

**A Cost Analysis of a Stepdown
Antiretroviral Programme at the
Kwadukuza
Municipality Clinic in the Ntembe
District in
KwaZulu- Natal for the period 1st April 2005
to 31st March 2006**

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I Abstract

Introduction: While the antiretroviral (ARV) coverage has been scaled- up in the last 3 years in South Africa, there is limited data on the operating costs and financial sustainability of an anti- retroviral programme.

Study Aim: To conduct a cost analysis of the stepdown ARV programme at the Kwadukuza Municipality Clinic (KMC) in the Ilembe district from a healthcare providers' perspective for the period 1st April 2005 to 31st March2006.

Study Objectives: To determine the total costs and cost per patient per visit for outpatients attending the ARV, Wellness and VCT clinics respectively at KMC.

Study Methods:

Study location: This study was conducted at the Kwadukuza Municipality Clinic located in the Ilembe district in Kwazulu- Natal, South Africa.

Study population:

The population that is included in this study for the purposes of costing comprised: all the patients who received ARVs for the period under study; all the patients who attended the Wellness and VCT clinics and all the staff attached to the ARV programme at the KMC clinic

Study design: This is a retrospective and cross- sectional study with both a descriptive and analytical component.

Results:

Seventy- one percent of the patients on ARVs were female with 50% of the patients being between 31 and 40 years of age. The total operating costs of running the ARV programme was R2 439 940- 90.

The total cost accrued to the ARV clinic was R 1 698 003- 60. The Wellness clinic had a total cost of R 460 279- 68 and the VCT clinic accounted for the least total operating cost of R 281 657- 77.

The cost per patient visit was R440- 13 for the ARV clinic; R133- 05 for the VCT clinic and an amount of R61- 71 for the Wellness clinic.

Conclusion

This study provides the basis for determining the three cardinal cost components of the ARV programme, namely human resources, the cost of ARVs and the costs of viral load testing for the purposes of future planning and sustainability. The cost- effectiveness of ARV drugs can be improved if the healthcare providers negotiate a lower price for these drugs. The high cost due to monitoring tests can be lowered by decreasing the frequency of these tests but this may allow ARV drug resistance to be undetected.

ii. **Declaration**

I, **Dr. Yogendiran Kista**, confirm that I understand the policy on plagiarism of the University of KwaZulu-Natal and that I will be penalized if this dissertation infringes that policy.

I, declare that this research report is my own, unaided work, except as indicated in the acknowledgments, the text and the references. This report is being submitted in partial fulfillment of the requirements of the Masters in Public Health Medicine (MPH) as awarded by the University of KwaZulu- Natal.

It has not been submitted before, in whole, or in part for any degree or any examination at any other university.

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iv. Acronyms and Abbreviations

3TC	Lamivudine
AIDS	Acquired Immune Deficiency Syndrome
ARK	Absolute Return for Kids
ART	Anti-Retroviral Therapy/ Treatment
ARV	Anti-Retrovirals
CCMT	Operational Plan for Comprehensive HIV and AIDS Care, Management and Treatment
CD4	Cluster of Differentiation
d4T	Stavudine
HIV	Human Immunodeficiency Virus
KMC	Kwadukuza Municipality Clinic
KZN	Kwazulu- Natal
NDOH	National Department of Health
NGOs	Non- Governmental Organizations
NVP	Nevirapine
PLWHA	People Living With HIV/AIDS
PMTCT	Prevention of Mother- To- Child Transmission
PDOH	Provincial Department of Health
SPH	Stanger Provincial Hospital

EFV	Efavirenz
TB	Tuberculosis
VCT	Voluntary Counselling and Testing

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Chapter 1: Introduction and Background

1.1 Introduction

The annual antenatal sero- prevalence survey of pregnant women attending public health facilities in South Africa has monitored HIV prevalence since 1990. The data provided by these annual surveys estimates the HIV prevalence trends over time in South Africa. The national prevalence of HIV positive pregnant women among those attending antenatal clinics in 2006 was 29.1%, a decrease from 30.2% in 2005. HIV prevalence varies considerably throughout South Africa. Some provinces are more severely affected than others, with the highest antenatal prevalence of 39.1% in 2006 in KwaZulu-Natal and the lowest of 15.2% in the Western Cape.¹ Women account for 55% of People Living with HIV and AIDS (PLWHA) in South Africa. The peak age for HIV infection in women is 25-29 years while for men it is the 30-35 years age group.

The HIV & AIDS and STD Strategic Plan for the period 2000 – 2005 was launched in 2000 to provide a strategic framework for the country's response to the HIV & AIDS and STD epidemics. The purpose of the plan was to provide a broad national framework around four priority areas: prevention; treatment, care and support; research, monitoring and evaluation and human and legal rights.²

The Cabinet decided on a number of measures to strengthen the implementation of the HIV & AIDS and STD Strategic Plan in April 2002. Amongst the various measures introduced, the commitment from government to remove systemic constraints on access to anti- retroviral treatment was the most significant of these measures.

The government established a Joint Health and Treasury Task Team (JHTTT) in July 2002 to investigate issues relating to the financing of an enhanced response to HIV and AIDS. A particular focus of the JHTTT was on the second component of the Strategic Plan, namely treatment, care and support for those infected and affected by HIV and AIDS.

Following a review of the report from the JHTTT, the Cabinet instructed the Department of Health (DOH) to develop a detailed operational plan on an Anti- retroviral Treatment (ART) programme by the end of September 2003.³

In November 2003, the government approved the Operational Plan for Comprehensive HIV and AIDS Care, Management and Treatment for South Africa.³ Implementation of the Comprehensive HIV and AIDS Care, Management and Treatment Plan (CCMT) started in the first quarter of the 2004.

The operational plan aimed to accomplish two interrelated goals:

- To provide comprehensive care and treatment for PLWHA
- To facilitate the strengthening of the national health system in South Africa.⁴

According to the Actuarial Society of South Africa (ASSA) 2000 model, it was estimated that by 2009, about 1.4 million people will require antiretroviral (ARV) therapy.⁵

The plan is premised on the following pillars:

- Ensuring that the great majority of South Africans who are currently not infected with HIV remain uninfected. The messages of prevention and of changing lifestyle and behavior therefore together constitute the critically important starting point in managing the spread of HIV and the impact of AIDS.
- Enhancing efforts in the prophylaxis and treatment of opportunistic infections, improved nutrition and lifestyle choices.
- Effective management of those HIV-infected individuals who have developed AIDS-defining illnesses, through appropriate treatment of AIDS-related conditions (including the possibility of using antiretroviral therapy in patients presenting with low CD4 counts to improve functional health status and to prolong life), and suitable palliative and terminal care where treatment has run its course.⁴

The plan proposes an expenditure of R750 million for upgrading systems in healthcare infrastructure in areas such as drug distribution, patient information systems and pharmaco-vigilance, over R300 million for new capital investments, and over R230 million for research. The budget estimates indicate that nearly R4.5 billion will be required for funding the Comprehensive Care and Treatment plan in 2007/8. This includes more than R1 billion for new health professionals; about R1,6 billion for antiretroviral drugs; R800 million for laboratory tests and more than R650 million in additional nutritional supplements and support.

1.2 Rationale for the study

The Operational Plan has now entered into its third year of implementation and despite the numerous obstacles, continues to grow in strength. The number of patients on ARV treatment rose from 41 719 in March 2005 to 213 828 in September 2006. This constitutes the fastest growing ARV programme in the world. By the end of December 2006, there were 273 accredited ARV sites in South Africa.⁶

By March 2007 an estimated 276 995 patients were enrolled for ARV treatment at the accredited facilities in South Africa. This represents a six fold increase from the 41 719 patients enrolled at the end of March 2005 and a two-fold increase from the 141 774 patients enrolled at the end of March 2006.⁷

The efficacy of ARVs has been proven in prolonging and improving the quality of life for PLWHA, globally. In order for PLWHA to have access to this life- prolonging therapy, careful planning is essential.

1.3 Background to the Kwadukuza Municipality Clinic' ARV programme

The first ARV rollout programme in the Ilembe district commenced at Stanger Provincial Hospital (SPH) in June 2004. The Kwadukuza Municipality Clinic (KMC) had not acquired full accreditation status, however, due to its close proximity to a regional hospital it was classified as an extension site of SPH. This primary health care clinic is located in an urban setting and is situated approximately 1,5 kilometres away from SPH. The first batch of patients on ART were referred down to KMC on the 1st April 2005.

The KMC clinic provided a comprehensive package of AIDS services which included counselling, support, prophylaxis, treatment of opportunistic infections, provision of ARV treatment and referrals to SPH where necessary.

1.3.1 Patient flow in an ARV programme

The three components of an ARV programme (ART) are as follows:

- Voluntary Counselling and testing Clinic (VCT)
- Wellness Clinic
- Anti- retroviral (ARV) Clinic

1.3.1.1 VCT Clinic

The VCT clinic is the portal of entry into the ARV programme. A client may be referred to or voluntarily present themselves for HIV testing at the VCT clinic. On the first visit, the client will receive pre- test counselling from a certified VCT counsellor which, on average, will last for about 15 minutes. Both the testing with a rapid HIV test kit and production of the result of the test will, on average, take another 15 minutes. If the test is positive, a confirmatory test will be done. If the client tests positive, post test counselling will be provided, that takes an average of 10- 15 minutes.

1.3.1.2 Wellness Clinic

The client is then referred to Wellness Clinic to make an appointment. On the first visit, the client will be attended to by a nurse who will introduce the client to the concept and benefits of the Wellness Clinic. The purpose of a baseline CD4 count test will be explained and done during this visit. A cursory clinical history and examination will be conducted. This initial consult will take, on average, 15 minutes.

If the client is not categorised as WHO Stage 3 or Stage 4 nor is the client moribund clinically, then the second visit will be scheduled for a month later. A systematic enquiry is made and a short clinical examination is conducted detailing all the important clinical parameters (blood pressure/haemoglobinometer reading/ glucometer reading/ weight/height/body mass index). The result of the CD4 count is also made known to the client. If the client's CD4 is greater than 200, the client will be given prophylactic treatment (Co- trimoxazole, MVT) and assessed or reviewed on a monthly basis. If the CD4 count is below 200 or the client is deemed to be a WHO Stage 3 or Stage 4 (irrespective of CD4 count), this client will then be referred to the ARV clinic to be enrolled onto the ARV programme.

1.3.1.3 ARV Clinic

The clients are given a booking for their first visit. The assembled clients who are eligible for ART or who are referred down from another facility will receive group counselling by one of the ARV Clinic nurses. Group counselling will occur at each of the monthly visits that clients attend. Clients will then be seen individually by the ARV clinic nurse/s. The ARV Rollout booklet will have to be completed for patients waiting for ART by the VCT counsellor and the ARV clinic nurses in the relevant sections. Pre- ART baseline investigations (full blood count/urea and electrolyte/liver function tests/total cholesterol/triglyceride level/amylase/acid fast bacillus cytology/ urine dipstix/glucometer reading and chest X-Ray) will be done as well as the assessment of the clinical parameters. This initial consult may take, on average, 20- 30 minutes.

All the results of these investigations will be collated by the ARV clinic nurses. On the second visit the assessment will be undertaken by the ARV clinic medical officer, who will do a full clinical examination, review all the results and fill in the relevant sections in the ARV rollout booklet. This visit will take, on average 15- 20 minutes. If the results of all the investigations are favourable, the client will be booked for the Adult Literacy Programme which is a 3 day work- shop and constitutes the third visit.

This work- shop is conducted by the VCT counsellors. The tenets of prevention of HIV, adoption of a healthy lifestyle and all the benefits of ART and the potential adverse effects of ART will be discussed during these 3 days. On the last day of the work- shop, the client will be referred back to the medical officer who will prescribe the relevant ARV regimen as chosen by the client. This will take, on average, 3-5 minutes. The relevant section in the ARV rollout booklet will also be completed.

The client is then referred to the pharmacist and data capturer team. The pharmacist counsels the client again on ARVs and then duly dispenses the ARVs which, takes on average, 10 minutes. The client is then seen by the data capturer who records their clinical and socio- demographic profile. This process takes an average of 15 minutes.

The client is then reviewed by the nurse, pharmacist and data capturer two weeks after commencement of ARVs. Problem cases are referred to the medical officer. This is the fourth visit.

Subsequent visits are conducted on a monthly basis. CD4 count and VL testing should be done every 6 months. If the client is on Regimen 1b, the liver function tests are also done on a 6 monthly basis.

The patient flow in an ARV programme is a dynamic process and is illustrated in Figure 1.

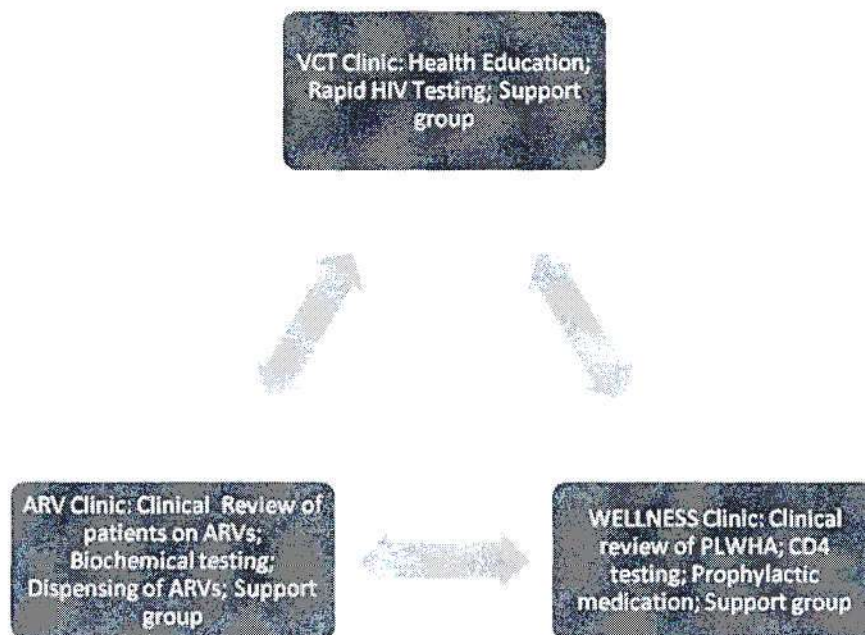


Figure 1: The patient flow cycle in an ARV programme

1.3.2 Physical Infrastructure of ARV programme at Kwadukuza Municipality Clinic

1.3.2.1 VCT Clinic

The VCT counselors used a single room housed in the main KMC building to provide their services which included pre- and post- test counseling.

1.3.2.2 Wellness Clinic

This clinic was assigned a tiny room which was originally designed for use as a sluice room. Prior to the arrival of the mobile park- home, this room was shared by both the Wellness and ARV clinic staff and a further two rooms were allocated for use by the doctor and pharmacist attached to the ARV programme.

1.3.2.3 ARV Clinic

A four room mobile park- home, sponsored by ARK (a British-based NGO), formed the physical location of the ARV clinic for the latter part of the study period. The mobile home was delivered to KMC in October of 2005. One room was allocated for use by the two part- time doctors on a rotational basis. The three nurses used a single room to attend to patients. The third room was jointly used by the pharmacists and the data capturer. The fourth room was used by the counselors and also served as a storage facility for nutritional supplements. Each room had both electricity and water supply and was fully air-conditioned.

1.3.3 Human Resource capacity

The ARV clinic had a multi- disciplinary team, the details of which are included in the section on human resources. (Appendix 1) All the staff directly attached to the ARV clinic

were employed by ARK with the exception of the counselors and the nurse at the Wellness Clinic were employed by the district.

1.3.3.1 Medical Doctors

The ARV Clinic employed a part- time Level 12 medical officer, who worked 10 hours a week. A second level 12 medical officer commenced work in January 2006, also on a part- time basis.

1.3.3.2 Nurses

Three nurses were employed to take care of patients attending the ARV clinic. The supervisor of the programme was a Level 7 nurse (Senior Professional Nurse) and was employed on a full- time basis and worked 40 hours per week. A Level 4 nurse (Staff Nurse) was employed for 40 hours a week. Her duties included management of patient files, taking blood samples as well as other tests ordered by the medical officer and conducting Pap smears. A Level 3 nurse (Enrolled Nursing Assistant) worked 40 hours per week and her duties included handing out patient files, conducting group counseling and assisting the medical officer in the consultation with patients.

The nurses did not have a designated room and were required to share space with the nurse of the Wellness Clinic (Level 6 nurse) for the first six months of the ARV programme.

1.3.3.3 Pharmacist

A full- time pharmacist worked 40 hours per week and his duties included the dispensing of ARVs and formulating monthly time- tables for ARV patient groups.

1.3.3.4 Data Capturers

Three data capturers were employed on a full- time basis and were chiefly responsible for capturing all data related to the ARV programme.

1.3.3.5 Patient Advocates

There were five part- time patient advocates working 25 hours per week. They served as a link between the patients on ARVs in their social setting and the staff at the clinic. They conducted individual counseling in patients' homes, traced defaulters and were actively involved in monthly support group meetings at the clinic.

1.3.3.6 Cleaner

The cleaner, employed by the district worked a total of 12 hours per week in the rooms utilized by the ARV programme.

1.3.3.7 Receptionist

The receptionist worked 0.5 hours per week for the ARV programme. Patients on ART were not required to see the receptionist on subsequent visits. They presented themselves directly to the nurses at the ARV clinic to collect their files. An additional 4 hours per week was allocated to the receptionist for dealing with patients from the VCT and Wellness clinics.

1.3.3.8 Counsellors

The seven counselors worked for 40 hours per week and were employed by the district.

1.4 Relevance of the Study

There are very few studies focusing on the cost analysis of ARV programmes at primary health care level. Primary health care is the vehicle via which comprehensive and affordable healthcare is rendered to the citizens of South Africa. It is the backbone of the district health system. The vertical programmes, including the ARV programme that are part of a primary health care package needs to be cost- effective in ensuring their sustainability.

A cost analysis of the ARV programme will foster the principles of sound budgeting and good accounting principles, thereby enabling the programme managers to determine the true cost of providing a given unit of service. In this instance the provision of ART. Such an analysis will reveal a better understanding of how the ARV programme is run at primary health care level as well as detecting unexpected costs. The results of the cost analysis will form the foundation on which intervention programmes may be devised and implemented.

A cost analysis can also provide mechanisms to promote accountability on the part of program managers; it can help in priority setting in a resource- constrained setting like South Africa and may provide some evidence in assisting policy-makers and donors to allocate appropriate resources to the ARV program. Of concern is the paucity of information concerning the costs required to manage and run an ARV programme at a primary health care level. This can constitute a major problem for policy- makers and project and financial managers.

There were 72 accredited ARV sites in KZN at the end of 2007 and they were located in 11 districts. This study focused on the cost analysis of the ARV programme at the KMC which is located in an urban area in the Ilembe district. The chosen site for the study is where the investigator worked on a part-time basis as a medical officer. This cost analysis will assist in providing information which can be utilized in making more informed decisions in addressing major capacity and infrastructure constraints.

1.5 Theoretical Framework

The objectives of this study have been influenced by the theoretical and conceptual framework of the systems approach. The application of a modified systems approach is depicted in Figure 1. Inputs include basic personnel, drugs, consumables, equipment, and other infrastructure dedicated to support activities or services.

Process activities comprise those activities and services and may include patient care, staff trainings, education campaigns and support services. The coverage of the programme and utilization rates constitutes output indicators.⁸ This study focused largely on the inputs of the ARV programme at KMC and to a lesser extent on the process and output components.

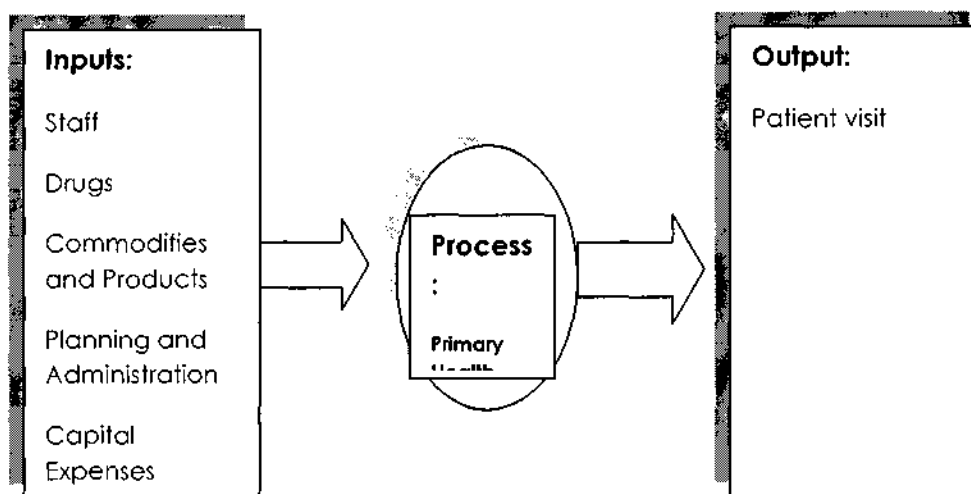


Figure 2: Relationship between inputs and the production process and the resulting output.

The focus was on all costs that were directly and indirectly associated with providing health- care to PLWHA at KMC. This included inputs (human resources, commodities and products, drugs, planning and administration, and capital expenses) as well as an output (the total number of outpatient visits for the year).

Costs were calculated using the ingredients, micro-costing approach. This micro- costing exercise was done via direct allocation of line-item expenditure of the ARV programme at this primary health care clinic.

1.6 Aim of the Study

To conduct a cost analysis of the step down anti- retroviral programme at the Kwadukuza Municipality Clinic in the Ilembe district from a perspective of the healthcare provider..

1.7 Specific Objectives of the Study

1. To determine the gender and age profile of the patients receiving ARV therapy at KMC.
2. To determine the total costs of the components of the ARV programme at KMC.
3. To determine the cost per visit for outpatients attending:
 - the ARV clinic
 - the Wellness clinic programme
 - the VCT clinic
4. To make recommendations based on the findings of the study.

1.8 Operational definitions

1. **Cost Analysis:** management science, cost and management accounting focusing on the relationships between profit (revenue) and expenditure (costs). The cost measurement concentrates on the relationship between (a) resources used and procedures (activities), as well as resources used and outcome (e.g. services provided or product produced). These types of analysis are called cost analysis.⁹
2. **Direct medical costs:** directly traced to a procedure or service with a reasonable degree of accuracy and without excessive accounting, e.g. salaries, equipment, and supplies.¹⁰
3. **Indirect medical costs:** are not directly traceable to a procedure or service, so the costs associated with indirect departments are allocated to patient care departments in order to be assigned to procedures, e.g. utility consumption, administrative services, depreciation on buildings and equipment.¹⁰

4. **Fixed costs:** are costs that do not vary with the quantity of output in the short run (about one year), e.g. rent, equipment lease payments, some wages and salaries. These are costs which vary with time rather than quantity.¹¹
5. **Variable costs:** are costs that vary in direct proportion to volume or activity e.g. cost of medical supplies.¹¹
6. **Total Cost:** cost of producing a particular quantity of output.¹¹
7. **Cost per unit of service:** the total cost divided by the output.

1.9 Structure of the Report

Chapter 2:

This chapter includes a review of literature to ascertain the HIV and AIDS expenditure in South Africa, a methodological approach to costing ARV programmes and the economic evaluation of healthcare interventions was performed.

Chapter 3:

This chapter deals with the methodology that has been used for this study and the reliability and validity of the data collection tools.

Chapter 4:

This chapter presents the important findings of the study.

Chapter 5:

This chapter discusses the findings of the study. The limitations of the study are also discussed at the conclusion of this chapter.

Chapter 6:

This chapter makes conclusions and gives recommendations to both the Ilembe District Health Office and ARK in order to assist in providing solutions to the problems that have been identified.

Chapter 2: Literature Review

A literature search strategy using the Pubmed and Google databases with the following keywords: “HIV/AIDS expenditure in South Africa”, “costing ARV programmes” and “economic evaluation” was conducted. Citations and references were then reviewed to identify any additional relevant studies.

2.1 HIV and AIDS Expenditure in South Africa

This section will discuss the theoretical aspect of HIV and AIDS expenditure in South Africa.

There has been a sustained financial commitment from government since 2003. The National Treasury has allocated funds to the three social departments (health, education and social development) which was compatible with the National Integrated HIV and AIDS Plan. This formed the government’s integrated response to the epidemic in South Africa. The Budget of 2005 allocated a total of R6.6 billion for the integrated response for the 2005/6 – 2007/8 period.¹²

2.1.1 Health HIV and AIDS Finances and Budgets

The CCMT receives three main types of HIV and AIDS-specific fund allocations from the health sector. These comprise the budget of the HIV and AIDS Directorate in the National Department of Health (arising out of the national equitable share); conditional grants (CGs) for HIV and AIDS interventions from the national government to provinces and HIV and AIDS specific funds in provincial budgets, also known as the equitable share (ES) allocations.⁹ The latter two categories are two funding channels for health related HIV and AIDS interventions delivered at provincial level. Table 1 illustrates the allocation of funds to the HIV and AIDS directorate from 2003/4 to 2006/7.

Table 1: Allocation to the HIV and AIDS spending from 2003/4 to 2006/7

Allocation (R million)	2003/4	2004/5	2005/6	2006/7
Conditional grants	334	781	1135	1567
Provincial HIV equitable share allocations	280	374	564	874
Total	614	1147	1692	2441
National Department of Health	352	326	431	410
Total allocation	966	1473	2123	2851

Source: NDOH; National Treasury; Division of Revenue Act, 2006

The specific allocation to the National Department of Health for HIV and AIDS has increased from R 326 million in 2004/5 to R 410 million in 2006/7. The Comprehensive HIV and AIDS Grant for provinces have increased from R781 million in 2004/5 to R1,567 billion in 2006/7. Provincial departments have also increased their commitments to

HIV and AIDS by increasing the equitable share allocation for HIV spending from R374 million in 2004/5 to R874 million in 2006/7.¹³

2.1.2 Provincial allocations for HIV and AIDS

2.1.2.1 Conditional Grants

Conditional Grants (CGs) were introduced by the Treasury as a mechanism for funding province to deal with the burgeoning epidemic. Thus the CGs for HIV and AIDS serve as the financial backbone for provincial multi-sectoral responses to the AIDS epidemic in South Africa and is provided on the condition it be spent on services or interventions specified by national government. Table 2 indicates the provincial distribution of CGs. Spending of the funds is limited to specific areas identified by the national government for which the provincial departments have to develop appropriate business plans. In the CG spending process the role of the national departments is to provide technical as co-ordination and programme support to the provincial social service departments. In the interim, provinces actually implement the programmes, using the CG funds.¹³

Table 2: Comprehensive HIV and AIDS Conditional Grants allocation to Provinces

	2003/4	2004/5	2005/6	2006/7
Eastern Cape	R38,934m	R98 970m	R159 005m	R218 021m
Free State	R30,144m	R69 969m	R100 874m	R142 265m
Gauteng	R55,275m	R134 231	R185 048m	R252 695m
KwaZulu-Natal	R85,591m	R186 348	R251 468m	R344 304m
Limpopo	R28,962m	R77 430m	R125 899m	R175 861m
Mpumalanga	R26,287m	R53 840m	R 81 392m	R107 479m
Northern Cape	R11,268m	R31 881m	R48 050m	R 68 603m
North West	R32,891m	R70 981m	R100 921m	R142 316m
Western Cape	R24,204m	R57 962m	R82 451m	R115 670m
TOTAL	R333,556m	R781612m	R1 135108 m	R1 567 214m

Table 3 below depicts the Division of Revenue Act (DORA) allocations of the HIV and AIDS conditional grants versus the actual transfers to the provinces. In 2004/5, the Free State, Limpopo, Mpumalanga and North West received less than the DORA allocation. In 2005/6 the Free State received an additional allocation of R15 million. In 2006/7, the Eastern Cape, Gauteng and Western Cape received additional allocations of R14 million, R18 million and R18 million respectively.

Table 3: Comprehensive HIV and AIDS Conditional Grants allocation versus actual transfers to Provinces

	DORA Allocation	Actual transfer to provinces	DORA Allocation	Actual transfer to provinces	DORA Allocation	Actual transfer to provinces
Financial year	2004/5	2004/5	2005/6	2005/6	2006/7	2006/7
EASTERN CAPE	98,970	98,970	159,005	159,005	218,021	232,021
FREE STATE	69,969	55,476	100,874	115,874	142,265	142,265
GAUTENG	134,231	134,231	185,048	185,048	252,695	270,195
KWAZULU- NATAL	186,348	186,348	251,468	251,468	344,304	344,304
LIMPOPO	77,430	70,983	125,899	125,899	175,861	175,861
MPUMALANGA	53,840	40,379	81,392	81,392	107,479	107,479
NORTHERN CAPE	31,881	31,881	48,050	48,050	68,603	68,603
NORTH WEST	70,981	59,161	100,921	100,921	142,316	142,316
WESTERN CAPE	57,962	57,962	82,451	82,451	115,670	133,170
	781,612	735,391	1,135,108	1,150,108	1,567,214	1,616,214

Source: Division of Revenue Act; 2006, NDOH Annual Report 2005/6/7

2.1.3 Donor Funding for HIV and AIDS

Numerous donors provide financial and administrative support for HIV and AIDS interventions. Most of these resources are provided to the Department of Health, and some are channelled directly to non-governmental organizations (NGOs) and research institutions. Table 4 provides a list of some of the funding as received by the NDOH and NGOs.¹⁴

Table 4: Donor funding received by NDOH and NGOs

Donor (Bilateral)	Programme	Duration	Committed Amount
European Commission (EC)	Partnership for the Delivery of Primary Health Care including HIV and AIDS (PDPHCP)	2002/02/02 – 2008/06/30	R 450,000,000.00 €50,000,000.00
European Commission (EC)	Support for the South African Government's Comprehensive Plan for the Care, Management and Treatment of HIV and AIDS.	2005/02/02 – 2009/05/31	R196,547,500.00 (€25,000,000.00)
DFID	South Africa HIV and	2003/04/01 –	R375,583,957.00

	AIDS Multi-Sectoral Framework	2007/03/31	(£30,000,000.00)
DFID	Soul City	2002/11/26 – 2007/02/01	R130,959,914.00
USAID/PEPFAR	Increased Use of HIV and AIDS and Other Primary Health Care Services	2005/09/30 – 2007/09/30	R232,696,553.32
Embassy of the Kingdom of Belgium	Expansion of TB/HIV/STI prevention, care and support in the Republic of South Africa	2003/04/28 – 2008/04/27	R49,597,520.00
German Development Bank HQ	HIV Prevention by VCT	2004/01/01 – 2007/01/01	R75,979,800.00
Canadian International Development Agency (CIDA)	Strengthen the NGO Coordination Unit for Improved HIV and AIDS Service Delivery by NGOs	2009/03/31	R22,173,100.00

KwaZulu-Natal and the Western Cape received donor funds for HIV and AIDS from the Global Fund. The Western Cape Health Department is the principal recipient of the Global fund grant of \$66,509,558 over a six year period from 1 July 2004 to 30 June 2010.

The funds are advanced directly to the Western Cape provincial treasury and made available to the provincial health department as part of the normal budget process.

Disbursements are received six monthly from the Global Fund. Expenditure recorded in the provincial budget for 2004/5 and 2005/6 were R25 678 000 and R50 293 000-00 respectively.

KwaZulu-Natal has received R328 million from the Global Fund for the period 2003 to 2010. Funding for 2003/4 was received late and was spent mainly in 2004/05 and therefore additional funds were only provided in 2005/6.

2.2 Methodological approach to costing an Antiretroviral programme

2.2.1 Cost terms

The use of the word “cost” connotes many different meanings. Hence the definition of common cost terms will be defined below.

Cost

Cost can be defined as the amount of expenditure (actual or nominal) incurred on or attributable to a particular good or activity (e.g. production or service delivery).⁹ Cost includes two major components: the quantity of resources and the value of these resources.⁹

Opportunity Cost

Opportunity cost measures what a healthcare service provider foregoes when it opts to spend money on a particular service.⁹ In other words, an opportunity cost is a lost opportunity to invest the sum in some other venture yielding positive benefits.¹¹

Incremental versus Marginal Costs

These terms are often used interchangeably, however, they differ slightly in meaning. Both of these terms are defined as the change in cost related to a change in activity. Incremental cost, however, is the additional total cost incurred as a consequence of changes in activity whilst marginal cost is the additional cost incurred for producing or delivering one extra service.⁹

Unit cost or Average cost

The measurement of costs are usually in total and/or per unit. Unit cost is the cost for one unit of service and the total cost is the sum of all costs associated with a particular cost object.⁹

The unit cost can be calculated by dividing the total cost of a particular cost object by the number of units of service provided.⁹ In other words, the unit cost is the average cost per unit of service or the mean cost of a particular type of service, for e.g. the cost per visit or cost per case or the cost per day is a unit cost.⁹

2.2.2 Cost classification systems

2.2.2.1 Classification based on Traceability

Direct and Indirect Costs

The total cost attached to a service includes direct and indirect costs. Direct costs are directly linked to the use of particular resources or cost objects and can be traced to the cost object in an economically feasible way. Examples of direct cost include labour, materials or expenses.⁹

A health professional rendering service in treating a patient can be classified as a direct labour cost. The direct/ indirect classification is independent of the fixed/ variable classification. Direct costs are usually variable costs, but may be fixed costs.⁹

Indirect costs are used to specify non- directly allocable costs. They have no direct relationship to the cost object and therefore cannot be traced to the cost object easily or in an economically feasible manner.⁹ Indirect costs may also include labour, materials and expenses, e.g. the cost of catering or cleaning in a hospital as well as the cost of a clinical audit.

Overhead cost is an umbrella term for a wide range of items that include cost items like accommodation, telephone, support services, marketing and general management. Hence overhead cost involves indirect labour, indirect materials and indirect expense costs as well as other costs that cannot be traced to the cost object in an economically feasible way.⁹

2.2.2.2 Classification by type of cost behaviour

This sub- type depends on the behaviour of costs in relation to changes in volume over a given time period.

Variable and fixed costs

Variable costs change by the volume of total activities, e.g. the number of patients treated.⁹ Some examples of variable costs include drugs, diagnostic services, disposables, patient transport and patient food.⁹

Fixed costs do not change in total despite wide variation of volume.⁹ They do not change with service output (level of activity) or workload over a period of time (either short- run or the time period under consideration). Examples of fixed costs include rent, capital expenses and insurance premiums.⁹

2.2.2.3 Classification by the frequency of expenditures

Capital cost and recurrent cost

Capital cost is also known as non- recurrent cost whilst recurrent cost is also called revenue cost.⁹

Recurrent costs are consumed within a single financial year or accounting year. It can include direct costs such as cost of goods, services and expenditures, or overheads such as rent, salaries and insurance.⁹

Capital expenses are the costs entailed in acquiring fixed assets. These fixed assets are usually expensive and confers economic benefits to the health care provider for more than one financial or accounting year.⁹

2.3 Methods of measurement and evaluation of costs in healthcare programmes

Costs can be divided into 'patient costs' and 'non- patient or programme costs.' Patient costs are related to all costs at the point of delivery such as outpatient visits, drugs and laboratory tests. Programme costs, on the other hand, refer to administrative costs that are expended at district, provincial or central levels.¹⁵

The gross or macro- costing approach estimates the cost of a programme, for example the hospitalization for a patient with pneumonia, by allocating an average tariff. An ingredients or micro- costing approach involves direct enumeration and the cost of each input that is used in the treatment of a patient.¹⁶

The micro- costing approach details all the items used as well as the measurement of all the inputs used in a healthcare intervention. The inputs are identified, quantified and then converted into value terms to provide a cost estimate.¹³ This approach is linked to primary data collection in randomized controlled trials or observational research studies. It permits analysts and policy-makers to validate the assumptions used, judge whether the estimates presented can be applied to the setting and if necessary, change the parameters to replicate the analysis for their settings.¹⁵

In a gross costing approach, the cost estimates are based on the aggregated information of use of resources. The measurement and valuation of resources is usually blurred by

adopting this approach, however, has the distinguishing characteristics of simplicity and practicality.¹⁵

2.3.1 Stages of cost calculation

In the process of cost calculation the following stages are defined:

- 1) definition of time horizon and perspective,
- 2) selection of cost categories,
- 3) identification of units
- 4) measuring resource use
- 5) valuation of resource use¹⁶

2.3.1.1 Definition of time horizon and perspective

2.3.1.1.1 Time Horizon

Costs may vary or differ over a period of time hence economists distinguish between short run and long run. This distinction between short run and long run is important for costing and pricing decisions as there are several cost items which are fixed costs in the short run, however, become variable costs in the long run, e.g. depreciation, maintenance and staff costs can be classified as fixed cost in the short run but could be variable costs in the long run.⁹

The time period is dependent on the nature of inputs and production. Short run is the observation period in which at least one input is fixed in availability whilst in the long run, all inputs are variable.⁹ A short run can mean 3 months, 6 months or a year but usually less than 3- 5 years.⁹

For practical purposes, a short run denotes one financial year.⁹ In economic evaluations, there is a preference for calculating long run marginal cost as the latter takes the initial investment costs (capital expenses plus fixed assets) into account. However, in practice it

is difficult to estimate long run marginal cost with reasonable certainty, therefore, short run average costs are used as a good proxy for long run marginal costs.⁹

2.3.1.1.2 Perspective

The perspective or viewpoint must be determined as it may have implications for the design of a study or a trial. It also will indicate whose costs you are interested in estimating- costs incurred by the healthcare provider, patients and their carers and society. Hence the perspective of a study or economic evaluation should always be explicitly stated.¹⁷

A societal approach, which has the broadest perspective, includes cost of resources to the health system and the cost of resources to patients. It has the following advantages:

- helps to detect cost shifting between sectors
- takes into account the alternative uses for resources outside the healthcare sector
- facilitates policies aimed at maximizing the welfare gains to society or minimizing the losses.¹⁷

A healthcare provider's perspective considers the cost of resources to the healthcare system. This is a narrow approach and includes all direct healthcare costs and costs of the non- governmental organizations, however, direct non- healthcare costs (patient travel and time costs) are excluded.¹⁸

A patient- centered perspective considers costs incurred by the patient and their families in the process of seeking and receiving treatment, e.g. travel costs and opportunity cost of time spent receiving care and waiting in the clinic.¹⁹

2.3.2 Economies of scale

Economies of scale can have a significant on the unit cost of a particular service. (Ref)

Economies of scale can be defined as equivalent to a falling long run average cost function.²⁰ Average cost includes the imputed cost of capital or other services provided by the healthcare providers.

There are 3 sources of economies of scale:

- product specific economies (output of one product)
- plant (institute) specific economies (output of one plant/institution)
- firm- specific economies (output of a firm' operations)⁹

The economy of scale of one product can be enhanced by a greater specialization of labour and capital. Moreover, the learning curve effect can also contribute to the product- specific economies of scale. The learning curve effect equals amount of inputs divided by the resources required to produce the same amount of output is decreasing with time. This in essence means that the long run average costs declines with the passage of time due to the improvement in technical efficiency.⁹

The plant or institute specific economies of scales can be partially explained by the savings in capital costs and overhead costs such as maintenance and service repair costs, e.g. a unit cost of one hospital episode can be significantly lower in a hospital with an 85% bed occupancy rate rather than in hospitals with a 45% or 65% bed occupancy rate due to the considerably lower fixed cost component.⁹

The firm- specific economies of scale are linked with the overall size of the firm. The benefits seen with the firm- specific economies of scale are due to the result of savings in marketing and sales and/or raising capital funds and/or the distribution of service delivery among different plants, as well as joint management.⁹

Diseconomies of scale exist when long run average costs are increasing at a higher level of output.⁹

2.4 Costing studies

The literature search showed four cost analysis studies of an ARV programme and a number of cost- effective analysis studies.

A cost analysis study was conducted at a South African clinic dedicated to providing ARVs in 2006.²¹ This retrospective study by Harling et al²¹ was conducted from a provider' perspective at a peri- urban clinic. Cost data was compared for two financial years. The objectives of the study were to determine the cost per patient- month and cost per patient- visit in a clinic dedicated for the provision of ARVs.

Staff cost, both clinical and non- clinical, contributed a large majority of the total clinic costs. The construction of a building for use by the ARV clinic had little impact on the overall cost of care.

The total cost of running the ART clinic rose by 142% from USD174072 (approximately R1044432) in 2004/2005 to USD421872 (approximately R2 531 232) in 2005/2006. The largest cost component was that of clinical and managerial staff. The cost per patient visit fell by 24% between the 2 years of observation, from USD54.79 (approximately R328.74)

to USD 41.62 (approximately R249.72). The authors concluded that increased economies of scale appear to offer cost benefits in the South African ARV roll- out.

Further afield, a cost analysis study of an ARV programme targeted at adult out- and in- patients was conducted in Thailand. The average cost per outpatient with ARV therapy was 281 USD (approximately R1 686- 00). The maximum expenditure was for ARV drugs. One of the conclusions of the study was that it would be considered to be cost- effective if generic ARVs were used.²²

A cost analysis study was undertaken in India to calculate estimates of recurrent financial costs of the ART programme which was commenced in April 2004. The costing exercise was conducted from the perspective of the sources of expenditure which included government and a host of NGOs.²³

The annual average per client recurrent cost of the ART programme was R2294- 00. The authors concurred that due to economies of scale, certain study cost sites were proportionately lower with a higher volume of patients.

McConnel et al²⁴ conducted a cost analysis study of a rapid- test VCT clinic in KwaZulu- Natal. This was a retrospective analysis of expenditure and output data with a view to calculating the cost per client completing VCT. The economic cost of attending to a patient was R707- 00.

This economic cost per patient decreased by 66% over the year as the expenses remained stable but the number of patients increased. The study concluded that the cost of providing a VCT service was higher than previously expected but declined with an expanding scale.

The cost effectiveness studies have indicated in general that the ARV programmes are a cost effective intervention for South Africa. A study by Badri et al²⁵ in 2005 showed that ARVs can be a cost effective intervention in South Africa.

Badri et al²⁵ developed a Markov state- transition model (a technique that allows current data to be extrapolated into the future in order to predict future costs and future effects) to determine estimates of life expectancy and quality adjusted life years (QALYs) gained for initiation of therapy with three CD4 count thresholds, namely < 200; 200- 350 and > 350. The study concluded that therapy is most effective when initiated with a CD4 count of >200. Delaying treatment to a CD4 count of < 200 will be the most cost- effective option (i.e. the incremental cost per QALY gained is lowest).

In 2002, Boulle et al²⁶ explored the total cost of a national ARV programme in the public sector. Eight scenarios in a resource- constrained health system were designed and the cost- effectiveness of each scenario was compared. Their conclusion was that with the current resource constraints, it was possible to double the number of people on ARVs if there was investment in a limited national antiretroviral (ARV) programme.

According to the study, the total programme costs for the most cost-effective scenario in 2007 with 107 000 people on ARVs was estimated to be around R409 million.²⁶ The authors recommended the rationing of health services in the public sector if an ARV

programme was considered. They considered service capacity and readiness as critical issues in scaling up an ARV programme rather than resources.

A study by Geffen, Nattrass and Raubenheimer²⁷ in 2003 estimated the cost of introducing several AIDS- related prevention and treatment programmes in South Africa. This study was based on modeling by Johnson and Dorrington (2002).

The cost components of each intervention were discussed in this context. The study revealed that the price paid for ARVs comprises the largest cost of an ARV programme. They further deduced that the net benefit to government will be significantly lower than the direct costs of providing ARVs as PLWHA who are on treatment will have fewer episodes of opportunistic infections and thereby result in a reduction in inpatient care.

Chapter 3: Study methods

This chapter details the site of the study, the study population, the study design and study period and the instruments used to capture data. The management and analysis of data is discussed and the steps to ensure validity and reliability.

3.1 Study location

This study was conducted at the Kwadukuza Municipality Clinic located in the Ilembe district in the Kwazulu- Natal province of the Republic of South Africa.

3.2 Study population

The population that is included in this study for the purposes of costing comprises:

- All the patients who received ARVs for the period under study
- All the patients who attended the Wellness and VCT clinics at this location during the study period
- All the staff attached to the ARV programme at the KMC clinic (includes the ARV clinic, Wellness clinic and VCT clinic)

3.3 Sampling strategy

A single ARV programme was costed for this study hence no sampling strategy was used.

3.4 Study design

The study was retrospective and cross-sectional with both a descriptive and analytical component.

3.5. Perspective

This study was undertaken from a provider's perspective with respect to ARK, an NGO, and the municipal primary health care clinic, KMC.

Absolute Return for Kids (ARK) is a British charity working to transform the lives of children. Their focus is to prevent orphanhood and vulnerable children through keeping their parents alive by making ARVs accessible.

Kwadukuza Municipality Clinic is part of the district health system in the Ilembe district. In April of 2004, ARK offered their assistance both in terms of finance and expertise, to the Kwazulu- Natal Department of Health. This private-public partnership was responsible for initiating the ARV programme in the Ilembe district in April 2005.

3.6 Study period

The period of study was from the 1st April 2005 to 31st March 2006 – this was the debut year during which patients on ARV therapy were referred down from SPH to KMC.

3.7 Data Sources

Primary data sources:

A semi-structured interview was conducted with the manager of the Kwadukuza Municipality Clinic. (Appendix 2) Non-financial data (output data) and the prevalence rate for the Ilembe district was obtained from the District Health Information System. Financial data (input data) was obtained from the Basic Accounting System (BAS) and Personnel Salary System (PERSAL) via the Provincial Department of Health and ARK database in Kwazulu- Natal.

3.8 Data collection

The data was collected by the principal investigator. The accuracy and reliability of the data was ensured by double- checking the data for errors or for duplication before transcription onto data sheets.

The data included all input costs (direct and indirect) which were provided by both the PDOH and ARK. The following variables were used in this study:

Input data comprised:

- (i) personnel (medical and non- medical)
- (ii) commodities and products
- (iii) laboratory tests: AIDS- related (CD4 count/viral load) and non- AIDS related
- (iv) drugs: ARVs and other medication
- (v) planning and administration
- (vi) capital and equipment expenses

The output data included:

- the number of outpatient visits

Sources of expenditure:

- **Human Resources to run the ARV program**
- **Drugs:**

The cost of the curative and prophylactic drugs was obtained from PMSC. The supply of ARV drugs for the study period had been donated by PEPFAR. However, the cost of the ARVs was calculated as per state tender pricing.
- **Laboratory Tests:**

Laboratory tests cost data was obtained from the laboratory manager of SPH. (Appendix 10) CD4 counts and reagents, VL and other biochemical tests were calculated as per National Health Laboratory Services (NHLS) prices. The NHLS is the provider of laboratory services to the public health system. The vacuettes and specimen bottles were not included in the price of the test and have been costed separately.
- **Commodities and Products:** this includes all costs associated with outpatient visits to the three components: the ARV, VCT and Wellness clinics.
- **Buildings and equipment**

Data collection tools:

Qualitative data:

The interview with the KMC manager sought to provide information on the infrastructure of the clinic, the assignment of staff to the components of the ARV programme (VCT, Wellness Clinic, ARV clinic) and the qualifications of staff.

Quantitative data:

Collection of quantitative data was commenced only after express permission was obtained from the Ilembe district health manager and the executive officer of ARK.

(Appendix 3 and Appendix 4 respectively) Data was collected from the ARK database as well as the BAS at the Kwadukuza Municipality Clinic.

3.9 Data management

Qualitative data:

Informed consent was obtained from the KMC manager before the interview was conducted. The interview was recorded in writing by the investigator on the questionnaire sheet, designed for the study. The responses of these questionnaires were then transcribed and saved to the Microsoft Word 2007.

Quantitative data:

The data were recorded on summary sheets designed by the investigator. The quality of the data was established by double checking all data entry. These were then transcribed to the Microsoft Excel Programme as a summary of the different data components.

3.10 Data analysis

All data was entered into an Excel table and analysed using standard accounting principles.

Inputs:

Personnel: The monthly cost of the medical and non- medical staff was calculated using the formula: (hours worked in the ARV programme ÷ total hours) × gross monthly salary. A scarce skills allowance of 1% of annual gross income was included in salaries of the doctors, pharmacists and nurses attached to the ARV programme. This was determined for the 12 month period.

Commodities and Products: This included medical consumables, condoms and nutritional supplements. The percentages of the annual number of patient visits to the components were calculated relative to the total annual patient load for KMC. The monthly costs for these items were then apportioned relative to the KMC' total cost to the

three programme components and finally calculated. Prices for these items were supplied by the medical stores department in the Ilembe municipality.

Drugs: The monthly usage of both ARV and non- ARV drugs were provided by the SPH pharmacy department. The cost of the total monthly expenditure of drugs was then calculated according to provincial government tender prices provided by PMSC.

The cost of ARVs for the period 1st April 2005 to 31st December 2005 and for the period 1st January 2006 to 31st March 2006 were calculated and then summed up to give the total cost of ARVs for the study period. (Appendix 5 and Appendix 6)

Laboratory Tests:

The numbers of laboratory tests conducted by the three programme components were extracted from daily patient registers. This was then double- checked with the SPH laboratory register. Prices for each biochemical test and the specimen bottles were obtained from National Laboratory Health Services via the SPH laboratory manager.

The prices were then compared with the costs of tests at a Durban based- private pathology laboratory. There was no significant difference as both the public and private laboratories adhered to guidelines from NDOH. The prices of the vacuette needles and the reagent for the rapid HIV tests were obtained from a private pharmaceutical company which supplies these items to the public health institutions.

The monthly cost of each laboratory test was calculated by multiplying the monthly volume and the unit price. This was done for all relevant tests. The cost of the accessory items were also calculated in a similar manner. The total monthly cost for tests done was then a summing up of all these components. (Appendix 8) This was then determined.

Planning and Administration:

- **Utilities, supplies and services:**

The expenditure on utilities (water and electricity) was calculated for the ARV programme as a percentage of total annual clinic expenditure and then apportioned per area occupied to each component. (Appendix 9)

- None of the components of the ARV programme had a telephone line extension. A central telephone line at the clinic reception area was used mainly for incoming calls. Outside calls could only be made to pre-programmed departments like the Emergency Medical and Rescue Services.
 - Stationery for patient records was provided by the medical stores department of the Ilembe district health office. The cost for the three cost components was estimated as a percentage of the KMC' total annual cost for stationery.
 - The costs for municipal waste removal, removal of sharps and other non-degradable medical waste by Compass waste and sterilizing of medical instruments were apportioned and calculated as a percentage of KMC' total cost.
 - Rental: for the first 6 months of the study, the components of the ARV programme utilized 4 rooms which were located within the KMC core building. Rental was calculated according to market rate values for the use of these rooms, which were fully fitted.
- (Appendix 10)

Capital Expenses:

A discounted or amortised factor of capital item expenditure was calculated as follows:

- annual depreciation multiplied by return on investment (opportunity cost) [the banker' acceptance rate of 9% was utilized (the repurchase rate of 7% for April 2005 to March 2006 plus 2%)¹]
- maintenance of 1% of product added
- insurance of 1% of product added

Buildings:

The cost of the mobile park- home was provided courtesy of the ARK database and accommodated the ARV clinic staff during the latter semester of the study period. The

¹ The repurchase rate was obtained from the South African Reserve Bank website for the appropriate study period. An extra two percent was added to give the resultant banker' acceptance rate.

park home was estimated to have a life- span of 20 years. This was discounted, divided by two (the park- home was utilized for 6 months) and allocated to the ARV clinic.

Equipment:

Equipment and furniture were also calculated according to their replacement value and their relative life- span and the discounted amount then apportioned to the respective cost components. This value was also divided by two as the rooms of the park- home were furnished and fitted for the latter 6 months of the study period. (Appendix 11 and Appendix 12)

The calculation of costs of all these components were standardized by using the actual 2005 and 2006 market rate values prices exclusive of VAT. Each resource was calculated based on the annual utilization by the patients.

Total Costs

The total cost was calculated as the sum of all the service delivery components: outpatient visit costs; laboratory tests conducted and drugs prescribed (both ARVs and non- ARV medication).

Output:

The annual total numbers of patient visits, both scheduled and unscheduled, were extracted from daily clinic records.

Cost per patient visit

The cost per patient visit was calculated by a simple division of total costs by the number of patients who attended the three programme components. All cost data were measured over a period of one year to minimize any potential bias that may have occurred due to seasonal variations.

The cost per patient visit was calculated using the following formula:

$$\text{Cost per patient visit} = \frac{\text{Total cost}}{\text{Annual total outpatient visits}}$$

3.11 Assuring the reliability and validity of the data

3.11.1 Quality of data sources

The following steps were used to ensure that the data collected was relevant as well as of a sufficiently good quality:

- Data was obtained from primary sources (official clinic records, namely registers and monthly statistics forms for KMC which were submitted to the district health office) and secondary sources.
- Data was analysed for completeness
- Data was cleaned to discard any data that was not usable

3.11.2 Systematic collection and management of data

After obtaining the data from the different sources, the following methods were used to collate the data in a systematic manner and to ensure quality control:

- data was extracted from official records and transferred onto data sheets for each month of the study period and inserted into a folder which allowed for easy access to data.
- the data from the interview was directly entered onto the questionnaire sheet and later transferred to a Microsoft Excel spreadsheet.
- data on laboratory tests was elicited from the ARV and Wellness clinic daily patient registers and cross- referenced with the data at the Stanger Provincial Hospital Laboratory.

3.12 Ethical approval

The study received approval from the Research and Bioethics Committee attached to the University of Kwazulu- Natal. (Appendix 13) Letter of permission to conduct the study at the KMC was given by the Ilembe District Health Office on behalf of the Provincial Department of Health. (Appendix 14)

3.13 Summary

Table 4 summarizes the methodology of the study in terms of the objectives, respondents, data collection methods, the data analysis techniques.

Table 5: Summary of the methodology of the study

Objectives	Data Collection Methods	Analysis Techniques
Profile of ARV programme at KMC	Interviews with key personnel	Data analysis
Total costs of ARV programme and unit cost per patient visit	DHIS BAS PERSAL ARK database	Data analysis
Gender and age profile of patients on ARVs	ARK database	Data analysis

Chapter 4.Results

4.1 Introduction

The findings of the study are presented with respect to the key objectives of the study, namely: a precise ascertainment of the gender and age profile of the patients receiving ARV therapy at KMC; a determination of the total costs of the components of the ARV programme at KMC; a determination of the cost per patient visit for outpatients attending the ARV, Wellness and VCT clinics;

4.2 Presentation of Data

4.2.1 Gender and Age Profile of patients attending the ARV Clinic

The KMC serves a catchment population of approximately 14 000 people. The total number of stable patients on ARVs that were referred down from Stanger Provincial Hospital to KMC during the study period was 258.

Table 6 details the gender and age breakdown of this group of patients.

Table 6: Demographic profile of patients on ARVs at the Kwadukuza Municipality Clinic during 1st April 2005 to 31st March 2006

GENDER	Number	Percent
Male	76	29
Female	182	71
AGE		
<20 years	0	0
21-30 years	41	16
31-40 years	129	50
41-50 years	54	21
>50 years	34	13

Seventy- one percent of the patients on ARVs were female with 50% of the patients being between 31 and 40 years of age. There were no patients on ARVs aged less than 20 years of age.

4.2.2 Total costs of the components of the ARV programme

The total costs of the ARV, VCT and Wellness clinics are illustrated in Table 7.

Table 7: The total costs of the components of the Anti- retroviral programme at Kwadukuza Municipality Clinic for the period 1st April 2005 to 31st March 2006

	ARV clinic (in R)	VCT clinic (in R)	Wellness Clinic (in R)	TOTAL (in R)
Human Resources				
Doctors (incl. scarce skills)	132350-40	0-00	0-00	
Nurses (incl. scarce skills)	224098-80	0-00	114097- 68	
Counsellors	30600-00	229500-00	45900-00	
Data Capturers	171204-00	0-00	0-00	
Pharmacists (incl. scarce skills)	289397-30	0-00	0-00	
Patient Advocates	24000-00	4800-00	19200-00	
Admin staff	52-50	525-00	525-00	
Cleaning staff	700-00	262-50	262-50	
Total	R852 403- 00	R235 087- 50	R179985- 18	R1267475-60
Drugs				
Curative	549069-64	0-00	25520-85	
Prophylactic	35377-55	0-00	51041-70	
Total	R584447-19	R0- 00	R76 562- 55	R661010-47
Lab. Tests				
	151746-92	1338-71	27016-40	
Total	R151 746- 92	R1338- 71	R27 016-40	R180102-03
Commodities and Products				
Medical and Nutritional				
Condoms	513-00	282-00	993-00	
Nutritional supplements	19195-15	0-00	40218-46	
Medical consumables	1231-20	676-80	2383-20	
Total	R20 939- 35	R 958- 80	R43 594- 66	R65492-81
Planning and Admin				
Water and Electricity	2596-58	1035-23	401-60	
Stationery	478-80	263-20	926-80	
Insurance	62885-92	34568-87	121726-55	
Rental	9524-25	6577-20	5103-00	
Waste	638-17	350-81	1235-29	
Compass waste	1362-53	748-99	2637-41	
CSSD(sterilizing)	171-00	0-00	331-00	
Total	R77657-25	R43 544- 30	R132 361-65	R253473-20
Capital Expenses				
Building	2997-00	0- 00	0- 00	
Equipment	7813-27	728- 46	759- 24	
Total	R10810-27	R728- 46	759- 24	R12297- 97
TOTAL COST	R1698003-60	R281657-77	R460279-68	R2439940-90

The sum of R 2 439 940- 90 was the total amount required to finance the first year of the ARV programme at KMC. The annual total operating costs for the ARV clinic was R1 698 003- 60. This comprises 70 % of the total operating costs of the ARV programme at KMC. The Wellness clinic had a total cost of R 460 279- 68 which was equivalent to 19 % of total costs required to operate the ARV programme at KMC. The VCT clinic accounted for the least total operating cost of R 281 667- 77 which equated to 11% of the total cost.

4.2.2.1 Proportion of cost components

The proportion that each component conferred to the ARV programme is illustrated in Figure 3.

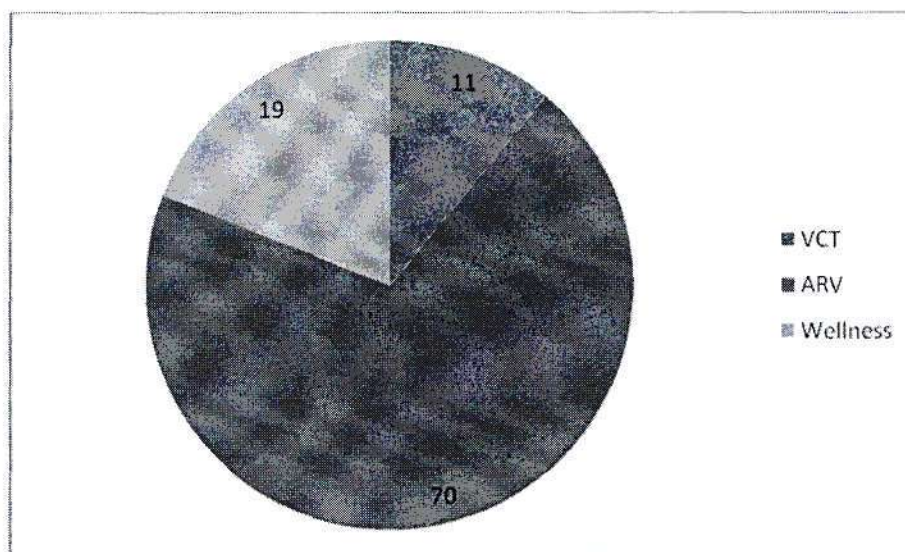


Figure 3: The proportion of each component of the Anti- retroviral Programme at Kwadukuza Municipality Clinic for the period 1st April 2005 to 31st March 2006.

4.2.2.2 Breakdown of cost allocation to each component of the ARV programme

The annual costs of the different items of expenditure for KMC was further disaggregated and assigned to the 3 components. Certain expenses had to be allocated according to the total number of patient visits for each of these 3 components. This allocation is detailed below in Table 8.

The personnel listed in the table were solely dedicated to the provision of healthcare to PLWHA and an allocation of 100% to the cost components on a proportional basis was effected. The annual drug expenditure for the ARV clinic and the Wellness clinics were allocated directly to these respective components.

The rest of the costs were allocated as a proportion of the annual total cost of the items of expenditure for KMC.

Table 8: A breakdown of allocated direct and indirect costs for the components of the ARV programme at the Kwadukuza Municipality Clinic for the period 1st April 2005 to 31st March 2006

Component	ARV		VCT clinic		Wellness	
	All. St(%)	All. (inR)	All.st(%)	All.(inR)	All.st(%)	All.(inR)
Indirect						
Admin.	1.25	52-50	12.5	525-00	12.5	525-00
Cleaning	15	700-00	7.5	262-50	7.5	262-50
W&E	2.41	2596-58	1.92	1035-23	0.75	401-60
Stationery	3.42	478-80	1.88	283-20	6.62	926-80
Waste	3.42	638-17	1.88	350-81	6.62	1235-29
Insurance	3.42	62885-92	1.88	34568-87	6.62	121726-55
Direct						
Salaries:						
Doctors	100	132350-40	0	0-00	0	0-00
Nurses	75	224098-80	0	0-00	25	114097- 68
Counsell.	10	30600-00	75	229500-00	15	45900-00
Data cap.	100	171204-00	0	0-00	0	0-00
Pharm.	100	269397-30	0	0-00	0	0-00
Pat. Adv.	50	24000-00	10	4800-00	40	19200-00
Lab. tests		151746-92		1338-71		27016-40
Drugs:						
Curative		549069-64		0-00		25520-85
Prophyl.		35377-55		0-00		51041-70
Supplies:						
Condoms	3.42	513-00	1.88	282-00	6.62	993-00
Medical consumab. (swabs/ gauze/ syringes/ gloves)	3.42	1231-20	1.88	676-80	6.62	2383-20
Nutrition	21	19195-15	0	0-00	44	40218-46
Capital:						
Building (Discounted)		2997-00		0- 00		0- 00
Equipment (Discounted)		7813-27		728- 46		759- 24
Compass waste	3.42	1362-53	1.88	748-99	6.62	2637-41
CSSD(sterilizing)	3.42	171-00	1.88	0-00	6.62	331-00
Rental		9524- 25		6577-20		5103-00
TOTAL		R1698003-60		R281657-77		R460279-68

4.2.2.3 Distribution of the ARV programme costs across the components

The ARV clinic accounted for the majority of the programme cost categories of staff, drugs, laboratory tests and capital expenses with 69%; 88%; 84% and 86% respectively. With the remaining two programme cost categories of commodities and product and planning and administration, it was the Wellness Clinic which was the major contributor with 67% and 50% respectively. (Figure 4)

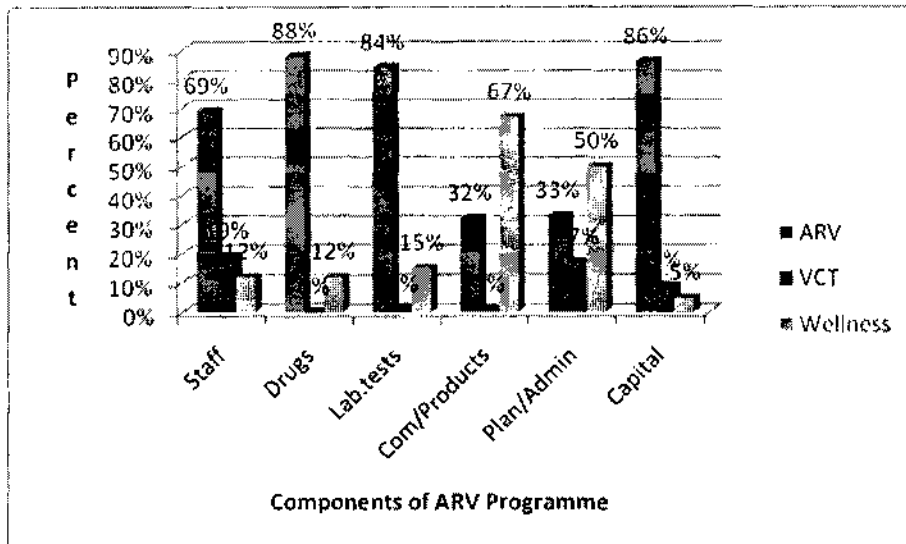


Figure 4: The distribution of the Anti- retroviral programme costs across the 3 components at KMC for the period 1st April 2005 to 31st March 2006.

4.2.2.4 Distribution of the ARV programme costs at the Kwadukuza Municipality clinic

The planning and administration cost component accounted for 11% of total costs of the ARV programme. Under this component, the main cost driver was total insurance for KMC (Table 8)

Capital expenses (buildings, furniture and equipment) accounted for only 1% of total costs of the ARV programme at KMC. (Figure 5)

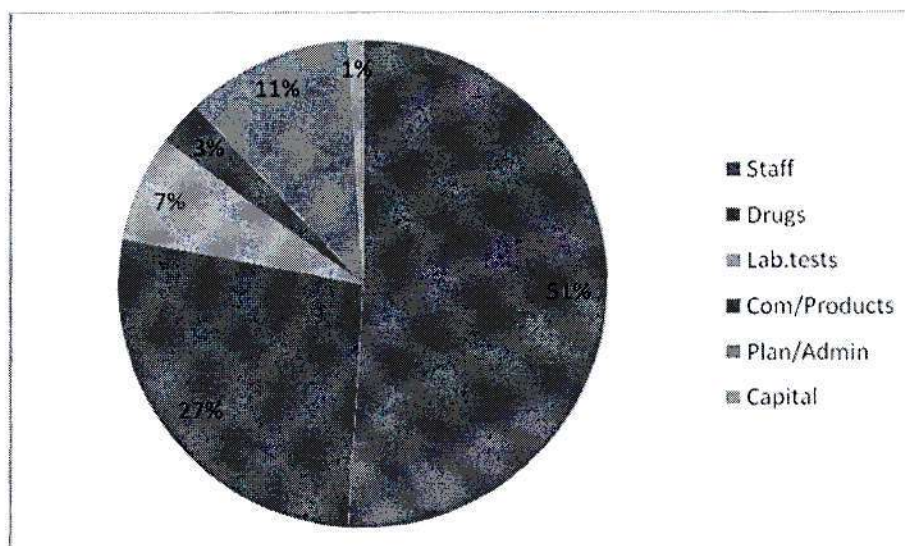


Figure 5: Share of programme costs in total cost of ARV programme at the Kwadukuza Municipality clinic for the period 1st April 2005 to 31st March 2006

Drug expenditure accounted for 27% of total costs of the ARV programme whilst staff comprised 51% of total costs.

4.2.2.5 Annual breakdown of Anti-retroviral drug regimens

From 1st April 2005 to 31st December 2005, the monthly aggregated units of Regimen 1a (d4T; 3TC; EFV) accounted for 82% (1333 units) of the ARVs dispensed and amounted to R334 143- 11. Regimen 1b (d4T; 3TC; NVP) formed 18% (302) of ARVs dispensed in 2005 and amounted to R29 375-54.

From 1st January 2006 to 31st March 2006, 621 units of Regimen 1a (81%) amounted to R169 533- 00. The 149 units of Regimen 1b (19%) amounted to R16 018- 99. The total cost of ARVs dispensed during the study period amounted to R549 069- 64. (Appendix 5)

The cost of treatment per patient for 2005 with Regimen 1a and Regimen 1b was R250- 66 and R97- 27 per month, respectively. In 2006, the monthly cost of Regimen 1a and for Regimen 1b increased to R273- 00 and R107- 51 respectively.

Table 9: The total number of aggregated units of Regimen 1a and Regimen 1b that were dispensed at the ARV clinic at Kwadukuza Municipality Clinic for the period 1st April 2005 to 31st March 2006

	<u>No.(2005)</u>	<u>UNIT PRICE</u>	<u>AMOUNT(InR)</u>	<u>No. (2006)</u>	<u>UNIT PRICE</u>	<u>AMOUNT(in R)</u>	<u>TOTAL(in R)</u>
Reg 1a	1333	R250-67	R334143- 11	621	R273-00	R169 533-00	R503 676-11
Reg 1b	302	R97- 27	R29375- 54	149	R107-52	R16018- 99	R45 939- 53
							R549 069- 64

4.2.2.6 Share of the programme costs across entities

Figure 6 indicates the distribution of total costs across the two healthcare providers, namely, the Department of Health and ARK. The ARV drugs were donated by The President' Emergency Plan for AIDS Relief (PEPFAR) who were in alliance with ARK.

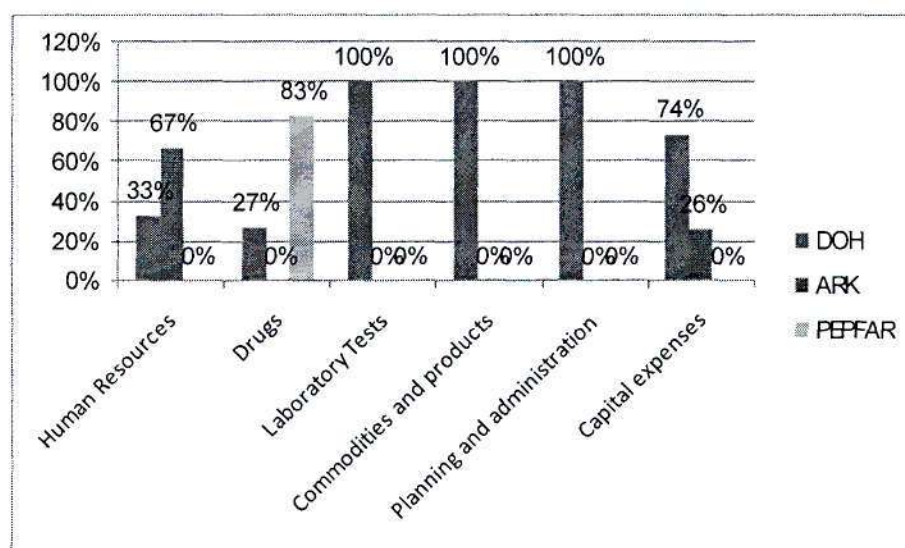


Figure 6: A share of the programme costs across the entities for the ARV Programme at Kwadukuza Municipality Clinic for the period 1st April 2005 to 31st March 2006

For the programme costs of laboratory tests, commodities and products and planning and administration, 100% of the costs was borne by the DOH. The NGO, PEPFAR, accounted for 83% of overall drug cost for the ARV programme. Sixty- seven percent of the cost for human resources was carried by ARK whilst the remaining 33% of this programme cost was allocated to DOH. The DOH contributed 74% towards the cost of capital expenses and ARK' burden of cost was 26%.

4.2.3 Cost per patient per visit for the components of the ARV programme

Table 10 gives a breakdown of the cost per patient per visit for each of the three components of the ARV programme at KMC.

Table 10: The cost per patient visit for the components of the Anti- retroviral programme at the Kwadukuza Municipality Clinic for the period 1st April 2005 to 31st March 2006

	ARV clinic (in R)	VCT clinic (in R)	Wellness Clinic (in R)	TOTAL (in R)
Total cost	R1698003-60	R281857-77	R460279-68	R2439657-99
Patient consultations	3858	2117	7458	
COST per patient visit	R440-13	R133- 05	R61- 71	

The cost per patient visit was R440- 13 for the ARV clinic; R133- 05 for the VCT clinic and an amount of R61- 71 for the Wellness clinic

Chapter 5 Discussion

The key findings are discussed from a systems perspective, focusing mainly on the inputs. The limitations of the study are discussed at the concluding sections of this chapter.

Determining the total financial costs of the ARV programme in the first year at KMC was important as it set the baseline for determining future costs and also the evaluation of the cost and sustainability of the programme. Up until now, many of the costing studies have focused on the direct medical cost associated with an ARV programme.

The micro- costing study of the ARV programme at KMC is crucial for tracking costs and to project costs that will be needed, in the future, by health planners in the district to allocate resources appropriately and judiciously.

The programme was accelerated by the joint efforts of the Ilembe District Health Office and ARK. ARK has been involved in ARV programmes in the Western Cape. Their provision of technical expertise and experience in this arena has been invaluable in making this ARV programme, in accordance with national guidelines, a living reality.

The Wellness and VCT clinics were in operation at KMC before the introduction of the ARV clinic. Eligible patients for ARVs were referred to the ARV clinic at SPH. As a consequence, there was a long waiting list at KMC for patients to start ARVs.

Before the commencement of the ARV clinic, the VCT services and Wellness clinic at KMC lacked cohesion. The introduction of the ARV clinic ensured a certain degree of integration between the 3 key components of the ARV programme. The full integration with the TB clinic, the Prevention of Mother- To- Child programme and the sexually transmitted infection clinic has yet to be realized at KMC.

5.1 Distribution of ARV programme costs

The main cost drivers, excluding the start- up costs, were staff salaries (51%); the cost of ARVs (27%) and planning and administration (11%) as illustrated in Figure 5. The highest cost of any service or programme level activity is usually due to personnel.²⁵ However; it should be borne in mind that the high share of the total costs attributed to human resources is consistent with the requirements for managing a complex ARV programme.

5.1.1 Human resources

The ARV Clinic was run by staff that is skilled and therefore commanded higher salaries. The annual cost of human resources for the ARV clinic was six times more than the Wellness clinic. This illustrates that it is relatively far more expensive to operate the ARV clinic than the Wellness clinic but this should improve with the expansion of the ARV programme at KMC.

5.1.2 Drugs

The cost of drugs was the second largest contributor to total cost at 27%. This was primarily due to the cost of ARVs. Stavudine, Lamivudine and Nevirapine used in the public sector are all generic versions of the original patent formulations and are relatively inexpensive for a month's supply – R21-71/R24- 36; R33- 95/R37- 86 and R41- 61/R45- 29 at 2005/2006 prices respectively. (Appendix 5)

Efavirenz (Stocrin) still retains its patent protection and has no generic equivalent in South Africa. The cost per month of Efavirenz at 2005 and 2006 prices is R195- 01/R210- 78 respectively. As 78% of the patients were on Regimen 1a (which includes Efavirenz), this translates into an enormous cost.

The monthly cost to treat a patient with Regimen 1a and Regimen 1b was R250- 66 and R97- 27 respectively for 2005. In 2006, the cost of Regimen 1a and Regimen 1b increased to R273- 00 and R107- 51 respectively. This was consistent with the projections made by Cleary et al (2005) in a study conducted at three clinics dedicated to HIV- care in Khayelitsha, a township on the outskirts of Cape Town in South Africa.²⁷ The authors found that the cost of R325- 76 per patient per month at a clinic was almost half that of treating a patient with ARVs as an outpatient in a hospital. They suggested that the costs associated with clinic visits are relatively insignificant in comparison with hospital visits.

The relatively high costs of ARVs have certain disadvantages as well as advantages.

The disadvantages attached to the rollout of ARVs are:

- a potential increase in overall treatment costs.
- possible 'crowding out' of people with other illnesses.
- possible increases in new HIV infections due to:
 - longer life.
 - return to risky behavior.

However, these negative aspects are outweighed by the benefits that ARVs confer:

- a potential reduction of hospitalization costs.
- an increased productivity of the labour force.
- potential reductions in new HIV infections due to lower viral loads.

- an increased stability and longevity of family.²⁸

The future is promising as local manufacturing pharmaceutical companies will be producing generic versions of all the ARVs that are used in the public sector. Government will be able to get further reduction in ARV prices by negotiating through bulk procurement purchasing. This potential cost- saving will reduce the life- time costs of treating a patient with ARVs.

5.1.3 Laboratory tests

The major cost driver in the ARV clinic was the viral load assay. (Appendix 8) Based on public sector costs, the cost of a viral load test (R546- 00) was 14 times that of a CD4 count test (R38- 00).

The cost of the actual VL test was expensive and definitely puts a strain on the allocated facility budget for the ARV programme as the VL test has to be done every 6 months for monitoring purposes. The VL test is an excellent test to monitor suppression of the HI virus and hence the efficacy of the ARVs and the resultant improvement in a patient's clinical status. However, the cost and delay in getting results render it impractical as far as cost- effectiveness is concerned. In resource-constrained settings like South Africa, the WHO (WHO Guidelines 2002a) view VL testing as optional.²⁹

5.1.4 Nutrition

Nutritional supplements were indicated for moribund or malnourished patients. These supplements were dispensed according to need irrespective of their nutritional status. A dietary assessment, including measuring the body mass index, would ensure that supplements be given for medical reasons. This would help to contain costs.

5.1.5 VCT Clinic services

The cost per patient visit to the VCT clinic was R133- 63. This is far lower than the R707- 00 (the average rand- dollar exchange rate in 2002- 2003 was approximately 1 USD = R5- 00) that was calculated by McConnel et al²⁴ in their study at a VCT clinic in Kwazulu Natal. This may have been due to the small study population (662 clients) as opposed to the 2117 patients seen at the VCT clinic at KMC.

5.2 Strengths and Limitations of the study

The strength of this study is that it is one of only a few studies that have focused on the ARV programme at a primary health care clinic. Furthermore, the study incorporates the costs borne by government and an NGO. Data for the majority of the cost categories were from primary sources.

The limitations of this study are listed below:

5.2.1 Information Bias

5.2.1.1 Cost data from clinic

It is a concern that there is a lack of proper accounting done at facility level. Certain cost data was not easily available. Data at KMC was not disaggregated according to the different cost components. As a result, certain cost categories had to be apportioned relative to the total KMC expenditure.

5.2.1.2 Lack of computerization of clinic data

The details of volume (patients, drugs and tests) were not computerized and collection of data from hard copies was both cumbersome and potential existed for copying mistakes.

5.2.1.3 Lack of comparative data

The costs for the initial year of the ARV programme were only considered. This does not allow for cost comparison of services as the programme evolved.

5.2.1.4 Lack of integrated services

The costs of the TB and PMTCT programmes have not been included. There has been no integration of these vertical programmes with the ARV programme.

Chapter 6 Conclusions and Recommendations

This chapter concludes the report with an overall summary of the key findings of the study.

6.1 Conclusions

This study identified the three cardinal cost drivers of the ARV programme, namely human resources, the cost of ARVs and the costs of viral load testing. This indicates that the total costs attached to the three components in the study are inflated by the treatment and monitoring of patients on ARVs.

The cost of ARVs is clearly a significant factor and the key is for the healthcare providers to negotiate lower price of these drugs to improve the cost- effectiveness of ART. Improved training of healthcare workers in prescribing ARVs and appropriate management of ARV drug stock will lead to a further cost saving.

The costs of monitoring PLWHA at KMC also accounted for a fair proportion of total costs at 11%. The danger in reducing the frequency of these monitoring tests to lower costs is that patients who develop resistance to certain ARVs may be undetected and this will eventually render ART ineffective.

The cost of the viral load test has not decreased significantly in either the public or private sector. An added problem is the long turn- around time between the time of testing and receiving the result.

6.2 Recommendations

- 1. Health Information System:**
Planning and the decision- making process is dependent on accurate and readily available information. Therefore the culture of data- capturing needs to be continually re- emphasized. This should preferably be conducted by the facility information officer on a monthly basis. The capturing of accurate data needs to be stressed. Indicators should be discussed with clinic staff every quarter. Staff will soon be able to critically analyse these indicators as a group which will serve as a learning tool to isolate the strengths and weaknesses of different programmes at the clinic.
- 2. Political Commitment:**
Increased political commitment from provincial, district and facility managerial structures..Communication must be facilitated between staff at facility level and managers at district level. Regular meetings need to be convened by representatives of these different stakeholders.
- 3. Financial Management Training:**
Managers of the facility and supervisors of the various programmes at facility level need to attend courses on basic accounting methods of health economics. Most of the managers and supervisors are nurses who have had no prior experience in financial management.
Cost centres and activity based accounting practices should be established at district and facility level, with the authorization and mandate being given to the respective managers in terms of the Public Finance Management Act. This will allow facilities to plan appropriately and allow for more efficient utilization of funds. Refresher courses must be conducted annually. This is crucial to assisting in making the ARV and other programmes cost effective.
- 4. Portability of ARV Clinic:**
The ARV rollout must be made accessible to patients at clinics that are nearest their home. A mobile portable container unit manned by mobile health professional teams with all the necessary resources could be a solution. This may enhance adherence and compliance.
- 5. Drug Management:**

There should be central processing of ARVs to reduce the burden on existing facilities.

The introduction of an alternative ARV, namely Tenofovir, has introduced a potential cost- saving opportunity. The adverse effect profile of Tenofovir is minimal in comparison to Stavudine. Stavudine is relatively inexpensive but the substitution of this ARV with Tenofovir will reduce the incidence of toxic adverse effects like peripheral neuropathy, lactic acidosis and lipodystrophy syndrome. Referral to the district hospital will be also reduced, thereby resulting in a cost- saving.

6. Modified Biochemical Monitoring Schedule:

Best Practice dictates that viral load testing should be conducted every six months to monitor effective suppression of the HIV virus. The long turn around time and the relative expense of a Viral Load test is making this objective biochemical indicator a cost driver.

The health system infrastructure needs to be revitalized so that these issues can be reduced and ensure that the viral load testing remains in situ.

However, this will take years rather than months to be effected.

As an interim measure, the NDOH should adopt the WHO guidelines for resource- constrained areas and suggest that viral load testing be conducted annually once the patient has achieved viral load suppression.

7. Donor Funding:

Donor agencies need to stipulate that a portion of funding be reserved for the development of the health system as well as health systems research. This in turn will assist in deriving maximum benefit of the ARV programme.

8. Integration of government and non- government initiative

There must be effective coordination between government and donors to improve access to funding at district level. Currently, the ARV programme is run jointly by the Ilembé district and ARK. However, funding is still occurring in a fragmented manner. Both parties need to disclose full details on expenditure so that costs can be minimized, cost duplication can be prevented and application made to the provincial department of health for an adequate budget allocation. A high level of political commitment for

action needs to be shown at all levels of the health system so that partnerships with NGOs and other interested parties can be entrenched to ensure the viability, sustainability and success of the ARV programme.²²

9. Follow- up studies:

A follow- up cost analysis study should be done at KMC to conduct a comparative analysis of cost in accordance with economies of scale.

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8. Appendices

8.1 Appendix 1: The monthly total cost of personnel of the ARV programme at KMC for the study period

Month	Staff	Job title	Number	Status	Gross Salary		Total Hrs. worked at facility	Hrs. spent at ARV clinic	ALLOCATED salary		Sub-total (In Rands)	Total (In Rands)
					A	B			C/B *A	In Rands		
Apr.2005												
	Nurses	ENA	1	FT	4296-00		40 hrs p/w	40 hrs p/w	4296-00			
		EN	1	FT	4780-00		40 hrs p/w	40 hrs p/w	4780-00			
		PN	1	FT	9414-00		40 hrs p/w	40 hrs p/w	9414-00			
											18490-00	
	Doctors	MO	1	PT	168-00p/h		10h/w	10h/w	6720-00		6720-00	
	Pharmacists		1	FT	17782-00		40 hrs p/w	40 hrs p/w	17782-00		17782-00	
	Data Capturer		3	FT	5188-00		40 hrs p/w	40 hrs p/w	5188-00		15564-00	
	Cleaner		1	FT	3500-00		40 hrs p/w	12hrs p/w	1050-00		1050-00	
	Counsellors		7	FT	3400-00		40 hrs p/w	40 hrs p/w	3400-00		23800-00	
	Wellness clinic PN		1	FT	9414-00		40 hrs p/w	40 hrs p/w	9414-00		9414-00	
	Patient Advocates		5	PT-1	1000-00		25h/w	25h/w	1000-00		4000-00	
				PT-4	750-00		25h/w	25h/w	750-00		4000-00	
	Receptionist		1	FT	4200-00		40hrs/wk	0.5h/w	52-50		52-50	
												96872-50
May-05												
	Nurses	ENA	1	FT	4296-00		40 hrs p/w	40 hrs p/w	4296-00			
		EN	1	FT	4780-00		40 hrs p/w	40 hrs p/w	4780-00			
		PN	1	FT	9414-00		40 hrs p/w	40 hrs p/w	9414-00			
											18490-00	
	Doctors	MO(lev.)	1	PT	168-00p/h		10h/w	10h/w	6720-00		6720-00	
	Pharmacists		1	FT	17782-00		40 hrs p/w	40 hrs p/w	17782-00		17782-00	
	Data Capturer		3	FT	5188-00		40 hrs p/w	40 hrs p/w	5188-00		15564-00	
	Cleaner		1	FT	3500-00		40 hrs p/w	12hrs p/w	1050-00		1050-00	
	Counsellors		7	FT	3400-00		40 hrs p/w	40 hrs p/w	3400-00		23800-00	
	Wellness clinic PN		1	FT	9414-00		40 hrs p/w	40 hrs p/w	9414-00		9414-00	
	Patient Advocates		5	PT-1	1000-00		25h/w	25h/w	1000-00		4000-00	
				PT-4	750-00		25h/w	25h/w	750-00		4000-00	
	Receptionist		1	FT	4200-00		40hrs/wk	0.5h/w	52-50		52-50	
												96872-50

Jun-05	Nurses	ENA	1 FT	4296-00	40 hrs p/w	40 hrs p/w	4296-00		
		EN	1 FT	4780-00	40 hrs p/w	40 hrs p/w	4780-00		
		PN	1 FT	9414-00	40 hrs p/w	40 hrs p/w	9414-00		18490-00
	Doctors	MO(Lev.12)	1 PT	168-00p/h	10h/w	10h/w	6720-00		6720-00
	Pharmacists		1 FT	17782-00	40 hrs p/w	40 hrs p/w	17782-00		17782-00
	Data Capturer		3 FT	5188-00	40 hrs p/w	40 hrs p/w	5188-00		15564-00
	Cleaner		1 FT	3500-00	40 hrs p/w	12 hrs/w	1050-00		1050-00
	Counsellors		7 FT	3400-00	40 hrs p/w	40 hrs p/w	3400-00		23800-00
	Wellness clinic PN		1 FT	9414-00	40 hrs p/w	40 hrs p/w	9414-00		9414-00
	Patient Advocates		5 PT-1	1000-00	25h/w	25h/w	1000-00		4000-00
			PT-4	750-00	25h/w	25h/w	750-00		4000-00
	Receptionist		1 FT	4200-00	40hrs/wk	0.5h/w	52-50		52-50
									96872-50
Jul-05	Nurses	ENA	1 FT	4296-00	40 hrs p/w	40 hrs p/w	4296-00		
		EN	1 FT	4780-00	40 hrs p/w	40 hrs p/w	4780-00		
		PN	1 FT	9414-00	40 hrs p/w	40 hrs p/w	9414-00		18490-00
	Doctors	MO(Lev.12)	1 PT	168-00p/h	10h/w	10h/w	6720-00		6720-00
	Pharmacists		1 FT	17782-00	40 hrs p/w	40 hrs p/w	17782-00		17782-00
	Data Capturer		3 FT	5188-00	40 hrs p/w	40 hrs p/w	5188-00		15564-00
	Cleaner		1 FT	3500-00	40 hrs p/w	12 hrs p/w	1050-00		1050-00
	Counsellors		7 FT	3400-00	40 hrs p/w	40 hrs p/w	3400-00		23800-00
	Wellness clinic PN		1 FT	9414-00	40 hrs p/w	40 hrs p/w	9414-00		9414-00
	Patient Advocates		5 PT-1	1000-00	25h/w	25h/w	1000-00		4000-00
			PT-4	750-00	25h/w	25h/w	750-00		4000-00
	Receptionist		1 FT	4200-00	40hrs/wk	0.5h/w	52-50		52-50
									96872-50

Month	Job Title	Rate	Hours	Payroll	Net Pay	YTD Total
Aug-05	Nurses	4296-00	40 hrs pw	17782-00	6720-00	18490-00
	EN	4780-00	40 hrs pw	17782-00	6720-00	18490-00
	PN	9414-00	40 hrs pw	17782-00	6720-00	18490-00
	Doctors	MO(Lv.12)	188-00/h	10h/w	17782-00	6720-00
	Pharmacists		40 hrs pw	17782-00	6720-00	18490-00
	Data Capture	5188-00	40 hrs pw	17782-00	6720-00	18490-00
	Cleaner	3500-00	40 hrs pw	17782-00	6720-00	18490-00
	Counselors	3400-00	40 hrs pw	17782-00	6720-00	18490-00
	Wellness clinic PN	9414-00	40 hrs pw	17782-00	6720-00	18490-00
	Patient Advocates	1000-00	25h/w	17782-00	6720-00	18490-00
	Receptionist	4200-00	40h/wk	17782-00	6720-00	18490-00
	Sep-05	Nurses	4296-00	40 hrs pw	17782-00	6720-00
EN		4780-00	40 hrs pw	17782-00	6720-00	18490-00
PN		9414-00	40 hrs pw	17782-00	6720-00	18490-00
Doctors		MO(Lv.12)	188-00/h	10h/w	17782-00	6720-00
Pharmacists			40 hrs pw	17782-00	6720-00	18490-00
Data Capture		5188-00	40 hrs pw	17782-00	6720-00	18490-00
Cleaner		3500-00	40 hrs pw	17782-00	6720-00	18490-00
Counselors		3400-00	40 hrs pw	17782-00	6720-00	18490-00
Wellness clinic PN		9414-00	40 hrs pw	17782-00	6720-00	18490-00
Patient Advocates		1000-00	25h/w	17782-00	6720-00	18490-00
Receptionist		4200-00	40h/wk	17782-00	6720-00	18490-00
96872-50						

09-05	Nurses	ENA	1 FT	4296-00	40 hrs pw	4296-00	9414-00	18490-00	96872-50
		EN	1 FT	4780-00	40 hrs pw	4780-00	9414-00		
		PN	1 FT	9414-00	40 hrs pw	9414-00			
	Doctors		1 PT	168-00/h	10hw	168-00/h			
		MOLEV.12)	1 PT	17782-00	40 hrs pw	17782-00	6720-00	18490-00	96872-50
	Pharmacists		1 FT	17782-00	40 hrs pw	17782-00			
	Data Capture		3 FT	5188-00	40 hrs pw	5188-00	17782-00		
	Cleaner		1 FT	3500-00	12 hrs pw	1050-00	15564-00		
	Counselors		7 FT	3400-00	40 hrs pw	3400-00	23800-00		
	Wellness clinic PN		1 FT	9414-00	40 hrs pw	9414-00	9414-00		
	Parent Advocates		5 PT-1	1000-00	25hw	1000-00	4000-00		
			PT-4	750-00	25hw	750-00	52-50		
	Receptionist		1 FT	4200-00	40hw/wk	4200-00	52-50		
Nov-05	Nurses	ENA	1 FT	4296-00	40 hrs pw	4296-00	9414-00	18490-00	96872-50
		EN	1 FT	4780-00	40 hrs pw	4780-00	9414-00		
		PN	1 FT	9414-00	40 hrs pw	9414-00			
	Doctors		1 PT	168-00/h	10hw	168-00/h			
		MOLEV.12)	1 PT	17782-00	40 hrs pw	17782-00	6720-00	18490-00	96872-50
	Pharmacists		1 FT	17782-00	40 hrs pw	17782-00			
	Data Capture		3 FT	5188-00	40 hrs pw	5188-00	17782-00		
	Cleaner		1 FT	3500-00	12 hrs pw	1050-00	15564-00		
	Counselors		7 FT	3400-00	40 hrs pw	3400-00	23800-00		
	Wellness clinic PN		1 FT	9414-00	40 hrs pw	9414-00	9414-00		
	Parent Advocates		5 PT-1	1000-00	25hw	1000-00	4000-00		
			PT-4	750-00	25hw	750-00	52-50		
	Receptionist		1 FT	4200-00	40hw/wk	4200-00	52-50		
Nov-05	Nurses	ENA	1 FT	4296-00	40 hrs pw	4296-00	9414-00	18490-00	96872-50
		EN	1 FT	4780-00	40 hrs pw	4780-00	9414-00		
		PN	1 FT	9414-00	40 hrs pw	9414-00			
	Doctors		1 PT	168-00/h	10hw	168-00/h			
		MOLEV.12)	1 PT	17782-00	40 hrs pw	17782-00	6720-00	18490-00	96872-50
	Pharmacists		1 FT	17782-00	40 hrs pw	17782-00			
	Data Capture		3 FT	5188-00	40 hrs pw	5188-00	17782-00		
	Cleaner		1 FT	3500-00	12 hrs pw	1050-00	15564-00		
	Counselors		7 FT	3400-00	40 hrs pw	3400-00	23800-00		
	Wellness clinic PN		1 FT	9414-00	40 hrs pw	9414-00	9414-00		
	Parent Advocates		5 PT-1	1000-00	25hw	1000-00	4000-00		
			PT-4	750-00	25hw	750-00	52-50		
	Receptionist		1 FT	4200-00	40hw/wk	4200-00	52-50		
09-05	Nurses	ENA	1 FT	4296-00	40 hrs pw	4296-00	9414-00	18490-00	96872-50
		EN	1 FT	4780-00	40 hrs pw	4780-00	9414-00		
		PN	1 FT	9414-00	40 hrs pw	9414-00			
	Doctors		1 PT	168-00/h	10hw	168-00/h			
		MOLEV.12)	1 PT	17782-00	40 hrs pw	17782-00	6720-00	18490-00	96872-50
	Pharmacists		1 FT	17782-00	40 hrs pw	17782-00			
	Data Capture		3 FT	5188-00	40 hrs pw	5188-00	17782-00		
	Cleaner		1 FT	3500-00	12 hrs pw	1050-00	15564-00		
	Counselors		7 FT	3400-00	40 hrs pw	3400-00	23800-00		
	Wellness clinic PN		1 FT	9414-00	40 hrs pw	9414-00	9414-00		
	Parent Advocates		5 PT-1	1000-00	25hw	1000-00	4000-00		
			PT-4	750-00	25hw	750-00	52-50		
	Receptionist		1 FT	4200-00	40hw/wk	4200-00	52-50		
09-05	Nurses	ENA	1 FT	4296-00	40 hrs pw	4296-00	9414-00	18490-00	96872-50
		EN	1 FT	4780-00	40 hrs pw	4780-00	9414-00		
		PN	1 FT	9414-00	40 hrs pw	9414-00			
	Doctors		1 PT	168-00/h	10hw	168-00/h			
		MOLEV.12)	1 PT	17782-00	40 hrs pw	17782-00	6720-00	18490-00	96872-50
	Pharmacists		1 FT	17782-00	40 hrs pw	17782-00			
	Data Capture		3 FT	5188-00	40 hrs pw	5188-00	17782-00		
	Cleaner		1 FT	3500-00	12 hrs pw	1050-00	15564-00		
	Counselors		7 FT	3400-00	40 hrs pw	3400-00	23800-00		
	Wellness clinic PN		1 FT	9414-00	40 hrs pw	9414-00	9414-00		
	Parent Advocates		5 PT-1	1000-00	25hw	1000-00	4000-00		
			PT-4	750-00	25hw	750-00	52-50		
	Receptionist		1 FT	4200-00	40hw/wk	4200-00	52-50		

Jan-06										
Nurses	ENA	1	FT	4296-00	40hrs/wk	40hrs/wk	4296-00			
	EN	1	FT	4780-00	40hrs/wk	40hrs/wk	4780-00			
	PN	1	FT	9414-00	40hrs/wk	40hrs/wk	9414-00			18490-00
Doctors	MO	1	PT	168-00/hr	15hrs/wk	15hrs/wk	10080-00			
		1	PT	168-00/hr	20hrs/wk	20hrs/wk	13440-00			23620-00
Pharmacists		2	FT	17782-00	40hrs/wk	40hrs/wk	17782-00			35564-00
Data Capturers		2	FT	5188-00	40hrs/wk	40hrs/wk	5188-00			10376-00
Cleaner		1	FT	3500-00	40hrs/wk	12 hrs p/w	1050-00			1050-00
Counsellors		9	PT	3400-00	40hrs/wk	40hrs/wk	3400-00			30600-00
Wellness Clinic PN		1	FT	9414-00	40hrs/wk	40hrs/wk	9414-00			9414-00
Patient Advocates		5	PT-1	1000-00	25hrs/wk	25hrs/wk	1000-00			
			PT-4	750-00	25hrs/wk	25hrs/wk	750-00			4000-00
Receptionist		1	FT	4200-00	40hrs/wk	0.5h/w	52-50			52-50
										133066-50
Feb-06										
Nurses	ENA	1	FT	4296-00	40hrs/wk	40hrs/wk	4296-00			
	EN	1	FT	4780-00	40hrs/wk	40hrs/wk	4780-00			
	PN	1	FT	9414-00	40hrs/wk	40hrs/wk	9414-00			18490-00
Doctors	MO	1	PT	168-00/hr	15hrs/wk	15hrs/wk	10080-00			
		1	PT	168-00/hr	20hrs/wk	20hrs/wk	13440-00			23620-00
Pharmacists		2	FT	17782-00	40hrs/wk	40hrs/wk	17782-00			35564-00
Data Capturers		2	FT	5188-00	40hrs/wk	40hrs/wk	5188-00			10376-00
Cleaner		1	FT	3500-00	40hrs/wk	12 hrs p/w	1050-00			1050-00
Counsellors		9	PT	3400-00	40hrs/wk	40hrs/wk	3400-00			30600-00
Wellness Clinic PN		1	FT	9414-00	40hrs/wk	40hrs/wk	9414-00			9414-00
Patient Advocates		6	PT-1	1000-00	25hrs/wk	25hrs/wk	1000-00			
			PT-4	750-00	25hrs/wk	25hrs/wk	750-00			4000-00
Receptionist		1	FT	4200-00	40hrs/wk	0.5h/w	52-50			52-50
										133066-50
Mar-06										
Nurses	ENA	1	FT	4296-00	40hrs/wk	40hrs/wk	4296-00			
	EN	1	FT	4780-00	40hrs/wk	40hrs/wk	4780-00			
	PN	1	FT	9414-00	40hrs/wk	40hrs/wk	9414-00			18490-00
Doctors	MO	1	PT	168-00/hr	15hrs/wk	15hrs/wk	10080-00			

8.2 Appendix 2: Questionnaire for Clinic supervisor of KMC

Health facility _____

Name of respondent _____

Age _____ Gender _____

Highest relevant qualification _____

Contact details _____

Length of service at the present facility _____

Length of service as a nurse _____

Name of the interviewer _____

Date _____

Health facility opening hours (days per week)_____

Health facility opening hours (hours per day)_____

Are there any specific schedules for seeing ARV therapy patients?_____

1. Is this health facility categorized as an urban or a rural health facility?

- a. Urban b. peri-urban c. rural

2. How many rooms does this facility have?

- a) Totally
b) Consulting rooms

3. Do patients need to wait outside the waiting room due to overcrowding in the waiting room?

4. With regard to infrastructure, does the health facility have a regular supply of electricity?

- a. Yes all the time b. Most of the time c. some of the time

5. With regard to infrastructure, does the health facility have a regular supply of water?

- a. Yes all the time b. Most of the time c. some of the time

6. What method does the health facility use to dispose waste material?

7. What is the catchment population of this health facility (the population the clinic serves)?

8. Is security available for your health facility during opening hours?

9. Is public transport available for patients to get to the health facility?

10. I'd like to see the patient register for all out patients seen in the general OPD for November 2005? (The interviewee should count the total number of all patients seen in November 2005 and also the number of ARV therapy patients seen per day).

11. How many clinical staff works in this health facility? (Please indicate the staff diagnose and treat patients)

Enrolled nursing assistants _____

Enrolled nurses (staff nurses) _____

Professional nurses _____

Chief professional nurses _____

Senior professional nurses _____

Doctors _____

VCT counselors _____

Other clinic staff _____

12. Which clinical staff members and how many of them are involved in the ARV therapy?

13. How many of the clinical staff is on prolonged leave? (e.g. 1 year study leave)

14. Are there CHWs and/or HBCVs operating in the catchments area?

How many CHWs?

How many HBCVs?

15. Does the clinic trace defaulters of ARV therapy through

- a. Community Health Workers (CHWs)
 - b. Home based Care Volunteers (HBCV)
 - c. Any other mechanism?
-

16. How many defaulters did you trace last month?

17. How did you trace the defaulters?

18. What are the main reasons for defaulting?

19. Was it difficult to trace defaulters?

20. Is transport available to the facility for the tracing of defaulters in the communities?

21. If so, what kind of transport is available? E.g. bicycle, motor bicycle, car.

22. In the health facility, do you have a system to know how many ARV therapy patients are scheduled today?

Yes no

23. With regard to laboratory investigations, which lab does the facility refer its samples to?

24. a. Where do you send patients for x-ray?
b. How long does it take to get the result?

25. Does the health facility obtain CD4 counts before the patients next visit?

26. If not what is the reason for the delay?

27. How often is the health facility supervised?

- a. monthly b. quarterly c. biannually
d. annually e. more than a year ago

29. Is feedback given on the supervision? If yes how long after the supervision?

30. Who is doing the supervision?

31. On average how many doses is missed by an ARV therapy patient of his ARV medication in a month?

32. In your opinion, is compliance related to;

- a. gender (if so is it males or females who comply)
b. socioeconomic status
c. level of education of the patient
d. distance from the clinic
e. Quality of information given by the nurse
f. Advice of traditional healers

g. other reasons, specify

35. In your opinion what do you think are some of the most important factors that would help improve ARV therapy services in the facility?

8.3 Letters to relevant authorities

8.3.1 Appendix 3: Letter to Ilembe district health manager requesting permission to conduct study

Dr. Y. Kista

P. O. Box 4621

Kwadukuza

4450

Ms Dube

District Health Manager

Ilembe

19th June 2006

Dear Madam

I want to undertake a Cost Analysis of the Antiretroviral programme at the Kwadukuza Clinic. This will be for the completion of my Masters in Public Health degree.

I need written permission from you to be able to complete this task. Your letter will be attached to my protocol and submitted to the Ethics committee of the Kwazulu-Natal University. Permission has also been sought from Dr. Ashraf Grimwood from ARK.

This is purely an academic exercise and a copy of the result will be sent to you before submission to the Department of Community Health at the Nelson Mandela Medical School.

Thank you for your co- operation.

Yours sincerely

Dr. Y. Kista

Tel/ Fax : (032) - 5514953

8.3.2 Appendix 4: Letter to Chief Executive Officer of ARK seeking permission to conduct study.

**Dr. Y. Kista
P.O. Box 4621
Kwadukuza
4450**

**Dr. Ashraf Grimwood
Executive Director
ARK
Fax No : 021 – 4486157
19th June 2006**

Dear Ashraf

I will be submitting my protocol to the Ethics Committee for approval. I need to have written permission from ARK to undertake my project.

I would like to reiterate that this is purely an academic exercise for the completion of my Masters in Public Health degree. A copy of the report will be sent to you for perusal before submission to the Department of Community Health at the Nelson Mandela Medical School.

My supervisor is Professor Indres Moodley and he can be contacted at the Department of Community Health at the following telephone number – (031) 2604287.

Yours sincerely

Yogen.

Dr. Y. Kista

Tel/Fax - (032) 5514953

8.4 Annual drug expenditure for the ARV and Wellness clinics at KMC

8.4.1: Appendix 5: The total annual cost of drugs used by the ARV and Wellness clinics at KMC for the study period

Month	Drug Name	Dosage Form	Strength	Cost of Pack (in Rands)	Pack size	Quantity Rx	Unit Price (In Rands)	Total Cost (in Rands)	Source of Funds	Sub-total (in Rands)
Apr-05	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's	55	0.57	1667-25	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's	55	0.36	1194-05	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's	12	0.69	499-32	PEPFAR	
	EFAVIRENZ(Stocrin)	Capsule	600mg	195-01	30's	43	6.5	8385-43	PEPFAR	
	CO-TRIMOXAZOLE(Bactr)	Tablet	80/400mg	R5-24	56's	55	0.094	288-20	DOH	
	CENTRUM	Tablet		R9-47	30's	55	0.32	520-85	DOH	
	Wellness Clinic PHC							6205-30	DOH	
										18960-40
May-05	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's	103	0.57	3496-85	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's	103	0.36	2236-13	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's	20	0.69	832-20	PEPFAR	
	EFAVIRENZ(Stocrin)	Capsule	600mg	195-01	30's	83	6.5	16185-83	PEPFAR	
	CO-TRIMOXAZOLE(Bactr)	Tablet	80/400mg	R5-24	56's	103	0.094	539-72	DOH	
	CENTRUM	Tablet		R9-47	30's	103	0.32	975-41	DOH	
	Wellness Clinic PHC							6138-28	DOH	
										30404-42
Jun-05	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's	144	0.57	4888-80	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's	144	0.36	3126-24	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's	27	0.69	1123-47	PEPFAR	
	EFAVIRENZ(Stocrin)	Capsule	600mg	195-01	30's	117	6.5	22816-17	PEPFAR	
	CO-TRIMOXAZOLE(Bactr)	Tablet	80/400mg	R5-24	56's	144	0.094	754-56	DOH	
	CENTRUM	Tablet		R9-47	30's	144	0.32	1363-68	DOH	
	Wellness Clinic PHC							5348-52	DOH	
										39421-44
Jul-05	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's	170	0.57	5771-50	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's	170	0.36	3690-70	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's	30	0.69	1248-30	PEPFAR	
	EFAVIRENZ(Stocrin)	Capsule	600mg	195-01	30's	140	6.5	27301-40	PEPFAR	
	CO-TRIMOXAZOLE(Bactr)	Tablet	80/400mg	R5-24	56's	170	0.094	890-80	DOH	
	CENTRUM	Tablet		R9-47	30's	170	0.32	1609-90	DOH	
	Wellness Clinic PHC							3030-31	DOH	
										43542-91

Aug-05											
	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's		202	0.57	6857-90	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's		202	0.36	4385-42	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's		35	0.69	1456-35	PEPFAR	
	EFVIRENZ(Stocrin)	Capsule	600mg	195-01	30's		167	6.5	32566-67	PEPFAR	
	CO-TRIMOXAZOLE(Bactr)	Tablet	80/400mg	R5-24	56's		202	0.094	1058-48	DOH	
	CENTRUM	Tablet		R9-47	30's		202	0.32	1912-94	DOH	
	Wellness Clinic PHC								4616-18	DOH	52853-92
Sep-05											
	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's		220	0.57	7469-00	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's		220	0.36	4776-20	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's		39	0.69	1622-79	PEPFAR	
	EFVIRENZ(Stocrin)	Capsule	600mg	195-01	30's		181	6.5	35296-81	PEPFAR	
	CO-TRIMOXAZOLE(Bactr)	Tablet	80/400mg	R5-24	56's		220	0.094	1152-80	DOH	
	CENTRUM	Tablet		R9-47	30's		220	0.32	2083-40	DOH	
	Wellness Clinic PHC								5824-52	DOH	58225-52
Oct-05											
	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's		237	0.57	8046-15	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's		237	0.36	5145-27	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's		42	0.69	1747-62	PEPFAR	
	EFVIRENZ(Stocrin)	Capsule	600mg	195-01	30's		195	6.5	38026-95	PEPFAR	
	CO-TRIMOXAZOLE(Bactr)	Tablet	80/400mg	R5-24	56's		237	0.094	1241-88	DOH	
	CENTRUM	Tablet		R9-47	30's		237	0.32	2244-39	DOH	
	Wellness Clinic PHC								12762-81	DOH	69215-07
Nov-05											
	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's		251	0.57	8521-45	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's		251	0.36	5449-21	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's		48	0.69	1997-28	PEPFAR	
	EFVIRENZ(Stocrin)	Capsule	600mg	195-01	30's		203	6.5	39587-03	PEPFAR	
	CO-TRIMOXAZOLE(Bactr)	Tablet	80/400mg	R5-24	56's		251	0.094	1315-24	DOH	
	CENTRUM	Tablet		R9-47	30's		251	0.32	2376-97	DOH	
	Wellness Clinic PHC								8236-78	DOH	67483-96

Dec-05	LAMIVUDINE(3TC)	Tablet	150mg	33-95	60's	253	0.57	8589-35	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	21-71	60's	253	0.36	5492-63	PEPFAR	
	NEVIRAPINE	Tablet	200mg	41-61	60's	49	0.69	2038-89	PEPFAR	
	EFVIRENZ(Stocrin)	Capsule	600mg	195-01	30's	204	6.5	39782-04	PEPFAR	
	CO-TRIMOXAZOLE(Bactr	Tablet	80/400mg	R5-24	56's	253	0.094	1325-72	DOH	
	CENTRUM	Tablet		R9-47	30's	253	0.32	2395-91	DOH	
	Wellness Clinic PHC							5930-10	DOH	6554-64
Jan-06	LAMIVUDINE(3TC)	Tablet	150mg	37-86	60's	255	0.63	9654-30	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	24-36	60's	255	0.41	6211-80	PEPFAR	
	NEVIRAPINE	Tablet	200mg	45-29	60's	49	0.75	2219-21	PEPFAR	
	EFVIRENZ(Stocrin)	Capsule	600mg	210-78	30's	206	7.02	43420-68	PEPFAR	
	CO-TRIMOXAZOLE(Bactr	Tablet	80/400mg	R5-24	56's	255	0.094	1336-20	DOH	
	CENTRUM	Tablet		R9-47	30's	255	0.32	2414-85	DOH	
	Wellness Clinic PHC							7075-08	DOH	72332-12
Feb-06	LAMIVUDINE(3TC)	Tablet	150mg	37-86	60's	257	0.63	9730-02	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	24-36	60's	257	0.41	6260-52	PEPFAR	
	NEVIRAPINE	Tablet	200mg	45-29	60's	50	0.75	2264-50	PEPFAR	
	EFVIRENZ(Stocrin)	Capsule	600mg	210-78	30's	207	7.02	43631-46	PEPFAR	
	CO-TRIMOXAZOLE(Bactr	Tablet	80/400mg	R5-24	56's	257	0.094	1346-68	DOH	
	CENTRUM	Tablet		R9-47	30's	257	0.32	2433-79	DOH	
	Wellness Clinic PHC							5105-69	DOH	70772-66
Mar-06	LAMIVUDINE(3TC)	Tablet	150mg	37-86	60's	258	0.63	9767-88	PEPFAR	
	STAVUDINE(d4T)	Tablet	30/40mg	24-36	60's	258	0.41	6284-88	PEPFAR	
	NEVIRAPINE	Tablet	200mg	45-29	60's	50	0.75	2264-50	PEPFAR	
	EFVIRENZ(Stocrin)	Capsule	600mg	210-78	30's	208	7.02	43842-24	PEPFAR	
	CO-TRIMOXAZOLE(Bactr	Tablet	80/400mg	R5-24	56's	258	0.094	1351-92	DOH	
	CENTRUM	Tablet		R9-47	30's	258	0.32	2443-26	DOH	
	Wellness Clinic PHC							6288-00	DOH	72242-68 661009-74

8.4.2 Appendix 6: Breakdown of annual non- ARV drug expenditure for the ARV and Wellness clinics at KMC for the study period.

MONTH	Wellness Clinic	ARV clinic
Apr-05	6205-30	12754-70
May-05	6138-28	24266-14
Jun-05	5348-52	34072-92
Jul-05	3030-31	40512-60
Aug-05	4616-16	48237-76
Sep-05	5824-52	52401-00
Oct-05	12762-81	56452-26
Nov-05	8236-78	59247-18
Dec-05	5930-10	59624-54
Jan-06	7075-08	65257-04
Feb-06	5105-69	65666-97
Mar-06	6288-00	65954-68
Total(in Rands)	76562-55	584447-19

8.5. Annual breakdown of commodities and products utilized by the ARV programme at KMC

8.5.1 Appendix 7: Breakdown of annual costs for nutrition; medical consumables and condoms

		Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Total
Nutrition		16 cases	290 cases	49 cases	37 cases	71 cases	63 cases	18 cases	12 cases	6 cases	152 cases	124 cases	97 cases	
ARV Clinic	21%	328-47	5953-58	1005-95	759-59	1457-60	1230-36	389-53	245-35	123-18	3120-80	2545-67	1991-37	19195-15
Well. Clinic	44%	688-23	12474-18	2107-71	1891-53	3054-02	2709-90	774-26	516-17	289-09	6538-18	5333-79	4172-40	40218-46

Notes: The numbers of patients seen by the TB clinic and Wellness Clinic far outweigh the number of patients seen at the ARV clinic.

Therefore I apportioned following %

	TB	Wellness	ARV
Nb. of patients seen for 01/04/05-31/03/06	6028	7468	3668
%	35	44	21

	Price (in R)
1 case comprises the following ingredients:	
2 packets of 1kg beans	14-00
4 packets of 1kg Philani	54-00
2 tins of 800g Nespray	29-76
Total per case	97-76

Clinic	KMC	ARV	Wellness	VCT
Pat. Pop	112654	3858	7468	2117
%		3.42	6.62	1.88

	Clinic	KMC	ARV	Wellness	VCT
Commodities/Products					
Medical Consumables					
swabs/gloves/syringes/gaues)		36000-00	1231-20	2383-20	676-80
Nutrition			19195-15	40218-46	0-00
Condoms		15000-00	513-00	983-00	282-00
Lab Tests			151746-92	27016-40	1338-71

(condoms R1-80 per 4)

8.5.2 Appendix 8: Breakdown of laboratory tests for the three components for the study period at KMC

MONTH

Apr-05

TEST	No.	Unit price	Total cost	Source of funds
Lab Tests		(in rands)	(In rands)	
Lactate	0			DOH
FBC	0			DOH
U&E	0			DOH
LFT	0			DOH
AMYLASE	0			DOH
CD4 *	108	38-00	4104-00	ARK
VL	0			DOH
Hep screen	0			DOH
WR	0			DOH
Pap smear	0			DOH
Pregstat	0			DOH
Vacuettes	108	R0-45	48-60	DOH
Tubes purple	108	R1-28	138-24	DOH
plain	0			
VL	0			
Rapid Tes Screening	90	R0-01	R0-90	DOH
Confirm	60	R1-38	R82-80	DOH
Lancets	150	R0-01	R1-50	DOH
TOTAL			4376-04	
GRAND TOTAL				

May-05

TEST	No.	Unit price	Total cost	Source of funds
Lab Tests		(in rands)	(in rands)	
Lactate	0			DOH
FBC	0			DOH
U&E	0			DOH
LFT	0			DOH
AMYLASE	0			DOH
CD4 *	119	38-00	4522-00	ARK
VL	0			DOH
Hep screen	0			DOH
WR	0			DOH
Pap smear	0			DOH
Pregstat	0			DOH
Vacuettes	119	R0-45	53-55	DOH
Tubes purple	119	R1-28	152-32	DOH
plain	0			
VL	0			
Rapid Tes Screening	114	R0-01	R1-14	DOH
Confirm	60	R1-38	R82-80	DOH
Lancets	174	R0-01	R1-74	DOH
TOTAL			4813-55	

Jun-05

TEST	No.	Unit price	Total cost	Source of funds
Lab Tests		(in rands)	(in rands)	
Lactate	0			DOH
FBC	0			DOH
U&E	0			DOH
LFT	0			DOH
AMYLASE	0			DOH
CD4 *	130	38-00	4940-00	ARK
VL	0			DOH
Hep screen	0			DOH
WR	0			DOH
Pap smear	0			DOH
Pregstat	0			DOH
Vacuettes	130	R0-45	58-50	DOH
Tubes purple	130	R1-28	166-40	DOH
plain	0			
VL	0			
Rapid Tes Screening	206	R0-01	R2-06	DOH
Confirm	114	R1-38	157-32	DOH
Lancets	320	R0-01	R3-20	DOH
TOTAL			5327-48	

Jul-05

TEST	No.	Unit price	Total cost	Source of funds
Lab Tests		(in rands)	(in rands)	
Lactate	0			DOH
FBC	0			DOH
U&E	0			DOH
LFT	0			DOH
AMYLASE	0			DOH
CD4 *	172	38-00	6536-00	ARK
VL	0			DOH
Hep screen	0			DOH
WR	0			DOH
Pap smear	0			DOH
Pregstat	0			DOH
Vacuettes	172	R0-45	77-40	DOH
Tubes purple	172	R1-28	220-16	DOH
plain	0			
VL	0			
Rapid Tes Screening	145	R0-01	R1-45	DOH
Confirm	70	R1-38	96-60	DOH
Lancets	215	R0-01	R2-15	DOH
TOTAL			6933-76	

Aug-05

TEST	No.	Unit price	Total cost	Source of funds
Lab Tests		(in rands)	(in rands)	
Lactate	0			DOH
FBC	0			DOH
U&E	0			DOH
LFT	3	222-00	666-00	DOH
AMYLASE	0			DOH
CD4 *	71	38-00	2698-00	ARK
VL	7	546-00	3822-00	DOH
Hep screen	0			DOH
WR	0			DOH
Pap smear	0			DOH
Pregstat	0			DOH
Vacuettes	81	R0-45	36-45	DOH
Tubes purple	71	purple R1-28	90-88	DOH
plain	3	plain R0-64	R1-92	
VL	7	VL R1-17	R8-19	
Rapid Tes Screening	122	R0-01	R1-22	DOH
Confirm	58	R1-38	80-04	DOH
Lancets	180	R0-01	R1-80	DOH
TOTAL			7406-50	

Sep-05

<u>TEST</u>	<u>No.</u>		<u>Unit price</u>		<u>Total cost</u>		<u>Source of funds</u>
<u>Lab Tests</u>			<u>(in rands)</u>		<u>(In rands)</u>		
Lactate	0						DOH
FBC	0						DOH
U&E	0						DOH
LFT	0						DOH
AMYLASE	0						DOH
CD4 *	55		38-00		2090-00		ARK
VL	0						DOH
Hep screen	0						DOH
WR	0						DOH
Pap smear	0						DOH
Pregstat	0						DOH
Vacuettes	55		R0-45		24-75		DOH
Tubes purple	55	purple	R1-28		70-40		DOH
plain	0						
VL	0						
Rapid Tes Screening	172		R0-01		R1-72		DOH
Confirm	95		R1-38		131-10		DOH
Lancets	267		R0-01		R2-67		DOH
TOTAL					2320-64		

Oct-05

<u>TEST</u>	<u>No.</u>		<u>Unit price</u>		<u>Total cost</u>		<u>Source of funds</u>
<u>Lab Tests</u>			<u>(in rands)</u>		<u>(in rands)</u>		
Lactate	0						DOH
FBC	0						DOH
U&E	0						DOH
LFT	0						DOH
AMYLASE	0						DOH
CD4 *	131		38-00		4978-00		ARK
VL	28		546-00		15288-00		DOH
Hep screen	0						DOH
WR	0						DOH
Pap smear	0						DOH
Pregstat	0						DOH
Vacuettes	159		R0-45		71-55		DOH
Tubes purple	131	purple	R1-28		167-68		DOH
plain	0	plain					
VL	28	VL			32-76		
Rapid Tes Screening	129		R0-01		R1-29		DOH
Confirm	61		R1-38		84-18		DOH
Lancets	190		R0-01		R1-90		DOH
TOTAL					20625-36		

Nov-05

TEST	No.	Unit price	Total cost	Source of funds
Lab Tests		(in rands)	(in rands)	
Lactate	0			DOH
FBC	0			DOH
U&E	0			DOH
LFT	0			DOH
AMYLASE	0			DOH
CD4 *	66	38-00	2508-00	ARK
VL	0			DOH
Hep screen	0			DOH
WR	0			DOH
Pap smear	0			DOH
Pregstat	0			DOH
Vacuettes	66	R0-45	29-70	DOH
Tubes purple	66 purple	R1-28	84-48	DOH
plain	0 plain			
VL	0 VL			
Rapid Tes Screening	79	R0-01	R0-79	DOH
Confirm	40	R1-38	55-20	DOH
Lancets	119	R0-01	R1-19	DOH
TOTAL			2679-36	

Dec-05

TEST	No.	Unit price	Total cost	Source of funds
Lab Tests		(in rands)	(in rands)	
Lactate	0			DOH
FBC	0			DOH
U&E	0			DOH
LFT	0			DOH
AMYLASE	0			DOH
CD4 *	35	38-00	1330-00	ARK
VL	0			DOH
Hep screen	0			DOH
WR	0			DOH
Pap smear	0			DOH
Pregstat	0			DOH
Vacuettes	35	R0-45	15-75	DOH
Tubes purple	35 purple	R1-28	44-80	DOH
plain	0 plain			
VL	0 VL			
Rapid Tes Screening	132	R0-01	R1-32	DOH
Confirm	58	R1-38	80-04	DOH
Lancets	190	R0-01	R1-90	DOH
TOTAL			1473-81	

Jan-06

TEST	No.		Unit price	Total cost	Source of funds
Lab Tests			(in rands)	(in rands)	
Lactate	0				DOH
FBC	6		33-00	198-00	DOH
U&E	4		105-00	420-00	DOH
LFT	12		222-00	2664-00	DOH
AMYLASE	0				DOH
CD4 *	157		38-00	5966-00	ARK
VL	77		546-00	42042-00	DOH
Hep screen	2		68-00	138-00	DOH
WR					DOH
Pap smear	4		88-00	352-00	DOH
Pregstat					DOH
Vacuettes	258		R0-45	116-10	DOH
Tubes purple	163	purple	R1-28	208-64	DOH
plain	18	plain	R0-64	R11-52	
VL	77	VL	R1-17	90-09	
Rapid Tes Screening	217		R0-01	R2-17	DOH
Confirm	133		R1-38	183-54	DOH
Lancets	350		R0-01	R3-50	DOH
TOTAL				52395-56	

Feb-06

TEST	No.		Unit price	Total cost	Source of funds
Lab Tests			(in rands)	(in rands)	
Lactate	0				DOH
FBC	6		33-00	198-00	DOH
U&E	2		105-00	210-00	DOH
LFT	12		222-00	2664-00	DOH
AMYLASE	0				DOH
CD4 *	113		38-00	4294-00	ARK
VL	51		546-00	27846-00	DOH
Hep screen	0				DOH
WR	0				DOH
Pap smear	10		88-00	880-00	DOH
Pregstat	0				DOH
Vacuettes	184		R0-45	82-80	DOH
Tubes purple	119	purple	R1-28	152-32	DOH
plain	14	plain	R0-64	R8-96	
VL	51	VL	R1-17	59-67	
Rapid Tes Screening	198		R0-01	R1-98	DOH
Confirm	89		R1-38	122-82	DOH
Lancets	287		R0-01	R2-87	DOH
TOTAL				36523-42	

Mar-06

TEST	No.	Unit price	Total cost	Source of funds
Lab Tests		(in rands)	(in rands)	
Lactate	4	R11-00	44-00	DOH
FBC	1	33-00	33-00	DOH
U&E	6	105-00	630-00	DOH
LFT	7	222-00	1554-00	DOH
AMYLASE	0			DOH
CD4 *	107	38-00	4066-00	ARK
VL	50	546-00	27300-00	DOH
Hep screen	1	68-00	68-00	DOH
WR	0			DOH
Pap smear	9	88-00	880-00	DOH
Pregstat	0			DOH
Vacuettes	176	R0-45	79-20	DOH
Tubes purple	108	purple R1-28	363-52	DOH
plain	18	plain R0-64	R11-52	
VL	50	VL R1-17	58-50	
Rapid Tes Screening	210	R0-01	R2-10	DOH
Confirm	99	R1-38	136-62	DOH
Lancets	309	R0-01	R3-09	DOH
TOTAL			35229-56	
GRAND TOTAL				R180102-03

Notes: * CD4 count tests done at Wellness Clinic included in total

	CD4	Total	Tubes	Total	Vacuettes	Total
ARV cl	484	18392-00	484	619-52	484	217-80
Well. Cl	680	25840-00	680	870-40	680	306-00
TOTAL		44232-00		1489-92		523-80
	Tests (inR)					
ARV clinic	151746-92					
Well clinic	27016-40					
VCT clinic	1338-71					
Total	R180103-03					

8.6 Appendix 9 : The annual utilities expenditure for the three components of the ARV programme at KMC for the study period

Total covered area of the clinic = Area (Area of building + verandah) + mobile home			
= (912 sq. m + 317.8 sq.m) + 36.74 sq.m			
= 1229.8 sq.m + 36.74 sq.m			
= 1266.54 sq. m			
April 2005 to September 2005 : ARV clinic = Room 4 + Wellness clinic + 2 times counsellor rooms + Pharmacist room			
= 12.18 + 9.45 + (2 * 12.18) + 12.18			
= 58.17 sq.m			
October 2005 to March 2006 : ARV clinic = Mobile home + Wellness Clinic + 2 times counsellor' rooms			
= 36.74 + 9.45 + 24.36			
= 70.55 sq. m			
Allocated Water and Lights Bill : April 2005 - Sept. 2005 = 58.17/1266.54 of total monthly amount			
= 0.046 of total monthly amount			
October 2005 to March 2006 = 70.55/1266.54 of total monthly amount			
= 0.056 of total monthly amount			
Aggregated W&E bill for one quarter (3 months)			
MONTH	Amount(in rands)	Proportion	Allocated Amount(in rands)
April 05 to June 05	12661-37	0.046	582.42
July 05 to Sept 05	13365-38	0.046	614.81
Oct. 05 to Dec. 05	18679-18	0.056	1046.34
Jan. 06 to Marc. 06	9118.57	0.056	510.64
TOTAL	53824.5		2754.21
	%	Total	
Wellness	0.75	401-60	
VCT	1.92	1035-23	
ARV-6/12	1.92	1035-23	
ARV-6/12	2.9	1561-35	
		4033-41	

8.7 Appendix 10 : Calculation of rental for the ARV programme at KMC for the first six Months

01/04/05 to 30/09/05 : No capital expenditure. Use made of 4 rooms in the clinic : - Wellness clinic									
Wellness	s clinic/ Nurse' room		9.45 sq.m						
	- Doctor' room		12.18sq.m						
	- Pharmacist'/Data capturer' room		12.18sq.m						(Office space for 2005 in the Kwadukuza area was R45-00 per sq.m)
	- Counsellor' room		12.18sq.m						
	TOTAL		45.99sq.m						
	Total area of clinic	=	1229,8sq. m						
	Rental of clinic space for period April 2005 to Sept 2006 = 6 times(45.99 times R45.00) = R12417-30								
	Rental of mobile home for period October 2005 to March 2006 = 6 times (36.74 times R45-00) = R9919-80								

				Rent p.m	Ann. Rent	Semester
<u>VCT clinic</u>	1 room		12.18sq.m	548-10	6577-20	
<u>Wellness</u>	1 room		9.45sq.m	425-25	5103-00	
<u>ARV clin</u>	2 rooms	6months	(12.18+12.18+9.45)	1521-45	9128-70	4564- 35
			36.74	1653-30	9919-80	4959- 90

Clinic	ARV	VCT	Wellness	TOTAL
Tot. Rent	9524- 25	6577- 20	5103- 00	R21204-45

8.8

8.8.1 Appendix 11: Inventory of capital expenses for the ARV programme at KMC for the study period

Inventory of equipment used by the ARV programme at KMC for the period 1st October 2005 to 31st March 2006						
Clinic	Quantity	Unit price (in R)	Value	Lifespan (In years)	Ann. Amt (In R)	Semester (in R)
Wellness clinic:	1 desk	1800-00	1800-00		5 360-00	180-00
	2 chairs	700-00	1400-00		3 466-67	233-33
	1 bin	R10-00	R10-00		3 R3-33	R1-67
	1 stationary cupboard	1200-00	1200-00		5 240-00	120-00
	1 fan	150-00	150-00		5 30-00	15-00
	1 stapler	40-00	40-00		1 40-00	20-00
	1 stethoscope	30-00	30-00		1 30-00	15-00
						585-00
VCT(2 rooms)	1 desk	1800-00	1800-00		5 360-00	180-00
	2 chairs	700-00	1400-00		3 466-67	233-33
	1 bin	R10-00	R10-00		3 R3-33	R1-67
	1 cupboard	900-00	900-00		5 180-00	90-00
	1 stapler	40-00	40-00		1 40-00	20-00
	1 fan	150-00	150-00		5 30-00	15-00
					540-00	1080-00
ARV clinic:	4 desks	1800-00	7200-00		5 1440-00	720-00
	8 chairs	700-00	5600-00		3 1866-67	933-33
	4 bins	R10-00	40-00		3 13-33	R6-67
	2 stationary cupboards	1200-00	2400-00		5 480-00	240-00
	1 computer	13440-00	13440-00		2 6720-00	3360-00
	1 printer	1119-00	1119-00		2 559-60	279-75
	1 label machine	1552-00	1552-00		2 776-00	388-00
	1 stapler	40-00	40-00		1 40-00	20-00
	1 examination couch	800-00	800-00		5 160-00	80-00
	1 punch	200-00	200-00		2 100-00	50-00
	1 digital scale	3500-00	3500-00		5 700-00	350-00
	1 stethoscope	30-00	30-00		1 30-00	15-00
	1 diagnostic set	2000-00	2000-00		5 400-00	200-00
	2 sphygmomanometers	1000-00	2000-00		5 400-00	200-00
	2 Filing cabinets	2400-00	4800-00		5 960-00	480-00
	4 Air- conditioners	2650-00	10600-00		5 2120-00	1060-00
					8382-75	8382-75
						10047-75

8.8.2 Appendix 12: Calculation of discounted values for capital expenses

Capital Expenses of the ARV programme at the KwaZulu Municipality Clinic for the period 1st April 2005 to 31st March 2006																							
Fixed Asset	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Current	Value	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%	
Mobile Home	0	1	0	0	0	0	0	0	0	0	12000-00	12000-00	10800-00	9720-00	8640-00	7560-00	6480-00	5400-00	4320-00	3240-00	2160-00	1080-00	0
Medical Equipment	0	1	1	1	1	1	1	1	1	1	13800-00	13800-00	12420-00	11178-00	10000-00	8910-00	7920-00	6930-00	5940-00	4950-00	3960-00	2970-00	1980-00
Stethoscope	0	1	1	1	1	1	1	1	1	1	300-00	300-00	270-00	243-00	216-00	189-00	162-00	135-00	108-00	81-00	54-00	27-00	0
Lactometer	0	0	0	0	0	0	0	0	0	0	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00
Glucometer	0	0	0	0	0	0	0	0	0	0	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00
Diagnoset set	0	1	1	1	1	1	1	1	1	1	1800-00	1800-00	1620-00	1458-00	1300-00	1155-00	1008-00	864-00	720-00	576-00	432-00	288-00	144-00
Other Equipment	0	0	0	0	0	0	0	0	0	0	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00
Desks	0	4	4	4	4	4	4	4	4	4	7200-00	7200-00	6480-00	5760-00	5040-00	4320-00	3600-00	2880-00	2160-00	1440-00	720-00	0	
Chairs	0	12	12	12	12	12	12	12	12	12	5600-00	5600-00	5040-00	4480-00	3920-00	3360-00	2800-00	2240-00	1680-00	1120-00	560-00	0	
Computer	0	1	1	1	1	1	1	1	1	1	13440-00	13440-00	12096-00	10848-00	9600-00	8352-00	7104-00	5856-00	4608-00	3360-00	2112-00	960-00	
Printer	0	1	1	1	1	1	1	1	1	1	1119-00	1119-00	1007-10	906-39	805-68	704-97	604-26	503-55	402-84	302-13	201-42	100-71	
Photocopier	0	0	0	0	0	0	0	0	0	0	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00
Fax Machine	0	0	0	0	0	0	0	0	0	0	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00
Mobile	0	0	0	0	0	0	0	0	0	0	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00
Land line	0	0	0	0	0	0	0	0	0	0	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00
Altimeter	0	4	4	4	4	4	4	4	4	4	4800-00	4800-00	4320-00	3840-00	3360-00	2880-00	2400-00	1920-00	1440-00	960-00	480-00	0	
Fridge	0	0	0	0	0	0	0	0	0	0	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00	0-00
Scale	0	1	1	1	1	1	1	1	1	1	1800-00	1800-00	1620-00	1458-00	1300-00	1155-00	1008-00	864-00	720-00	576-00	432-00	288-00	
Filing cabinets	0	2	2	2	2	2	2	2	2	2	2400-00	2400-00	2160-00	1920-00	1680-00	1440-00	1200-00	960-00	720-00	480-00	240-00	0	
Stationary cupboard	0	3	3	3	3	3	3	3	3	3	3100-00	3100-00	2790-00	2480-00	2170-00	1860-00	1550-00	1240-00	930-00	620-00	310-00	0	
Other	0	1	1	1	1	1	1	1	1	1	180-00	180-00	162-00	144-00	126-00	108-00	90-00	72-00	54-00	36-00	18-00	0	
Stapler	0	1	1	1	1	1	1	1	1	1	40-00	40-00	36-00	32-00	28-00	24-00	20-00	16-00	12-00	8-00	4-00	0	
Bin	0	4	4	4	4	4	4	4	4	4	40-00	40-00	36-00	32-00	28-00	24-00	20-00	16-00	12-00	8-00	4-00		
Punch	0	1	1	1	1	1	1	1	1	1	200-00	200-00	180-00	162-00	144-00	126-00	108-00	90-00	72-00	54-00	36-00	18-00	
Label machine	0	1	1	1	1	1	1	1	1	1	1552-00	1552-00	1396-80	1241-60	1086-40	931-20	776-00	620-80	465-60	310-40	155-20	0	
											3818-00	3818-00	3436-20	3054-40	2672-60	2290-80	1909-00	1527-20	1145-40	763-60	381-80	0	

8.9 Appendix 13: Ethics Approval from Ethics Committee attached to the University of KwaZulu-Natal



**UNIVERSITY OF
KWAZULU-NATAL**

Research Office
BIOMEDICAL RESEARCH ETHICS ADMINISTRATION
Nelson R Mandela School of Medicine
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Tel: 27 31 2604769
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22 December 2006

Dr. Y. Kista
Department of Community Health
P O Box 4621
KWADUKUZA
4450

Dear Dr. Kista

PROTOCOL: A Cost Analysis of the Antiretroviral Programme at the Kwadukuza Clinic in the Ilembe District. Dr. Yogendiran Kista. Dept. of Community Health. Ref: EXP055/06

EXPEDITED APPLICATION

Dear Dr. Kista

This letter serves to notify you that at a full sitting of the Biomedical Research Ethics Committee meeting held on 12 December 2006, the Committee RATIFIED the sub-committee's decision to approve the above study.

Yours sincerely

A handwritten signature in black ink, appearing to read 'SB' followed by a flourish.

SURAIYA BUCCAS
Ethics Research Administrator

SB/sn

8.10 Appendix 14: Authorization from Department of Health



HEALTH
KwaZulu-Natal

77 Hulett Street, Stanger , 4450
Private Bag X 10620, Kwa Dukuza, 4450
Tel.: 032 4373500/4373503, Fax.: 032 5511590
Email: dubesi@dohho.kzntl.gov.za
www.kznhealth.co.za

Reference : DM/06/06/1477
Enquiries : Miss S. Dube
Telephone : 032-4373500

21ST June 2006

Dr Y. Kista
P.O. Box 4621
Kwadukuza
4450

Re : Cost Analysis of the Antiretroviral Programme

Your letter dated 19th June 2006 has reference.

Permission to conduct research in the Department's service outlets is given by the HOD. Previous experience has taught us that the Ethics Committee should first give its written approval to conduct the research which must then accompany your request to the Department.

You are therefore advised to resubmit your request with the Ethical Committee's approval to this office for onward transmission.

Wishing you all the best in your study.

Yours sincerely

A handwritten signature in black ink, appearing to be 'S. Dube', written over a horizontal line.

Miss S. Dube
District Manager
Ilembe Health District

uMnyango Wezempilo , Departement van Gesondheid

Fighting Disease, Fighting Poverty, Giving Hope