMPILO**	PROVINSIE VAN KWAZULU-NATAL **DEPARTEMENT VAN GESONDHEID**

REQUISITION FOR SUPPLIES

SUPPLY FROM:

Enquiries Tel.No.

Supply To:

Address:

.....
Signature and Designation of Requisitioning Officer

.....
Signature and Designation of Authorizing Officer

Date.....

Demanders Code	Responsibility Code	Objective Code	Auto/manual req. number

ROQ / PC	Catalog No.	DESCRIPTION	Unit of Issue	Cost	Stock / hand	Stock Reqd	Stock Issued
	6441532	Insulin soluble 100U/ml 10ml	Vial	54.10			
	6842230	Ipratropine Brom. 0.25mg/2ml U.D.V. 60's	Box	71.75			
	6446520	Lignocaine 1% 10 mg / ml 20 ml	Vial	5.45			
	6446530	Lignocaine 2% 20 mg / ml 20 ml	Vial	5.52			
	6065010	Lorazepam inj. 4mg/ml 1ml	Amp	24.87			
	6447520	Magnesium Sulphate 50% 2 ml	Amp	1.18			
	6457520	Naloxone Neonatal 0.02 mg / ml	Amp	5.91			
	6167010	Nifedipine 5 mg Caps. 10's	CO	1.99			
	6860440	Oxybuprocaine eye drops 0.4%;0.5ml 20's	Box	168.77			
	6468510	Phenytoin inj. 250mg 5ml	Vial	50.16			
	6599800	Post HIV Exposure Starter Pack	CO	16.01			
	6473510	Promethazine Hcl. 50 mg 2 ml	Amp	2.59			
	6481030	Sodium Bicarb. Inj. 8.5% 50 ml	Amp	22.79			

P.H.C. ORDER FORM (7) **November 2005**

ISSUED BY:..... RECEIVED BY:.....

PROVINCE OF KWAZULU- NATAL
DEPARTMENT OF HEALTH

ISIFUNDAZWE SEKWAZULU-NATALI
UMNYANGO WEZEMPILO

PROVINSIE VAN KWAZULU-NATAL
DEPARTEMENT VAN GESONDHEID

REQUISITION FOR SUPPLIES

SUPPLY FROM:

Enquiries Tel.No.

Supply To:

Address:

.....
Signature and Designation of Requisitioning Officer

.....
Signature and Designation of Authorizing Officer

Date.....

Demanders Code	Responsibility Code	Objective Code	Auto/manual req. number

ROQ / PC	Catalog No.	DESCRIPTION	Unit of Issue	Cost	Stock / hand	Stock Reqd	Stock Issued
		DOCTOR INITIATED MEDICINES					
	6202040	Acyclovir 200mg Tabs. 25's	CO	11.25			
	6205820	Amlodipine 5mg Tabs. 30's	CO	19.14			
	7005530	Betamethasone val. Ointment 0.1% 15g	Tube	6.35			
	6116056	Carbamazepine 200 mg Tabs. 56's	CO	9.79			
	6216405	Carbamazepine 200 mg Tabs. 84's	CO	12.96			
	6126014	Digoxin 0.25mg Tabs 14's	CO	1.44			
	6138028	Furosemide 40mg Tabs. 28's	CO	2.21			
	6141028	Griseofulvin 500mg Tabs. 28's	CO	32.54			
	6146042	Ibuprofen 200 mg Tabs. 42's	CO	1.66			
	6441540	Insulin Biphasic (Humulin 30/70) 100U/ml	Vial	54.13			
	6842225	Ipratropium Brom. Metered Inhal.300 dose	Can	29.96			
	6175028	Phenobarbitone 30 mg Tabs. 28's	CO	1.57			
	6175056	Phenobarbitone 30 mg Tabs. 56's	CO	2.20			
	6176080	Phenytoin 100 mg Tabs/Caps 84's	CO	25.19			
	6190028	Spironolactone 25mg Tabs 28's	CO	8.16			

P.H.C. ORDER FORM (8) **November 2005**

ISSUED BY:..... RECEIVED BY:.....

(Source: KZN DOH, 2005d)

Appendix V: Authority under Section 38A of the Nursing Act 50 of 1978

AUTHORITY UNDER SECTION 38A OF THE NURSING ACT (50 OF 1978)

Name of Nurse: _____

Clinic: _____

You are hereby authorised to diagnose and prescribe medicines for the conditions listed in the standing orders of the clinic according to the treatment protocols listed below subject to the limitations imposed by the medicines list of the dispensing licence.

You are to maintain legible, comprehensive clinical notes in the patient file and to complete the drug register required under the licence issued in terms of section 22C (1)(a) of the Medicines and Related Substances Act (Act 101 of 1965) as amended.

Name of Medical Practitioner: .....

Signed at .....**on**.....**day of** .....**20**.....

Signature: .....**Qualifications:** .....

HPCSA No: .....

Address: .....

.....

.....

Tel: (.....) .....

PROTOCOLS:	Mark Relevant protocols
Family Planning	
STI	
Primary Health Care	
EPI	
T B	
Diabetes	
Hypertension	
Travel Medicines	

(Source: DOH, 2001)

Appendix VI: Discounted Cash Flow Statement for the Revised PPP

	2006	2007	2008	2009	2010
Cost of distributing drugs to PHC clinics					
Cost of distribution of chronic medication per patient	734265	770978	809527	850004	892504
Cost of distributing anti-psychotics per patient	342657	359790	377779	396668	416502
10% Handling Fee	1012856	1164784	1339502	1540427	1771491
Initial Capital Outlay	290000				
TOTAL CASH INFLOW	2379778	2295552	2526808	2787099	3080496
3 x Pharmacist salaries @ R17000pm	510000	510000	510000	510000	510000
4 x Pharmacy Assistant salaries@ R9000pm	360000	360000	360000	360000	360000
1 x Admin Clerk	50000	50000	50000	50000	50000
Pension contribution of 6.5%	59800	59800	59800	59800	59800
Skills Development Levy	23798	22956	25268	27871	30805
Regional Services Council Levy	23798	22956	25268	27871	30805
UIF	23798	22956	25268	27871	30805
Training of Pharmacy Assistant (Basic) @ R5000/person	15000				
Training of Pharmacy Assistant (Post Basic) @ R6800/person	20400				
Leasing of warehouse from government	120000	120000	120000	120000	120000
Fittings	20000				
Leasing of 2 vehicles @ 1900/vehicle	45600	45600	45600	45600	45600
Insurance	12000	12000	12000	12000	12000
Tracker	6000	6000	6000	6000	6000
Fuel for approx 1400km/month	6500	6500	6500	6500	6500
Purchase of labelling machine	11600				
Maintenance Plan	6700				
Labels + Thermal Ribbon	3700	4625	5781	7227	9033
Computer 2 @ R3500 each	7000				
Printer	2000				
Fax machine	1800				
Software management fee	5000	5000	5000	5000	5000
Mini tablet packing machine @ R10000 each	10000				
Tablet packets	3800	3800	3800	3800	3800
Stationery	24000	12000	12000	12000	12000
Telephone	24000	24000	24000	24000	24000
Electricity	9600	9600	9600	9600	9600

Water	8400	8400	8400	8400	8400
Banking	2400	2400	2400	2400	2400
Short term debt repayment for initial capital outlay	298337				
VAT	22054	25784	28468	31488	34890
TOTAL CASH OUTFLOW	1715030	1308592	1316685	1325940	1336548

Taxable Profit	664747	986961	1210123	1461159	1743948
Taxation @ 40%	265899	394784	484049	584464	697579
After tax cash flow	398848	592176	726074	876696	1046369
Time value discount @ 12%	0.8929	0.7972	0.7118	0.6355	0.5674
NET PRESENT VALUE = R 2495884	356132	472083	516819	557140	593710

Notes:

i. **Patient numbers are estimated based on workload experienced at PMMH i.e. Number of Outpatients and statistics on number of patients visiting PHC clinics provided by the statistics department at PMMH. A 25% year on year increase in the number of patients visiting PHC clinics is registered since the implementation of the referral system; of which 10% are chronic and 15% are PHC patients. A 5% increase in chronic patients year on year is estimated.**

ii. **Cost of distribution of chronic prescriptions on a per patient basis = R5/patient.**

iii. **Cost of distribution of psychiatric prescriptions on a per patient basis = R7/patient.**

iv. **Expenses are calculated at current rates (2005) on consultation with the relevant suppliers.**

v. **Company contribution for Skills Development Levy, Regional Services Council Levy and UIF (Unemployment Fund) is 1% of annual turnover**

vi. **Company pension contribution is 6.5% p.a. of salaries**

vii. **Warehousing capacity is leased from the government at R50/m^2 for 200m^2**

viii. **Fuel costs are calculated based on approximate distance travelled per year and diesel economy of 7L/100km.**

ix. **PMSC software to be utilised. Monthly management fee is payable.**

x. **Govt levy of 2c per tablet packet is included in the cost of tablet packets**

xi. **Initial capital outlay is required to cover salaries for the first three months and expenses for the first month.**

xii. **Interest for short term debt repayment calculated at current market interest rate of 11.5% for 3 months.**

xiii. **VAT is payable every two months if (OUTPUT ON SALES –INPUT ON EXPENSES)> R150000.**

xiv. **Real Rate of Return= WACC + RISK**

WACC = Cost of Debt = YTM (1 –Tc)
= Current Market Interest Rate/Term Loan Rate (1 – Corporate Tax Rate)
= 0.115-(1-0.4)
= 6.9%

RISK = Business Risk = Degree of Operating Leverage
= (SALES – VARIABLE COSTS) / (SALES – VARIABLE COSTS – FIXED COSTS)
= 0.4818623%
= 0.5%

xv. **The Real Rate of Return (R) was adjusted for inflation (i) using the Fisher Equation to give the Time Value Discount Factor**

Discount Money Rate of Return 1+ M = (1+R) x (1+i)
= (1+0.074) x (1+0.043) = 12%