

**An evaluation of the access to public health care  
for diabetic patients in Zimbabwe**

**Name:** Pardon Masuka  
**Student number:** MSKPAR001

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**Health Sciences Faculty  
University of Cape Town**

**Supervisor:** Prof Di McIntyre  
Health Economics Unit, Department of Public Health and Family Medicine,  
Health Sciences Faculty

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## DECLARATION

This research is my original work, produced with normal supervisory assistance from my supervisor. All the relevant sources of knowledge that I have used during the course of writing this dissertation have been fully credited and acknowledged. Also, this dissertation has not been submitted for any academic or examination purpose at any other university.

Signed by candidate

Pardon Masuka

30/10/08

Date

This research paper has been submitted for examination with my approval as University supervisor for the aforementioned student.

.....  
Diane McIntyre

.....  
Date

## ABSTRACT

Zimbabwe is facing very serious economic challenges including hyperinflation, poor international relations, scarce foreign currency and a crumbling infrastructure. This situation has adversely affected all sectors of the economy, including health care. Resources for health care have significantly dwindled and the population's disposable incomes are very low. However, the burden of disease due to HIV/AIDS, TB, Malaria and Diabetes is increasing unabated. Thus, the current study seeks to determine whether public sector diabetes care services are available, affordable, acceptable and also whether access to care is equitable or not.

A cross sectional design was adopted for this study. Questionnaires were administered to 179 patients who presented at public health facilities in Harare, 15 provider interviews were done, 15 health facility checklists were completed, one Provincial Medical Director completed a questionnaire and three focus group discussions (FGDs) were conducted. Purposive sampling was used for key informant interviews (PMDs) and also, in the selection of FGD participants. For provider interviews, nurses who attended to Diabetics were selected as respondents. All Diabetic patients who presented for care at selected health facilities were interviewed. The study also conveniently selected 10 facilities from high density areas, three from the medium and two from the low density areas for checklists.

Study findings show that the major challenges lie with availability and affordability of care. In summary, there is a shortage of resources such as staff, drugs, equipment and supplies. Patients also face high direct and indirect costs of care due to high drug, food and transport costs. Membership of medical aid seems to be restricted to the richest patients. Moreover, poorest the patients do not belong to any support groups. However, the interaction between patients and their providers is reported to be good. There is a high level of trust between patients and their providers and in addition, patients affirm that providers respect the principle of confidentiality.

Very little can be done in the prevailing economic and political situation to improve access to Diabetes care. Nonetheless, the study recommends lobbying the government for international and political solutions to issues of drugs and staff shortages since they affect many African countries. The City of Harare also needs to introduce innovative human resource management strategies to retain the few available staff. In the short

term, there is a also need for the city to actively seek aid from non-governmental organisations. There might be a need to set up a Diabetes clinic in the long run to act as a centre of research and care.

University of Cape Town

## **DEDICATION**

To God be the glory and my family, their love is no simulation ...

University of Cape Town

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## LIST OF ACRONYMS

AIC	Glycoslated Haemoglobin
BP	Blood Pressure
CBD	Central Business District
CIMAS	Central African Medical Aid Society
CMD	City Medical Director
CSO	Central Statistical Office
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GP	General Practitioner
HIV/AIDS	Human Immuno Virus/ Acquired Immune Deficiency Syndrome
IDF	International Diabetes Federation
KII	Key Informant Interview
LMIC	Low and Middle Income Country
MDG	Millenium Development Goal
NCD	Non Communicable Disease
OAU	Organisation of African Unity
OOP	Out of Pocket
PCA	Principal Component Analysis
PMD	Principal Medical Director
PPP	Purchasing Power Parity
PSMAS	Premier Service Medical Aid Society
RBS	Random Blood Sugar
SES	Socio-economic Status
SSA	sub Saharan Africa
TGE	Total Government Expenditure
THE	Total Health Expenditure
WHO	World Health Organisation
ZDA	Zimbabwe Diabetic Association

# CHAPTER 1

## 1.0 INTRODUCTION

This chapter gives an introduction to the whole study. It provides the context within which the results and recommendations of the study can be understood. Thus, the chapter presents the macroeconomic situation as well as the structure of the health system in Zimbabwe. The following sections are also presented in this chapter: Background to the study, statement of the problem, significance of the study and objectives of the study.

## 1.1 BACKGROUND TO THE STUDY

### Macroeconomic situation

Zimbabwe is situated in the southern part of Africa and shares borders with Mozambique to the East, South Africa to the south, Botswana to the west and Zambia to the North. The country's total land area is 390 759 square kilometers with a total population of about 13 228 000, of which about 64% is rural and 36% urban (WHO, 2008). The median age is 19 years while 39% are under 15 years and 5% are over 60 years. The adult literacy rate is estimated at 89.4% for the period 2000 – 2005. Furthermore, the gross national income per capita (Purchasing Power Parity (PPP), int \$) is 2410 for the year 2000 (WHO, 2008). The country is divided into 10 provinces, 2 being urban and the remaining 8 mainly rural (Fourie and Steyn, 1995).

The economy of Zimbabwe relies heavily on agriculture, mainly the production and sale of tobacco and cotton. Other sectors such as manufacturing and mining also make significant contributions. However, land redistribution has led to dramatic declines in the amount of food produced and also harmed international relations for the country. Currently, the economy can be regarded to be in the intensive care unit. There are massive income inequalities (Gini coefficient of 56.8), the economy is shrinking (-0.8% growth rate from 1990 to 2003) (UNDP, 2005), inflation is over two million percent, foreign currency is scarce and basic infrastructure is crumbling. A Parliament of Zimbabwe (2008) budget review argues that the economy of the country is characterized by:

- Declining economic growth
- Hyper-inflationary environment
- Low levels of savings
- Rising domestic and international debt (Z\$98bn and US\$4.1bn respectively in 2006)
- Declining levels of investment due to declared and undeclared sanctions
- Low productivity levels in key sectors of the economy
- Rising unemployment (more than 80%)
- Poverty, hunger and food shortages , resulting in rising levels of malnutrition
- Lack of essential drugs at public health institutions

However, the budget review paints a more optimistic picture of the future economic situation. Revenue is forecast to be 38% of GDP, expenditure to take up 49% of GDP and the budget deficit to be 11% of GDP. In addition, the economy is forecast to grow by 4% in the budget year 2008/2009 while inflation is set at 1978%. Such a scenario seems to be too optimistic especially considering the price distortions in the economy (Imara Edwards Securities, 2007). Due to a shortage of foreign currency, challenges of drug availability, transport and equipment are likely to persist (Parliament of Zimbabwe, 2008). The exchange rate of US\$1: Z\$30 000 used for the government budget is unrealistic for the current situation in Zimbabwe because of the scarcity of foreign currency and its huge presence of the black market. The very challenging macroeconomic situation presented above has a profound negative impact on all the sectors of the economy, including health care. High inflation and high unemployment have reduced the population's disposable incomes while the public health sector is almost crumbling. Thus, the economy has significantly affected public sector access to health care.

### **Health System Organisation**

Zimbabwe's health system has a variety of services and a well defined referral system. The referral system operates from rural health centres to district/rural/mission hospitals then provincial hospitals and last, referral hospitals. The two largest cities, Harare and Bulawayo, have municipal health structures. In total, the country has a total of 1106 health facilities divided as follows: 371 governmental institutions, 391 rural council

facilities, 88 mission hospitals, 107 municipal institutions, 20 armed forces facilities and 135 private health facilities (Fourie and Steyn, 1995). Staff to population ratios in total are as follows: doctors (2 per 10 000 population), nurses (7 per 10 000 population), pharmacists (<1 per 10 000 population), dentistry personnel (<1 per 10 000 population) and laboratory technicians (<1 per 1000 population) (WHO, 2008). The private sector also has a significant presence in the form of private clinics, private hospitals, home based care facilities and traditional healers.

A general review of mortality rates reveals that the burden of disease in Zimbabwe is relatively lower than the average figures for the African region and those of comparable countries such as Zambia, Malawi and Swaziland except for the adult mortality rate (probability of dying between 15 to 60 years per 1000 population). Swaziland has the lowest maternal mortality rate of 390 deaths per 100 000 live births. Table 1.1 summarises the mortality indicators for Zimbabwe and other countries.

**Table 1.1: Selected mortality indicators**

<b>Indicator</b>	<b>Africa</b>	<b>Zimbabwe</b>	<b>Swaziland</b>	<b>Zambia</b>	<b>Malawi</b>
Infant mortality rate	94	55	112	102	76
Under 5 mortality rate	157	85	164	182	120
Adult mortality rate	425	751	662	616	533
Maternal mortality rate	900	880	390	830	1100

Source: WHO (2008)

The life expectancy at birth for Zimbabwe in 2006 was 43, down from 62 in 1990 while Africa's remained relatively unchanged at 50 years for the period 1990 to 2006. These figures are mainly driven by the burden due to HIV/AIDS, tuberculosis, malaria and non-communicable diseases such as Diabetes. Risk factors for Diabetes include obesity and smoking. The prevalence of obesity among adults aged at least 15 years was 3.9% in 2000 and 19.4% in 2006 (WHO, 2008a). Fifteen percent of adults over 15 years (higher than 10.1% for the African region) and 10.1% (lower than 14.9% for the African region) of those between 13 and 15 years also smoke (WHO, 2008).

Table 1.2 summarises the national health accounts for Zimbabwe and Africa for the years 2000 and 2005. However, more recent figures in the 2008/2009 budget reveal that the country is spending about 13.7% of the total national budget on health. This is a bold step towards the 15% target agreed upon by African Heads of State in Abuja (OAU, 2001). Thus, the expenditure on health is significant although the economy is contracting. Private expenditure on health in Zimbabwe is higher than that of the government and unfortunately, out-of-pocket (OOP) payments make up around 50% of the private expenditure. This places a huge burden of health care costs on the consumers and has been shown to be a regressive financing mechanism. Patients mainly incur OOP payments through user fees at public sector facilities or direct payments to private providers. There seems to be no major differences in health care spending patterns between Zimbabwe and average figures for the African region.

**Table 1.2: National Health Expenditure for Zimbabwe, 2000 and 2005**

Item	2000	2005	2000 Africa	2005 Africa
Total expenditure on health as % of GDP	8.3	8.1	5.8	5.9
General government expenditure as % of total health expenditure (THE)	43.1	44.8	43.7	45.3
Private expenditure on health as % of THE	56.9	55.2	56.3	54.7
General government expenditure on health as % of total government expenditure (TGE)	7.3	8.9	7.6	8.8
External resources for health as % of THE	1.6	20.6	6.8	10.3
Out of pocket payments expenditure as % of private expenditure on health	48.0	52.0	51.7	48.4
Private prepaid plans as % of private expenditure on health	34.1	29.7	38.8	41.2
Per capita total expenditure on health (PPP, int.\$)	179	146	88	112
Per capita government expenditure on health (PPP, int.\$)	77	65	38	51

Source: WHO (2008)

### **Diabetes Diagnosis and Treatment**

Diabetes is a chronic disease that occurs when the pancreas does not produce enough insulin, or alternatively, when the body cannot effectively use the insulin it produces (WHO, 2006). Insulin is a hormone that regulates the level of blood sugar. If diabetes is not controlled, the common result is hyperglycaemia (raised blood sugar) and over time, serious damage to nerves and blood vessels. Two types of diabetes will be discussed in the current study, type 1 diabetes and type 2 diabetes.

Type 1 diabetes (usually referred to as insulin-dependent) is characterized by a lack of insulin production. Patients with this kind of diabetes need daily administration of insulin, otherwise they might die. The symptoms of Type 1 Diabetes include excessive excretion of urine (polyuria), thirst (polydipsia), constant hunger, weight loss, vision changes and fatigue. On the other hand, Type 2 diabetes (usually referred to as non-insulin-dependent) results from the body's ineffective use of insulin (WHO, 2006). This is the most common type of diabetes (comprises 90% of people with diabetes around the world) and mostly a result of excess body weight and physical inactivity. Although the symptoms may be similar to those of Type 1 diabetes, they are usually less marked. Consequently, the disease may be diagnosed several years after onset.

There are quite a number of methods that can be used to diagnose diabetes. Nevertheless, the study will use the fasting blood sugar level as recommended in the WHO (1999) guidelines as the defining criteria for inclusion. WHO defines diabetes as having a fasting blood glucose level of at least 7 mmol/l.

Jamison et al (2006) divide diabetes complications into two groups; acute and chronic. For acute complications, the three main metabolic diseases in Sub Saharan Africa are diabetic ketoacidosis (accounts for 25% of the diabetes mortality in Tanzania and 33% in Kenya), hyperosmolar nonketosis coma (accounts for 10% of all hyperglycaemic emergencies in developing countries) and hyperglycemia. A review by Mbanya and Sobngwi (2003) reports that chronic diabetes complications include cataracts (9-16%), retinopathy (7-52%), neuropathy (6-47%), nephropathy (6-30%) and macroangiopathy (1-5%). WHO (2006) estimates that 10-20% of people with diabetes die of kidney failure and diabetes increases the risk of heart disease and stroke. As such, 50% of people with diabetes die of cardiovascular disease (primarily heart disease and stroke).

Treatment of diabetes depends on whether it is Type 1 or Type 2 and also on complications that may arise. However, in general, treatment involves administration of insulin and oral medication. The aim of treatment is to bring blood glucose levels into the normal range, which is 4 - 6 mmol/l. In Type 1, treatment includes healthy eating, exercise, insulin injections and tablets. The three main categories of treatment for Type 2 Diabetes are diet, exercise and medication. Diet and exercise alone are often all that is necessary to bring blood glucose down to manageable levels. However, sometimes oral medication is necessary. In general, good management entails regular blood glucose monitoring and adjusting treatment accordingly (Diabetes South Africa, 2007). Controlling blood cholesterol and blood pressure are also important components of treatment (Diabetes South Africa, 2007).

### **Diabetes Burden of Disease**

This section analyses the burden of disease due to Diabetes and its related complications, that is, prevalence, incidence, mortality and costs. In terms of costs, it is important to remember that the costs are incurred not only by the patient, but also the carers, family and economy.

The World Health Organization (WHO) estimates that more than 180 million people worldwide have diabetes and forecasts indicate that the figure might double by 2030 (WHO, 2006). However, the International Diabetes Federation's Diabetes Atlas estimates that 194 million people had diabetes in the year 2003, and about two-thirds of these people lived in developing countries (International Diabetes Federation, 2003). According to Diamond (2003), these figures are very conservative due to undiagnosed cases in both developed (one undiagnosed case for each person diagnosed) and developing countries (eight undiagnosed cases for each person diagnosed). Motala (2002) also reports a high proportion of undiagnosed patients, up to 80% in some settings.

A summary of the estimated burden of disease by region is shown in Table 1.3. Although prevalence of Diabetes in developing countries is lower than that of developed countries, it is projected to increase due to lifestyle changes and demographic transition. Moreover, deaths rates due to Diabetes are much higher in developing than developed countries as shown in the section below.

**Table 1.3: Estimated number of people aged 20 to 79 with Diabetes, by region, 2003 and 2025**

Region	Number of people (millions)		Prevalence (percent)	
	2003	2025	2003	2025
Developing countries	141	264	4.5	5.9
East Asia and the Pacific	31	61	2.6	3.9
Europe and Central Asia	26	33	7.6	9.0
Latin America and the Caribbean	19	36	6.0	7.8
Middle East and North Africa	11	23	6.4	7.9
South Asia	46	95	5.9	7.7
Sub-Saharan Africa	7.6	16	2.4	2.8
Developed countries	53	68	7.8	9.2
World	194	333	5.1	6.3

Source: Jamison et al (2006a)

The top five countries with the highest number of people affected by diabetes in Sub-Saharan Africa are Nigeria (about 1.2 million people), South Africa (841,000), the Democratic Republic of Congo (552,000), Ethiopia (550,000), and Tanzania (380,000) (Jamison, et al 2006). The Zimbabwe NCDs Risk Factors Surveillance Report (2005) estimates that the prevalence of Diabetes in Zimbabwe is 1.8% in men and 1.6% in women. However, the same study reported a prevalence of 10.2% using the fasting blood glucose (cutoff level of at least 7 mmol/l).

In 2005, an estimated 1.1 million people died from diabetes globally. It was the 12<sup>th</sup> leading cause of death in 2004 (1.9%) and projected to increase to 3.3% (7<sup>th</sup> leading cause) in 2030. The International Diabetes Federation (2006) reports that Diabetes was expected to cause 3.8 million deaths in 2007. This represents 6% of total global mortality, similar to HIV/AIDS and translates to more than 25 million years of life lost in each year. According to the International Diabetes Federation (2006), an additional 23 million years of life are lost because of disability and reduced quality of life due to Diabetes complications. Unfortunately, mortality from diabetes is very high in low and middle income countries where 80% of the deaths occur. Of these deaths, nearly 50% of occur in people under the age of 70 years and is also skewed against women (55% of diabetes deaths are in women) (WHO, 2006). Thus, there are disparities in the

distribution of Diabetes burden by gender and age group. The fact that those who die are still in the economic age presents challenges to the affected countries' human capital.

Treatment of diabetes and its complications imposes huge economic consequences on individuals, families, health systems and countries. The total global expenditure for treatment and prevention of Diabetes and its complications for 2007 was US\$232 billion and estimated to exceed US\$302.5 billion in 2025 (International Diabetes Federation, 2006). In the poorest countries, patients and their families have to bear almost all the costs of Diabetes management on their own. For Latin America, patients pay 40-60% of Diabetes costs out of pocket while in India, patients spend an average of 25% of their income (International Diabetes Federation, 2006). In addition, taking care of a Diabetic takes valuable time which could be used for education, paid work or other money generating activities. Apart from costs incurred in its management, Type 1 Diabetes has a significant impact on patients' survival. Kengne and Mbanya (2006) report that an insulin requiring patient in Zambia lives an average of 11 years, 30 months in Mali and 12 months in Mozambique.

## **1.2 PROBLEM STATEMENT**

Diabetes in sub Saharan Africa (SSA) is reckoned to be a very serious condition with poor prognosis. Mortality rates are very high, especially in poor countries due to inadequate infrastructure and equipment as well as inadequate drug supplies (Mbanya, 2003). Moreover, it presents a huge economic burden on patients, families and economies. Most of the families pay for Diabetes care out of their own pockets. WHO (2008) reports that about 2.8% of the world's population faces financial catastrophe because they pay out-of-pocket to finance health care.

Diabetes is increasing faster in developing countries than in developed ones (International Diabetes Federation, 2006). Thus, developing countries will bear most of the financial burden in the future. This is besides the fact that poor countries also face a high burden of disease due to HIV/AIDS, tuberculosis and malaria. Diabetes mainly affects people aged between 35 and 64 years, thus affecting them when they are still economically active. However, the disease is not yet being considered a major health problem in SSA, even though it places a huge burden on the population and the health

system. Consequently, access to Diabetes care in Africa is not available to many of those who need it (Kengne and Mbanya, 2006). Thus, despite huge economic costs, diagnosis and basic health care for the disease are not available.

A lot of studies have been carried out to assess the economic costs of Diabetes care and availability of care, especially insulin supplies. Insulin is both expensive and unavailable in the majority of low and middle income countries (LMICs) (Kengne and Mbanya, 2006). Unavailability of Insulin is common in countries such as Ghana (Amoah et al, 1998) and Papua New Guinea (Lesley, Manning and Ogle, 2001). Besides insulin, the majority of LMICs lack adequate infrastructure, Diabetes care staff and hypoglycaemic drugs. Moreover, equipment for basic care and supplies for tests are also lacking in African countries such as Ghana, Ethiopia, Mali, Mozambique and Zambia. These conditions result in patients defaulting from treatment and thus poor health outcomes. The short consultation times due to the heavy workload on the available staff has also reduced time for patient education. Thus, the current study evaluates access to public sector Diabetes care in Harare. The study also aims to establish whether access to care is equitable or not.

### **1.3 OBJECTIVES OF THE STUDY**

This study aims to evaluate access to public sector health care for diabetic patients in Harare. The objectives of the study are:

1. To determine the availability of health care services for diabetes patients.
2. To determine the acceptability of health care services for diabetic patients.
3. To determine the affordability of health care services for diabetes patients, including an assessment of how patients finance health care costs.
4. To determine whether access to health care is equitable for diabetic patients.
5. To recommend ways of improving access to diabetes management services.

### **1.4 JUSTIFICATION FOR THE STUDY**

Numerous studies have been carried out to assess availability and economic costs of health care for Diabetics in many different countries. However, most of the studies have separately focused on either availability or affordability of care. Thus, the current

study adds acceptability to care since it has been neglected in most studies. Moreover, the study assesses the interaction between the three components of availability, affordability and acceptability.

It has also been demonstrated that the burden of disease due to Diabetes will increase faster in developing than developed countries. Ironically, developing countries have fewer resources to cope with the disease. Furthermore, the disease is not being prioritised in SSA despite the mortality and lost economic opportunities (Kengne and Mbanya, 2006). The rates of mortality and costs incurred due to the disease suggest more should be done because most of them are preventable. Therefore, the current study seeks to determine whether access to care is equitable and suggest ways of solving the challenge.

The majority of studies on Diabetes have focused on Type 1 Diabetes and thus, insulin access. However, besides the fact that Type 1 Diabetics incur more costs and face shorter lifetimes than their Type 2 counterparts, the latter is more prevalent in most countries. Thus, the current study assesses access to care for both Type 1 and Type 2 Diabetes patients in Zimbabwe. The Diabetes declaration (International Diabetes Federation, 2008) states that all people should have the opportunity to access high quality and affordable services, medications and supplies to optimise the outcomes of their Diabetes. Therefore, this study evaluates the extent to which Diabetes patients have access to care in Harare.

No known study on access to Diabetes care has been done in Zimbabwe. Although studies have been done in comparable countries such as Mali, Mozambique and Zambia, the macroeconomic situation in Zimbabwe has worsened over the years. Moreover, the studies have focused on insulin access and not access to health care in general. Thus, it is necessary to carry out this study because it focuses on generic availability of Diabetes supplies, staff, equipment, costs incurred, ability to pay and acceptability of care.

It is envisaged that the results of the study will be useful in highlighting the major access issues for Diabetes care in Harare. Results of the study could be useful for planning authorities in the Ministry of Health and City of Harare health directorate. Moreover, the findings can be used to lobby for assistance in the provision of Diabetes

care since the study was carried out scientifically. The study also adds to the academic body of knowledge on access to Diabetes care in poor countries. Patients, their families and the economy of the country might benefit from the recommendations of the study.

### **1.5 SCOPE OF THE STUDY**

The study considered all individuals with Type 1 and Type 2 Diabetes. Permission was sought from the parent or guardian if the respondent was below 18 years, the legal age of majority in Zimbabwe. Only patients who have at some time sought care in City of Harare health facilities were included in the study. Individuals suffering from gestational diabetes were excluded.

### **1.6 ORGANISATION OF THE STUDY**

The rest of this report is organised as follows:

**Chapter 2** reviews literature that is relevant for the current study. The chapter presents both theoretical and empirical literature on access to health care in many different countries.

**Chapter 3** describes how the current study was carried out in terms of the study design, sampling procedures and the actual data collection process.

**Chapter 4** analyses the findings of the study in terms of availability, affordability and acceptability of care.

**Chapter 5** discusses the main access issues from the results chapter. It links study findings to what has been reported in other countries.

**Chapter 6** summarises the major conclusions of the study and also gives recommendations on how to solve the issues raised.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.0 INTRODUCTION**

Access to health care is a topic that has received considerable attention in the literature as well as government policy documents. Nevertheless, operationalisation of the concept has proved a daunting task for most researchers. A lot of researchers have given conflicting definitions of the concept. To add more confusion, the majority of empirical studies carried out actually use utilisation as a proxy for access, although it is widely believed that access is not the same as utilisation. Use of utilisation seems to be a way of dodging the problem of defining access. In the same vein, most studies have only considered one or more components of access instead of the whole concept. Consequently, the present study attempts to develop an operational definition of access and use it to evaluate access to public sector care for Diabetics in Zimbabwe. Moreover, the study seeks to determine whether access to health care is equitable or not. Relevant literature on access to health care and equity of access will be reviewed before a conceptual framework for the study is developed.

In general, this chapter mainly consists of a review of the theoretical underpinnings of access, empirical literature on access and a conceptual framework at the end. The first section of the chapter focuses on access. Thus, it explores the different definitions of access put forward by different researchers before choosing the most plausible one. The different dimensions of access are also discussed before considering how this concept can be measured in practice. It is very important not to lose sight of the objectives in the development of this literature review. The objectives of the study are to determine the: availability, affordability and acceptability of services and whether access to health care is equitable or not. Therefore, another section focuses on another 'controversial' concept, equity. First, the philosophical foundations of equity are discussed. Second, the chapter reviews the available definitions of equity and how equity of access can be measured. The last section is the conceptual framework of the chapter and mainly spells out how access will be evaluated.

## **2.1 ACCESS**

### **2.1.1 DEFINITIONS OF ACCESS**

There is a general consensus that access is an ill defined concept and thus, difficult to measure and operationalise. Some authors equate it with one or more of the access-related concepts (affordability, availability, accommodation, accessibility and acceptability), while others argue that it is either a supply side or demand side concept. Goddard and Smith (2001) see access as a 'purely' supply side issue and thus contend that equal services should be availed to patients in equal need (horizontal equity). Such a definition focuses on the health system and totally ignores patients (the demand side). However, Thiede et al (2007) argue that access is both a supply and demand side concept. More plausibly, access is defined by Penchansky (1977) and Penchansky and Thomas (1981) as the degree of fit between clients and the health system. They also argue that access comprises of five major dimensions, namely: availability, affordability, accommodation, accessibility and acceptability.

Availability relates the volume and type of services relative to clients' levels and types of need (Penchansky, 1977). It includes determinants of availability such as providers' policies on the scope of the services they offer to their clients and is most often associated with supply, with or without concern for need. On the other hand, affordability relates prices of services, providers' acceptable forms of payment with clients' income and ability to pay. Penchansky (1977) contends that the affordability concept is narrow and belongs to the field of economic analysis.

Accessibility is the relationship of location of supply with that of clients, their transportation resources and perception of travel time, distance and cost. Moreover, accessibility relates providers' transportation resources and perception of travel time, distance and cost in moving to clients relative to the location of demand (Penchansky, 1977). In the same vein, Freeborn and Greenlick (1973) also relate accessibility to distance and location factors.

Penchansky (1977) defines accommodation as the relationship of the manner in which supply resources are organised to accept clients in terms of appointment systems, hours of operation, and an existing patient-provider relationship with the ability to accommodate these factors and the perception of their appropriateness.

Finally, acceptability spells out how providers' attitudes about personal characteristics of clients (age, sex, race and so on) relates to clients' attitudes about acceptable personal and practice characteristics of providers (sex, ethnicity, race and so on) (Penchansky, 1977). Penchasky argues that acceptability only deals with attitudes and is related to the field of social psychology. According to the Discursive Dictionary of Health Care (U.S. House of Representatives, 1976), acceptability is an individual or group's overall assessment of medical care available to them in terms of costs, quality, convenience of care and provider attitudes.

McIntyre et al (2007) revised Penchansky's model by describing access as an interaction between three main dimensions: availability, affordability and acceptability. They combined the three concepts of accommodation, accessibility and availability to form one component, availability. The following section thus explores these three dimensions.

## **2.1.2 DIMENSIONS OF ACCESS**

### **2.1.2.1 Availability**

Availability is concerned about whether health services are there when patients need to use them (McIntyre et al, 2007). Thus, it is important to determine the degree of fit between location of health facilities and the location of the people who need the services. Another component of availability is whether providers have the capacity and willpower to bring services to those who need them. Hours of service, quantity and quality of services, staff availability and drug and equipment supply are also vital components of availability. However, McIntyre et al (2007) argue that health facilities' opening hours and drug supply seem to be forgotten aspects. In fact, most researchers focus on only one component of availability, namely accessibility or geographic access. Consequently, this study collects data on hours of opening and convenience to those who need the services as well as drug supply in public health institutions to present a more comprehensive evaluation of availability.

A study on access to Diabetes care in northern Ethiopia (Alemu and Watkins, 2004) reports that the majority of rural Diabetics travel more than 40km to reach the nearest hospital, with others travelling more than 180km. In Nigeria, 53% of patients who once suffered from heart attack defaulted on their treatment because of factors such as

poverty and difficulty reaching the medical centre (Alemu and Watkins, 2004). Thus, some patients do not access health care due to these long distances. The current study uses travel time as one of the measures of accessibility. Travel time is a more realistic measure of the costs associated with reaching a health facility (Rosero-Bixby, 2004). It thus gives an indication of the opportunity cost of seeking health care.

In Ghana, a study was carried out to assess the following availability factors: number of doctors and nurses per facility, number and types of health care personnel, clinical equipment for Diabetes care, drug supplies, existence of Diabetes associations, laboratory tests provided and the number of Diabetes patients seen per week (Amoah et al, 1998). The study was carried out at five provincial hospitals in the country. Out of the five hospitals, two of them had erratic insulin supplies. All the interviewed facilities did not offer formal individual education sessions. Furthermore, none of the facilities had a trained Diabetes educator. Except for sphygmomanometers, basic equipment was reported to be lacking. Besides the fact that none of the facilities had an educator and only two had eye specialists, staff was inadequate at all levels of care. The findings of the study are still relevant although the current study was done at primary health care facilities. It indicates low staffing levels, unavailability of insulin and lack of basic equipment.

A related study in Papua New Guinea documented the number of professionals trained in Diabetes management, availability of insulin and hypoglycaemic drugs as well as testing for complications (Lesley, Manning and Ogle, 2001). Lesley et al (2001) conclude that insulin and hypoglycaemic drugs are generally available. However, the glycosylated haemoglobin (A1c) test was only offered in 1 out of the 16 hospitals that were surveyed. Furthermore, there were staff shortages since these hospitals only had 3 trained educators, 1 dietician and no specialist endocrinologist. These staffing resources are necessary at the hospital level. Diabetes care services were also reported to be limited.

In a review of Diabetes management in Africa, Kengne and Mbanya (2006) argue that there was shortage of Diabetes care staff due to the brain drain. They also argue that there is inadequate equipment for diagnosis and treatment of Diabetes. Furthermore, the International Insulin Foundation (2005) bemoans the shortage of equipment as well as reagents and consumables. In that regard, they report that public health facilities in

Mali, Mozambique and Zambia have very few syringes. The fact that these syringes are usually bought from the private sector where they are more available raises affordability concerns because they will be expensive. On the same issue of tests, Beran et al (2005) argues that only 6% of Mozambican facilities had the necessary items to do a blood glucose analysis compared with 25% in Zambia. Thus, factors such as personnel, equipment, laboratory tests and drug supplies will form part of the availability component for the current study.

According to the International Insulin Foundation (2005), access to insulin in Africa is very low. In a survey on hospitals in 25 African countries, Beran et al (2005) assert that half of them do not have insulin. In the same vein, WHO (1999) also confirms that half the world's population have little access to essential drugs. Thus, if insulin is not available in hospitals, then the situation might be worse in small primary care facilities. Without being rigid, the following table summarises basic equipment which should be available according to level of care.

**Table 2.1: Equipment required for Diabetes care**

	<b>Primary</b>	<b>Secondary</b>	<b>Tertiary</b>
<b>Equipment</b>	Scale and tape measure	Blood glucose strips	Ophthalmoscope and Snellen charts
	Syphymomanometer with different cuff sizes	Blood glucose meters	
	Urine strips	Tuning fork	
	Diabetes education materials	Patella hammer	
		Cotton wool and disposable pins	

Source: SENDSA (1997)

The International Insulin Foundation (2005) summarises the availability of diagnostic tools in Mali, Mozambique and Zambia at different health facilities visited (see Table 2.2). Weighing scales and sphygmomanometers were the most available across the three countries. On the other hand, ketone strips and Snellen charts were relatively unavailable. Compared to the other two countries, Mozambique seemed to have fewer supplies and equipment while Zambia seemed to be the best.

**Table 2.2: Availability of diagnostic tools in Mali, Mozambique and Zambia**

<b>Country</b>	<b>Presence of urine glucose strips</b>	<b>Presence of ketone strips</b>	<b>Presence of glucometer</b>	<b>Sphygmo manometer</b>	<b>Weighing scales</b>	<b>Snellen charts</b>	<b>Tendon reflex hammer</b>
Mali	54%	13%	43%	89%	100%	10%	55%
Mozambique	18%	8%	21%	53%	89%	24%	60%
Zambia	61%	49%	54%	99%	71%	53%	48%

International Insulin Foundation (2005)

#### **2.1.2.2 Affordability**

McIntyre et al (2007) define affordability as the relationship between full costs to patients and patients' ability to pay for needed health services. Thus, it is quite a broad concept with a number of elements. Ability to pay depends on the amount of costs patients are capable of bearing, ability to raise funds, employment status, cash savings, asset profile and extent of social networks. It is also necessary to consider demands on the household budget and acceptable forms of payment to the provider. Some households might be driven into poverty because of high medical costs, a phenomenon commonly referred to as the 'medical poverty trap'. Relevant literature on affordability places too much emphasis on the impact of insurance cover on utilisation. However, this study will examine the costs patients face and different strategies for coping with the payments.

##### **2.1.2.2.1 Health care costs and coping strategies**

Health care costs can be a considerable burden for households. McIntyre and Thiede (2003) reviewed studies on direct and indirect costs incurred by households due to illness as well as strategies for coping with them. Direct costs are defined as the amount of resources used by households to manage a person with a disease. On the other hand, indirect costs relate to the cost of time spent managing the disease instead of other productive activities (McIntyre and Thiede, 2003). For this study, direct costs include

consultation, drug and transport expenses while indirect costs refer to lost time due to visiting health facility.

Governments spend significant amounts of money in providing Diabetes care to their citizens. The United States of America spent 11.9% of its total health expenditure on Diabetes patients in 1992 (Herman et al, 1997). In Tanzania, 8% of government health expenditure is attributable to Diabetes (Chale et al, 1992). Direct medical costs consume between 6.3 and 7.4% of total public health expenditure in Spain (Oliva et al, 2004). Villareal-Rios (2000) reports that Mexico spends about 0.79% of its GDP on Diabetes care provision. Average annual costs of Diabetes care in different countries are summarised below.

**Table 2.3: Costs of Diabetes care**

<b>Country</b>	<b>Average annual cost of care</b>
United States (Chale et al, 1992)	\$US708
Tanzania (Chale et al, 1992)	\$US103 (30% of this amount was for treatment of complications)
Mali (Chale and McLarty, 1997)	\$US229 (70% of this amount was for insulin supplies)
Sudan (Elrayah et al, 2005)	\$US283 (33% was spent on insulin supplies)
Cameroon (Mbanya and Mbanya, 2003)	\$US489 (33.5% was for drugs)

McIntyre and Thiede (2003) conclude that medical expenses can push many households in low and middle income countries into poverty. Previous studies reveal that direct costs range between 2.5 and 16% of household income, with a median estimate of 5.55% (McIntyre and Thiede, 2003). The major direct costs are: drugs (33% of all direct costs in Sri Lanka; Russell, 2001), transport (14% of direct costs for Malaria care in Ghana; Asenso-Okyere and Dzator, 1997), unofficial fees (up to 72% of average monthly income among low income groups in Bangladesh; Killingsworth et al, 1999) and other direct costs (18% in India for chronic filariasis, Babu et al, 2002).

More specifically for Diabetes, Kengne and Mbanya (2006) report that caring for a Diabetic patient in Bamako, Mali costs about 70% of the family's income per month. In Tanzania, outpatient care for a Type 1 Diabetic costs the equivalent of 6 months of a family's income. Thus, families spend significant amounts of resources on taking care of Diabetic members. Chale et al (1992) claim that many patients might die if they do not get any assistance in paying for Diabetes care. This is mainly due to the fact that

most of them pay for their expenses out-of-pocket (OOP). Songer et al (1997) argues that families affected by Type 1 Diabetes pay 5.6% of their household income out-of-pocket compared to 3.1% for those who are not affected. In the same vein, studies in India (where the poorest Diabetics spend about 25% of their income on private care) and New Zealand (Simmons et al, 1999) also reveal high out of pocket payments. Latin American families also pay between 40 and 60% of their costs for Diabetes care out-of-pocket (International Diabetes Federation, 2006).

Indirect costs associated with diseases have received much less attention than direct costs (Holmes et al, 2003). Although indirect costs are not estimated in the majority of studies, some researchers assert they exceed direct costs (2 to 3.6 times more than direct costs) (Asenso-Okyere and Dzator, 1997). Previous studies summarised in McIntyre and Thiede (2003) reveal that the ratio of indirect to direct costs ranges from 0.4 to 3.6 with a median estimate of 2.1. In the case of chronic diseases such as Diabetes, indirect costs can be very high. Diabetics need someone to accompany them whenever they seek care, resulting in lost time for both the patient and the carer. Holmes et al (2003) report significant lost earnings to both the patient and the carer. Patients and carers aged less than 65 years lose £900 and £1300 respectively per annum. Type 1 Diabetes mainly affects the 35-64 year age group in developing countries (International Insulin Foundation, 2005). This age group is mostly made up of economically active individuals, thus inflicting damage on the economy.

From an equity perspective, both direct and indirect costs tend to fall heavily upon two groups, low income households and women. Rugalema (1998) reports that while male AIDS patients lost 297 days of productive time over 18 months, women lost 429 days. In Thailand, Pannarunothai and Mills (1997) estimate annual direct costs at 21.2% of annual household income in the lowest quintile and 2.1% for the highest income quintile. Therefore, groups related by gender, age and income might be relevant for comparison in order to assess equity.

It is important to assess whether patients and their families are able to pay for the health care costs that have been mentioned above. Factors which affect ability to pay include the magnitude of the costs to be borne, ability to raise funds, employment status, cash savings, asset profile and extent of social networks. Insurance coverage is also a major determinant of ability to pay (Zgibor and Songer, 2001). The fact that most patients pay

out-of-pocket and are impoverished means they are less able to pay for the costs of Diabetes care. Zgibor and Songer (2001) argue that the Pittsburgh Epidemiology of Diabetes Complications (EDC) population mainly cited high costs as the reason why they did not seek needed care. Thus, they assert that poor patients are more likely to forgo care and to have no insurance. They are also less likely to have good health, implying that they have greater need for health care. In the interests of equity, such patients should access care more than those who report good health.

Households use a combination of mechanisms when faced with high medical expenditure. These mechanisms are commonly referred to as 'coping strategies' and stem from research on household responses to food shortages (Davies, 1993). Some of these strategies include (McIntyre and Thiede, 2003): use of available cash, mobilisation of savings, reductions in food consumption, sale of assets, borrowing from friends and relatives and diversification of income. However, borrowing is the most common coping strategy. In a study of HIV/AIDS affected households in Harare, Mutyambizi (2002) reports that the majority of households used borrowing while a few used savings and medical insurance to cope with costs of the disease. Depending on the structure of households, some of these strategies are not sustainable and may lead to impoverishment. The current study will also explore the coping strategies that families use when faced with medical expenses.

Closely linked to coping strategies such as borrowing from friends and relatives is the concept of social capital. Mutyambizi (2002) argues that households can access health care resources through their social assets. Social capital is the aggregate potential resources which can be accessed through mutually recognised relationships (Bourdieu, 1985). In the same vein, Coleman (1988) describes social capital as a resource acquired through relationships with other individuals. Thus, the study will assess the impact social capital has on affordability of health care to patients.

### **2.1.2.3 Acceptability**

The acceptability dimension of access explores the interaction between patients' and providers' attitudes towards each other (McIntyre et al, 2007). In that regard, the major patient variables that might affect providers' attitudes include age, gender, race and relative position in the social hierarchy. On the other hand, patients' attitudes towards

providers are shaped by variables such as age, gender, years of experience and whether he/she is a nurse or doctor.

Hausmann-Muella et al (2003) define acceptability as the 'social and cultural distance' between the health system and its clients. Acceptability can be divided into three main elements: patient-provider communication, the fit between patients' and professional health beliefs and organisational arrangements (Gilson, 2007). Patient-provider communication is concerned with patients' and providers' attitudes and communication practices towards one another. Thus, patients might feel more comfortable with consulting a provider with whom they share something in common, for example, somebody who comes from their home area. Patient trust is also affected by the language used by providers, maintenance of confidentiality and whether patients are treated equally. On the other hand, patients need to have a positive perception about their providers and should be willing to communicate with them. Any mismatch in attitudes between patients and providers will harm the care seeking process. Jacobs et al (2006) contend that acceptability and trust problems may be associated with a patient not being willing to give full information about their medical history to providers, thus making diagnosis and treatment difficult.

Patients' understanding of the causes of disease and ways of treating them affect their care seeking behaviour. This might cause some to prefer traditional or faith healers if they believe the disease is caused by evil spirits. Kengne and Mbanya (2006) affirm that traditional leaders are major actors in the health systems of Mali, Mozambique and Zambia. Provider choice and trust are also affected by the population's perceptions about availability of drugs and staff. For example, some patients might not attend public care facilities because of actual or perceived shortage of drugs to treat their conditions. Therefore, there has to be a match between patients and providers health beliefs if patients are to trust them. The patient perspective (in terms of language, culture and preferences) might be vital in the design of health care systems.

Patients' perceptions of disease are now argued to be based on their day to day experiences, as opposed to an earlier model suggested by Parsons (Lawton et al, 2005). Parsons' model placed all the emphasis on providers' knowledge and authority. To him, all patients have to do is follow providers' instructions. However, this model had been critiqued for three major reasons. First, it is more appropriate for acute as opposed to

chronic conditions such as Diabetes, the centre of focus in this study. Second, the principle of patient empowerment advocates for a patient to be an independent entity who can manage his/her condition. WHO (1978) defines patient empowerment as enabling people to have more control over their health. Third, patients spend most of their time on their own and with their families. Thus, the time they interact with the health care system is a little part of their life. The principle of patient empowerment places the onus on patients and their families to take care of their health, that is, adapt their lifestyle, take their tablets and inject themselves with insulin whenever necessary.

The importance of patient perceptions in health care can never be overemphasised. Perceptions affect the care process, the utility patients can derive from health care and adherence to treatment. There is a reported to be poor adherence to treatment by Type 2 patients in the United Kingdom because of patients' desire to socialise with others and live a 'normal' life (Kelleher, 1988). Socio-economic status has a huge impact on people's perceptions about their conditions and how they can be treated or managed. Some patients default on their treatment because they do not view it as a potentially serious condition. Thus, the health care system needs to educate patients on the risks of premature death and complications due to non-adherence.

Provider-patient interaction also affects whether patients are satisfied with the health system or not. Satisfaction with care depends on factors which can be grouped into patient related factors, physician factors and health system factors (Thiedke, 2007). Patient related factors which affect satisfaction include age, gender, SES and health status. Previous studies reveal that older patients are more satisfied with care than younger ones, maybe because of lesser expectations. However, results for gender are contradictory; some show that males are more satisfied with care while others show the opposite. For SES, individuals who are poorer and less educated tend to be less satisfied than those who are richer and more educated. This might be because they can not afford more expensive care which is more likely to be of higher quality. Moreover, patients whose disease is poorly controlled express less satisfaction with care compared to those who feel they are managing their disease well.

On the other hand, factors from the physician side also affect patient satisfaction. Research shows that as visit length increases, so does satisfaction. Thus, overloaded

health systems tend to generate dissatisfaction because staff has more work to do and consequently, consultation time is reduced. In addition, patients feel more satisfied and adhere to treatment if providers are less dominant in their consultations (Thiedke, 2007). Providers also need to know what patients expect from them if they are to maximise satisfaction. Thus, it is vital for providers to elicit patient expectations during consultation.

Besides patients' demographics and providers' characteristics, patient satisfaction is also affected by health system factors (Thiedke, 2007). Patients value compassion, willingness to help and providers' promptness to assist them. In addition, patients who consult their providers for long periods of time are more satisfied with care. This might be because they get to know and trust each other over time. Also, patients treated with dignity and who are involved in decisions about their health are more satisfied and adhere to providers' recommendations. Thus, it is important for providers to treat patients with respect and dignity.

The third element of acceptability concerns the effect of organisation and administration of health care on patient responses. Thus, responsiveness and the referral system might generate patient trust in their providers. On the other hand, offering limited services might result in patients not trusting their providers. In addition, patients should perceive that the providers will always act in their best interests, and not be concerned with money only (Gilson, 2007). Thus, the extent to which the Hippocratic oath is observed might well shape patient responses to care. Another factor that supposedly limits patients' access to Diabetes care in sub Saharan Africa (SSA) is that health systems are more suited to acute rather than chronic care (International Insulin Foundation, 2005). Thus, Diabetes care is not being prioritised and instead, there is major focus on communicable diseases. However, this might be justified by the relative burdens placed by different health conditions.

Thiede (2005) explores the relationship between information and access to health care. An interactive exchange of information between the health system and the community is postulated to improve access through creating trust (Thiede, 2005). Basically, health information creates health knowledge and stimulates access by expanding a patient's choice set and also giving them autonomy in choosing. It is important to emphasise that

the information should be easy to understand, true, adequate and trustworthy to have a positive effect.

However, the effectiveness of the information depends on the level of trust. Thus, information might have no effect if it is not trusted and trust is defined as a state of the mind in which an individual expects the one he/she interacts with to act in a way that benefits him/her (Thiede, 2005). It can thus be argued that trust not only facilitates communication but also helps build social capital, the “glue that keeps communities together” (Serageldin and Groontaeert, 2000:44).

In a nutshell, acceptability incorporates patients’ and clients’ attitudes, perceptions, opinions and beliefs. However, McIntyre et al (2007) lament the neglect of acceptability in empirical studies. Therefore, this study also measures the level of acceptability of health care services.

According to McIntyre et al (2007), access involves the interaction between availability, affordability and acceptability. In that regard, Gilson (2007) brings out the link between acceptability and affordability. Gilson argues that lack of trust in public facilities might result in some poor people using private health facilities. However, more often than not, these facilities are more expensive and eventually, the families might be impoverished as explained above under health care costs and coping strategies. It is not enough to consider whether the population has access. There is also a need to consider whether equity of access to health care exists among all sections of the population. The following section discusses the concept of equity as it applies to access to health care.

## **2.2 EQUITY OF ACCESS**

The current section seeks to explore the philosophical foundations of equity, the different definitions suggested and also ways of measuring this concept. In addition, need as a fundamental concept of equity will also be defined.

### **2.2.1 PHILOSOPHICAL FOUNDATIONS OF EQUITY**

It is very important to explore the philosophical foundations of equity before attempting to define it. In general, three basic theories cited in Gilson (1998) shall be discussed; utilitarianism, Rawlsianism and egalitarianism. Utilitarianism is concerned with maximisation of aggregate benefits with resources or achieving the greatest good for

the greatest number (Gilson, 1998). Rawlsian theory, on the other hand, advocates for provision of a decent minimum level of goods and services. The third one, egalitarianism promotes the idea of putting the needs and interests of the poor and most vulnerable at the forefront. This theory is based on the premise that these peoples' health status is not a matter of choice, but mostly beyond their control. Thus, Whitehead (1990) argues that health inequalities result from differences between groups that are unnecessary, unfair and avoidable. Egalitarians therefore advocate for active involvement of the poor and vulnerable in policy formulation and development.

The utilitarian approach is criticised by egalitarians because it does not explicitly consider the plight of the poor and vulnerable. In fact, their major concern is with aggregate health gains which can be achieved while the poorest improve slightly or do not gain anything. On the other hand, the Rawlsian goal of an absolute minimum standard of health care for the poor is regarded as inadequate because it maintains the *status quo*. Access to health care might remain high among the richer sections of the population while the poor remain in their relatively worse situation. In light of these considerations, this study adopts the egalitarian approach of recognising the plight of the poor and vulnerable members of the population and thus, prioritising their needs so that they can have increased access to health care compared to their richer counterparts.

This study also briefly discusses the principles of procedural and distributive justice. Debate on these principles emanates from the view that equity is based on distributive justice. Although the distribution of benefits (distributive justice) is important, people derive social value from belonging to a community and having quality relations with others in the community (procedural justice) (Gilson, 1998). Mooney (1996) supports this position by arguing that individuals attach value to active participation in decision making in their communities. Therefore, it is important to promote social capital to achieve an egalitarian society in health terms (Wilkinson, 1996).

### **2.2.2 DEFINING EQUITY**

Despite the vast literature on equity, an accurate definition for this concept remains elusive. Researchers seem not to agree on an operational definition of equity which can be used to monitor it. McLachlan and Maynard (1982) argue that equity, like beauty, is in the eyes of the beholder. Without defining it, Mooney (1983) argues that equity is related to the distribution of something across different individuals or groups in a

population. In general, there is agreement that the assessment of equity boils down to a value judgement. It is also agreed that inequity is different from inequality. On the one hand, inequality is concerned with differences between certain groups while on the other hand, inequity judges whether the differences are fair or justified.

In light of the confusion surrounding the definition of equity, Mooney (1983) suggests seven possible definitions of equity; equality of expenditure per capita, equality of inputs per capita, equality of input for equal need, equality of access for equal need, equality of utilization for equal need, equality of marginal met need and equality of health. Thus, the following section discussed the definitions of equity suggested by Mooney.

Equality of expenditure per capita suggests an equal distribution of the budget taking into consideration the relative size of groups for which equity is being pursued. Thus, budget allocation depends on the size of the population. On the other hand, equality of inputs per capita moves a step further and makes allowance for differential prices in different areas or regions. Therefore, the resources which can be purchased with the allocated expenditure should be the same per capita. Equality of input for equal need takes need into account and argues that the level of resources allocated should be related to the relative need for them. In this case, factors such as morbidity and population profile define need. To make allowance for differential costs facing different groups, equal access for equal need is defined as equal costs to patients. This definition is an adjustment of equal input for equal need.

Equal utilisation for equal need is the same as equal access for equal need, provided the whole population has the same preferences, information and tastes. However, it is clear that these attributes differ, thus equal utilisation seeks to discriminate positively in favour of members of the population who are less willing to utilise health care. A sixth definition suggested by Mooney (1983) is equality of marginal met need. This definition argues that equity is achieved if every region, with its budget constraints, is just able to meet the same marginal need. In this case, it is assumed that regions rank their needs in order of priority and that the order of this ranking is similar across all regions. The last definition, equality of health, considers the ultimate goal of an equitable health system, which is equality of health in all regions and social classes.

Mooney contends that equality of health requires greater positive discrimination than under all the other input oriented definitions.

Many health care systems strive to achieve equity of access to health care (Goddard and Smith, 2001). Moreover, the major concern is about equal opportunity, without worrying about whether or not the opportunity is exercised (Mooney, 1983). Therefore, the current study adopts equal access for equal need as the most plausible definition of equity. However, equal access in this case is not defined narrowly as equal costs, part of the affordability concept. In fact, access is defined as a multi-dimensional concept which describes the interaction between availability, affordability and acceptability of health care services (McIntyre et al, 2007).

Two major principles of equity are noteworthy; horizontal equity and vertical equity. Horizontal equity is the equal treatment of equals while vertical equity is the unequal treatment of unequals. Due to inherent difficulties in measuring vertical equity, it suffices at this point to state that this study will focus on horizontal equity.

#### **2.2.2.1 NEED**

Although the study has adopted equal access for equal need as the appropriate definition for equity, the definition of need itself is far from being standard. Oliver and Mossialos (2004) attempt to develop a working definition of need and discuss Bradshaw (1972)'s definition. Bradshaw (1972) defined need as being composed of four major components: Normative need where a professional defines need by setting a desired standard and comparing it with what actually exists, felt need where need is equated with what people want, expressed need where felt need is actually put into action and comparative need where one establishes the characteristics of a population who receive a service and if a population with similar characteristics do not receive the service, they are judged to be in need.

The normative need concept might harm power relations between patients and health professionals. It seems to give credence to the fact that only providers can define need. In this case, implicitly, patients play a passive role in defining what they need. This component works against the theory of patient empowerment, which was discussed under acceptability above. Felt need tends to concentrate on what patients 'want' as opposed to what they need. Expressed need might exclude individuals who do not put

their felt needs into action. The notion of comparative need is vital in evaluation of whether patients with equal need have equal access to health care services (Oliver and Mossialos, 2004).

A common definition of need is the capacity to benefit from health care (Stevens and Raftery, 1994). Thus, two conditions are necessary: there has to be a health condition and also, a health care intervention to improve health. A refinement of this definition is that need is the expenditure required to effect the maximum possible health improvement (Culyer and Wagstaff, 1993). In reality, self reported measures of health have been used in generic evaluations of equity as practical measures of need (Gulliford and Morgan, 2003). For example, Diabetics might be asked to rate their health as poor or good. The main objections to this definition are that it is subjective, reflects patients' wants as opposed to needs and use of self assessed health has no direct link to an objective of health care delivery (Gulliford and Morgan, 2003). Furthermore, Gulliford and Morgan argue that different groups of the population have systematically different perceptions of their health statuses. Notwithstanding these disadvantages, this is the most plausible approach to measuring need for the current study.

## **2.3 MEASUREMENT OF EQUITY IN ACCESS**

The measurement of equity in health and healthcare comprises of three major stages (Zere et al, 2007). First, the people have to be classified by socio-economic status (SES) where SES refers to an individual's relative position in society (Mackenbach and Kunst, 1997). Second, the health status should be measured and last, there is need to quantify the degree of inequality. Judgement of whether the inequalities are fair or justified will determine the degree of inequity. The second stage of the measurement process has been covered in the above sections and will thus not be repeated here. It is worth reiterating, however, that self rated health will be used as a measure of health status. Classification of people by socio-economic status is preceded by measurement of the SES.

### **2.3.1 Measurement of socio-economic status**

Classification of households by socio-economic status is vital for the purposes of assessing inequalities in access to health care. Concern with SES in access evaluations stem from arguments that it is associated with health status and needs for health care

(Gulliford, 2003). This implies that people of lower socio-economic status have higher chances of falling ill or dying, have greater need for health care and lower ability to pay. In that regard, Gulliford emphasises that it is always important to judge socio-economic inequalities in access to care in relation to socio-economic inequalities in health.

Basically, four measures can be used to classify households: consumption, income, expenditure and asset index (World Bank, 2003). Consumption measures the actual resources that are consumed by the household and includes; food items, non-food items, housing and durable goods. Consequently, it is regarded as the best indicator of welfare, especially in developing countries where cash income may not be significant as in the case of subsistence farmers. However, data collection is very challenging because of difficulties in how to treat public goods such as water and electricity. Falkingham and Namazie (2002) contend that expenditure and income are usually used as proxies of consumption.

Income may be used because of its theoretical link to demand for goods and services (Falkingham and Namazie, 2002). Nevertheless, it is not suitable for developing countries for a number of reasons. First, data on cash incomes is commonly unavailable. Second, recall bias makes income data unreliable and also, some sources of income might not be disclosed. Furthermore, in hyperinflationary economies such as Zimbabwe, it is very difficult for people to remember the amount of income they get in their household. Due to the challenging economic environment, people have to supplement their income in several ways which are very difficult to capture by measuring income.

Expenditure is also frequently used as a measure of economic welfare, although it is conceptually different from consumption. In simple terms, expenditure can be defined as purchases of goods or services. However, some of the purchased goods might not be consumed immediately and thus, expenditure can possibly overestimate household consumption. Another disadvantage of expenditure is that consumption of goods produced by the household, for example in subsistence agriculture, is not captured. Moreover, expenditure suffers from recall problems in hyperinflationary economies such as Zimbabwe. It is not surprising for households to fail to remember their total daily/weekly/monthly expenditure. Data on consumption, income and expenditure are

usually scarce and unreliable (Houweling, Kunst and Mackenbach, 2003). This leaves us with one other measure of economic welfare which can be used to classify households, namely the asset index.

Research evidence demonstrates a close association between consumption expenditure and asset ownership (Filmer and Pritchett, 1989). In addition, Houweling et al (2003) argue that household assets are a good indicator of the long run economic status of households. Thus, we can use the asset index to classify households into wealth quintiles. Principal components analysis (PCA) is used to construct an asset index using variables such as quality of housing, availability of water and electricity and ownership of durable consumer goods such as radios and refrigerators. The main disadvantages of the asset index stem from inclusion and exclusion of some asset items and how to treat public goods such as water. In addition, Kline (1994) argues that PCA produces results that one wants to see and statistical significance cannot be tested. Nevertheless, the PCA technique is very useful. This study will construct an index and use it to classify households and hence, determine whether access to health care is equitable or not.

### **2.3.2 Quantification of the degree of inequality**

After deciding on the attribute of health/healthcare to be compared among individuals/population groups, it is then important to find an appropriate technique to quantify the degree of the existing inequality (Houweling et al, 2003). Reasons for the inequalities might be explored in order to judge whether the inequalities are in fact inequities. In general, inequities are inequalities which are judged to be unjust and unfair while inequalities are just differences between groups.

Mackenbach and Kunst (1997) summarise the measures of inequalities in health. Although the authors were concerned with inequalities in health as opposed to access to health care, the measures can be adapted to the current study. Depending on the measurement scale of the access variable of interest, three basic measurement techniques can be adopted: Ratio of low to high, correlation and regression and Gini-like coefficients (Mackenbach and Kunst, 1997). Gini-like coefficients are more appropriate for utilisation studies and consequently, will not be dealt with in this study. Table 2.4 shows an adaptation of the indices for determination of socio-economic inequalities in health summarised by Mackenbach and Kunst. It is noteworthy that rates

of access will be calculated for each of availability, affordability and acceptability as opposed to an overall rate.

**Table 2.4: Measures of socio-economic inequalities in access to health care**

Index	Interpretation
Ratio of low vs high	
Extreme groups	Access rate of lowest socio-economic group as ratio of the highest group
Percentile approach	Access rate of the lowest quintile as ratio of the highest quintile
Correlation and regression	
Regression on SES	Increase in access rate per unit increase in SES

Source: Adapted from Mackenbach and Kunst (1997)

Basically, the measures of inequality can be classified as simple or sophisticated. Simple measures refer to rate ratios or differences between higher and lower socio-economic groups. These have advantages of ease of calculation and interpretation and place no restrictions on the measurement scale of the data (Mackenbach and Kunst, 1997). They might, nevertheless ignore some useful information. On the other hand, sophisticated measures mostly refer to regression based methods. The major advantage of these methods is that they incorporate more available information. In the same vein, Morgan, Gulliford and Hudson (2003) contend that regression methods are more flexible and make it easier to calculate rates of access after controlling for need. However, they can place more restrictions on the measurement scale of the data. For example, they might require that SES be measured on an interval scale.

## 2.4 CONCEPTUAL FRAMEWORK

A lot of studies have been carried out in an attempt to measure access to health care. Nevertheless, most of the studies did not use the comprehensive definition of access as an interaction between three components; availability, affordability and acceptability. In addition, the majority of these also used utilisation as a proxy for access (Waters, 2000). Consequently, the present study builds a framework for evaluating access by looking at the whole picture, that is, incorporating all the components of access and also using more direct measures, as opposed to utilisation.

The following diagram (Figure 2.1) presents the conceptual framework of this study. This framework uses the definition of access as spelt out in McIntyre et al (2007). Thus, the interaction between availability, affordability and acceptability will produce access. Now, if need is taken into account, then access will be said to be equitable. Need is hereby defined as self reported health status. A number of factors affect need some of which include gender, education level and socio-economic status. Thus, respondents will be divided into these groups and if access is the same in these groups, then there is equity of access.

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## **2.5 CHAPTER CONCLUSION**

Access is the degree of fit between clients and the health system. This concept comprises of three main components: availability, affordability and acceptability. Besides health care being available, affordable and acceptable, it is also important to ensure that it is equitably distributed, that is, there should be equal access for equal need. Health care providers should, therefore, ensure that patients are empowered to use health care. This chapter has thus developed a comprehensive operational framework for analysing equity of access to health care. The following chapter describes how this study was carried out.

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## **CHAPTER 3**

### **METHODOLOGY**

#### **3.0 INTRODUCTION**

This chapter describes how the current study was designed and carried out. The chapter is divided into six major sections. The first section, study design, explains the basic structure used to carry out the study and the justification thereof. Second, the site of the study is described in order to give context to the way it was carried out and interpretation of the findings. The third section explains the different data collection tools used. Thereafter, sampling methods used to select study respondents are described. Sampling methods are followed by a description of how the data was collected, including the training of interviewers and piloting of the instruments. The last section concludes by summarising how the study was carried out and introducing the next chapter. An official exchange rate of \$US1:\$Z30 000.00 will be used for all monetary items.

#### **3.1 STUDY DESIGN**

A cross sectional study design was used to collect information from respondents. A cross sectional study collects information about a number of variables at a particular point in time or over a short period of time (Levin, 2006). Levin argues that cross sectional studies are easy and economical to conduct and are useful for public health planning. Although this study design provides weaker evidence compared to longitudinal studies, the cross sectional design is used because of the limited time and resources available for this study.

#### **3.2 SITE OF THE STUDY**

This study was confined within the boundaries of the capital city of Zimbabwe, Harare, which has a population of 1.9 million residents. Zimbabwe is a landlocked country in Southern Africa and is bordered by South Africa, Mozambique, Zambia and Botswana. Harare is one of the ten provinces in the country. Public health facilities in Harare (two hospitals and 31 clinics) are run by the City of Harare, except for Parirenyatwa Hospital and Harare Hospital, two of the country's major referral centres. This study was based

in the clinics in the city, which are the primary care centres. All the clinics are situated in the Harare Metropolitan area. The clinics are situated in high, low and medium density residential areas.

### **3.3 DATA COLLECTION TOOLS**

Data for this study was collected using five tools: key informant interviews, patient exit interviews, provider interviews, Focus Group Discussions (FGDs) and health facility checklists. Some of the tools collected unique data while others reinforced each other. Table 3.1 summarises the data collected by each tool. The exact structures of the instruments used for each tool are shown in the Appendices.

#### **3.3.1 Key informant interviews**

The most common techniques used for conducting key informant interviews are face to face interviews and telephone interviews. However, mailed questionnaires were used for the current study because the informants were geographically dispersed and also stated that they did not have time for telephone interviews. The study assumed that key informants at provincial level might provide an overview of how diabetes care services are provided in the country. Thus, structured questionnaires (with self-addressed, stamped return envelopes) were posted to respondents. Although mailed questionnaire are known to have very low response rates, they were used because it was the only feasible option.

#### **3.3.2 Patient exit interviews**

Patient exit interviews were also used to collect data for the present study. Therefore, Diabetic patients were interviewed as they left public health care facilities. The major purpose of patient interviews was to collect data on availability, affordability, acceptability as well as equity of access to health care services from the patient perspective. Since access is the degree of fit between the health system and its clients, it is vital to assess patients' feelings, opinions, attitudes and perceptions about Diabetes health care. Moreover, it is the patients who are mainly affected by Diabetes, thus exit interviews served an important purpose. The type of data collected from these interviews is shown in Table 3.1.

### **3.3.3 Provider interviews**

Provider interviews are pivotal, especially in understanding acceptability of diabetes care services. Acceptability involves patient-provider interaction including communication and dialogue between these two actors. Therefore, these interviews provided information on providers' communication practices and attitudes towards patients, part of the acceptability equation. Thus, the study carried out semi-structured interviews with sisters-in-charge and nurses at the clinics.

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**Table 3.1: Study methods**

Objectives	Data Needed	Tool(s)
<p>To determine the availability of diabetes health care services</p>	<p>Physical location of health facility in relation to where clients stay</p> <p>Distance to health care facilities</p> <p>Patients' means of transport</p> <p>Ability to travel to health facility in relation to severity of illness</p> <p>Opening hours of health facilities and appointment systems (degree of fit with patients' work commitments)</p> <p>The scope of services provided by the health facility (diagnosis, treatment, control and education)</p> <p>Routine availability of drugs and other supplies such as insulin, syringes and glucometer strips</p> <p>Availability of support organisations and the scope of services they provide</p>	<p>Key informant interviews</p> <p>Health facility checklists</p> <p>Community Focus Group Discussions</p> <p>Exit interviews with patients</p>
<p>To determine the affordability of diabetes health care services</p> <p>To assess how patients finance diabetes health care services and coping strategies</p>	<p>Cost of services at health facilities</p> <p>Direct costs of care</p> <p>Indirect costs of diabetes care (for example lost time and productivity)</p> <p>Payment forms and exemptions, if any</p> <p>Patients' membership of medical aid scheme</p>	<p>Exit interviews with patients</p> <p>Community focus group discussions</p>

	<p>Social support networks to assist with costs</p> <p>Whether patients incurred debt or not</p> <p>Household resources and coping strategies</p>	
<p>To determine the acceptability of diabetes health care services</p>	<p>Patients' satisfaction with health services</p> <p>Health related beliefs and perceptions</p> <p>Maintenance of privacy at health facility</p> <p>Maintenance of confidentiality</p> <p>Provider attitudes and motivation</p> <p>Provider awareness of the community's culture and values</p> <p>Gender sensitivity at health facility</p> <p>Existence of clear communication channels</p> <p>Provider expectations of patients and the extent to which the expectations are fulfilled</p> <p>Patients' perspectives of service effectiveness</p> <p>Patient acceptance of diagnosis, prescription and understanding of treatment compliance issues</p> <p>Patient expectations and their perceptions of the extent to which these expectations are fulfilled</p>	<p>Exit interviews with patients</p> <p>Provider interviews</p> <p>Community focus group discussions</p>
<p>To assess whether access to diabetes care is equitable</p>	<p>Availability, affordability and acceptability of health services by socio-economic status</p>	<p>Exit interviews with patients</p>

### **3.3.4 Health facility checklists**

One of the three dimensions of access is availability of health care services. Some of the elements of availability include location of public care facilities in relation to where people stay, facility opening hours as well as services' and drugs' availability. Thus, the purpose of the checklists was to collect data on the above mentioned elements from the facilities themselves. These were administered to the sisters-in-charge of the clinics who are the administrative heads of these facilities and thus in a better position to provide current and accurate information.

### **3.3.5 Focus Group Discussions**

FGDs are unstructured interviews with small groups of people who interact with each other and the group leader (Bowling, 1997). According to Bowling, the focus group discussion (FGD) technique is useful for exploring cultural values and beliefs about health and disease. While face to face interviews and other survey methods might capture what people think, there might be a need to understand how they think, why they think like that and their priorities (Kitzinger, 1995). In addition, Asanin and Wilson (2008) argue that FGDs allow the study to have more participants than using key informant interviews (KII). They also contend that FGDs enable the study to have a more diverse group of individuals and experiences than KIIs. Thus, Focus Group Discussions (FGDs) were conducted with community members to have an in-depth understanding of access to public sector care for Diabetics. This technique produces high quality and rich data which can be used to inform the design of future health care policies. Moreover, it makes participants feel that they are an active part of the research process. FGDs are also critical in reaching Diabetics who are not accessing care (who are obviously not represented in exit interviews). Thus, nurses who treat Diabetics helped locate FGD participants in their catchment area because they deal with them on a regular basis. The relatively small size of the clinics makes it easier for providers to keep track of their patients and identify those facing some access barriers.

The discussions mainly focused on community perceptions about availability of services, cost of services in relation to their average earnings, provider-patient attitudes and perceptions about one another, whether access to Diabetes care was equitable and exploration of why some Diabetics do not seek care. Furthermore, FGDs can also be

used to identify members of the community who suffer from Diabetes but fail to access health care due to certain reasons.

### **3.4 SAMPLING**

Since the study used five different data collection tools, a number of different sampling techniques were also used. The type of data to be collected and the research instrument both determine the sampling method that should be used. Thus, the following sampling methods were used: purposive sampling for key informants, provider interview and focus group participants. For patient exit interviews, sampling was not done because of the numbers of the patients involved. Thus, all Diabetic patients who presented at the selected health facilities were interviewed.

#### **3.4.1 Key informants**

Purposive sampling was used select respondents for key informant interviews (KII). The study assumed that key informants at provincial level might provide an overview of how Diabetes services are provided in the country. In that regard, mailed questionnaires (with return envelopes) were sent to Provincial Medical Directors (PMDs) (eight) and City Medical Directors (CMDs) (two) in the ten provinces of the country.

#### **3.4.2 Provider interviews**

Fifteen provider interviews were conducted at the 15 selected health facilities (See section 3.4.5). The respondents were nurses who attended to the patients at the selected clinics. Basically, there was no sampling because only one nurse attends to chronic patients at each clinic. Therefore, the study selected the nurse treating Diabetics.

#### **3.4.3 Patient exit interviews**

Convenience sampling was used to select the respondents for exit interviews. According to Bowling (1997), convenience sampling is the sampling of subjects for reasons of convenience, for example, patients are easy to recruit from health facilities. It is mostly useful if a research project wants to explore complex issues. Although the method does not aim to generate a random group of respondents, results are often aimed at health policy makers but are of unknown generalisability. Thus, patients were

interviewed as they left health facilities after seeking care. These interviews were restricted to all Diabetes patients who presented at the sampled health facilities. All the patients that presented during the data collection period were interviewed because their number was manageable. In total, 179 patients were interviewed from the 15 selected clinics.

#### **3.4.4 Focus group discussions**

Basically, purposive sampling was used to select respondents for FGDs because it gives a broad picture/ representation of the patients. By definition, purposive sampling is a deliberately non-random method of sampling which aims to sample a group of people with a particular characteristic, usually in qualitative research designs (Bowling, 1997). Nurses who treat patients at the chosen facilities helped select participants for the discussions. These nurses are the ones who treat these patients on a regular basis and as there are relatively smaller numbers of Diabetic patients per facility, nurses know their patients well. Thus, nurses providing Diabetes care were requested to identify Diabetic patients who do not seek care regularly. The discussions focused on respondents' opinions, feelings and perceptions and therefore, adopted a more qualitative approach. Thus, three focus group discussions were conducted in total.

Each focus group was composed of seven people, differentiated by sex, age group and residential area. The FGD participants were selected with assistance from nurses. Demographic variables such as sex, age and marital status were collected before the FGDs to maintain personal integrity and establish friendly contact (Hjelm, Nyberg and Apelqvist, 2002).

The researchers explained to participants that there were free to take part or not in the study and that their participation or non-participation would not affect their relationship with health care centres. Participants were residents of roughly the same areas and were thus more comfortable with each other. Each discussion lasted approximately one hour. Digital voice recorders were used as the main data collection tool and in addition, the researcher wrote rough notes. Discussions mainly focused on community perceptions about availability of services, cost of services in relation to their average earnings, provider-patient attitudes and perceptions about one another, whether access to Diabetes care was equitable and exploration of why some Diabetes do not seek care.

**Table 3.2: Demographic profile of FGD participants**

Characteristic	Number
<b>Gender</b>	
Male	7
Female	14
Total	21
<b>Age distribution</b>	
18-30	4
31-45	5
46-64	5
65+	7
Total	21
<b>Marital status</b>	
Single	4
Married	12
Divorced	2
Widowed	3
Total	21

#### 3.4.5 Health facility checklists

Sampling for health facility checklists comprised of two stages: selection of health facilities and the second stage, selection of the respondent for each facility. Health facility checklists were administered to managers (sisters-in-charge) in 15 health facilities in Harare (ten in high density, three in medium and two in low density areas). The health facilities were selected using convenience sampling from a total of 31 clinics run by the City of Harare. Two hospitals (Wilkins Hospital and Beatrice Road Infectious Diseases Hospital) also run by the city metropole were not chosen because they do not attend to Diabetes patients. First, the health facilities were divided into groups according to whether the City Health Department classified the location as high (17), medium (7) or low density (7) residential areas. The idea was to sample more clinics from the high density because that is where most of the poor people who generally utilise public health services reside. In addition, the researcher focused on clinics which attended to a lot of patients in order to increase the speed of data collection. Division of health facilities into three groups helps to make comparisons of access in different residential areas. The residential areas crudely point to differences in

socio-economic status. With regards to health facility respondents, sisters-in-charge of each clinic were chosen as the respondents because they are the overall managers of the facilities. Thus, it was envisaged that they could supply the most accurate information about the staffing, drug supplies, equipment and so on. Where the sister-in-charge was not available, the acting sister-in-charge was interviewed.

### **3.5 DATA COLLECTION**

The data collection phase can be divided into three main subsections: pre-data collection, data collection itself and post-data collection.

#### **3.5.1 Pre-data collection phase**

This phase was mainly about preparation for data collection. It also included some measures to ensure the data collection would be valid and reliable and to ensure quality control. The quality control was mainly done through training interviewers on how to collect data in a consistent manner. Fifteen interviewers and one research assistant were trained a week before data collection began. The research assistant was a nursing graduate who works for the University of Zimbabwe. Interviewers were 'O' level graduates who were conveniently selected through snowballing and trained before the data collection process. The training included role playing and emphasised upholding ethical values in the conduct of the interviews. Furthermore, the researcher prepared all the research inputs such as stationery well in advance of carrying out the interviews.

The questionnaires were also piloted in order to test validity and reliability of the instruments. The questionnaires were administered to 15 patients (for patient exit interviews) and 5 health professionals (for provider interviews and health facility checklists) in two facilities not included in the core study, that is Hatcliffe and Marborough clinics. Thus, the researcher noted any ambiguities and difficulties in the way questions were framed. These results from the pilot study were used to improve the instrument before administration to all the intended respondents. In fact, the patient questionnaire was re-worded and the number of questions reduced to cater for patients' limited time since they were rushing to have their regular meals at home. The instruments were also adapted to suit conditions in Zimbabwe. For FGDs, the pre-collection phase involved charging batteries and organising venues, transport and food for the discussions. Unique codes were also assigned to questionnaires and a list kept aside as a tracking mechanism.

### 3.5.2 Data collection

In total, 17 individuals were involved in data collection; namely, the researcher, a research assistant and 15 interviewers. Table 3.3 summarises the task allocation for the research.

**Table 3.3: Task allocation**

Task	Member(s) responsible
Pilot instruments	Researcher, Research assistant
Key informant interviews	Researcher
Health facility checklists	Researcher, Research assistant
Provider interviewers	Researcher, Research assistant
Patient exit interviews	15 interviewers
Focus group discussions	Researcher, Research assistant

For key informants, the researcher mailed structured questionnaires to Provincial Medical Directors (PMDs) and City Medical Directors (CMDs) in the 10 provinces of the country. Health facility checklists and provider interviewers were conducted by the researcher and his assistant. On average, administration of each Health Facility Checklists (HFCs) lasted 20 to 30 minutes while provider interviews took between 30 and 45 minutes. Patient exit interviews were done by the 15 interviewers, one for each selected clinic. Each exit interview lasted at most 30 minutes, mainly because most patients would be rushing home to have their meals. These interviewers were supervised by both the researcher and his assistant. Three FGDs were conducted by the researcher and the assistant. All the questionnaires were carefully stored and transported by the researcher in order to protect its accuracy and integrity.

### 3.5.3 Post data collection

The post data collection activities mainly consisted of safe keeping of questionnaires, capturing the data and transcribing interviews from the voice recorder. Questionnaires were kept for the process of cleaning and also for reference during analysis. Backup copies of the entered data were also created and stored away for emergency purposes.

### 3.6 DATA ANALYSIS PLAN

The data for this study was entered in Epi Info version 3.4.1 after which it was exported to Excel and finally to Intercooled Stata version 8 from where all the analysis was done. An array of tables and charts were used to present the analysed data. In summary, the analysis consists of developing indicators for each access dimension; that is; Availability, affordability and acceptability. The respondents were grouped into socio-economic quintiles using the asset index as an indicator of socio-economic status (SES). To ascertain (in)equality, need (defined by self reported health status) is taken into account by also dividing respondents by health status and comparing the indicators. It is important to re-iterate that most of the variables are analysed by socio-economic status. Basically, any inequalities in access between socio-economic groups are taken as unfair and avoidable, thus inequitable. The following table summarises how the data was analysed.

**Table 3.4: Summary of data analysis**

Health status	SES	Access indicator
Very poor	1	a
	2	b
	3	c
	4	d
	5	e
Poor	1	f
	2	g
	3	h
	4	i
	5	j
Average	1	k
	2	l
	3	m
	4	n
	5	o
Good	1	p
	2	q
	3	r
	4	s
	5	t
Very good	1	u
	2	v
	3	w
	4	x
	5	y

The idea behind Table 3.4 above is that if respondents have the same level of need (self reported health status), then they should have the same level of access, regardless of socio-economic status. Other relevant groupings such as age, gender and area of residence were also used.

It is important to present the socio-demographic information before assessing equity of access. This information is mainly presented as descriptive statistics and summarised in a table.

A key step involves developing the asset index which is used to identify different groups by socio-economic index. Thereafter, socio-economic quintiles were developed from the asset index. The principal component analysis (PCA) technique was used to develop the asset index. This technique is a validated method for differentiating the population by socio-economic status (Vyas and Kumaranayake, 2006). A number of variables such as sex, level of education and ownership of assets such as radios and televisions are used in that regard.

### **3.6.1 Availability of Diabetes care services**

Variables of interest on the availability of health care for Diabetics include staffing levels, equipment, supplies and facility opening hours. Thus, nurse to population ratios were calculated for each facility to determine staff availability. The study also computed percentages of facilities with certain functional equipment necessary for Diabetes care such as glucometers and weighing scales. Availability of Diabetes care supplies such as drugs and syringes was also be analysed in the same manner as equipment. Health facility opening hours should be the same for all the surveyed health facilities. Thus, a summary of opening hours for each day was presented depending on whether it will be a holiday or non-holiday. A frequency table of patients' means of transport by socio-economic status (SES) was also presented. In addition, mean travel times were compared according to patients' SES. T-tests helped to compare mean travel times by SES and gender.

### 3.6.2 Affordability of Diabetic care

Affordability consists of the relationship between patients' full costs and their ability to pay. Membership of medical aid is a very important factor in assessing affordability of care. Thus, the study compared patients' membership by SES. Furthermore, asset ownership was analysed by computing overall frequencies for each asset, then ownership by SES and finally, the percentage of patients who own at least a certain number of assets by SES. To assess indirect costs, forgone income generating activities and coping strategies were tabulated according to SES. Moreover, patients' major income sources were tabulated. A descriptive summary of total household monthly expenditure was presented. The percentage of patients in each quintile who belong to any support group was also computed.

### 3.6.3 Acceptability of Diabetes care

The following variables were compared between patients and providers: Age, gender, education, marital status and so on. This comparison might shed light on the interaction between patients and their providers.

Thereafter, information on statements that indicate providers' perceptions and opinions about patients are presented. The responses give an indication of how providers interact with their patients.

**Table 3.5: Provider/patients perception of patients/providers**

		Socio-economic quintile				
		1	2	3	4	5
Statement	Median response					

The median test (non-parametric test) was used to test whether the responses are significantly different among the socio-economic groups defined by the asset-index. Thus, the null hypothesis is that the median response is the same among all the socio-economic quintiles while the alternative hypothesis states that the medians are different for at least one pair of groups.

Health related beliefs and patient perceptions of illness constitute part of the acceptability dimension of access. Thus, the perceived causes of illness were presented in a frequency table to determine the most common causes. The study also analyses patients' usual sources of care in relation to their socio-economic status. Chi-squared tests were used to test for association between source of care and socio-economic status.

Patients' perceived health status is also analysed in relation to socio-economic status. As above, the chi-squared test is used to test for association between health status rating and socio-economic status.

Patients' satisfaction was analysed by calculating the overall percentages first. Afterwards, satisfaction was analysed by SES using chi-squared tests to determine association. In addition, satisfaction level was also cross tabulated with perceived health status.

#### **3.6.4 Analysis of FGD information**

Focus groups were recorded using Digital Voice Recorder and then transcribed verbatim. Each transcript was coded line by line for themes related to availability, affordability and acceptability as summarised in Table 3.1. Common themes were then identified through the coding process.

### **3.7 CONCLUSION**

This chapter explained in detail how the study was carried out from preparation up to the time data was captured in the computer. Basically, a cross sectional study design was used. Several data collection tools: key informant interviews (10), focus group discussions (3), patient exit interviews (179), provider interviews (15) and health facility checklists (15) were used to collect data. Different sampling techniques were used for each tool. The data was captured in Epi Info version 3.4.1, exported through Excel to Intercooled Stata 8.1 from where analysis was carried out. An analysis plan for the data was also presented in this chapter. The next chapter analyses and presents the data on access to health care for Diabetics as suggested in the data analysis plan.

## **CHAPTER 4**

### **RESULTS AND ANALYSIS**

#### **4.0 INTRODUCTION**

This chapter analyses and presents the findings of this study. The results are divided into three main sections in line with the access components, namely: Availability, affordability and acceptability. All the results pertaining to each component will be summarised from all the tools used to collect data on that component. Thus, findings will consist of a mix of qualitative and quantitative results from the following tools used to collect the data: health facility checklists, provider interviews, key informant interviews, Focus Group Discussions (FGDs) and patient exit interviews. Equity considerations will be integrated into each component and the interaction between the components as shown in the conceptual framework for the study (Figure 2.1).

#### **4.1 BACKGROUND INFORMATION**

Background information extracted from the Zimbabwe Demographic and Health Survey for 2005-6 (CSO (Zim) and Macro International, 2007) is presented to provide the context of the study. Only information for the urban areas (throughout the country) was extracted since the current study was carried out in an urban area. The sex ratio is almost balanced (females, 52% and males, 48%) and the population is largely young (44% are less than 15 years and only 5.5% are at least 60 years). The median household size is 4.1, a relatively modest size. In terms of education, the median number of years of education is 6 years for both males and females. Access to water, electricity and flush toilets is relatively high (99%, 91% and 57% of households respectively). Furthermore, most of the households have cement floors (90%). About 62.2% of the households have at least one room for sleeping. More than half the households (57.1%) stay in detached dwelling units. The main fuel used for cooking is electricity (87.9%). Ownership of durable goods is as follows: radio (77.5%), television (70.4%), mobile telephone (34.5%) and landline (22.2%). The majority of households use bicycles (28.5%), car/truck (14.1%) and wheelbarrow (19.8%) for transport.

## 4.2 RESPONSE RATE

Response rates for the different tools used in the study will be summarised in this section. In total, 179 patient exit interviews, 15 health facility checklists, 15 provider interviews, 10 key informant interviews and 3 Focus Group Discussions (FGDs) were conducted. There was a 100% response rate for health facility checklists, provider interviews, FGDs and patient exit interviews because they were face to face interactions and thus, respondents were very cooperative. However, only one province out of ten returned the mailed questionnaires, representing a very low response rate of 10%.

## 4.3 ACCESS TO DIABETES CARE IN ZIMBABWE

Although there was a very low response rate to mailed questionnaires for PMDs, it is worth reviewing evidence from the one which was completed. The province offers diagnosis, treatment and follow up of patients. These services depend on the type of facility as shown in Table 4.1.

**Table 4.1: Diabetes services by type of facility**

Service	Type of facility
Diagnosis	Clinic, Rural health centre, hospital
Treatment	Hospital, Rural hospital (mission)
Monitoring and control	Hospital, Rural hospital (mission)

Results reveal that most of the equipment is old and non-functional. Insulin is reported to have been frequently out of stock. The PMD also claims that the Diabetes association is “not very active, only got one correspondence on their activities, now I suppose it is dormant”. He also argued that diabetes care is not affordable due to the lack of drugs at hospitals, thus patients have to buy them from the private sector where prices are very high.

The respondent also expects patients to “follow health workers’ recommendations and orders”. He also says this expectation is partly met. On patients, he believes patients expect to get all their health needs from “our” institutions but thinks that these

expectations are not being met. This finding is attributed to the economic situation in the country, thus “it is difficult to provide satisfactory services because of the current economic problems facing the country”.

#### **4.4 DEMOGRAPHIC CHARACTERISTICS**

The demographic characteristics of respondents (from patient exit interviews, provider interviews and FGDs) are summarised in Table 4.2.

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**Table 4.2: Demographic characteristics**

Characteristic	N	%		N	%
<b>Patients</b>					
<b>Gender (N=179)</b>			<b>Residence group (N=179)</b>		
Male	99	55.30	High density	144	80.90
Female	80	44.70	Medium density	20	11.24
			Low density	14	7.87
<b>Marital status (N=179)</b>			<b>Residence (N=171)</b>		
Single	45	25.14	Owned	115	67.25
Married	130	72.63	Rented	56	32.75
Widowed	3	1.68			
Divorced	1	0.56			
<b>Race (N=179)</b>			<b>Water source (N=178)</b>		
Black	179	100	Tap	177	99.44
			Well	1	0.56
<b>Religion (N=179)</b>			<b>Toilet facility (N=172)</b>		
Christianity	170	94.97	Flush	170	98.84
African traditional	9	5.03	Blair (Pit latrine)	2	1.16
<b>Education (N=174)</b>			<b>Employed (N=162)</b>		
*Standard	54	31.03	Yes	78	48.15
*Primary	14	8.05	No	84	51.85
*Junior certificate	8	4.60			
'O' Level	57	32.76	<b>Age (years) (N=179)</b>		
'A' Level	25	14.37	At most 20	28	15.6

Certificate/Diploma	12	6.90	21 – 30	23	12.85
Degree	3	1.72	31-40	11	6.15
None	1	0.57	More than 40	117	65.36

### Demographic characteristics

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#### Providers

##### Gender (N=15)

Male	4	26.67
Female	11	73.33

##### Marital status (N=15)

Single	2	13.33
Married	9	60.00
Widowed	2	13.33
Divorced/Separated	2	13.33

##### Education (N=15)

Certificate	6	40.00
Diploma	9	60.00

##### Age (years) (N=15)

30 - 40	4	26.67
41 - 50	6	40.00
51 - 60	4	26.67
Above 60	1	6.67

\*The standard system was used in pre-colonial Zimbabwe. It consisted of Sub A, Sub B, Standard 1, ..., Standard 6. Sub A represents 1 year of education and Standard 6, eight years. Junior certificate consisted of two years after Standard 6 (pre-colonial) and two years after Grade 7 (after independence). Primary education has 7 years, from Grade 1 to Grade 7.

More than half the patients are males (55%). The patients are mostly older individuals, with at least 65% being aged 40 years and above. About 80% of the patients stay in the high density areas and most respondents own their residence. All the sampled patients are black and predominantly married (72%). Christians (95%) are the largest religious group for patients. The most frequently attained level of education is 'O' level. Most of the patients use tap water and also have flush toilet systems in their places of residence. However, less than half of all the patients surveyed are employed.

On the other hand, providers are dominated by females (73%) who are also older than their male counterparts (48 years versus 41 years on average). Their average age is about 46 years, almost similar to that of the patients. The single largest group (40%) is aged between 41 and 50 years. About 60% of the providers are married. The highest education level attained is either a certificate (40%) or a diploma (60%) in nursing. Health facilities were selected from high (10), medium (3) and low (2) density population areas (as shown in the Methods (section 3.4.5)). Focus group participants (Table 3.3) consist mainly of females (67%). The majority of them are married individuals.

#### **4.5 WEALTH INDEX**

The wealth index is used in this study as a measure of socio-economic status. The following variables were used to develop the wealth index using the principal component analysis (PCA) technique: ownership of residence (resowner), employment, membership of medical aid scheme (member), electricity, radio, television (tv), cellular phone (cell), landline (land), refridgerator (fridge), bicycle, car and years of education (educyears). The wealth index was used to divide respondents into quintiles on the following scale of increasing socio-economic status (SES): poorest, second, middle, fourth and richest.

Table 4.3 summarises factor scores for each variable. A positive factor score is associated with higher SES and on the other hand, a negative factor score with lower SES (Vyas and Kumaranayake, 2006). Thus, a household which owns a house, uses electricity, is a member of a medical aid organisation, owns a radio, television, cellphone, landline, refridgerator, bicycle, car and has a higher number of years of education scores higher on SES. However, being employed is associated with a lower

SES. This might be due to the fact that those who are employed are in formal jobs which pay low salaries compared to other income generating activities.

**Table 4.3: Principal component analysis results**

Variable description	Mean	Standard deviation	Factor score
resowner	0.671	0.471	0.204
employment	0.516	0.501	-0.198
member	0.399	0.491	0.402
electricity	0.967	0.181	0.148
radio	0.972	0.167	0.146
tv	0.847	0.361	0.355
cell	0.727	0.447	0.353
land	0.236	0.426	0.336
fridge	0.566	0.497	0.393
bicycle	0.445	0.498	0.033
car	0.231	0.423	0.357
educyears	9.386	3.658	0.261

The study extracted components for which the associated eigenvalue was greater than one (Vyas and Kumaranayake, 2006). Thus, Table 4.4 reveals that the first component explained 28.93% of the variation while the fourth one contributed 10.4%. However, only the first component is necessary to measure household wealth (McKenzie, 2003) and was thus used in the study to divide households into socio-economic quintiles.

**Table 4.4: Principal component analysis**

Factor		% of Variance explained		
Component	Eigenvalue	Difference	Proportion	Cumulative
1	3.47141	1.84199	0.2893	0.2893
2	1.62942	0.23143	0.1358	0.4251
3	1.39799	0.14986	0.1165	0.5416
4	1.24813	0.40606	0.1040	0.6456

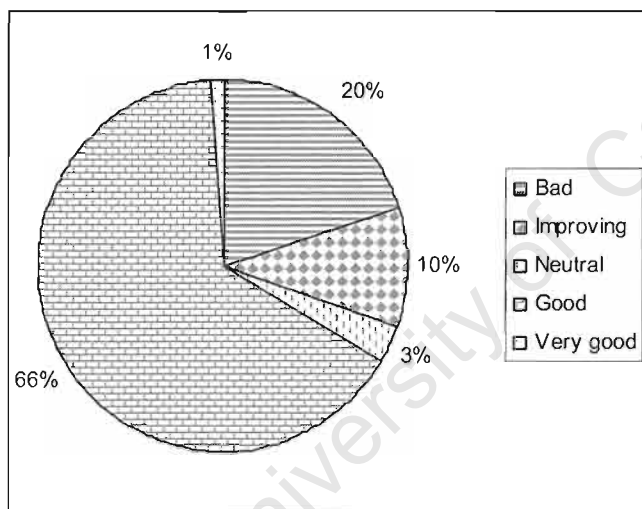
#### 4.6 NEED

Health care need (proxied by self-assessed health status) is shown in Figure 4.1. Most of the respondents are in good health. However, a significant 20% perceive their health as being bad, mainly due to sight problems:

“Right now my health is bad. I cannot see properly. That is why I always need someone to accompany me” (FGD: Women, 65+ years, Mufakose)

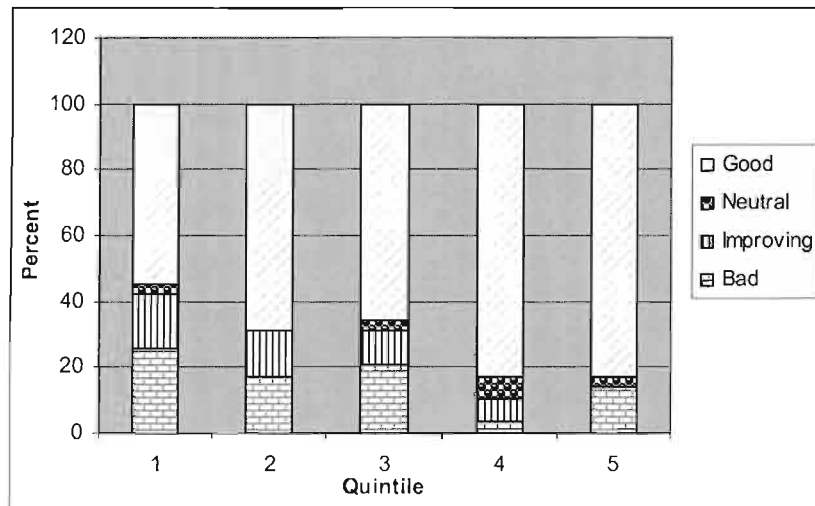
“Since 1999 my eyes ache, I also have blurred vision. Even when reading I have to put the book here [close to her]. At the clinic I tell them about my problem but they say they cannot help me. They say I have to go to a specialist” (FGD: Women, 18-30, Mount Pleasant)

**Figure 4.1: Need for health care**



Results (see Figure 4.2) show that poorer patients have a greater need for health care than their richer counterparts (although the results are not statistically significant,  $\chi^2 = 14.5$ ,  $p = 0.268$ ). Level of bad health decreases as SES increases while good health seems to increase with increasing SES. Thus, patients in the first 3 quintiles should benefit more from health care than those in richer quintiles. The need for care also depends on age ( $\chi^2 = 18.6$ ,  $p = 0.029$ ) with younger individuals claiming good health compared to those over 40 years. This might be due to co-morbidities since older individuals suffer from other conditions such as high blood pressure.

**Figure 4.2: Relationship between SES and need**

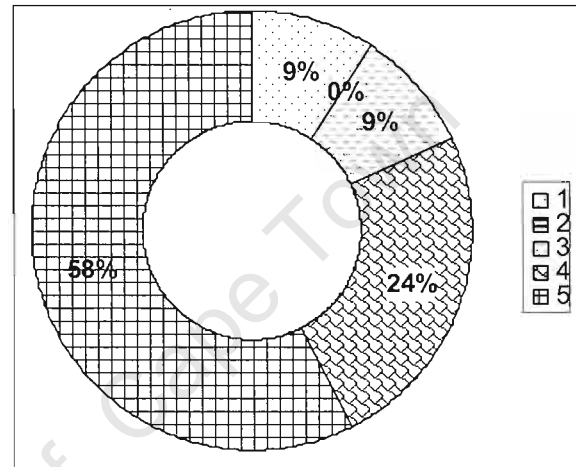
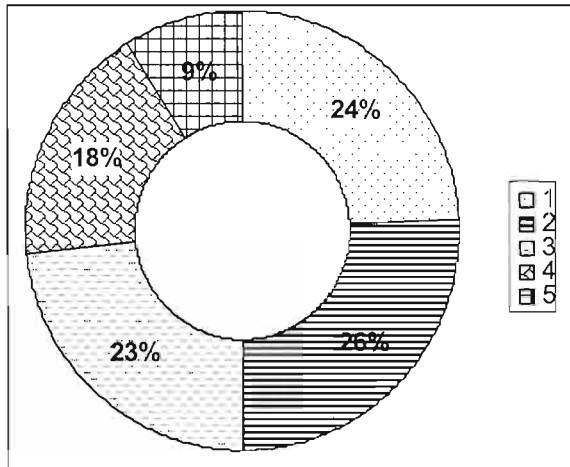


#### 4.7 HEALTH CARE USE

##### Source of care

The major source of care for the patients are public health facilities (78.41%), then private facilities (20.45%), traditional healers (0.57%) and prophets (0.57%). Source of care is not independent of socio-economic status ( $\chi^2 = 44.6$ ,  $p = 0.000$ ). Poorer patients use public facilities more frequently compared to their richer counterparts. For patients whose usual source of care is public facilities, 85.71% say it is their preferred source while 94.74% of those that usually attend private facilities say it is their preferred source. Thus, more private facility users (richer) prefer their source of care compared to public facility users (poorer).

**Figure 4.3: Usual source of care being public facility users by SES**    **Figure 4.4: Usual source of care being private facility users by SES**



It is important to clarify that although the study was conducted in public sector facilities, some of the patients interviewed actually used both public and private sector care (as shown in Figures 4.3 and 4.4).

Although the majority of patients claim their health is good, some patients sometimes fail to seek needed health care. Results show that more than 25% of the respondents have at some stage not sought care when it was necessary to do so. Care seeking behaviour depends on socio-economic status ( $\chi^2 = 21.8, p = 0.000$ ). For those who did not seek care, more than 45% of them are in the first quintile compared to only 6% of those in quintile 5. The major reasons given by patients for not seeking care (as summarised in Table 4.5) are lack of money, work commitments and not having somebody to accompany them:

“I remember one time when I failed to seek care. I didn’t have the money to buy the drugs” (Women: 18-30 years, Mount Pleasant).

“I have failed to seek care before. I was doing my work and also knew there were no drugs at the clinic” (Men: 31-64 years, Southerton).

For those who sought care, the major driving force is fear for their health because they might faint or even die:

“I have never failed to seek care. It endangers my life. You can fall, or even die. It has happened to other people” (Men: 31-64 years, Southerton).

**Table 4.5: Reasons for failure to seek care**

Reason	Freq.	Percent	Cum.
Work commitments	8	17.78	17.78
No money	21	46.67	64.44
Nobody to accompany me	4	8.89	73.33
Other	12	26.67	100.00
Total	45	100.00	

#### **4.8 AVAILABILITY OF DIABETES CARE**

This section focuses on the availability of Diabetes care in public sector facilities. It seeks to establish whether health services are there when patients need to use them. The main factors affecting availability include the scope of services provided, convenience of opening hours to patients, availability of drugs, staff and equipment and travel mode and time. Such factors are analysed below.

All the sampled facilities (100%) are urban clinics managed by the City of Harare (13 are polyclinics while two are primary care centres). There is a wide variation in the number of patients managed by the clinics, ranging from 7 to 78 depending on the size of the community being served and prevalence of Diabetes (see Table 4.7 later). The average number of patients on clinics’ registers is 23 and the median is 17.

### Services offered

Clinics surveyed do not offer a comprehensive range of services despite the fact that the only public referral centre in the city is Parirenyatwa Hospital. Another referral hospital, Harare Hospital, suspended outpatient clinics (including Diabetic clinics) with effect from 19 November 2007 due to a critical shortage of staff. All the clinics have set aside at least one day per week where they focus on chronic patients (Diabetes, Hypertension, Asthma and others). These clinics also prescribe drugs and do simpler tasks such as dressing wounds and taking weight and blood pressure measurements. Education sessions are mostly offered on a one-on-one basis when a patient is consulting. However, three facilities A13 (medium density), A1 (medium density) and A2 (low density) also offer group education sessions. Other services such as eye examination, foot care, diagnosis, treatment and dental care are usually handled by the visiting GP, otherwise patients are referred to Harare hospital or Parirenyatwa hospital. Thus, public facility users, especially those who stay in high density areas, have limited access to health care. This might also affect their perception of care at these facilities and influence their health seeking behaviour.

### Facility opening hours

Opening hours are the same for all the clinics (Table 4.6). The clinics are closed on Sundays, during the lunch hour (1-2 PM) and on public holidays. Thus, clinics only open during working hours and this might affect health seeking behaviour of employed individuals.

**Table 4.6: Health facility opening hours**

Day	Non-holiday	Public Holiday
Sunday	Closed	Closed
Monday - Friday	7:30 AM – 1 PM    2PM – 3:45 PM	Closed
Saturday	7:30 AM – 11:45 AM	Closed

Most of the patients (85.47%) claim that health facility opening hours are convenient for them while the remaining 14.53% say they are not. Among those that reported inconvenience, 91.67% generally utilise public facilities while only 8.33% generally use private facilities. The public facilities are mainly used by the poorest of the patients

(48% are in quintiles 1 and 2). The main reason for the inconvenience mentioned by those who failed to seek needed medical care is work commitments.

One FGD participant argued that:

“The clinic opens at the time I will be making orders [ordering goods for resale]. I have to make a difficult choice” (FGD: Women, 18-30 years, Mount Pleasant).

Thus, he has to decide whether to seek care or go to work. This might suggest that health facilities’ opening hours do not fit very well with patients who work. In addition, public facility users face more inconvenience than their private facility counterparts. Other patients from exit interviews (29.41%) said “What can I say” suggesting they have no choice but to comply with whatever opening times are given by the City of Harare. Such a response shows that some patients feel they do not have a say about how health facilities operate. Some FGD participants also expressed the same notion of not having enough say over opening hours, especially the elderly ones:

“I am okay with the hours. I am the one who needs help, what can I say” (FGD: Women, 65+ years, Mufakose).

“What can we do. If nurses say the clinic opens at 8 then we come at 8.” (FGD: Men, 31- 64 years, Southerton).

Other participants were generally satisfied with the time clinics are open although they expressed some concerns about delays and work commitments:

“Opening times are fine. But sometimes the nurses delay serving. I will be hungry by then” (FGD: Men, 31-64 years, Southerton).

### **Booking system**

There is no booking system per se except for cases which need to be attended by the general practitioner (GP). Thus, under normal circumstances, clinics have chronic days where they treat patients with chronic conditions such as Diabetes, Hypertension and Asthma. This was done so that patients could be attended to quickly on those days. A nurse at clinic A7 said the reason for seeing all chronic patients at the same time was an effort to reduce stigma associated with chronic diseases such as HIV/AIDS. Thus, it becomes difficult for someone to know whether one is being treated for HIV/AIDS or other chronic conditions. Nevertheless, it is important to note that patients can visit the clinic whenever the need arises, as opposed to chronic days only.

### **Staff availability**

Staffing levels at most clinics are very low, ranging from 3 to 29 nurses (as shown in Table 4.7). On average, each facility has 14.8 nurses. Nurse to population ratios range from 0.9 nurses per 10 000 population to 10.5 nurses per 10 000 population and they are independent of location (high, medium or low density residential area). Each clinic has a GP visiting once a week to deal with any cases which nurses feel he/she should take care of. However, clinics A1 and A14 refer their patients to other clinics or hospitals because they currently have no GP visiting. Thus, access to care in these public facilities is reduced because of low staffing levels. This mainly affects the poorest patients who cannot afford private sector care.

### **Diabetes care supplies**

Table 4.7 (see later) summarises the availability of supplies at the sampled health facilities. The majority of facilities offer less than half the supplies needed for diabetes care. Even for those which had supplies in stock at the time of the interview, the most common word nurses used to describe drug availability was “erratic”. More than 74% of the patients also feel they do not get all the assistance they need from health facilities because of lack of drugs. They argued that:

“Lack of drugs is the major problem at the clinics. Every time I go to the clinic they say there are no drugs. We go there to collect prescriptions” (Women, 65+ years, Mufakose).

Almost every participant complained about both availability and affordability of drugs. Some of the participants argued that:

“Drugs are in short supply and expensive considering that they are necessary for our survival” (FGD: Women, 18-30 years, Mount Pleasant).

The way patients feel about assistance rendered also affects their satisfaction with health services, health seeking behaviour and thus, access to care. In fact, some patients feel there is no need to go to the health facility if drugs are not available:

“There are no drugs most of the time. Why should we go to the clinic?” (Men: 31-64 years, Southerton).

In the same vein, providers also attributed treatment default to lack of drugs:

“There is a high default rate due to lack of drugs. If a patient comes three times without getting drugs they will not come back” (Provider IDI, A5, high density).

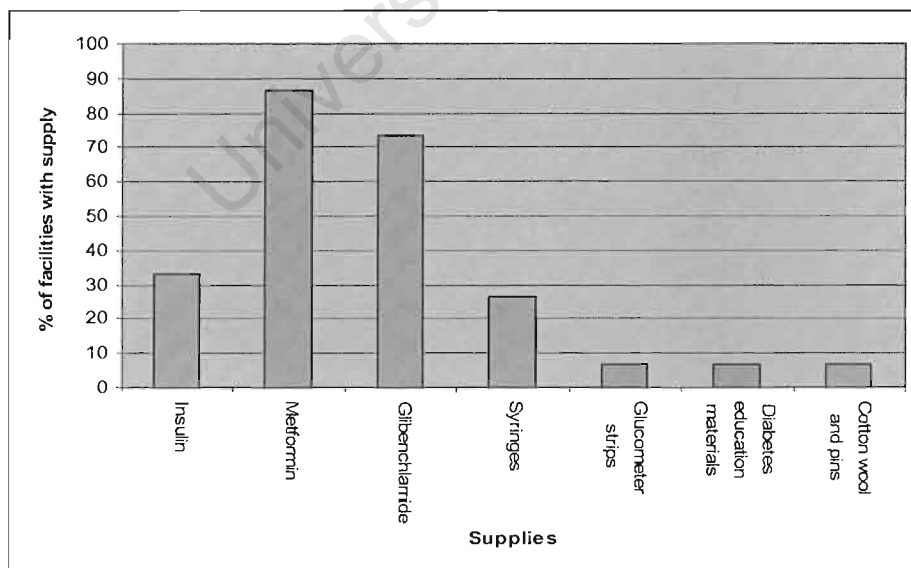
About 64% of patients who lament the lack of drugs in health facilities are in the poorest and second poorest quintiles of the wealth index. Therefore, lack of access to drugs seems to be more prevalent among poorer patients. This is so despite results above which suggest greater need for care among the poorest of the patients. However, a provider at one clinic expressed the extent of the drug shortage as follows:

“We are no longer recruiting new Diabetic patients at this clinic. There is a serious shortage of drugs” (IDI, A15, low density).

This statement reveals that newly diagnosed patients in this area have virtually no access to public sector Diabetes care.

Metformin and Glibenclamide were the most frequently available drugs in all facilities while glucometer strips, education materials and cotton wool seem to be available in very few facilities (Figure 4.5).

**Figure 4.5: Availability of Diabetes care supplies**



The availability of Diabetes care supplies by location is shown in Table 4.7. No facility in the medium density areas had insulin while a few facilities that had it in stock are in the low and high density areas. Glibenclamide and Metformin were common in most

of the low, medium and high density facilities. Syringes were unavailable across all facilities. Only four facilities, one in each of the low and medium and two in high density areas provided their patients with syringes. Glucometer strips were only offered in one low density facility. On the same note, Diabetes education materials were only available in one medium density facility. Last, cotton wool and pins were only provided in one high density facility. Thus, availability of drug supplies does not seem to depend on the location of the facility.

**Table 4.7: Percentages of facilities in each area with supplies**

Supply	Low density (n=2)	Medium density (n=3)	High density (n=10)
Insulin	1/2 (50%)	0/3 (0%)	4/10 (40%)
Metformin	1/2 (50%)	3/3 (100%)	9/10 (90%)
Glibenclamide	1/2 (50%)	2/3 (67%)	8/10 (80%)
Syringes	1/2 (50%)	1/3 (33%)	2/10 (20%)
Glucometer strips	1/2 (50%)	0/3 (0%)	0/3 (0%)
Diabetes education materials	0/2 (0%)	1/3 (33%)	0/10 (0%)
Cotton wool and pins	0/2 (0%)	0/3 (0%)	1/10 (10%)

#### **Equipment availability**

The clinics sampled have the basic equipment such as weighing scales and sphygmomanometers while tuning fork and patella hammer are brought by GPs when they visit. Only 1 clinic had a glucometer. Provider interviews also reveal that the major challenges are lack of drugs (50%) and equipment (22%).

**Table 4.8: Staff, supplies, tests, equipment ad number of patients per facility**

Facility	Type	Residential area (pop density)	Nurses	General Practitioner	*Supplies	**Tests	+++Equipment	Average number of Diabetes patients on register	Nurse : per 1000 population
A3	P	High	9	Once a week	1/7	0/3	4/7	11	0.090
A4	P	High	7	Used to come once a week	0/7	0/3	4/7	15	0.425
A5	P	High	14	Once a week	1/7	1/3	4/7	23	0.250
A6	P	High	25	Once a week	1/7	1/3	5/7	7	0.0864
A7	P	High	22	Once a week	0/7	0/3	5/7	24	0.252
A8	P	High	21	Once a week	1/7	0/3	5/7	9	0.136
A9	P	High	29	Once a week	1/7	1/3	4/7	32	0.243
A10	P	High	25	Once a week	1/7	1/3	5/7	78	
A11	P	High	23**	Once a week	1/7	0/3	4/7	38	0.576
A12	P	High	18***	Once a week	3/7	1/3	4/7	31	1.052
A1	P	Medium	6*	Not coming	3/7	1/3	4/7	18	0.198
A13	PCC	Medium	7	No GP since last year	3/7	0/3	4/7	15	0.268
A14	PCC	Medium	4	Send patients to A11	2/7	0/3	4/7	13	0.173
A2	P	Low	5	Once a week	4/7	2/3	2/7	13	0.137
A15	P	Low	10	Once a week	0/7	2/3	4/7	19	0.851

+ Supplies refer to: Insulin, Metformin, Glibenamide, Syringes, Glucometer strips, Diabetes education materials and Cotton wool and disposable pins. Thus, 1/7 means a facility provides one of these seven supplies.

++ Tests refer to: Random Blood Sugar (RBS), Glycoslated haemoglobin (A1C) and Cholesterol. Therefore, 1/3 means a facility offers one of the three tests to its patients.

+++ Equipment refers to: Glucometer, weighing scale, tape measure, sphygmomanometer with different cuff sizes, Ophthalmoscope and Snellen Chart, Tuning fork and Patella hammer. Thus, 1/7 means a facility has one functional equipment out of the seven mentioned above.

\* An additional 3 locums \*\*Additional 3 coming \*\*\*Supposed to be 28

Note: The number of nurses is the staff complement, not staff for Diabetes care only

## Tests

Results in Table 4.8 suggest that many of the clinics surveyed (7/15) do not carry out any test for Diabetics, mostly due to lack of transport and containers. Transport is necessary because clinics should collect specimens and send them to Beatrice Road Infectious Disease Hospital (a City of Harare hospital) for testing. The hospital then sends results within one or two days. IDIs with providers also highlight these challenges:

“We do not have basic things like containers for blood collection. It's been more than a year since we had such containers” (IDI, clinic A8, high density).

“We can do RBS but transport is erratic. We now refer urgent cases to private laboratories” (IDI, clinic A13, medium density).

About 6 out of the 15 facilities offer one test (Random Blood Sugar (RBS)) and the remaining two offer 2 tests (RBS and cholesterol). Clinics A2 and A15 are the ones which offer two tests and both of them are situated in low density areas. Clinic A15 offers RBS and cholesterol tests twice a year and also as needed. Other clinics which offer RBS claim they do the tests as needed. However, no clinic offers the glycosylated haemoglobin (A1C) test. Some of the reasons cited by providers for not carrying out most of the tests are lack of equipment and transport.

## Mode of transport and travel time

Most of the patients surveyed either walk to the health facility (55%) or use a taxi (21%) while the remaining 24% use cars, buses and trains.

Analysis of travel mode by SES (see Table 4.9) reveals that about 44% of patients in quintiles 1 and 2 walk to the health facility compared to 40% of those in quintiles 4 and 5. Cars are more popular in the middle (32%) and richest (21%) groups compared to 11% of the poorest.

The poorest patients mainly rely on walking, taxis and buses and claim taxis to be very expensive. However those who use buses and trains wait for considerable periods. Thus, they make tradeoffs between direct costs and time. Some of the FGD participants said:

“I use public transport to go the clinic. It does not take much time. Sometimes I use taxis but they are very expensive. Buses cost much less, but you have to wait for them” (Women, 65+ years, Mufakose).

“We walk to the clinic. Its a short distance” (Women, 18-30 years, Mount Pleasant)

Although richer patients use more convenient means of transport, they also seem to be more expensive. Fuel is unavailable and unaffordable for the majority of the people in the prevailing economic situation in Zimbabwe. One FGD participant said:

“It depends on whether I have fuel or not. I use my car if fuel is available, otherwise I use taxis” (FGD: Men, 31-64 years, Southerton).

**Table 4.9: Mode of transport by SES**

Mode						
Quintile	Bus	Car	Taxi	Train	Walk	Total
1	10.71	7.14	25.00	7.14	50.00	100.00
	33.33	10.53	24.14	40.00	18.42	20.29
2	0.00	14.29	17.86	0.00	67.86	100.00
	0.00	21.05	17.24	0.00	25.00	20.29
3	3.57	21.43	28.57	3.57	42.86	100.00
	11.11	31.58	27.59	20.00	15.79	20.29
4	7.41	11.11	14.81	7.41	59.26	100.00
	22.22	15.79	13.79	40.00	21.05	19.57
5	11.11	14.81	18.52	0.00	55.56	100.00
	33.33	21.05	17.24	0.00	19.74	19.57
Total	6.52	13.77	21.01	3.62	55.07	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

The median travel time from home to the health facility ranges from 12 minutes for those who use cars to 118 for train users. In relation to SES, median travel time (in minutes) is as

follows: quintile 1 (15), quintile 2 (20), quintile 3 (22.5), quintile 4 (27.5) and quintile 5 (13). Kruskal Wallis test shows that there is no significant difference in median travel times by SES ( $\chi^2 = 9.3$ ,  $p = 0.055$ ). Therefore, although poor patients are likely to walk to the health facility, the time they take might not differ much from other socio-economic groups.

The minimum travel time is 5 minutes while the maximum is 220 minutes. About 37% of the respondents travel at least 60 minutes to get to the health facility. A t-test reveals that travel time does not differ by gender ( $t = 0.415$ ,  $p=0.6790$ ) or SES ( $\chi^2 = 16.3$ ,  $p= 0.177$ ). However, it does vary by age ( $\chi^2 = 18.1$ ,  $p=0.034$ ) with 70% of patients aged at least 40 years travelling more than 90 minutes. Older patients are mainly affected by their inability to walk briskly although some of them might stay near the clinics

#### **4.8 AFFORDABILITY OF DIABETES CARE**

The current section focuses on the relationship between full costs faced by patients and their ability to pay. Costs are divided into direct (consultation fees, drugs, transport, and food) and indirect (opportunity costs of seeking care). On the other hand, ability to pay depends on employment status, medical aid organisation membership, membership of support group, asset ownership and access to coping strategies.

##### **Ownership of assets**

Table 4.10 summarises access to electricity and ownership of assets by patients. Most of the respondents have access to electricity and own radios and televisions. However, only a few have landline telephones and cars. This might limit patients' transport and communication options in case of an emergency.

**Table 4.10: Access to electricity and asset ownership**

Item	N	Percent
Electricity	172	96.63
Radio	172	97.18
Television	150	84.75
Cellphone	128	72.32
Landline	41	23.43
Refridgerator	99	56.25
Bicycle	78	44.83
Car	40	22.99

In terms of numbers of assets, more than half the patients own 3 to 4 assets (50.3%), then 5-6 assets (23.5%), 0-2 assets (16.8%) and more than 7 assets (9.5%). However, further analysis reveals that the poorest own a maximum of 4 assets while only the richest own 7 or more assets. From the third quintile onwards, respondents own at least 3 assets. This implies that, by definition, the richest respondents have more assets than others and can thus use them either as collateral or sell them when faced with high medical expenses.

#### **Employment and major sources of income**

Slightly more than half (51.85%) of the patients are employed, mostly males (61.90% are males and 38.10% are females) while the remainder are unemployed. The single largest category of respondents are self-employed (30.99%), then salaried jobs (26.76%), student (20.42%), pensioner (16.20%) and housewife (5.63%). This job profile raises affordability concerns since only about 27% receive regular incomes while the remaining 73% either are self-employed or are not employed. Although a significant percentage of patients are unemployed, FGDs demonstrate that most of them rely on help from relatives, mostly children:

“I am a pensioner. My earnings are very little. My children who are working always assist me. But things are now difficult for everyone. Sometimes they don’t have money also” (Women, 65+ years, Mufakose).

Others are subsistence farmers who constantly move between the village and city.

### **Household expenditure**

Most of the patients (more than 90%) could not estimate their households' total monthly expenditure thus making it difficult to come up with meaningful figures. However, the mean expenditure for those that responded to the questionnaire is Z\$510 million (\$US16 999.83, \$US340.17 on the black market) and the median is Z\$500 million (\$US16 666.50, \$US333.50 on the black market). Thus, an asset index was developed as a measure of wealth as opposed to income and expenditure. Even FGDs could not reveal much about households' expenditure because of the ever changing prices due to high inflation and unstable macroeconomic environment. Participants always referred to "very expensive" drugs and consultation fees (for private facilities).

### **Medical aid**

About 60% of patients do not belong to any medical aid scheme. Membership of medical aid is strongly associated with socio-economic status ( $\chi^2 = 95.0$ ,  $p = 0.000$ ). According to Figure 4.6, none of the patients in quintiles 1 and 2 belong to a medical scheme while membership increases from quintile 3 (18%) to quintile 5 (48%). Thus, the poorest and second quintile patients might find it difficult to afford medical care because they do not have medical aid and have to pay out of pocket. The most popular medical aid scheme is CIMAS (53.70%), then PSMAS (29.63%), Social Welfare (7.41%), Municipal (5.56%) and others (3.70%).

Provider interviews suggest patients have some kind of support groups not mentioned by patients:

“Sometimes they form clubs where they share experiences, testimonies, teach each other, help each other” (IDI, A5, high density).

The single largest group of respondents who have support groups cited the Zimbabwe Diabetic Association (ZDA) (46.43%), while a few mentioned Social Welfare (14.29%) and their employer (3.57%). Thus, there is low awareness of the Diabetic Association, especially among the poorest.

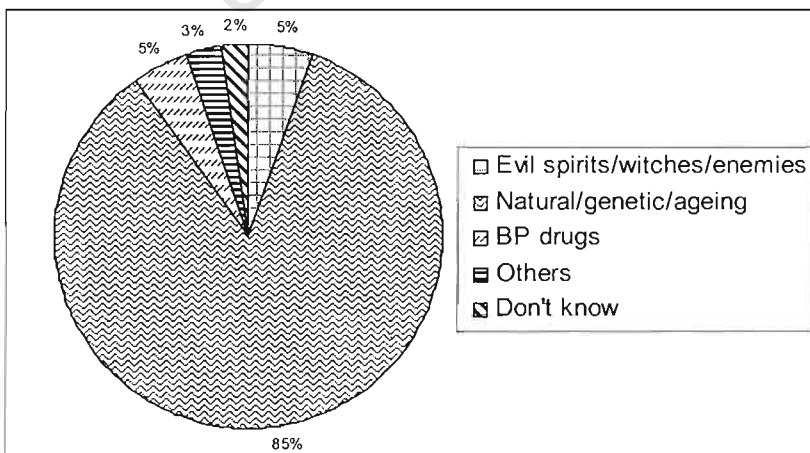
#### 4.9 ACCEPTABILITY OF DIABETES CARE

This section analyses the interaction between providers and patients in the context of Diabetes care. Thus, the major focus is placed on how patients’ characteristics, attitudes, beliefs and perceptions relate to those of their providers. In addition, the study also analyses patient-provider expectations of each other and patient satisfaction levels.

##### Health related beliefs and perceptions

The majority of patients regard their health to be good (according to Figure 4.1). Perceived causes of illness cited by patients are shown in Figure 4.9 with natural causes being the most popular.

**Figure 4.9: Perceived causes of illness**



Some of the FGD participants said:

“I think my disease is natural. But it almost broke my family apart. I confronted my husband when I started losing weight. I was sure he was the one who brought the disease [HIV/AIDS]. However, I apologised to him when I was diagnosed of sugar [Diabetes]” (Women: 18-30 years, Mount Pleasant).

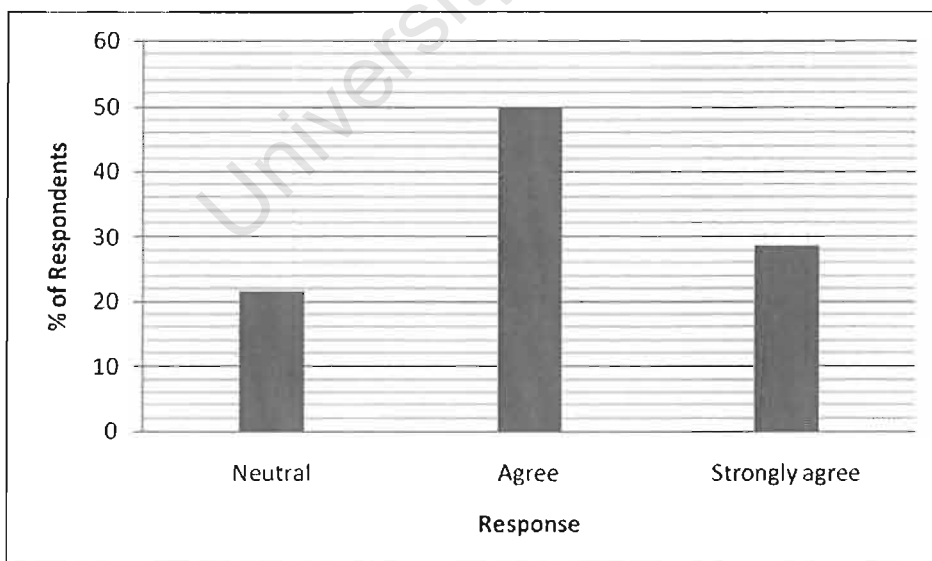
Others cited Blood Pressure (BP) drugs and evil forces as further espoused in the FGDs:

“My sugar was caused by evil spirits cast by people who were jealous about my business. It was booming at the time” (Men: 31-64 years, Southerton).

“I was diagnosed of sugar after taking BP drugs for 2 years. They are the ones that caused it. Before that I was almost okay” (Women, 65+ years, Mufakose).

The relationship between the health system and patients’ health related beliefs and perceptions are summarised in Figure 4.10. More than 78% of the providers assert that patients’ beliefs and opinions about their health are supported by the health system. Thus, they can provide care which does not violate patients’ principles and value systems.

**Figure 4.10: The health system supports the patients’ beliefs and perceptions**



### **Provider –patient characteristics and attitudes**

Demographic characteristics have already been described above (section 4.3). Most of the patients are male, married, Christian and schooled to 'O' level. On the other hand, providers are predominantly female, married and possess vast experience in the health care sector. The average ages for patients and providers are almost the same. These characteristics shape attitudes, perceptions and opinions about each other and can thus, either hinder or improve the level of access to health care services.

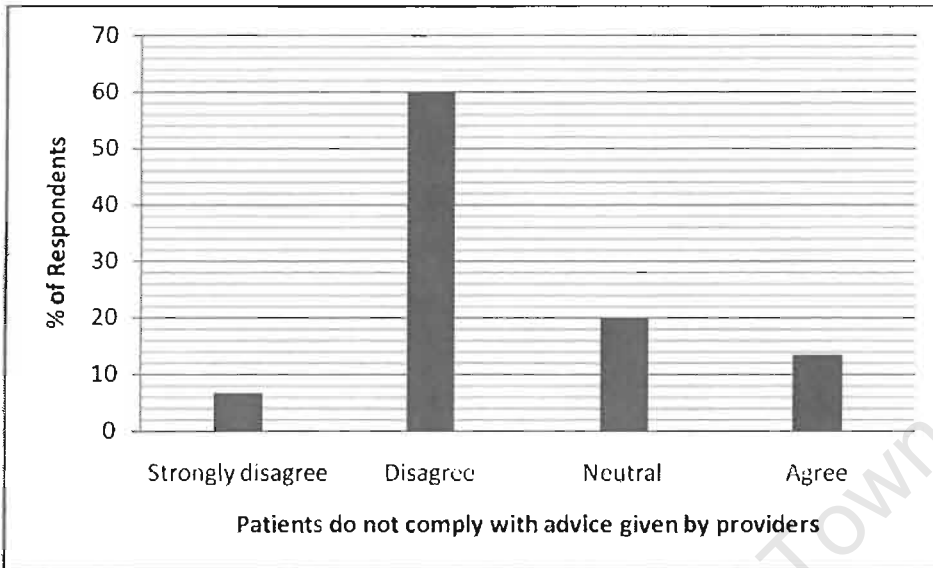
Results (see Table 4.14) show that more than 86% of providers agree that they are aware of patients' cultures and values while about 13% were in strong agreement with the statements. Thus, awareness of patient values seems to be high among providers.

**Table 4.14: Providers are aware of patients' culture and values**

Providers are aware of patients' culture and values	Freq.	Percent	Cum.
Agree	13	86.67	86.67
Strongly agree	2	13.33	100.00
Total	15	100.00	

With regards to behaviour, Figure 4.11 shows that the majority of the providers (66.67%) feel patients understand advice given and also comply with any behavioural modifications suggested.

**Figure 4.11: Patients do not comply with advice given by providers**



The main reason cited for compliance, according to providers, is that patients know the consequences and thus, behave in line with advice suggested. Nevertheless, some providers perceive patients might not comply because:

“Some patients do not comply because of the economic situation. Food is now very expensive” (IDI, A10, high density).

“It is very difficult for patients to follow the diets we recommend. The economic situation is very harsh, everyone can feel it” (IDI, A7, high density).

Providers also argue that motivation to provide the best quality care is lacking. One provider explained why there is demotivation:

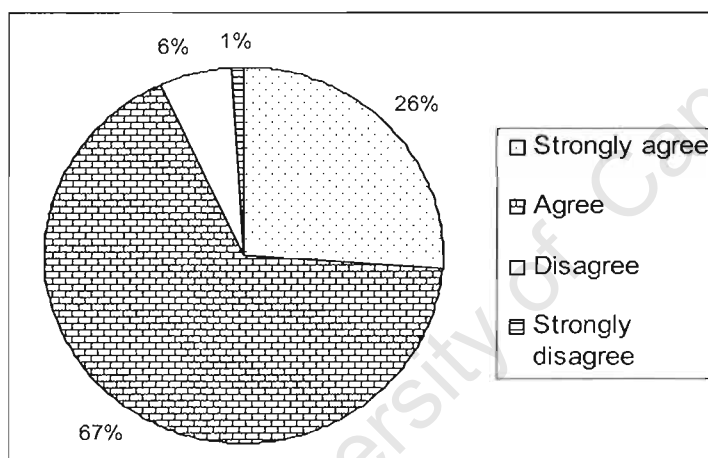
“The situation is very demoralising. We have no equipment, no drugs. How are we supposed to provide care?” (IDI, A5 clinic).

Patients believe providers treat everyone equally regardless of factors such as race and income level. This does not depend on source of care ( $\chi^2 = 0.8$ ,  $p = 0.373$ ) or SES ( $\chi^2 = 4.3$ ,  $p = 0.369$ ). More than 94% of the patients claimed there was equal treatment at health facilities while the remaining 6% said it was not equal. Provider interviews also show that more than 85% of the providers disagreed that rich patients should get better treatment than

the poor ones. Therefore, there is a mutual feeling of equal treatment among providers and patients.

More than 94% of the patients are not concerned about the sex of the provider. Similarly, more than 93% of the providers (see Figure 4.12) argue that they do not mind treating a patient of the opposite sex. Furthermore, they also maintain that patients do not feel uncomfortable when they are treated by a provider of different gender (67%). Thus, gender does not seem to affect patient-provider interaction because both claim to be comfortable with each other.

**Figure 4.12: I do not mind treating a patient of the opposite sex**



Therefore, there is mutual respect between patients and providers. On whether the role of a patient is to listen to what the provider tells him or her, there was a neutral response (median of 3). Providers further asserted that a patient should not only listen but also communicate his/her concerns. Thus, providers perceive patients as equal partners in the care process.

#### **Patient and provider expectations**

The present section analyses expectations of both providers and patients before presenting patient satisfaction levels. Expectations from both sides are important in the care process. Patients' main expectation is to get all the drugs they need at the health facility. The

majority of them expressed dissatisfaction with the fact that they were not getting drugs as they expected:

“Not everything is given as your expectations. For example, drugs are almost always not available” (FGD: Women, 65+ years, Mufakose)

There was also a notion that Diabetes patients should be treated without waiting for too long. One FGD participant complained that:

“At the clinic people say ‘You jumped the queue’. But I will be feeling very weak. I try to explain that I have sugar [Diabetes] but they do not understand” (FGD: Women, 65+ years, Mufakose)

Most of the patients (93%) expect providers to give them the most effective treatment available and in addition, all of them (100%) expected to be treated with respect and dignity. On the other hand, providers expect them to follow their advice as shown in Table 4.15.

**Table 4.15: Providers expect patients to follow given advice**

Providers expect patients to follow given advice	Freq.	Percent	Cum.
Neutral	1	6.67	6.67
Agree	7	46.67	53.33
Strongly agree	7	46.67	100
Total	15	100	

Satisfaction of these expectations might improve patient-provider interaction. However, level of satisfaction is also affected by other factors such as drug availability.

### **Patient satisfaction**

Results show that 57% of patients that usually use public health facilities claim they get all the assistance they need compared to 82% for those who generally use private facility users. Results above (Figure 4.3 and 4.4) suggest the poorer patients generally utilise

public facilities while richer ones use private facilities. Thus, richer patients get more assistance compared to poorer ones and this affects satisfaction. Although a considerable number of patients who patronise public facilities claim they get all the assistance they need, they also say:

“In terms of consultation yes, but the problem is availability of drugs” (FGD: Women, 65+ years, Mufakose).

“We get all the assistance we need. But there are no drugs most of the time” (FGD: Men, 31-64 years, Southerton).

Richer patients who use private health facilities claim to get more assistance:

“I get a lot of assistance from my private doctor. At least he orders some drugs for me” (FGD: Men, 31-64 years, Southerton)

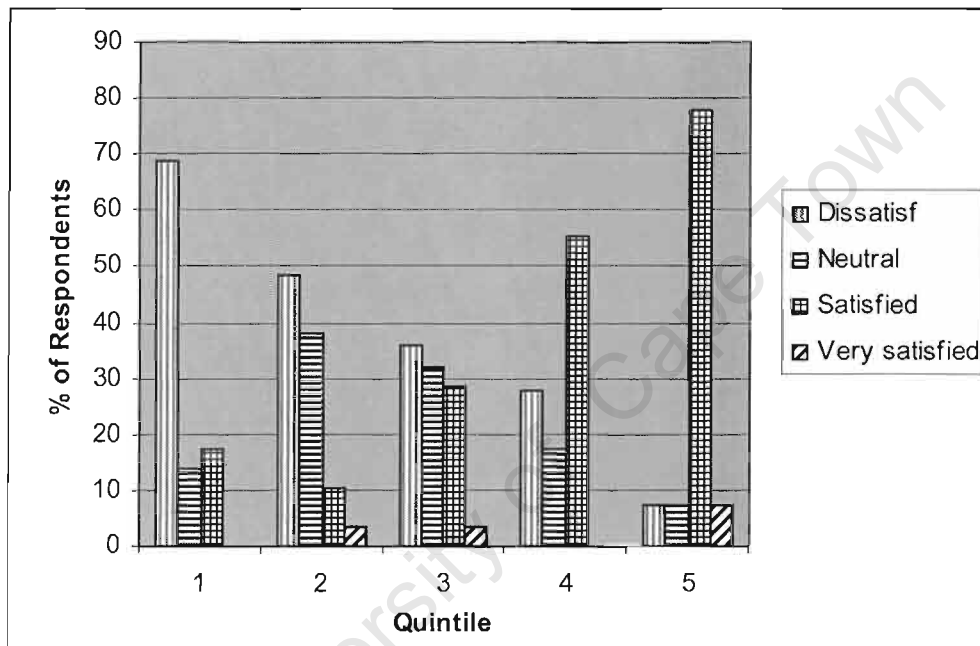
The two largest categories of patients were either dissatisfied (37.21%) or satisfied (37.21%), then neutral (21.51%) and very satisfied (4.07%). Thus, more than 41% of the patients were at least satisfied with care. Chi-squared tests reveal a significant association between satisfaction level and socio-economic status ( $\chi^2 = 51.6$ ,  $p = 0.000$ ) and also satisfaction level and source of care ( $\chi^2 = 30.2$ ,  $p = 0.000$ ). According to Table 4.16, those who generally use public facilities are more dissatisfied than their private facility counterparts.

**Table 4.16: Levels of satisfaction by source of care**

Source of care	Dissatisfaction	Satisfaction		
		Neutral	Satisfied	Very satisfied
Public health facility	60 45.11	32 24.06	36 27.07	5 3.76
Private facility	3 8.33	4 11.11	27 75.00	2 5.56
Total	63 37.28	36 21.30	63 37.28	7 4.14

Relative satisfaction is independent of need (perceived health status) ( $\chi^2 = 15.0, p = 0.092$ ). Figure 4.13 below shows that the most dissatisfied patients are those in the first quintile while the percentage of satisfied individuals reveals an increasing trend from quintile 1 to quintile 5. Poor patients are more likely to use public health facilities and to be less satisfied than their richer counterparts.

**Figure 4.13: Satisfaction level by SES**



Although providers assert that it is difficult to satisfy patient expectations, as indicated by 60% of them, almost 54% of them believe patients are satisfied with public sector Diabetes care. Table 4.17 shows results on providers' responses on patients' satisfaction with care.

**Table 4.17: Providers' perceptions of patients' satisfaction with care**

Patients are satisfied with Diabetes care provided at public health facilities	Freq.	Percent	Cum.
Strongly disagree	2	15.38	15.38
Disagree	4	30.77	46.15
Agree	5	38.46	84.62
Strongly agree	2	15.38	100
Total	13	100	

This result agrees with the median score which reveals that patients are satisfied with care. However, the overwhelming majority of those not satisfied with care are concerned with the drug shortage at public health facilities:

“How can we be satisfied? There are no drugs at the clinics. We buy them from pharmacies at very high prices” (FGD: Women, 18-30 years, Mount Pleasant).

Providers also argue that patients are not satisfied because of a lack of drugs.

Different reasons are given for patients' preference of either public or private health facilities. Results suggest public facilities are mainly preferred because they are cheap (63.27%):

“My usual source of care is the council clinic. It is cheap and also near where my son stays” (FGD: Women, 65+ years, Mufakose).

and close to where patients live (13.27%) while the major reason for a preference of private facilities is that they offer better treatment (82.36%) than public ones:

“I go to a private doctor. He gives me all the assistance I need. I just call him whenever I have a problem” (FGD: Men, 31-64 years, Southerton).

Thus, poor patients are forced to use public facilities because they cannot afford private care:

“I prefer going to private health facilities. But I can’t afford it. In the end, I just go to the public clinics” (FGD: Women, 18-30 years, Mount Pleasant).

### **Communication and trust**

Almost all the patients (96%) believe they are given enough consultation time by their providers and this does not depend on SES ( $\chi^2 = 1.9$ ,  $p = 0.754$ ) or source of care ( $\chi^2 = 0.2$ ,  $p = 0.621$ ). However, providers are neutral about availability of time (median response of 3), maybe due to their heavy workload as suggested by some FGD participants:

“Time for communication depends on the number of people they want to serve. Sometimes the queues are very long” (Women, 65+ years, Mufakose).

Most of the patients (99%) claim providers communicate with them in a language they understand. Findings from FGDs reinforce this claim (although some patients say some nurses use English terms they do not understand):

“Communication is good. The nurses explain to us in Shona. We understand each other” (Men: 31-64 years, Southerton).

Furthermore, they report that they get adequate information on how to manage their condition. Younger patients also claim they do research about Diabetes on their own besides listening to the providers:

“My doctor explains everything. I also do some research and studies on my own because I am a student” (FGD: Women, 18-30 years, Mount Pleasant).

Those who are not satisfied with information given to them cite lack of pamphlets, especially in vernacular languages and also poor funding of Diabetes education activities. Patients are also taught how to self manage their condition and are thus empowered to make decisions about their own health. These findings are very important because Diabetes is a chronic condition for which self management is critical if the health status is to be improved.

More than 83% of patients claimed that the principle of confidentiality was upheld compared to 74% of the providers (see Figure 4.14). Thus, both patients and providers

agree that there is confidentiality in the care process. Nevertheless, a significant 20% of the providers claimed there was no confidentiality and this was attributed to the lack of space.

**Figure 4.14: Confidentiality in care process**

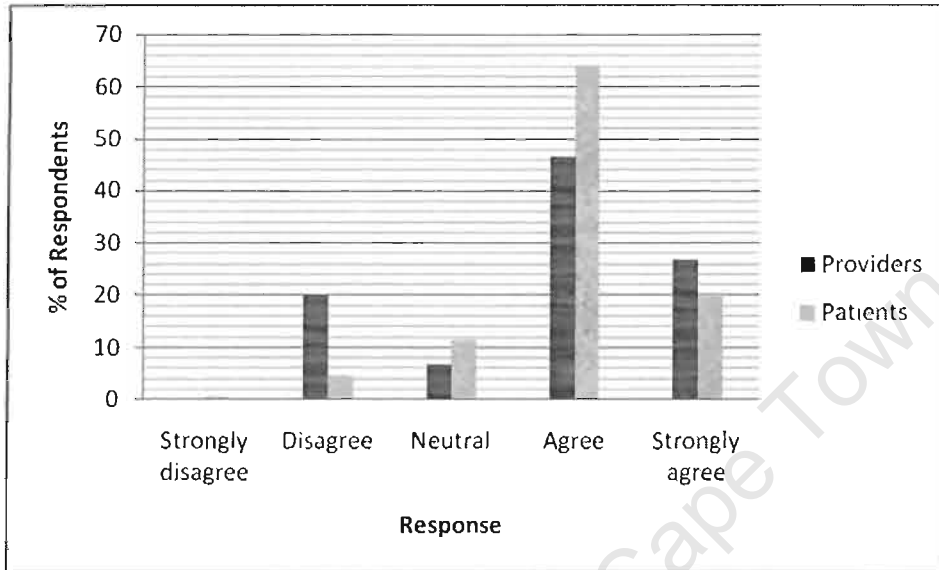
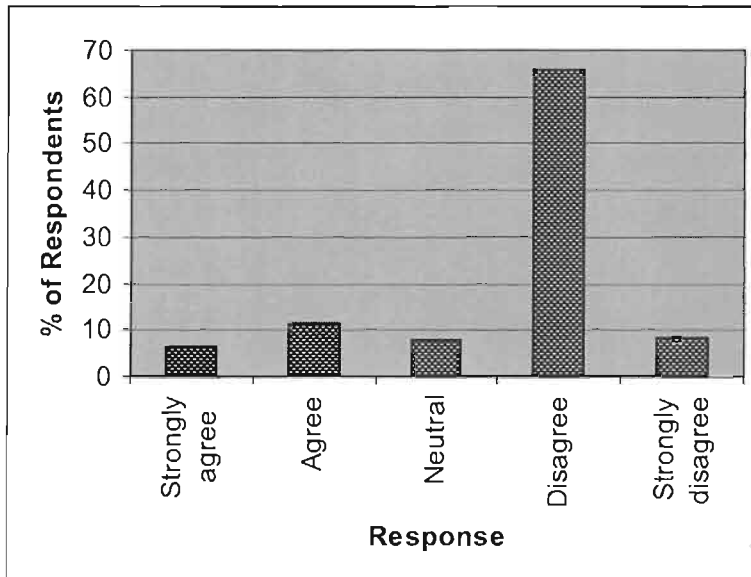


Figure 4.15 shows more than 74% of the patients' disagreed that care providers could not be trusted with sensitive information. In the same vein, 60% of the providers claimed that there was a high level of trust between patients and providers. This implies existence of mutual trust between patients and providers.

**Figure 4.15: Providers cannot be trusted with sensitive information**



Due to the high level of trust, 87% of the providers contend that patients usually ask questions about their conditions when seeking care. However, the majority of the providers (57%) believe patients sometimes provide partial medical history. This can affect both diagnosis and treatment given. Nevertheless, the high level of trust makes patients accept information they are given by providers and to use it for their own benefit.

About 76% of the patients agree that care providers undertake a thorough examination. Most patients agree that care providers undertake a thorough examination. However, analysis of the findings reveals that 83% of private facility users claim providers offer a painstaking examination while the figure drops to 76% among public facility users (Table 4.18).

**Table 4.18: Care providers undertake a thorough examination**

Response	Source of care	
	Public facility	Private facility
Strongly agree	15.44	38.89
Agree	58.82	44.44
Neutral	20.59	8.33
Disagree	3.68	8.34
Strongly disagree	1.47	0
Total	100	100

Thus, the majority of those that agree with this assessment usually seek care in private facilities as opposed to public health facilities. Thus, thoroughness of examination depends on source of care ( $\chi^2 = 13.0$ ,  $p = 0.011$ ) and SES ( $\chi^2 = 32.7$ ,  $p = 0.008$ ). Public facilities suffer from lack of staff and equipment as already highlighted above. SES is linked to source of care in that patients in higher quintiles generally utilise private facilities while those in lower quintiles usually use public care facilities. In addition to stating that providers have adequate knowledge and training to assist them, patients also agree that providers have the willingness to assist them.

#### **4.10 WAYS OF IMPROVING ACCESS TO DIABETES CARE**

There were overwhelming responses on how to improve Diabetes care in Harare. Most of them centred on increased allocation of funding to Diabetes management, improved availability and affordability of drugs and food. Others also suggested that the ZDA should be more visible by campaigning vigorously. It is also worth noting that some patients feel neglected by the government and that something should be done:

“The government should give us more attention” (FGD: Women, 65+ years, Mufakose).

A significant number of FGD participants also compared assistance offered to them and that of HIV/AIDS patients:

“Government should know that Diabetes is a deadly disease as much as HIV/AIDS. More emphasis needs to be put in it. Those with HIV/AIDS get free ARVs. Why don't we get free drugs also” (Men: 31-64 years, Southerton).

#### **4.11 CONCLUSION**

This chapter has presented the major findings of the study. All the results from in-depth interviews, exit interviews, health facility checklists and focus group discussions were analysed and presented in an integrated way, that is, according to each dimension of access. The following chapter discusses the findings of the study.

University of Cape Town

## **CHAPTER 5**

### **DISCUSSION**

#### **5.0 INTRODUCTION**

This chapter discusses the main access constraints which emanate from the findings of the study. Thus, comparisons will be made between findings from the current study and those of studies carried in other countries. Studies done in countries such as Mali, Zambia, Mozambique, Ethiopia and other African countries are used because these countries have comparable socio-economic conditions and burden of disease to Zimbabwe. In addition, this chapter highlights the interaction between the different access dimensions: availability, affordability and acceptability.

The major access issues raised by respondents relate to affordability and availability of health care services, with few acceptability issues being raised. However, this chapter will discuss the findings in an integrated way, that is, without separating them into access dimensions. Furthermore, the study discusses the extent to which access to public sector Diabetes care is equitable.

#### **5.1 MAIN ACCESS CONSTRAINTS**

The major access constraints frequently cited by respondents in this study are unavailability and affordability of drugs. Public health facilities in Zimbabwe sell drugs at subsidised prices to patients. The intention is to increase affordability of drugs and is laudable. However, even at these subsidised prices, drugs still pose a significant cost burden. The study has also revealed that the drugs are often unavailable at these facilities, thus patients end up buying them from private health facilities. Private facilities sell drugs at prices which are much higher than those charged by public facilities. Price comparisons carried out in Tanzania (Ministry of Health and Social Welfare, 2006) and Kenya (Ministry of Health, 2006) have shown that drugs are more available and expensive (cost 50% and 139% more respectively) in private health facilities than public ones. In Nigeria, although medicine prices were similar in public and private health sectors, they were estimated to be 2 to 64 times higher than international reference prices (Nigeria Federal Ministry of

Health, 2006). There might be need for the government to regulate, to differing extents, the drug prices set by private health facilities. In addition, it is important for further studies to analyse why drug prices in most African countries are much higher than international reference prices.

Drug availability challenges have resulted in some public facilities not accepting new patients, thus presenting serious access constraints to patients who rely on public sector health care. This situation requires that the public sector takes steps in improving availability and consequently, affordability of drugs to patients in order to improve access. The current situation violates the population's right to adequate and affordable health care.

The essential drugs for Diabetes care in Zimbabwe are metformin, glibenclamide and insulin. Metformin and glibenclamide are more available in public care facilities than insulin, maybe because they are much cheaper. Insulin supply is very erratic with some facilities reporting last having stock two years previously. Serious shortages of insulin have also been reported in Ethiopia (Alemu and Watkins, 2004) and other African countries (International Insulin Foundation, 2005). This has resulted in high prices being charged for the drug. Consequently, about 80% of insulin sufferers in SSA cannot afford insulin and insulin syringes (Whiting, Hayes and Unwin, 2003). Results from studies done in Mali and Sudan demonstrate the magnitude of insulin costs. A patient in Mali requires \$US229 for direct costs of care and 70% of this amount is for purchasing an annual supply of insulin (Chale and McLarty, 1997). This is estimated to constitute 38% of a Mali household's income (International Insulin Foundation, 2005). However, Type 1 Diabetes (35%) is less prevalent than Type 2 Diabetes (65%), thus reducing the amount of insulin needed. It should, however, be noted that some Type 2 patients will eventually require insulin in the advanced stages of their condition. Therefore, it is essential for the public sector to improve stocks of insulin since it is not available and also very expensive.

Unavailability and unaffordability of drugs are not problems peculiar to Zimbabwe only. Studies done in other African countries such as Mali, Mozambique and Zambia (Kengne and Mbanya, 2006) have revealed similar challenges. This implies that drug challenges affect many low and middle income countries. Thus, there is a need for an international solution to solve the drugs issue. All the relevant stakeholders such as governments, non-

governmental organisations such as International Diabetes Foundation, International Insulin Foundation, and multilateral organisations such as WHO need to develop a common strategy for addressing drug availability.

Shortage of drugs and their high price has been associated with low adherence to Diabetes treatment, thus reducing access to care. Patients who usually utilise public sector care eventually fail to seek care if they perceive that drugs are often unavailable at their nearest clinics. One nurse argued that if patients do not find drugs in three consecutive visits to the clinic, they might stop presenting for treatment. This results in worse health outcomes, which might lead to premature mortality or higher health care costs. Another factor cited for patient default is lack of money for purchasing drugs from private health facilities where their availability is higher. In Ethiopia, poverty is a major contributor to patient default. The 53% default rate among those who had suffered heart attacks was explained by, among other factors, poverty and inaccessibility of the health facility (Alemu and Watkins, 2004). Thus, patient default was due to challenges in both availability and affordability of care, especially drugs.

Another pertinent access issue is availability of staff. Staff constitutes a health service's greatest asset (WHO, 2008a). Staffing ratios for Zimbabwe as a whole might shed light on the availability of staff in public health facilities. The physician to population ratio is estimated at 2 physicians per 10 000 population and nurses at 9 nurses per 10 000 population (WHO, 2008). In the African region, the average physician to population ratio is 2 per 10 000 population and the nurse to population ratio is 11 per 10 000 population. Thus, in terms of nurses, Zimbabwe is faring worse than the region at large. However, other SSA countries such as Mozambique and Malawi have lower ratios than Zimbabwe. Botswana and South Africa have considerably more medical staff, which might be attributed to their relative attractiveness in terms of salaries and living and working conditions compared to most other SSA countries. Nevertheless, these ratios are for both the private and public sectors and thus likely to be overestimations since more health workers are concentrated in the private sector.

Staff availability is very low at public health facilities in Zimbabwe. At country level, nurses in the public sector decreased by 19% between 1991 and 1995 (Chikanda, 2005). In

1997, the Ministry of Health and Child Welfare (Zimbabwe) only managed to fill 28.7% of physician posts, 55.6% of nursing posts and 18.7% of pharmacist posts. In this study, the lowest nurse to patient ratio is 0.9 nurses per 10 000 population while the highest is 10.5 nurses per 10 000 population. Thus, the highest ratio for Harare is lower than the average ratio for the African region, which is 11.7 nurses per 10 000 population. However, the African region ratio includes both hospital and clinics. Thus, the one for clinics only might be lower than 11.7 since hospitals are better staffed than clinics in most countries. The above figures for Harare were calculated using the catchment area of each clinic. Although they might be cross boundary movements of patients from one catchment area to another, this is not expected to affect the staffing ratios significantly. Adequacy of staff might depend on the burden of disease in each area. However, the burden of disease might not differ much in all the surveyed areas.

Shortage of staff is also common in other African countries (Kengne and Mbanya, 2006). A study carried out in Ghana (Amoah et al, 1998) reports that staff for Diabetes care was inadequate. Out of the five regional hospitals surveyed, none had a trained Diabetes educator and only two had an eye specialist. Thus, if regional hospitals do not have adequate staff then primary care facilities are likely to be in a worse situation. In Papua New Guinea, a small country with a population of 6.2 million people, there are only 3 trained Diabetes educators, 1 dietician and no specialist endocrinologists (Lesley, Manning and Ogle, 2001). Consequently, the availability of Diabetes professionals should be addressed both at local and international level since it also affects many countries, especially the least developed ones.

Shortage of health professionals in Zimbabwe has been mainly attributed to migration to the private sector and other countries (Chikanda, 2005). Mudyarabikwa and Mbengwa (2006) also attribute health worker shortage and inequitable distribution to migration and the lure of the private sector. In the same vein, Clemens and Pettersson (2008) contend that the country lost more than half its physicians after economic stagnation in the late 20<sup>th</sup> century. Other professions such as nursing and pharmacy are also significantly affected by migration of personnel. In fact, health professionals are still leaving since the country is experiencing very challenging economic, social and political conditions since

independence in 1980. Of the 11 640 Zimbabwean nurses working outside the country in 2000, the numbers in different countries were as follows: United Kingdom (2 834), United States of America (440), Canada (35), Australia (219) and South Africa (178) (Clemens and Petterson, 2008). Thus, these are the major destinations of nurses from the country. About 24% and 51% of Zimbabwean nurses and physicians respectively work outside the country. Expectedly, the African region as a whole is also experiencing a brain drain to affluent countries. Clemens and Petterson (2008) report that a fifth and tenth of African born physicians and nurses respectively are working overseas in a developed country. Zarocostas (2006) also argues that 23% of doctors trained in SSA work in eight developed nations. This implies that there is a need for a solution to be forged between developed (destination) and developing (source) countries to curb the brain drain. The SSA region might also need to develop solutions as a unit because they face common challenges.

The HIV/AIDS scourge has not spared health workers. USAID (2003) contends that the loss of health workers due to the disease in Africa is significant. About 44% of nurses in southern Africa are estimated to be HIV positive (Management Sciences for Health, 2008). In Zimbabwe, 6% of doctors and 12% of nurses were lost due to the disease in 1998 (USAID, 2003). Thus, some health workers are dying from the disease and others are afraid of being infected with the disease (Chikanda, 2005). Moreover, the increased workload due non-communicable diseases such as Diabetes and Hypertension is contributing to pushing health workers out of the country. Thus, it is important for the public health care system to examine health workers' workloads and take appropriate action to address any issues that might arise.

It is not enough to document the extent of the brain drain without analysing the major reasons behind this exodus. The appalling working conditions and low salaries as well as general decline in economic, social and political conditions in Zimbabwe are fuelling the brain drain (Chikanda, 2004). Furthermore, the increased burden of disease due to HIV/AIDS is also increasing the workload on health workers as already mentioned. On the other hand, the major pull factors include better salaries, better fringe benefits, pleasant working environments, well resourced health system, reasonable workloads and more

access to education and training opportunities (Chikanda, 2004). Therefore, until policy responses are designed to deal with these issues, the brain drain may continue unabated. Shortage of health workers will continue to reduce access to health care, especially for the poorer members of the population. WHO (2003) contends that the workforce crisis is the most critical issue facing health care systems and that it is greatest in SSA. Furthermore, they argue that this will constrain achievement of Millennium Development Goals (MDGs). Thus, there is an urgent need to address this issue if SSA is to increase access to care for its population.

Apart from unavailability of drugs and staff, the public health sector in Zimbabwe is also facing equipment shortages. The clinics surveyed in this study only have some of the basic equipment for monitoring weight and blood pressure. However, this is not surprising since these facilities are primary care centres as already mentioned. These facilities, nevertheless, seem to be all that poor patients can afford and should thus have more equipment. There seems to be no secondary level public sector care for Diabetics in Harare. From City of Harare primary care clinics, patients are referred either to Harare or Parirenyatwa hospitals, both of them tertiary care facilities. However, Harare hospital suspended its outpatient department in November 2007 due to a crippling shortage of staff. Therefore, Parirenyatwa hospital remains the only available referral centre in the public health care sector. Such a situation implies that patients should get more comprehensive care at the primary care facilities since Parirenyatwa is already overloaded because it is a national referral centre. Primary health care centres are supposed to provide comprehensive but not specialised care as advocated for in the Alma Ata Declaration of 1978 (WHO, 1978).

Diagnosis of Diabetes is vital in health care provision. However, the lack of equipment in public health facilities is de-motivating health care providers, adversely affecting their willingness to render the best quality care. This frustrates efforts to recruit and retain health workers in the public health sector. Most facilities only test for random blood sugar, citing lack of transport and containers. Therefore, patients are referred to private laboratories for tests, a situation which is unfair to poor patients due to the high expenses that might be incurred. Similarly, only a few facilities in Mozambique have the requisite tools to test for

blood glucose (Beran et al, 2005). About 18% of the facilities have glucose strips and 21% have glucometers. However, Mali and Zambia fare much better than Mozambique. In Zambia, 61% of the health facilities have glucose strips while 54% have glucometers. For Mali, 54% possess glucose strips and 43% have glucometers. Thus, there is room for improvement in Zimbabwe concerning availability of diagnostic test supplies since comparable countries such as Zambia and Mali have greater availability. Zimbabwe should try to learn from these countries on how to improve equipment and other supplies.

Patients also experience availability constraints in the form of travel time and the referral system. A number of patients have reported that they have eye problems and are not getting assistance at the nearest clinics where they seek care. Deterioration of eyesight is one of the complications of Diabetes and might lead to blindness. This might be a failure of the management plan for dealing with Diabetes complications. It might reflect failure of the referral system since these patients should be referred to the Sekuru Kaguvi eye unit (a public sector specialist unit for eye problems) at Parirenyatwa Hospital. Thus, there is a need for clinics to implement the referral strategy for patients whose conditions they do not have the capacity to deal with.

Although clinics are mostly located near patients' places of residence, travel time for care seeking consumes time which can be used for income generating activities. Since they stay near public health facilities, most patients walk to the clinic for seeking care and thus, take short periods of time on average. Depending on SES, other patients use taxis and cars to visit the health facility. Nevertheless, the fact that the longest time travelled by a patient is 220 minutes is a cause for concern. Besides indirect costs due to forgone activities, this might also affect future health care seeking behaviour. Long travel times can be attributed to the age of the patient as well as seeking care at facilities other than the nearest one. Some clinics also refer their patients to neighbouring ones if they do not have a general practitioner visiting them once a week. Therefore, it might be essential for clinics to provide mobile services, especially for the older patients who might struggle to walk to the health care centre.

The fact that 35% of the patients surveyed need company to attend health services also increases time lost in seeking care. This represents lost time and forgone activities for both

the patient and the carer. Thus, costs incurred by patients and carers can be very high (Holmes et al, 2003). In the United Kingdom, type 2 Diabetic patients who are less than 65 years old lose 900 pounds per year while carers with the same age range lose 1300 pounds. Lost earnings for poor countries such as Zimbabwe are more likely to be higher due to poor management of the disease. The major forgone activities cited by patients are salaried jobs and schoolwork. Thus, significant direct and indirect costs are incurred, both by patients and their families as well as the country. However, almost half the respondents claim they do not forgo any activities when they seek Diabetes care. However, this might be because non-salaried work is not valued by a lot of people.

Satisfaction with health care is very important in discussing access issues because it reflects the gaps in care provision and also affects patients' future access. Other than issues to do with availability and affordability of drugs and staff, patients are generally satisfied with the care they receive from health care facilities. This is mainly because patients understand that there is little that providers can do in the current economic and political context in Zimbabwe. In the same vein, providers argue that the current situation makes it difficult for them to satisfy patient expectations. However, satisfaction depends on whether the care is usually sought from public or private facilities. The poorest patients use public facilities and are less satisfied compared to those who use private facilities. Analysis of the national health accounts for Zimbabwe also shows that there is more health expenditure in the private than public health care sectors (WHO, 2008). Thus, private facilities might be allocating more resources to their patients and therefore, resulting in quality of care being higher than that of public facilities.

Most of the patients feel the government is not doing enough for Diabetics. This is mainly due to the comparison they make with HIV/AIDS and TB patients. Infectious diseases such as HIV/AIDS and TB tend to get more recognition and funding both from government and non-governmental organisations. This might be because they are responsible for such a large component of burden of disease in Zimbabwe and other countries in sub Saharan Africa. In fact, 70% of the burden of disease in Africa is due to infectious diseases (WHO, 2000). Thus, they seem to get a higher priority than Diabetes. However, conditions such as

Diabetes are chronic in nature and have been projected to have a higher rate of increase in the developing countries compared to developed ones.

Diabetes and other NCDs such as Cardiovascular diseases (CVDs) have a huge impact on death and disability, especially among people of working age and women in developing countries (Leeder et al, 2004). Currently, LMICs contribute 80% of the global CVD related deaths and CVD related disabilities. Deaths from CVDs are projected to increase from 3 million in 1998 to about 5 million in 2020 in developing countries (Leeder et al, 2004). In South Africa, the Potentially Productive Years of Life Lost (PPYLL) due to CVDs will increase by 28% in the period 2000 to 2030, a figure that is higher than that of the US and comparable to that of Portugal. Furthermore, the number of South Africans in the 35-64 year age group who will be disabled by CVDs will increase by 79% by 2040, compared to the year 2000 (Leeder et al, 2004). Although NCDs were initially perceived to be diseases of the affluent, poorly people are increasingly being affected also. Thus, from an equity point of view, there is a case for increased allocation of resources for prevention and control of CVDs.

In addition to the current impact of CVDs on LMICs, factors such as urbanisation, globalisation and increasing wealth will increase the prevalence of CVD risk factors in these countries. Nevertheless, international attention being given to CVDs in LMICs is inadequate. Donors and development agencies seem to neglect chronic diseases possibly because they do not attract much international sympathy compared to HIV/AIDS, Malaria and Tuberculosis (Leeder et al, 2004). However, most of these conditions can be prevented by addressing; tobacco consumption, unhealthy diets and physical inactivity. Thus, more effort should be put in increasing recognition of CVDs and other NCDs as a developing epidemic.

More recognition of the increasing burden of chronic disease from the government might help attract funding from external sources such as non-governmental organisations. This implies the need for advocacy organisations to spearhead awareness campaigns both to the general public and also to the government so that it allocates more resources to Diabetes and other non-communicable diseases. Organisations such as Zimbabwe Diabetic Association, Community Working Group on Health and EQUINET might help bring the

disease to the front by mobilising the community and also lobbying relevant government departments such as Ministry of Health and Child Welfare and the Ministry of Finance.

Findings of this study suggest high levels of communication between patients and providers. These levels can be attributed to the consultation time given by health care providers. Patients believe providers give them enough time. Moreover, providers use the language that patients understand. This helps bind these two groups together and might improve access to care. The language used by a provider to communicate with a patient also affects trust. Thus, patients place more trust in a provider who speaks their own language. Besides language, patients also trust providers who respect confidentiality and give them adequate information about their condition. This might explain the high levels of trust between patients and providers. Although patients indicated that they receive adequate information, others suggest that there is need for literature in vernacular languages.

## **5.2 EQUITY OF ACCESS TO HEALTH CARE**

Drug shortages mainly affect public sector facilities, which are commonly used by the poorest of the population. Thus, drug availability seems to be associated with socio-economic status, across patients with equal need. Equity of access to health care requires that patients with equal need have equal access to care. Consequently, availability of drugs might be regarded to be inequitable. Richer patients are more likely to purchase drugs using their medical aid while the poorest patients do not belong to any medical aid scheme. Therefore, they pay for drugs out-of-pocket (OOP) often to private retail pharmacies, a situation which is common in Zimbabwe. In 2005, private expenditure contributed 55.2% of the total expenditure on health of which about 52% was paid OOP. Reliance on OOP payments to finance health care is associated with catastrophic payments and impoverishment (WHO, 2008). The burden of OOP payments weighs heavily on poorer patients who are not covered by medical aid schemes. This implies that there might be a need to introduce reforms in the health care financing mechanism in order to shield the poor from catastrophic payments.

Nevertheless, both patients with and without medical aid incur out-of-pocket payments. Those with medical aid still make a co-payment at public facilities. In addition, most medical aid scheme members only have about half of their costs covered. Thus, they still need to pay for the shortfall out-of-pocket. Being a chronic disease, Diabetes patients also quickly reach their annual global limits in terms of the benefit package offered by their medical aid and need to pay OOP thereafter. Thus, there might be a need to review the charging of user fees at public health facilities. This should be done through careful research on the likely impact of removal of user fees on health facility revenue and utilisation of health services in Zimbabwe.

Unavailability and unaffordability of drugs seem to be the major causes of patient default. Obviously, poverty is more common among poor patients, thus a higher proportion of treatment defaulters are likely to be the poorer patients. Such a situation results in poor health outcomes and thus increases both inequity in access and inequity in health. This finding stands in contrast to findings in the UK where Type 2 patients default because they want to socialise with others or they think their condition is not very serious (Lawton et al, 2005). In the current study, however, patients seem to be aware of the potential seriousness of their condition. Most of them fail to seek care because of (perceived) lack of drugs and inability to afford health care.

Type 1 Diabetes is more prevalent than Type 2 in this study. Moreover, the majority of Type 1 patients are richer than their Type 2 counterparts. Those suffering from Type 1 Diabetes mainly require insulin whose supply is more erratic and more expensive than other drugs. However, since more costs fall on Type 1 patients (who have greater ability to pay), this might reduce inequality. However, this situation is slightly moderated by the fact that some Type 2 patients might eventually need insulin to manage their condition.

Membership of support groups might also introduce inequality in access to health care. The majority of respondents in this study do not belong to any group which offers any kind of assistance. Most of those that belong to support groups are richer patients and have less need for care compared to their poorer and needy counterparts. Support groups such as the Zimbabwe Diabetic Association (ZDA) (the most common group) offer education services, blood glucose and blood pressure tests and sessions for sharing experiences among

Diabetics. Sometimes they also get drug donations which they give to their members. This implies that it is very important for patients to belong to such organisations as the ZDA because they might get free drugs, tests and may also be empowered with information on Diabetes management. Most patients seem to express ignorance about the organisation, thus creating a need for improved awareness campaigns. Moreover, monthly meetings of the association are held in the central business district (CBD) of Harare. This might deter patients from attending the sessions since the majority of them do not stay in the CBD. Rotating the meetings in different areas for each month might be useful in increasing membership of the association.

### **5.3 LIMITATIONS OF THE STUDY**

This section discusses the limitations of the current study and what was done to minimise their impact. First, the cross sectional study design used might not be the best one. A longitudinal approach would have been more relevant and could have provided much stronger evidence. However, this design was chosen because it was the only feasible approach given the time and financial constraints. Moreover, the study still revealed very useful information on public sector access to Diabetes care in Harare.

Another limitation is the current economic environment in Zimbabwe. This environment made it difficult for respondents to recall their expenditure. Nevertheless, the study used the wealth index as a measure of socio-economic status using principal component analysis. Although the method is affected by the nature of the data as well as reliability and validity of the variables used, the technique was validated by Filmer and Pritchett (2001) and shown to be robust to chosen variables. Moreover, PCA is not affected by recall bias, seasonality and data collection time. The first component for this study explained about 28.93% of the total variation. A review of studies by Vyas and Kumaranayake (2006) reports that the first principal component accounted for between 12% and 27% of the total variation. Thus, the amount of variation due to the first component for this study is higher than that of previous studies. This increases the confidence in the findings of the study as well as the suggested recommendations.

In addition, there were time limitations for patient exit interviews. Most of the patients had to eat regular meals so they insisted on short questionnaires since they had to go home and eat. This was mainly revealed in the pilot study. However, the study managed to collect supplementary information from focus group discussions.

Health care need was defined as perceived health status in this study. However, this definition is very subjective. In fact, it might reflect patient wants and not needs (Gulliford and Morgan, 2003). In addition, Gulliford and Morgan (2003) argue that health status perception differs among population groups. Nevertheless, this definition was used because it is practical and also, self reported measures of health have been used before as practical measures of need. Results might differ if any other definition of need other than perceived health status is used.

#### **5.4 CHAPTER CONCLUSION**

This chapter discussed the major findings of the study. These findings were also compared to those of studies done in other countries of comparable socio-economic and demographic characteristics. The discussion revealed major concerns with availability and affordability of care. However, there were no major concerns with acceptability of care. Furthermore, access to Diabetic health care services seems to be inequitable. The next chapter focuses on key conclusions and recommendations of the study.

## **CHAPTER 6**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **6.0 INTRODUCTION**

This chapter presents the conclusions of the study and also suggests recommendations to address the cited challenges. Relevant country comparisons will be used in order to show how similar challenges have been addressed in other countries. However, the conclusions and recommendations discussed in this study may not be generalisable to other contexts.

#### **6.1 CONCLUSIONS**

This section summarises the key challenges identified in this study. Although the conclusions are presented in terms of availability, affordability and acceptability, it is important to always re-iterate that access is a multi-dimensional concept with interactions between the three abovementioned dimensions. Respondents were mainly concerned about availability and affordability of care. There is inequity in access to Diabetes care because most of the challenges cited by respondents mainly apply to public sector care which is mainly used by the poorest of the population.

##### **6.1.1 AVAILABILITY**

The following conclusions can be drawn about availability of care:

1. Shortage of staff is one of the major factors affecting access to Diabetes care in the public sector. The current macro-economic environment in Zimbabwe has exacerbated the massive staff exodus to other countries in the region and overseas.
2. Lack of drugs is also very common in the public health sector.
3. Supplies such as glucose strips, test reagents and syringes are very erratic. This reduces the capacity of health facilities to carry out blood glucose analysis.
4. Lack of equipment such as glucometers hampers blood glucose analysis, a major component of Diabetes management.
5. Many facilities cannot offer basic tests such as Random Blood Sugar due to lack of transport and containers. The tests are supposed to be done at Beatrice Road Infectious

Diseases Hospital, a City of Harare hospital which attends to patients with infectious diseases only.

6. Public health facilities surveyed offer a limited range of services. Basically, they provide education, prescribe drugs and take blood pressure and weight measurements. Due to the challenges cited above, clinics cannot offer diagnosis, blood glucose monitoring and group education services.
7. Travel time to the health facility exceeds one hour for more than one in three patients. This results in high costs of care due to transport and lost time for both the patient and the carer.

### **6.1.2 AFFORDABILITY**

The study reached the following conclusions concerning affordability of care at public health care facilities:

1. Most of the patients own a few basic assets such as radios and televisions. By definition, richer patients own more assets than the poorer ones.
2. There is an almost equal split between employed and unemployed patients. Most of the employed ones are self-employed.
3. The poorest of the patients do not belong to any medical aid scheme besides having greater need for health care. This might introduce inequity since those with greater need and who will face higher medical costs have lower ability to pay for health care in relation to health insurance coverage.
4. Since some patients are exempted from consultation fees, the major direct costs of care are drugs, transport and food. Food for Diabetics is reported to be unavailable and expensive by patients.
5. Most of the patients suffer from Type 2 Diabetes and most of these are poorer than those with Type 1 Diabetes, who are more likely to face higher costs due to high insulin prices.
6. The major forgone activities for patients are their jobs for the employed and school work for students.

7. Although most patients attend health services on their own, a significant number need to be accompanied by their children or parents. This imposes indirect costs since a lot of time is lost in order to seek care.
8. The major coping strategies used by patients are: doing nothing (that is, not seeking care), borrowing, selling assets and using alternative sources of care.
9. Access to support groups might be inequitable. It is mainly limited to the richest; because nobody in the poorest quintile belongs to a support group.

### **6.1.3 ACCEPTABILITY**

The following is a summary of key acceptability issues distilled from the study:

1. Providers claim they understand patients' cultures and values and also that patients comply with suggested advice.
2. Providers are demotivated to provide quality care by the shortage of equipment and drugs.
3. Patients and providers both agree that the public health care system treats all patients equally despite their different socio-economic status.
4. Patients' major expectation of the health service is to get drugs. However, drug availability is very low especially in public health care facilities. This factor might have a major bearing on patients' satisfaction because they compare what they get with what they expect from the health care system.
5. Patient satisfaction is higher among private facility users compared to public facility users. Thus, satisfaction is lower among poorer patients because public care facilities are their usual source of care. However, almost all patients are satisfied with information they get from the health facility and the language used by providers to communicate with them. Satisfaction with contact time is also high among patients although health care providers express neutrality about availability of consultation time.
6. Public facilities are mainly preferred because of their affordability and proximity while private facilities are perceived to have higher quality of care.
7. There seems to be a high level of trust between patients and providers because of, among other things, confidentiality and language used.

8. Most of the patients feel the government is neglecting the welfare of Diabetics.
9. Most patients find the clinic opening hours convenient for them although others feel they do not have any say in the matter.

#### **6.1.4 EQUITY**

Need for health care is greater among poorer than richer patients. Thus, health services might need to discriminate positively in favour of the poor in order to increase their level of access to health care.

#### **6.2 RECOMMENDATIONS**

This section will outline the recommendations of the study in line with the conclusions summarised above. It is important to keep in mind that the suggested ways of dealing with the current inequities in access to health care might only apply in the context in which this study was carried out. A change in the socio-economic and political climate means that the recommendations need to be re-assessed. Furthermore, some of the suggestions require political will from the government since it is the one which administers public sector care.

There is very little that can be done in the prevailing socio-economic and political situation to solve the challenges being faced by the health care sector. It is envisaged that a change in the political environment might have a significant impact on the macro-economic environment in the country. In that case, it becomes much more feasible to introduce reforms which affect the health care sector directly such as health care financing strategies. Nevertheless, this study will do its best to suggest, without being prescriptive, what can be done now, in the near future and in the long run to solve some of the challenges cited above. It will concentrate on factors which are amenable to change in the health care sector.

It is also essential to summarise the major challenges being faced by the public health care sector before discussing recommendations. The main factors are:

- Lack of resources such as staff, drugs, supplies and equipment

- High direct and indirect costs of care for patients due to high transport, food and drug costs
- Inequity in membership of medical aid
- Poor access to support groups

All the other conclusions mainly revolve around the factors summarised above.

The public health sector in Zimbabwe should take advantage of any changes in the political landscape. That is the best time to push for reforms which might improve equitable access to health care in the country. Such reforms might include removal of user fees and introduction of prepayment schemes such as Social Health Insurance (SHI). Such reforms are more likely to have a profound impact on health care as opposed to piecemeal changes.

It is also important for developing countries to make sure they allocate at least 15% of their total national budget to health care provision (AMREF, 2007). Other countries comparable to Zimbabwe have managed to allocate about 21% of their budget to health, namely; Costa Rica and El Salvador (McIntyre, Loewenson and Govender, 2008). Developed countries also need to assist through external debt cancellation and meet their pledge of contributing 0.7% of their GNP to Official Development Assistance

### **Drugs**

International action needs to be initiated to improve the availability and affordability of drugs, especially insulin because the problem is common in many Sub-Saharan countries with Democratic Republic of Congo (accessible less than 25% of the time) and Zambia (accessible 26 to 49% of the time) having the lowest insulin accessibility in the world (International Diabetes Federation, 2003). Such measures might include:

1. Improving drug affordability through compulsory licensing of essential drugs. Local companies such as CAPS and Varichem can then be permitted to manufacture generic drugs for the country. In addition, the government should assist them with the requisite foreign currency since they need to import the ingredients they need.

2. Increasing the capacity of the national drug procurement firm, NatPharm to purchase adequate drugs for the country through provision of foreign currency.
3. In the short term, there is a need to actively lobby for donations of resources for Diabetes care. Civil society organisations and other NGOs can assist in this regard.
4. Mobilisation of civil society organizations in decisions regarding availability and affordability of drugs (World Health Assembly, 2008). This increases accountability of the government to its citizens and also introduces transparency in the health care market.
5. Consider, after adequate research on the impacts, abolishment of taxes on medicines. Tariffs and taxes are estimated to increase prices of medicines by between 50 and 80% (DFID, 2006).

### **Staff**

The issue of staff availability is a very important issue which needs to be addressed as soon as possible. However, this challenge affects many other countries in Africa and in that regard, it might be important for the City of Harare to lobby the government for international solutions. This is mainly because the local and international brain drain is a major factor affecting availability of staff in the public sector. South Africa and the United Kingdom have signed bilateral agreements which limit the movement of health professionals. Zimbabwe needs to negotiate, either bilaterally or multilaterally, with countries such as the United Kingdom, Australia and New Zealand. These countries are the major destinations of the country's health professionals. However, the current relations between Zimbabwe and these countries make it very difficult for them to engage on anything.

Developed countries should attempt to train and retain enough health care workers for themselves without poaching from developing nations. They should also help developing nations such as Zimbabwe to increase their capacity to train, retain and motivate their health workers.

Nevertheless, the City of Harare can still do something to lessen the impact of staff shortages. Such measures might include:

1. There is need for innovative salary and related incentive schemes with input from the employees. This might boost staff morale because employees will feel their employers care about their needs and respect their input.
2. A better salary is the major push factor for emigration of health workers (Stilwell et al, 2004). Thus, greater consideration should be given to increasing health worker salaries in order to improve retention. The salaries can be paid fortnightly in order to reduce the impact of inflation on employees' salaries. One commercial bank, Kingdom Bank has already shifted to fortnightly instead of the usual monthly salaries.
3. Non-financial incentives are important because they encourage providers to be caring and behave in an ethically appropriate manner (Owusu, 2005). Financial incentives are too difficult to implement in Zimbabwe because of the challenging economic and political situation. Providers need motivation so that they can perform their duties in an efficient manner. Thus, it might be necessary to offer the following incentives to all workers: Housing, electricity, on the job training and opportunities for rotation and promotion (WHO, 2003).
4. The City of Harare sells land to prospective home owners and real estate development companies. Thus, the city should consider prioritising their staff in sale of stands so that they can build their own homes. Stands sold by development companies in Zimbabwe are very expensive due to the economic situation and also rampant speculation practices in the country.
5. Raising productivity of health workers by providing supervision and support.
6. The nursing association, in collaboration with the city, can also design a cost-effective and comprehensive training scheme which is tailored to the needs of Zimbabwe. This could be designed so that such nurses will only be marketable in Africa and not in Western countries. This helps curb the brain drain from Africa to western nations and has been done in Uganda (AMREF, 2007).

7. Health workers suffering from HIV/AIDS should be assisted with a continuous supply of free Anti-Retroviral drugs (ARVs) to improve their quality of lives and also to reduce attrition due to illness and death.

The following are policy responses that might help reduce migration from Zimbabwe to other countries (Mackintosh, 2007):

- Punitive (punish workers who do not stay): Usually bonding, withholding certificates or charging highly for those who want to buy out their contracts. However, some of these interventions might actually motivate departure (Mensah et al, 2005). These measures do help in retain staff temporarily but there is a need to consider other non-coercive measures.
- Exclusion (keep out migrant health workers from developing countries): An example is the ethical recruitment code adopted by the UK. However, this might violate health workers right to leave their country of origin (Mensah et al, 2005). Therefore, destination countries need to look for measures which are in line with health workers' rights to leave their country.
- Restitution (destination countries should compensate health workers' countries of origin): Migration necessitates a moral case for resources to flow back to health workers' countries of origin. Aid should thus be taken as an obligation and not charity. G8 countries were encouraged to meet their aid obligations at the 2008 summit in Hakkaido, Japan.
- Sustained redistribution of resources to countries of origin in order to improve working conditions and salaries. Redistribution between developed countries and those from which migrant health workers originate and might be funded by taxing workers on the basis of citizenship and not residence (Bhagwati and Wilson, 1989). There is a need to include all the relevant stakeholders such as professional associations, diaspora groups, NGOs, governments and donors in such initiatives.

### **Awareness**

There is a need for the Zimbabwe Diabetic Association to conduct awareness campaigns since an overwhelming majority of patients have never heard of the association. It might also be necessary for the association to work with the national media (radio, television and print) in order to highlight the plight of Diabetes patients and also to deliver education sessions. Fortunately, the majority of patients have radios and televisions, so the program might be feasible. Furthermore, the association might consider rotating monthly meetings in all suburbs instead of conducting them in the central business district.

### **Education**

Patients and their families need to be educated on Diabetes management. Thus, both parties need to be empowered because chronic conditions such as Diabetes are mainly managed in the home (Kengne and Mbanya, 2006). Currently, education is offered to patients only, which is not enough for chronic conditions such as Diabetes where patients need support from family and friends.

The city should consider development of signage and literature in different languages understood by patients and their families. This issue was suggested by some patients in the study because most of the literature is in English which might not be understood by some of them, especially the older and less educated patients.

Education can be increased through (International Diabetes Federation, 2003):

1. Use of both written information and drama. Drama helps illiterate members of the population understand prevention and treatment information.
2. Zambia and Tanzania have used innovative strategies such as camps for children. Thus, children interact with other children with Diabetes and learn about Diabetes care.

### **Providers' knowledge**

Providers should be continuously trained on how to manage Diabetes. This can be done through seminars delivered either by the City health officials or outsourced to training institutions.

### **Scope of services**

More comprehensive services should be provided through coordination of primary and referral services. Many patients complain of eye problems which should be referred to the eye unit at Parirenyatwa Hospital, Sekuru Kaguvi eye unit.

### **Convenience of care**

It is important for organisations to implement workplace programmes for their employees so that they do not default on treatment due to lack of time. This is however more feasible for larger organisations who benefit from economies of scale.

### **Strategic partnerships**

The city should also attempt to forge partnerships with Non Governmental Organisations (NGOs). A Health Equity Fund managed by MSF and UNICEF and managed by an NGO was established in Cambodia to save poor patients from paying user fees (Preker et al, 2002). Poor patients and those who might be impoverished by health care expenses were either referred to the NGO from health facilities or actively identified by the NGO itself. It has been demonstrated that the fund increases access for the poorest patients (Harderman et al, 2004). Organisations such as the Rotary Foundation are also very helpful in provision of resources for care such as staff, funding and supplies. NGOs such as the Community Working Group on Health also play a pivotal role in advocacy on health issues. Such organisations can assist through mobilization of the community as well as community workers.

Besides NGOs, other private organisations can also play a significant role in the public care sector. Many companies in the current age respect the principle of social responsibility. Although it might be a short term strategy, lobbying for funds from such organisations might increase the availability of resources for improving health care. However, there is a need to demonstrate accountability through audited public reports. The City has failed to audit its accounts in the past, thus potential funders might doubt that any donated funds will be used to improve the welfare of the public.

There is also a need for increased synergies between ministries such as Health and Child Welfare, Industry and International Trade, Education, Labour and Social Welfare and Finance in order to come up with integrated solutions to challenges of drugs and staff. These ministries can address issues of intellectual property and review of taxes and tariffs on medicines (DFID, 2006).

### **Research resources**

Resources for research should be increased in order to evaluate new Diabetes management approaches which are appropriate for Africa as well as document the burden of Diabetes in Harare. This information is a prerequisite for effective Diabetes care management. It is very difficult to manage a problem when its size is not known. There is a paucity of information on the burden of Diabetes in many African countries. Thus, according to the principle of evidence based care, it is essential to know what works in Zimbabwe and what does not through research.

### **Diabetic foodstuffs**

Diabetics complain about both unavailability and affordability of recommended foodstuffs. In order to solve the problem, the city might lobby the government to VAT (Value Added Tax) zero rate Diabetic foodstuffs and also create incentives for organisations to manufacture the foodstuffs. This is very important because food has a vital role in the management of blood glucose.

### **Prioritisation of Diabetes**

It is very important for the City of Harare to recognise Diabetes as one of the priority diseases. The disease and its related complications present a huge burden for individuals, families and the economy. Besides increased funding, there is also a need to increase visibility of Diabetes awareness campaigns. The government should also play a major role since patients feel the government is not doing anything about their care. Thus, justice must not only be done but it must be seen to be done. In that regard, there is a need for advocacy on what is being done to address the plight of Diabetes patients who utilise the public care sector. Internationally, CVDs and other NCDs also seem to be neglected, thus

there should be included in strategic priorities of international health, economic and aid agencies (Leeder et al, 2004). Such a move can be backed by findings from the Report of Commission on Macroeconomics and Health, starting with China, India, Brazil and South Africa, where the research was done.

### **Case study**

There is need for the country to learn from the experience of other cases where access to Diabetes care has improved. Success stories include Tanzania and the Cameroon Burden of Diabetes project (Kengne and Mbanya, 2006).

In Tanzania, Diabetes clinics were established by the Diabetic Association and the Ministry of Health. The clinics are run by district, regional and referral hospitals. The following section presents a summary of Diabetes care in Tanzania:

- There is a network of Diabetes clinics catering for about 100 000 patients
- The clinics were established by the Tanzania Diabetic Association together with the Ministry of Health
- The clinics are run by district, regional and referral hospitals
- Free consultations are offered to all patients
- Medicines and tests are offered at subsidised prices and free services are offered for those patients who cannot afford to pay
- Ministry of Health provides staff members. However, staff education and training is supported by international partners
- Clinics are organised in the same manner as the national health system

### **Long term strategies**

In the long run, the following measures might be appropriate in order to improve access to health care:

1. Design appropriate recruitment, retention and wage policies through analysis of the labour market and supply trends.
2. Design long term strategies to come up with appropriate mixes of staff. It is obvious that there is a need to increase the number of health workers. Nevertheless, it is equally

important for African countries to come up with a skills mix tailor made for their context and also invest in lower to middle cadre of workers such as community health workers (AMREF, 2007). This will be a huge step towards prevention of Diabetes in the community.

3. The City of Harare needs to re-assess their workforce needs and design strategies to ensure the availability of adequate skilled personnel. In Kenya, the Ministry of Health used the Human Resource Assessment Model developed by the Management and Leadership Program, and came up with recommendations which were implemented with the aid of the National AIDS Control Program, the U.S. Agency for International Development (USAID), Family Health International (FHI) and Management Sciences for Health (MSH). Thus, qualified personnel and a training specialist were enrolled and helped ease staff shortages.
4. There is a need for detailed health information in order to understand the needs of the marginalized populations.
5. Political engagement to gather enough resources for Diabetes care management.
6. Set up specialised Diabetes clinics as in Jamaica and Tanzania. These clinics will be centres of excellence for the management of Diabetes.

### **6.3 CHAPTER CONCLUSION**

The present chapter has summarised the major conclusions of the study. In addition, the study also made suggestions as to how the goal of equitable access to public sector Diabetes care can be achieved in the city of Harare. Thus, although the economic situation is challenging, the city, with the help of NGOs and the international community, can still do something to improve access to Diabetes care.

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University of Cape Town

## **APPENDICES**

## **APPENDIX A: KEY INFORMANT INTERVIEW GUIDE**

### **Information sheet and informed consent**

Hello, I am Pardon Masuka from the University of Cape Town in South Africa. I am doing MPH Health Economics and am doing a thesis as part of the requirements of the degree. I am researching access to public sector health care for diabetic patients. This interview seeks information on availability, affordability and acceptability of diabetes care services countrywide. You were chosen to be part of this study because of your position.

This study is important because the increasing prevalence of diabetes. Diabetes is also associated with high costs of care due to its chronic nature. Hence, this study aims to evaluate access to diabetes care in order to improve the lives of people as well as creating an environment suitable for economic growth. Therefore, you are encouraged to participate in the study by answering a few questions. The whole interview will take about 30 to 45 minutes to complete. Study findings might help improve availability, affordability and acceptability of health services. Ultimately, the health of the population might improve and inequalities in access to health care may be reduced.

This study is completely voluntary, you decide whether to participate or not. You can withdraw from this interview without giving any reason or refuse to answer certain questions. There are no adverse consequences associated with taking part in this study or with refusing to participate. To ensure confidentiality, your name will not be written on the interview guide in order to maintain anonymity. Only an identification code for the questionnaire will be used. The study obtained ethical approval from the Ministry of Health and Child Welfare, Ethics Review Committee at the University of Cape Town and the Medical Research Council of Zimbabwe.

### **Contact Details**

This research is being conducted by Pardon Masuka of the Health Economics Unit, University of Cape Town. If you have any questions about the research study itself, please contact Pardon on phone 263-04-705140 and email address, pmasuka2001@yahoo.co.uk or mskpar001@uct.ac.za.

For any other queries, please feel free to contact:

Professor Di McIntyre

Health Economics Unit

Anzio Road, Observatory 7925

South Africa

Tel: (+27 21) 4066558 Fax: (+27 21) 4488152

Please note that you can refer to any document where necessary. In addition, your responses will be kept confidential and be used solely for academic purposes, except with your permission.

#### **Consent form**

I have read and understood the above information sheet which specifies what the study is about and who is carrying it out. Furthermore, I have also understood what my participation entails and am willing to take part in the study.

Signature: \_\_\_\_\_ Date (dd/mm/yy):[     /     /     ]

**Key Informant Interview Guide**

Name of interviewer: \_\_\_\_\_

Questionnaire ID [            ]      Interviewer ID      [            ]

Date of Interview (dd/mm/yy) [    /    /    ]

Time interview started (hh:mm) [    :    ] PM/AM (delete inapplicable)

Time interview ended (hh:mm) [    :    ] PM/AM (delete inapplicable)

**Access to diabetes care**

1) Can you please outline the type of diabetes management services which you offer in your province?

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2) What types of facilities provide any form of diabetes services? You might classify the service type (diagnosis, treatment, monitoring and control etc) and the corresponding facility (rural health centre, clinic, hospital and so on).

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3) What is the extent of coverage of diabetes services in your province? In other words, how many health facilities offer the full range of diabetes services such as diagnosis, education, monitoring and treatment as a percentage of the total?

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4) Can you comment on the routine availability of equipment, drugs and other supplies (such as insulin) for particular types of services offered (for example how many facilities have the equipment needed for diabetes care, how frequently do they experience stock-outs of diabetes related medicines)?

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5) Do you have diabetes associations or any other organisations that offer any kind of support to diabetes patients (or potential patients) in your province? If so, please state the organisations and the kind of support they offer.

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6) Do you think, in your opinion, that diabetes care is affordable to the majority of its sufferers? Explain your answer?

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7) What do you think providers expect of diabetes patients? Do you think these expectations are met?

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8) In your opinion, what do patients expect from providers? Do you think these expectations are met?

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9) Do you have any other comments on availability, affordability and acceptability of diabetes management services in your province?

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**Thank you very much for taking your time to answer the questions.**

University of Cape Town

## **APPENDIX B: HEALTH FACILITY CHECKLISTS**

### **Information sheet and informed consent**

Hello, I am a University of Cape Town student studying Masters in Public Health. Thus, I am researching access to public sector health care for diabetic patients. This interview seeks information on availability of diabetes care services at your facility.

This study is important because of the increasing prevalence of diabetes. Diabetes is also associated with high costs of care due to its chronic nature. Hence, this study aims to evaluate access to diabetes care in order to improve the lives of people as well as creating an environment suitable for economic growth. Therefore, you are encouraged to participate in the study by answering a few questions. The whole interview will take about 30 minutes to complete. Study findings will determine the type, range and volume diabetes care services. Ultimately, the health of the population might improve and inequalities in access to health care may be reduced.

This study is completely voluntary, you decide whether to participate or not. You can withdraw from this interview without giving any reason or refuse to answer certain questions. There are no adverse consequences associated with taking part in this study or with refusing to participate. To ensure confidentiality, neither the name of the interviewee nor that of the health facility will be written on the interview guide in order to maintain anonymity. Only an identification code for the questionnaire will be used. The study obtained ethical approval from the Ministry of Health and Child Welfare, Ethics Review Committee at the University of Cape Town and the Medical Research Council of Zimbabwe.

### **Contact Details**

This research is being conducted by Pardon Masuka of the Health Economics Unit, University of Cape Town. If you have any questions about the research study itself, please contact Pardon on phone 263-04-705140 and email address, pmasuka2001@yahoo.co.uk or mskpar001@uct.ac.za.

For any other queries, please feel free to contact:

Professor Di McIntyre

Health Economics Unit

Anzio Road, Observatory 7925

South Africa

Tel: (+27 21) 4066558 Fax: (+27 21) 4488152

**Consent form**

I have read and understood the above information sheet which specifies what the study is about and who is carrying it out. Furthermore, I have also understood what my participation entails and am willing to take part in the study.

Signature: \_\_\_\_\_ Date (dd/mm/yy):[     /     /     ]

University of Capetown

**Health Facility Checklist**

Name of Interviewer \_\_\_\_\_ Interviewer ID [            ]

Questionnaire ID [            ]

Time interview started (hh:mm) [        :        ] PM/AM (delete inapplicable)

Time interview ended (hh:mm) [        :        ] PM/AM (delete inapplicable)

**Section A: Availability of diabetes management services**

1) How is this health facility classified by the Ministry of Health and Child Welfare?

- a) Urban clinic [1]
- b) General hospital [2]
- c) Central hospital [3]
- d) Other, specify [4] \_\_\_\_\_

2) On average, how many diabetes patients do you see per month? [            ]

3) State the weekday and weekend opening and closing times for your facility.

- a) Monday to Friday \_\_\_\_\_
- b) Saturday \_\_\_\_\_
- c) Sunday \_\_\_\_\_
- d) Public Holidays \_\_\_\_\_

4) Do you have an appointment system where patients can book in advance? Tick the appropriate response. a) Yes [1]      b) No [2]

If your answer is Yes to the above question, briefly describe how the system works

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5) Please complete the following table on staff availability

Cadre	Number
General practitioner	
Nurse	
Dietician	
Diabetes educator	
Eye specialist	
Diabetologist	
Any other specialist for diabetes care complications, specify	
1.	
2.	
3.	
4.	
5.	

6) The following supplies might be needed in order to manage diabetes. Specify whether you provide your patients with the supplies. How many days you run out of stock per month, on average?

**Diabetes care supplies**

Supplies	Yes/No (Tick if yes)	Frequency of stock outs per month
Insulin		
Metformin		
Glibenamide		
Syringes		
Glucometer strips		
Diabetes education materials		
Cotton wool and disposable pins		
Other, specify		

- 7) The table below lists some of the tests that might be done at health facilities that manage diabetes patients. Specify the ones that you offer and how often you offer them.

Test	Yes/No (Tick if yes)	How often do you offer the tests? Once a year (1) Twice a year (2) Three times a year (3) Four times a year (4) Monthly (5) Twice a month (6) Weekly (7) Few days a week (8) Daily (9)
AIC		
Random blood sugar		
Cholesterol		
Other, specify		

- 8) For the following services, please specify the ones you offer and how often you offer them.

Service	Yes/No (Tick if yes)	How often do you offer the tests? Once a year (1) Twice a year (2) Three times a year (3) Four times a year (4) Monthly (5) Twice a month (6) Weekly (7) Few days a week (8) Daily (9)
Diabetes education sessions		
Chronic dialysis services		
Diabetes eye examination		
Diabetes foot care		
Diabetes dental care		
Other, specify		

- 9) Please indicate the number of the following types of functional equipment, if available.

Equipment	Glucometer	Weighing scale and tape measure	Sphygmo manometer with different cuff sizes	Blood glucose meters	Ophthalmoscope and Snellen Chart	Tuning fork	Patella hammer
Number							

**Thank you very much for your cooperation**

## **APPENDIX C: PATIENT QUESTIONNAIRE**

### **Information sheet and consent form**

Hello, we are students from the University of Cape Town and University of Zimbabwe researching access to public sector health care for diabetic patients. This interview seeks information on availability, affordability and acceptability of diabetes care services. You were chosen to be part of this study because patients are the most important stakeholders in the health system. The information that you give is invaluable in evaluating access to diabetes care.

This study is important because of the increasing prevalence of diabetes. Diabetes is also associated with high costs of care due to its chronic nature. Hence, this study aims to evaluate access to diabetes care in order to improve the lives of people as well as creating an environment suitable for economic growth. Therefore, you are encouraged to participate in the study by answering a few questions. The whole interview will take between 10 and 20 minutes to complete. Study findings might help improve availability, affordability and acceptability of health services. Ultimately, the health of the population might improve and inequalities in access to health care may be reduced.

This study is completely voluntary, you decide whether to participate or not. You can withdraw from this interview without giving any reason or refuse to answer certain questions. There are no adverse consequences associated with taking part in this study or with refusing to participate. To ensure confidentiality, your name will not be written on the interview guide in order to maintain anonymity. Only an identification code for the questionnaire will be used. The study obtained ethical approval from the Ministry of Health and Child Welfare, Ethics Review Committee at the University of Cape Town and the Medical Research Council of Zimbabwe.

### **Contact Details**

The principal researcher is Pardon Masuka of the Health Economics Unit, University of Cape Town. If you have any questions about the study, please contact Pardon on phone 263-04-705140/091256416 and email address, [pmasuka2001@yahoo.co.uk](mailto:pmasuka2001@yahoo.co.uk) or [mshpar001@uct.ac.za](mailto:mshpar001@uct.ac.za). With me is my research assistant Mr Benedict Chinondira from the

University of Zimbabwe College of Health Sciences Department of Anatomy and he can be contacted on 0912432781 or bchinondira@medic.uz.ac.zw.

For any other queries, please feel free to contact:

Professor Di McIntyre

Health Economics Unit

Anzio Road, Observatory 7925

South Africa

Tel: (+27 21) 4066558 Fax: (+27 21) 4488152

Your responses will be kept confidential and be used solely for academic purposes, except with your permission. Please complete the following consent form if you are willing to participate in the study.

**Consent form**

I have read attached information about this study. I understand what the study is about and what my participation entails. I am willing to take part in the study.

Signature: \_\_\_\_\_ Date (dd/mm/yy): [    /    /    ]

## Patient Questionnaire

Patient Questionnaire

Name of Interviewer \_\_\_\_\_ Interviewer ID [ ] Health Facility [ ] Date of Interview (dd/mm/yy) [ / / ]

### SECTION A: SOCIO-ECONOMIC AND DEMOGRAPHIC DETAILS

1) Gender	2) Age (years)	3) Marital status	4) Race	5) Religion
6) Highest level of education	7) Residence  8) Ownership of residence	9) Water source	10) Toilet facility	

**SECTION B: ACCESS TO CARE**

<p>11) Employment status</p>	<p>12) Major source of income</p> <p>13) Approximate total monthly expenditure</p>	<p>14) Type of Diabetes Mellitus</p>	<p>15) What do you think is the cause of the ailment?</p>	<p>16) How long have you suffered from the disease?</p>
<p>17) What is your usual source of care?</p> <p>18) Is it your preferred source and why?</p>	<p>19) Are you on medical aid? Which one in particular if Yes?</p> <p>20) Does it cover all your costs or part?</p>	<p>21) Are the opening times of the health facility convenient for you?</p>	<p>22) How much time do you spend when you travel to the health facility?</p> <p>23) What mode of transport do you use?</p>	<p>24) What activities do you forgo when you seek care?</p> <p>25) Were you accompanied by anyone?</p>

<p>26) Are you given enough time by the care providers?</p> <p>27) Do they communicate with you in a language that you understand?</p>	<p>28) Do you get adequate information about your disease from this health facility?</p>	<p>29) Do you get all the assistance that you need? Explain your answer?</p>	<p>30) Do you have any support groups or organisations that assist you in any way?</p>	<p>31) Do you perceive your health status to be good or bad?</p>
<p>32) Do you think that all patients are treated equally regardless of colour, social status, education etc?</p>	<p>33) Have you ever not sought care when you needed it and why?</p>	<p>34) Does your household have the following:</p> <ul style="list-style-type: none"> <li>a) Electricity?</li> <li>b) A radio?</li> <li>c) A television?</li> <li>d) A cellphone?</li> <li>e) A landline?</li> <li>f) A refrigerator?</li> <li>g) A bicycle?</li> <li>h) A car?</li> </ul>		

Please answer the following questions by ticking the appropriate box.

Statement	Response				
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
35) Care providers do not treat patients with respect and dignity					
36) Care providers fully explain to patients their illness and medication					
37) Care providers undertake a thorough examination					
38) Care providers respect confidentiality when dealing with patients					
39) Care providers can not be trusted with sensitive information					
40) Care providers are always willing to assist patients					
41) Care providers do not have adequate training to treat my condition					
42) Health facilities (including waiting area and toilets) are dirty					
43) I do not mind being treated by care provider of the opposite sex					

44) What is your overall satisfaction with the care that you receive from this facility?

Very dissatisfied [ ] Dissatisfied [ ] Neutral [ ] Satisfied [ ] Very satisfied [ ]

45) What do you suggest should be done to improve access to diabetes care?

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46) Any other comments on access to diabetes care

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**Thank you for your understanding**

University of Cape Town

## **APPENDIX D: COMMUNITY FOCUS GROUP DISCUSSIONS**

### **Information sheet and informed consent**

Hello, we are students from the University of Cape Town and University of Zimbabwe and are researching access to public sector health care for diabetic patients. This interview seeks information on availability, affordability and acceptability of diabetes care services. You were chosen to be part of this study because you are the most important stakeholders in the health system. The information that you give is invaluable in evaluating access to diabetes care.

This study is important because of the increasing prevalence of diabetes. Diabetes is also associated with high costs of care due to its chronic nature. Hence, this study aims to evaluate access to diabetes care in order to improve the lives of people as well as creating an environment suitable for economic growth. Therefore, you are encouraged to participate in the study by answering a few questions. The whole interview will take about 30 to 45 minutes to complete. Study findings might help improve availability, affordability and acceptability of health services. Ultimately, the health of the population might improve and inequalities in access to health care may be reduced.

This study is completely voluntary, you decide whether to participate or not. You can withdraw from this interview without giving any reason or refuse to answer certain questions. There are no adverse consequences associated with taking part in this study or with refusing to participate. To ensure confidentiality, your name will not be written on the interview guide in order to maintain anonymity. Only an identification code for the questionnaire will be used. The study obtained ethical approval from the Ministry of Health and Child Welfare, Ethics Review Committee at the University of Cape Town and the Medical Research Council of Zimbabwe.

### **Contact Details**

The principal researcher is Pardon Masuka of the Health Economics Unit, University of Cape Town. If you have any questions about the study, please contact Pardon on phone 263-04-705140 and email address, pmasuka2001@yahoo.co.uk or mskpar001@uct.ac.za.

For any other queries, please feel free to contact:

Professor Di McIntyre  
Health Economics Unit  
Anzio Road, Observatory 7925  
South Africa  
Tel: (+27 21) 4066558 Fax: (+27 21) 4488152

Your responses will be kept confidential and be used solely for academic purposes, except with your permission. However, it is important to know that confidentiality might be threatened by other discussions on some of the issues raised which might occur outside the closed research group. Instead of names of respondents, pseudonyms will be used to maintain anonymity. No response is wrong, so everyone should feel free to talk about their feelings, opinions, and suggestions. Every response is right and will be respected as such. The discussion might take between 1 and 2 hours. Please complete the following consent form if you are willing to participate in the study.

**Consent form**

I have read attached information about this study. I understand what the study is about and what my participation entails. I am willing to take part in the study. Furthermore, I will respect other group members' confidentiality and may not mention whatever is discussed within the group to anyone outside the group.

Signature: \_\_\_\_\_ Date (dd/mm/yy): [    /    /    ]

## Focus Group Interview Guide

Name of Interviewer \_\_\_\_\_ Interviewer ID [     ]  
Questionnaire ID [     ]     Date of Interview (dd/mm/yy) [     /     /     ]  
Time interview started (hh:mm) [     :     ] PM/AM (delete inapplicable)  
Time interview ended (hh:mm) [     :     ] PM/AM (delete inapplicable)

### Access to diabetes care

- 1) Community perceptions about availability of health services.
  - a) Location of health facilities (distance and transport options).
  - b) Support organisations which assist patients and the scope of their services.
  - c) Degree of fit between patients and the health system in relation to opening hours, appointment systems and emergency services.
  - d) Services provided by health facilities. Do facilities provide the full range of services required by diabetes patients?
  - e) Knowledge about diabetes, its symptoms and management.
- 2) Cost of diabetes management services in relation to people's average earnings. Probe for sources of funding, respondents' opinions on direct and indirect costs, availability of support from family and friends and any coping strategies. Also probe for effect of social capital on diabetes management (relationships with friends and relatives).
- 3) The fit between the health system model and people's culture and beliefs. Provider-patient attitudes and perceptions about one another. Communication, privacy and confidentiality issues. People's perceptions about quality of care offered at public health facilities.
- 4) Equity of access to health care. Effect of age, sex, race or other socio-economic factors on access to health care.
- 5) Knowledge of people, either friends or relatives or any other potential/diagnosed diabetes patients who have not gone to any health facility for assistance. Reasons for not going to the health facilities.

**Thank you for your time**

## **APPENDIX E: PROVIDER QUESTIONNAIRE**

### **Information sheet and consent form**

Hello, we are students from the University of Cape Town and University of Zimbabwe researching access to public sector health care for diabetic patients. This interview mainly seeks information on acceptability of diabetes care services. You were chosen to be part of this study because you are one of the most important stakeholders in the health system. The information that you give is invaluable in evaluating access to diabetes care.

This study is important because of the increasing prevalence of diabetes. Diabetes is also associated with high costs of care due to its chronic nature. Hence, this study aims to evaluate access to diabetes care in order to improve the lives of people as well as creating an environment suitable for economic growth. Therefore, you are encouraged to participate in the study by answering a few questions. The whole interview will take about 30 to 45 minutes to complete. Study findings might help improve availability, affordability and acceptability of health services. Ultimately, the health of the population might improve and inequalities in access to health care may be reduced.

This study is completely voluntary, you decide whether to participate or not. You can withdraw from this interview without giving any reason or refuse to answer certain questions. There are no adverse consequences associated with taking part in this study or with refusing to participate. To ensure confidentiality, your name will not be written on the interview guide in order to maintain anonymity. Only an identification code for the questionnaire will be used. The study obtained ethical approval from the City of Harare Health Directorate, Ethics Review Committee at the University of Cape Town and the Medical Research Council of Zimbabwe.

### **Contact Details**

The principal researcher is Pardon Masuka of the Health Economics Unit, University of Cape Town. If you have any questions about the study, please contact Pardon on phone 263-04-705140 and email address, pmasuka2001@yahoo.co.uk or mskpar001@uct.ac.za. With me is my research assistant Mr B Chinondira from the University of Zimbabwe

College of Health Sciences Department of Anatomy and he can be contacted on 0912432781 or bchinondira@medic.uz.ac.zw.

For any other queries, please feel free to contact:

Professor Di McIntyre

Health Economics Unit

Anzio Road, Observatory 7925

South Africa

Tel: (+27 21) 4066558 Fax: (+27 21) 4488152

Your responses will be kept confidential and be used solely for academic purposes, except with your permission. Instead of names of respondents, pseudonyms will be used to maintain anonymity. The interview might take about 30 minutes to complete. Please complete the following consent form if you are willing to participate in the study.

**Consent form**

I have read attached information about this study. I understand what the study is about and what my participation entails. I am willing to take part in the study.

Signature: \_\_\_\_\_ Date (dd/mm/yy): [    /    /    ]

### Provider Questionnaire

Name of Interviewer \_\_\_\_\_ Interviewer ID [     ]

Questionnaire ID [     ]     Date of Interview (dd/mm/yy) [     /     /     ]

#### Section A: Demographic details

1) Gender    [1] Male        [2] Female

2) Age (in years)    [     ]

3) Marital status

[1] Single [2] Married [3] Divorced/separated [4] Widowed

4) Highest level of education (tick all that apply)

[1] 'O' Level [2] 'A' Level [3] Certificate [4] Diploma [5] Degree [6] Post graduate

5) What is your job title? (Munonzi chii pabasa renyu)

[1] General practitioner [2] Nurse [3] Dietician [4] Diabetes educator

[5] Eye specialist [6] Diabetologist [7] Other, specify \_\_\_\_\_

6) Years of experience in the health care sector (whether public or private)

Less than 2 years [1]

2 to 5 years [2]

6 to 10 years [3]

More than 10 years [4]

**Section B: Acceptability of health services**

Please answer the following questions by specifying whether you agree or disagree with the following statements using the following scale:

Statement	Response				
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
The health care system in this city is well organised for the management of diabetes					
Health care providers are not motivated to provide the best quality diabetes care					
Providers are aware of the culture and values of their patients					
Providers treat all patients the same regardless of sex, race, income level					
Diabetes patients are not empowered to make decisions about their own health					
The health system supports the population's health related beliefs and perceptions					
Patients treat their providers/nurses with respect and dignity					
Patients do not understand the diagnosis, prescriptions and advice given					
Providers expect patients to follow advice given by their providers					
Patients expect providers to give them the most effective treatment available					
Patients do not comply with behavioural modifications and medication regimes advised by providers					

<b>Statement</b>	<b>Strongly disagree (1)</b>	<b>Disagree (2)</b>	<b>Neutral (3)</b>	<b>Agree (4)</b>	<b>Strongly agree (5)</b>
Patients are satisfied with diabetes care provided at public health facilities					
Patients believe providers have all the knowledge they want about diabetes					
I am comfortable treating a patient of the opposite sex					
Patients do not feel comfortable being treated by a provider of the opposite sex					
Patients expect to be greeted and treated with respect and dignity					
It is very difficult to satisfy patient expectations					
Providers educate patients on diabetes self management					
Rich people should get better treatment than the poor ones					
Providers maintain confidentiality when dealing with patients					
The role of a patient is to listen to what the provider tells him/her to do					
Patients do not tell providers their full medical history thus making diagnosis and treatment difficult					
Patients usually ask questions about their conditions when they are seeking care					
There is a high level of trust between patients and providers					
There is not enough time for providers to communicate with patients					

7) What challenges do you face as a health professional with regards to management of diabetes?

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8) What do you think should be done in order improve access to diabetes care services?

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9) Any other comments on access to diabetes care services

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**Thank you for your understanding**

**APPENDIX F: CITY OF HARARE APPROVAL LETTER**



**CITY OF HARARE**

Director of Health Services  
DR. O.L. MBENGERANWA  
MB: Ch.B. (Barr) Dip. Med. C.O.&G.(SA)  
Dip. Ven.(Liv) M. Comm. H.(Liv) M.C.P.C.P.(Z)

All correspondence to be addressed to the  
DIRECTOR OF HEALTH SERVICES  
Ref. No. ....  
Your Ref. ....

**DIRECTOR OF HEALTH SERVICES**  
Rowan Martin Building,  
Civic Centre,  
Penfether Avenue,  
Rotten Row,  
Harare, Zimbabwe.  
P.O. Box 696  
Telephone 753326  
753330/1/2  
Fax: (263-4) 752083

04 JANUARY 2008

Mr. Pardon Masuka  
54 Alps Road  
Vainona  
**HARARE**

Dear Sir

**RE: PERMISSION TO CARRY OUT A STUDY ON DIABETES AT THE CITY OF HARARE HEALTH FACILITIES.**

I refer to the above;

Permission is granted for you to carry out a study on diabetes at our health institutions. For further assistance please liaise with the matrons for Beatrice Road hospital and Wilkins hospital.

Yours faithfully,

**ACTING DIRECTOR OF HEALTH SERVICES**  
SM/ab

Cc MATRON BRIDH  
MATRON WIDH

# APPENDIX G: MEDICAL RESEARCH COUNCIL OF ZIMBABWE ETHICS APPROVAL LETTER

Telephone: 791792/791193/792747  
Telefax: (263) -4 - 790715  
E-mail: [mrcz@mrczimshared.co.zw](mailto:mrcz@mrczimshared.co.zw)  
Website: <http://www.mrcz.org.zw>



Medical Research Council of Zimbabwe  
Josiah Tongogara / Mazoe Street  
P. O. Box CY 573  
Causeway  
Harare

## MRCZ APPROVAL LETTER

Ref: MRCZ/A/1429  
B/S

Date: 11 DECEMBER 2007

Pardon Masuka  
54 Alpes Road  
Vainona  
Harare

### RE: An Evaluation Of The Access To The Public Sector Health Care For Diabetic Patients

Thank you for the above titled proposal that you submitted to the Medical Research Council of Zimbabwe (MRCZ) for review. Please be advised that the Medical Research Council of Zimbabwe has reviewed and approved your application to conduct the above titled study. This approval is based on:

- (a) English Informed Consent Form
- (b) Study Protocol

- **APPROVAL NUMBER:** MRCZ/A/1429

This number should be used on all correspondence, consent forms and documents as appropriate.

- **APPROVAL DATE:** 11 December, 2007

- **MRCZ MEETING DATE:** 11 December, 2007

- **TYPE OF MEETING:** FULL BOARD

- **EXPIRATION DATE:** This approval expires on 10 December 2008.

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted one month before the expiration date for continuing review.

- **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices.

- **MODIFICATIONS:** Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).

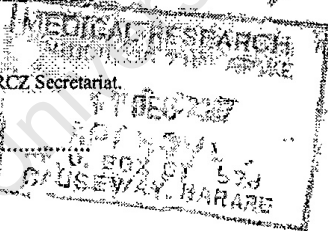
- **TERMINATION OF STUDY:** On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices.

- **QUESTIONS:** Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on [mrcz@mrczimshared.co.zw](mailto:mrcz@mrczimshared.co.zw).

- **Other:**

Please be reminded to send in copies of your final research results for our records as well as for the Health Research Database.

Kind regards from the MRCZ Secretariat.



**PROMOTING THE ETHICAL CONDUCT OF HEALTH RESEARCH**  
Registered with the USA Office for Human Research Protections (OHRP) as an International IRB  
(IRB Number IRB00002409 IORG0001913)

UNIVERSITY OF CAPE TOWN



Health Sciences Faculty  
Research Ethics Committee  
Room E52-24 Groote Schuur Hospital Old Main Building  
Observatory 7925  
Telephone (021) 406 6338 • Facsimile (021) 406 6411  
e-mail: preaward@conect.ac.za

07 November 2007

REC REF: 451/2007

Mr P Masuka  
C/o A/Prof D McIntyre  
Health Economics Unit  
School of Public Health & Family Medicine

Dear Mr Masuka

**PROJECT TITLE: AN EVALUATION OF THE ACCESS TO PUBLIC SECTOR HEALTH CARE FOR DIABETIC PATIENTS**

Thank you for submitting your study to the Research Ethics Committee for review.

It is a pleasure to inform you that the Ethics Committee has **formally approved** the above mentioned study.

This serves to confirm that the University of Cape Town Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP) and Declaration of Helsinki guidelines.

The Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the REC REF in all your correspondence.

Yours sincerely

**PROF M BLOCKMAN**  
**CHAIRPERSON, HSF HUMAN ETHICS**

10/11/07