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The Impact of Antiretroviral  
Treatment Scale-up on  
Health Systems in South  
Africa: A Qualitative Study

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The data set analyzed in this report was designed and collected by staff at the Health Economics and HIV/AIDS Research Division (HEARD) at the University of KwaZulu-Natal, led by researcher Gavin George.

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# Abstract

This study investigates the impact of the scale-up of antiretroviral treatment (ART) on the health system in South Africa. It looks at the effects of treatment scale-up on human resources and staff morale, on HIV prevention programmes, and on other health system programmes, looking specifically at the integration of programmes and the use of infrastructure. This study investigates the impact of treatment intervention on the health system as a whole in order to determine the effectiveness of treatment as a policy response.

This research uses data collected in 2006 at two sites in South Africa: the Ilembe district in KwaZulu-Natal province and the Cape Winelands Region in the Western Cape province. Twenty-one health care professionals were interviewed across the two sites in order to determine their perspectives on the impacts of ART scale-up on these aspects of the health care system. Interviews were conducted at hospitals, clinics and on hospice where ART was being administered

ART scale-up, as predicted, was having a mixed impact on the health system as a whole. For the most part, the programmes were not having negative impacts on the rest of the health system in the form of taking infrastructure, funding, or human resources from other departments. The programmes, on separate budgets, were not directly taking resources from other departments, although there were some instances of borrowing space, staff, or equipment when necessary. The treatment programmes were reported to be adding further strain to an already resource-limited health care system, which was most notable in the issues of space and staff shortages. In addition, the treatment programmes did not appear to be bringing in additional funding, staff development, or infrastructure to benefit the health system as a whole.

The major positive impact of the ART rollout on the health system was creating positive staff morale and a sense of hope throughout the health system. The health system was now able to address HIV/AIDS and was able to provide treatment whereas prior to rollout there was little apart from palliative care that could be done for people living with HIV/AIDS. In addition, treatment was adding to prevention efforts by raising awareness in the community about HIV/AIDS and by increasing uptake of voluntary counseling and testing.

There is a need to address the resource limitations in the health care system, most notably human resource shortages. The success of treatment programmes was dependent on having motivated and dedicated staff. It is necessary to further attract and retain health care professionals to the field in order to ensure the sustainable success of ART rollout. Funding also needs to be addressed to ensure that sustainable resources are available to support the ever-growing needs of the treatment programmes.

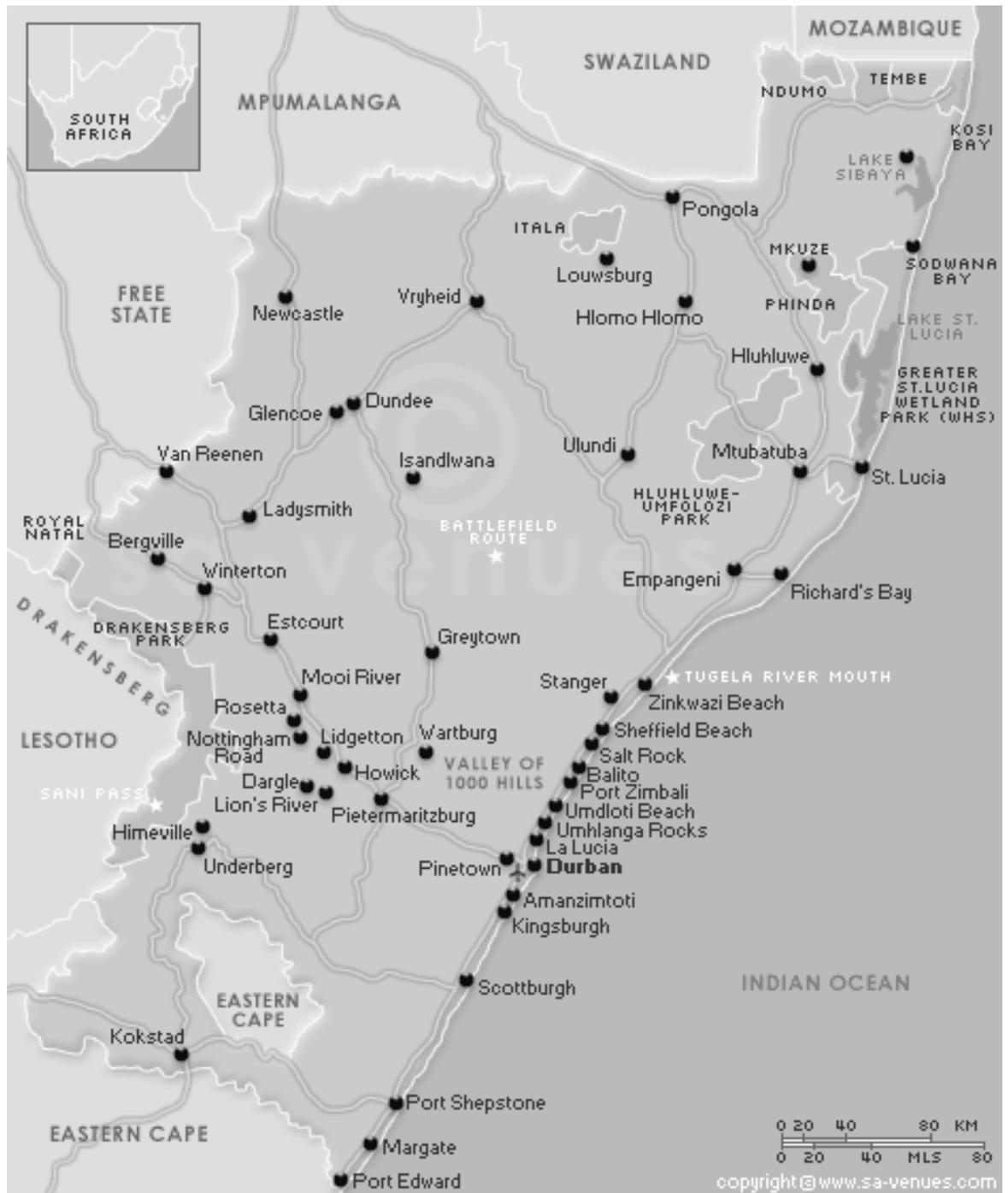
Keywords: Antiretroviral treatment; HIV/AIDS; health care human resources; health systems

## Abbreviations

AIDS	Acquired Immuno Deficiency Syndrome
ANC	African National Congress
ARK	Absolute Return for Kids
ART	Antiretroviral treatment
ARV	Antiretroviral
ASSA	Actuarial Society of South Africa
DALY	Disability-adjusted life-year
DoH	Department of Health
HAART	Highly Active Antiretroviral Treatment
HEARD	Health Economic and HIV/AIDS Research Division
HIV	Human immunodeficiency virus
KZN	KwaZulu-Natal province
MDG	Millennium Development Goal
NACOSA	National AIDS Coordinating Committee of South Africa
NGO	Non-governmental organization
OSD	Occupational Specific Dispensation
PEPFAR	President's Emergency Plan for AIDS Response
PLWHA	People living with HIV/AIDS
PMTCT	Prevention of Mother-to-Child Transmission
STI	Sexually Transmitted Infection
TAC	Treatment Action Campaign
TB	Tuberculosis
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UNAIDS	Joint United Nations Programme on HIV and AIDS
VCT	Voluntary counseling and testing
WC	Western Cape province
WHO	World Health Organization
WTO	World Trade Organization

**Figure 1: Map of KwaZulu-Natal**

Source: [http://www.sa-venues.com/maps/kwazulunatal\\_regional.htm](http://www.sa-venues.com/maps/kwazulunatal_regional.htm)



**Figure 2: Map of Western Cape**

Source: [http://www.sa-venues.com/maps/kwazulunatal\\_regional.htm](http://www.sa-venues.com/maps/kwazulunatal_regional.htm)



# 1 Background and Statement of Research Problem

Over the last two and a half decades, the AIDS epidemic has grown into a global challenge, putting into question the ability of many low- and middle-income countries to successfully continue to develop. One response to this epidemic is treating AIDS with antiretroviral treatment (ART). While ART is not a cure, it can prevent people from becoming ill and postpone the onset of AIDS for several years. The treatment is in the form of pills which must be taken every day for the rest of a person's life. This research paper seeks to further explore the treatment option as a response to HIV/AIDS in light of competing demands for health and other development resource inputs.

Since 2001 the United Nations General Declaration of Commitment on HIV/AIDS, there has been increased emphasis on the scale-up of ART programmes in low- and middle-income countries (UNAIDS 2005). This was followed in 2003 with the launch of the "3 by 5" initiative by the World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS), which called for the provision of treatment to three million people living with HIV/AIDS (PLWHA) in low- and middle- income countries by the end of 2005. Since these declarations and the corresponding increase in focus on the scale-up of ART programmes, there have been notable increases in both funding and in the number of people being treated with ART. Between December 2003 and June 2005, the number of people treated in poorer countries increased from 400,000 to approximately one million (UNAIDS, WHO, 2005). Although one should be wary of these rounded figures, the occurrence of a significant increase is indisputable.

This research evaluates the justifications for investing in ART programmes, looking specifically at the development issues involved with the AIDS epidemic in South Africa and with the impact on development that the scale-up has had and could potentially have in the future. One justification for the scale-up argues that ART programmes have a positive impact on the health system as a whole through developing the capacity of health sector personnel, through benefits to other health services provided, through improvements in technical and physical infrastructure, and through increases in available funding.

However it can also be argued that the ART scale-up is having a negative impact on the wider health care system in that it may detract focus away from personnel, health services, infrastructure, and funding from other areas of the health care system. Some would argue that these resources may be better allocated to address other health care issues or through investment in prevention programmes. This research paper seeks to determine in what ways the scale-up of ART programmes benefits or disadvantages the health system as a whole and how these benefits can be further built upon to create a stronger health care system in South Africa. The overarching aim of the paper is to look at treatment as a policy response to HIV/AIDS and as an attempt to help the country reach its development potential and to best utilize limited health system resources. Although there is an argument that access to treatment should be provided on the basis of human rights, this study does not look at this aspect of the debate. Rather it focuses on the impact of scale-up on different components of the health care system.

Section 2 provides the theoretical framework for the research through the review of literature on both the HIV/AIDS epidemic in South Africa and on the history and current situation of treatment scale-up in the country. It introduces major issues involved with treatment scale-up: human resources, health services, infrastructure, and funding. Section 2 also looks at the treatment of HIV/AIDS as a policy response to the epidemic and the impacts of this response on development both in terms of the health care system and the overall development of the country. Section 3 explains methods used in selecting the sites, conducting the research and analyzing the findings. The results are presented and discussed in section 4. Section 5 draws conclusions on the impact of ART scale-up on the health care system, discusses areas for further research, and presents policy implications to address the drawbacks and benefits of treatment scale-up. In section 6, the current situation at one of the sites, Stanger Hospital, is discussed to address how ART scale-up and its impacts have changed in the two years since the original study was conducted.

## 2 Literature Review and Theoretical Framework

### 2.1 Introduction: HIV/AIDS, the Millennium Development Goals, and treatment as a policy response

The HIV/AIDS epidemic does not stand independently of development, but rather is intricately intertwined with the ability and capacity of countries to reach their development potential. In fact, “the AIDS pandemic in Southern Africa is not only a major public health crisis but also a threat to economic development and social solidarity” (Nattrass 2004, 13).

The eight United Nations Millennium Development Goals (MDGs) are as follows: eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria, and other diseases; ensure environmental sustainability; and develop a global partnership for development ([www.un.org/millenniumgoals/](http://www.un.org/millenniumgoals/)). The goals were set in 2000 with the aim of them being achieved by 2015. They serve as a framework for the United Nations and its member states and institutions to work towards alleviating poverty and addressing health and education issues. Six of the eight MDGs are being undermined by high rates of HIV in low- and middle-income countries: decreasing poverty and hunger; increasing access to education; improving gender equality; decreasing child mortality; improving maternal health; and combating major infectious diseases, including HIV/AIDS (WHO, UNAIDS 2005).

The HIV/AIDS epidemic presents one of the largest barriers to achieving the MDGs because AIDS deprives nations of their young and most productive people, thus leading to increased poverty, a decreased ability of the government to provide and maintain essential services, and negatively impacting productivity and economic growth (Demeny 2001). HIV/AIDS has been “uniquely devastating in terms of increasing poverty, reversing human development achievements, eroding the ability of governments to provide and maintain essential services, reducing labour supply and productivity, and putting a brake on economic growth” (Demeny 2001, 620). In some of the worst affected countries, HIV/AIDS is slowing economic growth by one to two per cent per year, thereby jeopardizing efforts to reduce poverty (Demeny 2001).

The link between poverty and AIDS in Africa has created a development dilemma whereby poverty alleviation is a precondition for combating AIDS in that HIV/AIDS treatment and prevention programmes are only effective when people are well-nourished. However, addressing AIDS is also a precondition for addressing poverty because AIDS undermines economic growth and economic growth is necessary for sustainable poverty alleviation (Nattrass 2004). Thus the two are caught in a cycle whereby neither HIV/AIDS nor poverty can be alleviated without the other also being eradicated. By increasing mortality and morbidity, the epidemic is decreasing living standards. Individuals and households face greater risks due to the risk of

infection and the erosion of social mechanisms (Haacker 2004). Companies must deal with loss of productivity and increases in medical and death-related benefits costs. Furthermore, the economic growth of the country declines as population growth slows and national saving and international investments decline (Haacker 2004).

Successful implementation of HIV/AIDS treatment programmes could accelerate the attainment of the Millennium Development Goals (WHO, UNAIDS 2003). Treatment impacts the MDGs through strengthening health systems by attracting resources; by improving physical infrastructure; by reducing morbidity and mortality among health workers; by improving the procurement and distribution systems; and by promoting community empowerment (WHO, UNAIDS 2003). ART is in the form of pills that can be taken to turn a formerly untreatable, fatal infection into one that is treatable. It postpones the onset of opportunistic infections and allows people living with HIV/AIDS to live longer, healthier, and more productive lives, thereby alleviating the impact of AIDS on economic growth (Nattrass 2004). Furthermore, ART helps to keep families intact and economically stable, allowing for continued economic growth on a national level (Médecins sans Frontières et al 2003). Treatment is important in developing countries because “until the public sector [ART] programmes can reach significant numbers of poor people living with AIDS, the income gulf between the employed and the unemployed will continue to harden into a socio-economic divide bringing life to one side and death to the other” (Nattrass 2004, 13). In this way, the amount of resources that are made available for treatment of HIV/AIDS has a major implication for society in South Africa (Nattrass 2004).

## 2.2 The HIV/AIDS epidemic in South Africa

### 2.2.1 Background and current situation

As in most countries, the HIV/AIDS epidemic emerged in South Africa in the 1980s, but at the time was identified largely in the male homosexual population (Cohen 2000). By the 1990s, however, the epidemic took off on a much larger scale, spreading rapidly among the heterosexual population (Cohen 2000). In 1990, the first antenatal survey revealed a prevalence rate of 0.8 per cent and it is estimated that between 74,000 and 120,000 people in South Africa were HIV positive (Whiteside and Sunter 2000). By 2005, antenatal surveys showed a 30.2 per cent prevalence rate in South Africa (SA DoH 2005). With the increased prevalence rate, there was also a rapid increase in young adult mortality (Bradshaw and Dorrington 2005). While in 1994 there were 15,000 people buried or cremated in Johannesburg, this figure rose to 70,000 within five years (Whiteside and Sunter 2000), and it is widely believed that the HIV/AIDS epidemic was largely to blame. By 2000, AIDS accounted for forty-eight per cent of deaths for people aged fifteen to forty-nine years of age (Bradshaw and Dorrington 2005). It was estimated in 2005 that there were 5.5 million children and adults living with HIV in South Africa (UNAIDS 2006). AIDS is currently the leading cause of death in South Africa (Ntuli and Day 2004). In 2006, the HIV prevalence rate among antenatal clinic attendees was 29.1 per cent (SA DoH 2008).

Several factors play into South Africa having one of the fastest growing HIV prevalence rates in the world. One of the reasons is its highly mobile population and strong transport infrastructure, allowing HIV to spread freely

throughout the country (Whiteside and Sunter 2000). The mobility of society has allowed for increased concurrency in sexual relationships, as shown by the higher prevalence of HIV/AIDS among migrant miners (Whiteside and Sunter 2000).

Apartheid in South Africa created a fertile environment for the spread of HIV because the government's response to the epidemic was caught in the transition between apartheid and democracy (Whiteside and Sunter 2000). Currently, the government continues to take an inconsistent stance on HIV/AIDS. Although South Africa had half of all new HIV infections in Sub-Saharan Africa in 2000, President Thabo Mbeki publicly questioned whether or not HIV in fact causes AIDS (Cohen 2000). In 1999, the government failed to spend nearly half of its allocated AIDS budget (Cohen 2000).

Other factors impacting South Africa's high prevalence rate include economic inequality leading to situations of dependence on sex for survival, the disruption of civil society because of conflict during the last years of Apartheid, and high rates of crime and rape (Whiteside and Sunter 2000). The government's confusing response to HIV/AIDS, the large migrant workforce, the high rates of sexually transmitted infections (STIs), the thriving sex worker industry, and widespread poverty are all working together to create the ideal environment for the rapid spread of HIV in South Africa (Cohen 2000).

In terms of socioeconomic factors, there appears to be a strong link between deprived socioeconomic conditions and an increased risk of infection (Ntuli and Day 2004). This is exemplified by the higher HIV prevalence among people living in urban informal accommodations than among the larger population (Ntuli and Day 2004). However, it is not just the poor who are affected. It is important to note that HIV/AIDS affects skilled and middle-class individuals as well as lower-class and impoverished individuals.

Additionally, there is a link between the high HIV rate in South Africa and other health risks, such as other STIs, tuberculosis (TB), and malnutrition (Bassett 2005). South Africa currently has the highest TB rate in the world, which is related to the HIV/AIDS epidemic in that people living with HIV/AIDS are more likely to become infected with TB than those who are not HIV positive (Bassett 2005). The high TB rate preceded AIDS, which helped fuel the spread of HIV/AIDS in that TB lowers immunity, creating a fertile ground for the spread of AIDS.

### 2.2.2 Overview of the impacts of the epidemic in South Africa

In looking at the impact of ART rollout in South Africa, it is important to first look at the impact that HIV/AIDS has independent of treatment in order to assess the ways that greater access to treatment may help in alleviating these impacts.

Currently, the HIV epidemic presents the greatest obstacle to putting new legislation, policies, and guidelines into practice in South Africa (Ntuli and Day 2004). It is increasing the demand for health care while also decreasing the supply of a given quality of care at a given price (Over 2004). In countries such as South Africa where there is a high prevalence rate of HIV/AIDS

among prime-age adults<sup>1</sup> there is a notable increase in demand for care because people in this age bracket usually do not require a large amount of health care attention (Over 2004).

An example of the increased demand for health care is that forty per cent of hospital beds in many areas of South Africa are occupied by AIDS patients, thus the HIV/AIDS epidemic is significantly impacting the ability of the public health sector to care for patients with other health problems (Bassett, 2005). A study conducted in Hlabisa on the east coast of South Africa between 1991 and 1998 showed that total hospital admissions increased by eighty-one per cent without an accompanying increase in hospital beds, and there was a 360 per cent increase in ward admissions for patients with TB (Bradshaw and Dorrington 2005). The HIV prevalence among patients with TB increased from thirty-five per cent in 1993 to sixty-eight per cent in 1997 (Bradshaw and Dorrington 2005). In 1998, the prevalence of HIV among in-patients in tertiary hospitals in Durban was fifty-four per cent, with eighty-four per cent of these having full-blown AIDS (Bradshaw and Dorrington 2005). As this demonstrates, one of the most significant impacts of the HIV/AIDS epidemic in South Africa has been the increased demand on the health care system.

HIV/AIDS has also had an impact on family structures, whose erosion began with colonization and continued with the migrant labour system and apartheid (Demeny 2001). The family had traditionally been the primary unit of society before these forces changed the face of the family, and yet as a result of the epidemic, this structure is being further eroded (Frohlich 2005). The impact of HIV/AIDS on family structures is in the form of sharp increases in already common occurrences of single parent households, child-headed households, and skipped generation households where the children are raised by grandparents rather than their own parents (Frohlich 2005). While AIDS is not the sole reason for this situation, it is perpetuating the problem.

Furthermore, the HIV/AIDS epidemic has increased and exacerbated inequalities in society, particularly in terms of gender and economic status. The character of the epidemic has become increasingly pauperized, feminized, and juvenilized (Preston-Whyte 2003). For example, the epidemic has increased gender inequalities, in effect reversing gains made in elevating the status of women (Whiteside and Lee 2006). As a result, women face greater impoverishment and greater threat of violence and discrimination (Whiteside and Lee 2006). In terms of the epidemic being “pauperized,” HIV/AIDS is much more likely both to impact those already living in poverty, and then in turn to increase their poverty (Preston-Whyte 2003). HIV/AIDS causes pauperization in that it results in the loss of income when a working family member becomes ill and is accompanied by high health care and funeral costs (Preston-Whyte 2003). Thus, HIV/AIDS acts to push already impoverished families deeper into poverty (Demeny 2001).

AIDS also has the potential of slowing economic growth. Although studies attempting to measure the economic consequence of HIV/AIDS forecast only a one point reduction in the growth rate, these estimates ignore deferred direct costs, such as the impact of AIDS on human capital, and cumulated

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<sup>1</sup> Prime-aged adults are those between the ages of fifteen and forty-nine.

effects, such as the loss of physical capital over time (Couderc and Ventelou 2005). Macroeconomic predictions suggest that the most significant impact of the epidemic on the economy will be human capital loss (Veenstra and Whiteside 2005). This loss takes the form of the death of young adults, weakening mechanisms that generate human capital and investment in people, and by creating a generation with less access to education and knowledge (Veenstra and Whiteside 2005). In addition, HIV/AIDS slows the economy by increasing poverty and unemployment, decreasing national revenue, and discouraging foreign investment (Veenstra and Whiteside 2005). At the household level, there is a close relationship between the HIV/AIDS affectedness of a household and subsequent impoverishment characterized by decreased monthly disposable income (Veenstra and Whiteside 2005).

Because of the latency period between acquiring HIV infection and the development of HIV-related illnesses, the full extent of the impact of the epidemic has not yet been felt in South Africa (Bradshaw and Dorrington 2005). In addition, the benefits of intervention are not seen quickly because of this latency period and because of the slow dynamic of the epidemic. In order for intervention programmes to be effective they must be planned on medium to long term scales and leadership must be dedicated to implementing programmes aimed at stopping HIV transmission (Schwartlander et al 2000). The future course of the pandemic “will depend largely on how the successes of today can fuel immediate action in many more countries and communities” (Schwartlander et al 2000, 67).

## 2.3 AIDS treatment overview

### 2.3.1. International situation

In 2001, the Declaration of Commitment on HIV/AIDS was adopted at a special session of the UN General Assembly. This was a significant event in that “leaders from 189 member states committed to comprehensive, time-bound targets for the delivery of affective HIV prevention, treatment, care and support needed to halt and begin to reverse the global epidemic by 2015” (UNAIDS 2006). The 2006 Report on the Global AIDS Epidemic found, however, that although progress had been made since the 2001 signing of the document, there still remained significant variations in the response to HIV between countries and regions.

In 2003, the WHO and the UN created a strategy aiming to lay out a plan to provide ART to three million PLWHA in poor countries by the end of 2005. The strategy was called “3 by 5” and focused on urgency, equity, and sustainability (WHO, UNAIDS 2003). According to WHO, “this may be the toughest health assignment the world has ever faced, but it is also the most urgent” (WHO, UNAIDS 2003, 2). In 2003 when the 3 by 5 plan was initiated, 100,000 people in Africa were on ART, which is only two per cent of the estimated 4,400,000 who needed<sup>2</sup> coverage (WHO, UNAIDS 2003).

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<sup>2</sup>Whether or not a patient needs treatment is determined by their CD4+ count. A CD4+ count is a blood test used to determine how well the immune system is working in people who are HIV positive. CD4+ cells are also called T-cells and are a type of white blood cell that is important in fighting infections. A low CD4+ count indicates a weakened immune system and an increased likelihood of getting an opportunistic infection. A normal CD4+ count ranges from 600 to 1200 cells per microliter. A CD4+ count below 200 cells per microliter indicates

Initiatives such as the 3 by 5 strategy helped to change the treatment debate from whether or not ART could be provided in resource-limited countries, to when and how programmes could effectively be implemented (WHO, UNAIDS 2005). Unfortunately, the 3 by 5 goal of three million people on treatment by 2005 was not realized. As of June 2005, only 1.6 million people in low- and middle-income countries were receiving treatment (WHO, UNAIDS 2005).

In 2005, the UN World Summit, the G8 countries, and the African Union all endorsed the goal of achieving universal access, showing a significant increase in leadership and political action on AIDS at a global level (UNAIDS 2006). Consequently, treatment access has expanded significantly in recent years. Ninety per cent of UN member countries now have national AIDS plans, but unfortunately implementation still remains inconsistent (UNAIDS 2006).

### 2.3.2 Treatment policy history in South Africa

One of the reasons for the rapid spread of HIV in South Africa during the 1980s and 1990s was the lack of government response (Cohen 2000). In order to control the epidemic, a strong early response was needed, but in South Africa the epidemic emerged at the same time as the end of Apartheid, and the South African government was focused on the shift to democracy rather than on the growing epidemic (Cohen 2000). The old apartheid regime failed to act effectively (Nattrass 2004) and the new government was still learning how to govern and had many issues which seemed far more pressing (Cohen 2000). As a result, the HIV/AIDS epidemic has grown rapidly into arguably the most pressing issue that South Africa currently faces.

The first state response to the epidemic came in 1992 with the National AIDS Coordinating Committee of South Africa (NACOSA), which developed a plan that focused on preventing HIV transmission; alleviating the personal and social impact of HIV infection; and mobilizing and unifying provincial, international, and local resources (SA DoH 2000). The plan set forth by the government was one in which the response to the epidemic was managed by different structures at all levels of the government, with each government ministry having a team whose responsibility was to plan, budget, implement, and monitor HIV/AIDS interventions (SA DoH 2000). In this way, the government made a positive step towards attempting to create a holistic response to the HIV/AIDS epidemic. However, the transitional period of the early 1990s proved to be non-conducive to addressing AIDS (Nattrass 2004). In 1994, AIDS shifted from being understood as a social problem dealt with by several government sectors to being dealt with by the Department of Health alone (Nattrass 2004).

In 1998, the Treatment Action Campaign (TAC) was formed by AIDS activists to campaign for affordable treatment for all PLWHA (Nattrass 2004). In 2000, the South African Department of Health published a National Strategic Plan to direct the country's response to the epidemic (SA DoH 2000). The priority areas of the plan were prevention; treatment, care and support; legal and human rights; and monitoring, evaluation and research (SA DoH 2000). According to the Department of Health, the plan is one of the largest and

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AIDS and a high risk for opportunistic infections. It is also the point at which ART is usually recommended. (information collected from [www.webmd.com](http://www.webmd.com))

most comprehensive programmes addressing the epidemic in the world (SA DoH 2005).

However, the response was not comprehensive enough nor was it implemented quick enough. In addition, President Thabo Mbeki began publicly questioning the toxicity of Zidovudine (AZT), a common drug used in treating AIDS. Mbeki, along with health minister Manto Tshabalala-Msimang, argued that scientific opinion and treatment were not the only approach to dealing with AIDS, leading to a period of AIDS policy characterized by the marginalization of scientific information and distrust of western pharmaceutical companies (Nattrass 2004). The government's stance on ART has been complex and not proactive. For several years, the government refused to even contemplate ART, citing the potential toxicity of the drugs and lack of affordability and sustainability as the reasons (Martison et al 2003). However in 2002, the TAC won a constitutional court case which forced the government to implement a national prevention of mother-to-child transmission (PMTCT) programme<sup>3</sup>, but the rollout was slow and uneven (Nattrass 2004). The TAC then turned to the issue of providing ART to PLWHA through civil disobedience and the threat of legal action (Nattrass 2004).

As a result, the South African government approved "The Operational Plan for Comprehensive HIV and AIDS Care, Management, and Treatment for South Africa" in 2003 which provided for the distribution of ART through the public sector (WHO 2005). In August 2003, the cabinet approved the plan and the Department of Health began accrediting health centres for ART delivery. The goal of the plan was to provide ART access to more than 1.4 million people by 2008 (WHO 2005). ART rollout has proceeded much more slowly than expected (Nattrass 2006). Needs that must be addressed in order to work towards the goals set forth by the plan include expanding voluntary counseling and testing (VCT) for HIV, training and building the capacity of human resources, strengthening laboratory services, building the capacity of non-governmental organizations, and further developing the infrastructure for delivery in primary care services (WHO 2005). These needs will be explained in further detail through this research and will be discussed extensively in the results section.

Implementation began in the first quarter of 2004 (SA DoH 2004). According to a WHO estimate, at the end of 2004 837,000 people in the country required treatment (WHO 2005). The ART target declared by the country was 190,000 by the end of 2005, but as of 2005 only 104,600 were in fact receiving treatment and only 44,600 of these were receiving it through the public sector (WHO 2005). According to the Department of Health, the challenges restricting the scale-up included ensuring that accredited service points operate five days a week, correcting human resource imbalances, and providing sufficient space for counseling and consultations (SA DoH 2004). Currently, treatment access remains poor in comparison with other countries and with the government's operational plan. As a result, rollout continues to be uneven (Nattrass 2006).

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<sup>3</sup> Mother-to-child transmission refers to an HIV positive mother passing the virus on to her baby, which can occur during pregnancy, labour and delivery, or breast-feeding. PMTCT involves the use of ART to prevent this transmission.

Treatment coverage as of June 2006 was approximately 250,000, about twenty-five per cent of estimated need (Abdullah 2006). By the end of 2007, with 372,000 people receiving treatment South Africa had the largest ART enrollment in the world. At that time, forty-two per cent of people needing treatment were receiving it (SA DoH 2008). Seventy-eight per cent of these were receiving treatment through the public sector (SA DoH 2008).

Failures in the rollout include insufficient mobilization of funds made available by the national treasury and failure to invest sufficiently in human resources, especially nurses (Nattrass 2006). Although South Africa has one of the largest ART programmes in the world, considering the income per capita and institutional and epidemiological characteristics, ART coverage could in fact be much greater (Nattrass 2006).

### 2.3.3 The cost of ART

One of the causes of the government's hesitancy to accept treatment as a policy response was the high cost of ART. When the epidemic first emerged, ART was very costly, due in part to the Trade-Related aspects of Intellectual Property Rights (TRIPS) which was passed in 1995. The act required members of the World Trade Organization (WTO) to follow defined standards of intellectual property protection which provided inventors entitlement to a certain amount of monopoly on their patented inventions (Barton 2004). Pharmaceutical products also fell under this agreement, and this prevented the creation of cheaper drugs for developing countries.

Opponents to TRIPS argue that access to pharmaceutical products is often a matter of life or death, and thus should be excluded from the agreement (Barton 2004). In April 2001, there was a court case in South Africa over a South African law to import generic drugs, which the international pharmaceutical industry saw as an infringement on patent law (Barton 2004). The pharmaceutical industry withdrew its case against the government due to negative publicity. This dispute, and another similar one in Brazil, led to international agreements that prices should be near production cost in developing countries, and that the cost of drugs in developed countries would make up for the loss of profit (Barton 2004). The Doha Declaration of 2001 was a WTO Ministerial Declaration stating that public health crises, such as the HIV/AIDS epidemic, should be considered an exception to the requirement of the TRIPS agreement (Barton 2004).

Whereas prior to 2001, the annual cost of triple therapy ART per patient in a poor country was approximately US\$10,000<sup>4</sup> to US\$25,000, the Doha Declaration and the introduction of generic drugs in developing countries made drugs much more affordable (Over 2004). As of 2004, ART cost approximately US\$300 per patient per year (Barton 2004). Two approaches that have resulted in this lower price of ART were pressure to provide ART at cost price in developing countries and the availability of generic drugs (Barton 2004).

Due to ongoing advocacy and lobbying, ART prices are now low enough to make scale-up programmes in developing countries more feasible and sustainable (Stewart et al 2004). In 2003, the Médecins sans Frontières

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<sup>4</sup> The exchange rate as of 23 April 2008 was US\$1.00= ZAR7.65

programme in Khayelitsha reported using generic drugs that cost only US\$1.08 per person per day, showing that by using generic drugs and by reducing the price of laboratory tests, the annual cost per person is more manageable (Médecins sans Frontières et al 2003). The cost of generic ART in 2005 was as low as US\$156 (approximately ZAR1193 at April 2008 exchange rates) per person annually (WHO 2005). To compare this to health care expenditure per capita in South Africa, in 2005/2006, the Department of Health spent ZAR1175 on health per person per year (Health Systems Trust 2008). For the public sector, this was calculated for the population without medical aid coverage, thus the portion of the population that was dependent on public sector health care (Health Systems Trust 2008). Although ART cost was greatly reduced, it was still a significant portion of all health sector costs and was equivalent to the annual expenditure per capita on public health care in 2005/2006.

The ART rollout in South Africa is intended to be funded fully by the government, which includes channeling international and non-governmental funding through the government into the programme (DoH 2003). This includes drug procurement and distribution, laboratory monitoring, nutritional support, training, additional personnel, and infrastructure (DoH 2003). Whether or not the funding available is sufficient to address all of these needs and to provide treatment for the PLWHA who need it is questionable.

#### 2.3.4. Other potential policy responses: the question of prevention versus treatment

There are several potential policy responses to the HIV/AIDS epidemic. The policy responses that focus on prevention include mass media, education, and workplace intervention (Haacker 2004). Other prevention interventions include condom distribution, voluntary counseling and testing (VCT), sexually transmitted infection (STI) treatment and surveillance, prevention of mother-to-child transmission (PMTCT), and community-based support programmes (Schneider et al). The policy response focusing on treatment and care includes the expansion of public health services (Haacker 2004) and the roll out of ART as a part of a comprehensive HIV/AIDS care management programme (Schneider et al). Traditionally, there has been a focus on prevention rather than treatment.

There are several important arguments against the shift of focus to treatment interventions. For example, the costs associated with treatment include drugs, human resources, and infrastructure such as health facilities. One problem with treatment scale-up is the strain that it puts on already overburdened health care systems. Health systems may not be equipped to cope with the large sums of money that are filtered through for treatment programmes or for the administrative and management problems linked with large-scale interventions (Over 2004). In addition, health care personnel are already over-stretched by the magnitude of health objectives that need to be addressed. A treatment programme thus diverts from the time and energy that they can spend on other objectives (Over 2004).

There has been, however, a growing recognition of the benefits involved with treatment, which include a delay in the costs of treating opportunistic infections, increased productive capacity of the economy, favourable long-

term macroeconomic benefits, and increased individual welfare (Haacker 2004). The benefits will be furthered discussed in the following section.

Prevention and treatment are very closely connected. Prevention makes treatment feasible by keeping the numbers of people infected lower, and treatment helps prevention by encouraging VCT uptake (Haacker 2004). Therefore, successful prevention programmes are a prerequisite to the effective expansion of access to treatment (Haacker 2004).

Those who promote focus on prevention over treatment would argue that although treatment is able to mitigate the negative effects of the epidemic, prevention is able to avoid them entirely (Haacker 2004). Furthermore, Haacker argues that the estimated costs of prevention measures per HIV infection prevented are lower than costs of care and treatment per infection. In other words, money spent on prevention is arguably more effective than is money spent on treatment (Haacker 2004). A study looking at over sixty reports that measured the cost effectiveness of HIV/AIDS interventions found that a case of HIV can be prevented for US\$11 and a disability-adjusted life-year (DALY) can be gained for US\$1 by implementing blood safety measures and targeted condom distribution along with treatment of STIs. Furthermore, PMTCT, VCT, and TB treatment costs under US\$75 per DALY gained. ART for adults, however, was found to cost several thousand dollars per infection prevented or several hundred dollars per DALY gained (Creese et al, 2003).

This would indicate that treatment may not be the most cost-effective response to HIV/AIDS. However it does not take into account the impact of treatment in encouraging prevention efforts or on the impact on the health system of positive staff morale and dedication created from the ability to provide treatment. In addition, ART availability may result in cost-savings in other aspects of the health sector by decreasing AIDS cases due to increased testing and lower levels of infectiousness (Nattrass 2008). It may also decrease the occurrences of opportunistic-infections (Nattrass 2008). All of these benefits of ART rollout would result in cost-savings from fewer hospital admissions (Nattrass and Geffen 2005). One study in Cape Town found that the median progression time was significantly higher in patients receiving ART and that patients on ART had significantly fewer inpatient days and that the per patient cost for these visits was significantly lower (Badri, et al 2006). Badri et al's study found that there was a cost-saving based on the incremental cost per life year gained for people on ART versus those not on it (Badri et al 2006). Taking these cost-savings into consideration as well as the recent decline in ART prices, an integrated prevention and treatment intervention is more cost-effective than a prevention-only intervention (Nattrass and Geffen 2005).

Although there are concerns that treatment programmes divert resources and attention away from prevention, studies show that treatment scale-up has actually increased opportunities to undertake effective prevention (WHO, UNAIDS 2005). For example, more people will want to know their status because of the availability of treatment and the fact that AIDS is no longer a death sentence. In this way, the availability of ART has led to an increased demand for VCT (WHO, UNAIDS 2005). Between 2001 and 2006, VCT uptake quadrupled in more than seventy of the countries surveyed (UNAIDS 2006). This can result in decreased denial, stigma, and discrimination, which is significant not only in terms of prevention but also because stigma

and the fear of discrimination are barriers deterring people from seeking treatment (WHO 2004). According to WHO, “rolling out effective HIV/AIDS treatment is the single activity that can most effectively energize and accelerate the uptake and impact of prevention (WHO, UNAIDS 2003, 6).

Not only does the availability of treatment increase uptake of VCT, but it also has an impact on the infectiousness of individuals by decreasing their viral loads, thereby decreasing the incidence of transmission, as mentioned earlier (Martison et al 2003). This will result in long-term cost savings as fewer people will become infected and need treatment in the future (Nattrass 2008). According to the ASSA2000<sup>5</sup> Interventions Model, more than one million new HIV infections in South Africa could be prevented through the impact of decreased viral load and the increased uptake of VCT over a fourteen year period if a full-scale national treatment programme was implemented (Nattrass 2004).

The best response to HIV/AIDS is not to focus just on prevention or on treatment, but rather to create a plan that integrates the two. While treatment makes prevention more effective by decreasing stigma and discrimination, prevention makes treatment more affordable because ideally fewer people will become infected through successful prevention (WHO, UNAIDS 2005). In addition, treatment resources have the potential to improve infrastructure for prevention and other health services and can improve the health status of health care workers who are infected with HIV (Lampthey and Wilson 2005). Therefore, it is most beneficial to scale up treatment and prevention programmes simultaneously by moving from a comparison of the two to an analysis of how they can be integrated and strengthened in a way that they are able to reinforce one another (Lampthey and Wilson 2005). The results and discussion section of this study will look further at the relationship between treatment and prevention and whether or not treatment has been found to be beneficial to prevention efforts in the sites visited.

### 2.3.5 Benefits of treatment

There are several benefits related to increased access to treatment, the most notable being that it turns a formerly fatal infection into a treatable, chronic disease. Where drugs are widely available, ART has had a major impact on HIV/AIDS related deaths and illnesses by suppressing the viral load, preventing the development of opportunistic infections, and restoring and/or preserving the immune function (Martison et al 2003). These impacts will alleviate the burden on the health system, especially when considering the decrease in hospital admissions for HIV/AIDS related illnesses (Martison et al 2003). In addition, access to ART allows infected parents to live long enough to care for children until they reach adulthood, thereby alleviating the impact of HIV/AIDS on orphan-hood (Martison et al 2003).

In the United States after ART was introduced in 1996, there was an immediate decrease in deaths due to AIDS. Pilot studies in resource-limited settings, including South Africa, have found that the same positive outcomes for patients could be achieved as those achieved in wealthier countries

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<sup>5</sup> The Actuarial Society of South Africa uses all available data to make demographic projections and mathematical models of the HIV epidemic.

(Attawell and Mundy 2003; Stewart et al 2004). For example, in the Khayelitsha ART programme, findings showed that after one year on treatment, patients experienced a mean weight gain of ten kilograms, there was a decrease of TB incidence of two-thirds, and the survival rate eighteen months into treatment was eighty-four per cent (Médecins sans Frontières et al 2003). In addition, all of the deaths reported were due not to treatment complications but to AIDS, and three-fourths of the deaths occurred when patients had been on treatment for less than three months, indicating that treatment began at a late stage of AIDS (Médecins sans Frontières et al 2003).

ART also delays the cost of treatment for opportunistic infections. It is delayed, not avoided, because HIV positive patients will eventually have to deal with opportunistic infections, but the availability of treatment postpones this occurrence (Haacker 2004). ART also slows the incidence of new infections by decreasing the infectiousness of PLWHA who receive treatment because their viral loads are suppressed and by encouraging people to seek testing and counseling (Nattrass 2008). In addition, treatment increases the productive capacity of the economy by decreasing mortality and thereby mitigating the loss of skills (Haacker 2004). It also increases fiscal revenue and individual welfare, and creates favorable indirect and long term macroeconomic effects by avoiding the accumulated loss of human capital (Haacker 2004). Ultimately, the indirect fiscal gains from increasing access to treatment can offset a significant portion of the costs related to treatment programmes (Haacker 2004).

AIDS has provided the opportunity to show that it is possible to deliver complex treatment in resource-limited settings (UNAIDS 2006). Providing access to ART can be a catalyst to improving all health services by creating a model for health programmes in resource-limited settings (Martison et al 2003). The scale-up has the potential to strengthen health systems for non-HIV related conditions if the investment in the scale-up is used to address human resources, infrastructure, and logistical weaknesses (Attawell and Mundy 2003). Whether or not this benefit is being realized in practice is explored by this study.

It is important to note that there is risk of an “HIV treatment optimism effect,” whereby there is an increase in risky sexual behavior because of the increased health of PLWHA and the knowledge that HIV/AIDS is no longer a death sentence (Martison et al 2003). Research has shown that this is not, however, the case and that people on ART are in fact significantly less likely to engage in unprotected sex (Nattrass 2008).

## 2.4 The challenges of treatment scale-up

As stated by WHO (2005), the major needs that must be addressed in order to expand treatment programmes include building the capacity of human resources, expanding health services such as VCT, strengthening infrastructure such as laboratory facilities, and securing sustainable funding. These all have impacts on the health system as a whole in that if they are not addressed, ART rollout will have a negative impact by being a drain on the health system’s already limited resources. If they are addressed, however, these aspects have the potential to strengthen the entire health system. These needs will now be explored in further detail.

### 2.4.1 Human resources

Human resources will be emphasized more than the other topics in this study because it is the most significant in terms of the success of ART programmes. Without dedicated and motivated staff, a treatment programme cannot be successfully implemented, regardless of the other resources available. This will be discussed in great detail in the results and discussion section of this paper.

Human capacity is important because “human resources determine the success or failure of health sector transformation” (Lehman and Sanders 2003, 120). Globally, WHO estimates that there are over four million health workers needed to fill the international shortages, not looking specifically at the need generated for ART scale-up (WHO 2006, A). According to the WHO 3 by 5 plan, 20,000 to 100,000 physicians, nurses, pharmacists, and other core clinical staff are needed to meet the 3 by 5 goals. If this estimate included the number of counselors and administrators needed it would be substantially higher (Hirschhorn et al 2006).

In South Africa, as early as the 1994-1995 National AIDS Plan, the Department of Health already recognized that human resources were vital to the success of the response to the epidemic, stating that the constraint on action was not funding, but rather capacity (SA DoH 2000). According to the Department of Health, the availability of trained personnel is of critical importance to the implementation of treatment programmes (SA DoH 2004). WHO also recognizes that capable, motivated, and supported health workers are the key to achieving national and global health goals, and that health workers “function as the gatekeepers and navigators for the effective, or wasteful, application of all other resources such as drugs, vaccines, and supplies” (WHO 2006, B, 4).

Human resources are a major limiting factor in the effective implementation of any policy response addressing the South African HIV/AIDS epidemic. The ability of the health sector to cope with HIV/AIDS and the ability to implement a successful treatment programme is determined by the quality of existing health services, which in turn are dependent on the quantity and quality of health personnel available (Haacker 2004). Ultimately, neither treatment programmes nor prevention programmes can be completely successful without an adequate increase in human resources (Haacker 2004).

Even before the implementation of treatment programmes, AIDS had a significant impact on health service providers. The burden includes emotional stress when seeing patients die with no available treatment and the impact of health workers themselves becoming infected (WHO 2004). A significant challenge faced by nurses as a result of the epidemic is increased workloads because of a higher number of patients with AIDS-related diseases, because of more time-consuming treatment needed for many of these patients, and because of the lack of support available to them (Hall 2004). Also, the secrecy surrounding AIDS leads to decreased productivity, difficult ethical issues, and overall hinders the ability of health workers to help encourage the prevention of AIDS (Hall 2004). In addition, HIV/AIDS is disproportionately present in under-serviced areas where there are more severe staffing shortages (Lehman and Sanders 2003). As a result, health

workers often face “daunting working environments—poverty-level wages, unsupportive management, insufficient social recognition, and weak career development” (WHO 2006, B, 6).

The impact of AIDS on the health sector also includes an increased demand for services and a decreased supply of care at the given price because of the increased costs associated with treatment and the increased attrition and absenteeism of health care workers (Over 2004). Treatment has the potential to mitigate the second of these two impacts in that health care workers living with HIV can also receive treatment and thereby remain active in the workforce. In addition, with the expansion of ART access, health care personnel will have an increased willingness to treat patients with AIDS because there is less risk involved as prophylactic<sup>6</sup> ART is now available (Over 2004). There could also potentially be increased demand for training and increased wages and prestige of physicians because of increased medical spending (Over 2004).

As the impacts indicate, the success of ART scale-up is heavily dependent on ensuring that there are adequate numbers of health care personnel available. According to WHO, the success of any response to the HIV/AIDS epidemic is dependent on health workers (WHO 2006, A). There is a direct correlation between the number of health service providers and the rates of access to ART. For example, in Lesotho there are 20.9 health workers per 1000 people in need of treatment and the ART coverage rate is fourteen per cent. In Uganda, on the other hand, the number of health workers per 1000 people in need of treatment is 145.5 and the ART coverage rate is fifty-one per cent (WHO 2006, A). While this finding may be the result of Lesotho having a weaker health care system than Uganda overall, it may also point to the importance of human resources in effectively scaling up access to ART.

In addition to the mere presence of health workers, the expertise and experience of health workers leads to more effective ART rollout, thus emphasizing the importance of providing appropriate training for health workers in the delivery of ART (Martison et al 2003). Health workers are often not sufficiently trained in counseling or clinical aspects of HIV/AIDS and management (Lehman and Sanders 2003). In addition, health sector reform requires appropriate training and development of new capabilities among the workforce, which research suggests is not necessarily happening in relationship with ART scale-up in South Africa (Franco et al 2002).

One response to the staffing shortage is to shift from a physician-centred model to one in which nurses are trained to administer ART (WHO, UNAIDS 2005). In this way, health systems could make better use of available human resources by shifting appropriate tasks to less specialized workers, for instance training nurses to dispense ART rather than relying on doctors and training community workers to deliver HIV services rather than relying on nurses (WHO 2006, A).

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<sup>6</sup> Prophylactic ART can be used to prevent the transmission of HIV after exposure has already occurred.

### 2.4.2 Impact on other health services

The impact of ART scale-up on non-HIV and HIV related health services is also examined by this study. The AIDS epidemic in and of itself has created an increased strain on health services even before the implementation of treatment programmes. There has been an increased demand for HIV/AIDS related admissions, and patients with HIV/AIDS usually spend longer in the hospital than patients who are HIV negative (WHO 2004). This study looks at how treatment programmes either alleviate or further the burden placed on the health services within the system. It focuses particularly on the integration of ART with other services and on the role of treatment as a prevention intervention.

An obstacle to scaling up is the need to standardize and streamline health care delivery, and integrate HIV treatment and prevention with other health care services, such as reproductive health and other disease control programmes at different levels of the health system (WHO, UNAIDS 2005). The integration of HIV care with other services would greatly help in expanding the scale-up of treatment programmes (UNAIDS 2006) and would help ensure their sustainability (WHO 2006, A). The integration of programmes can also benefit and strengthen other services. In this way, interventions that work within an HIV framework to protect and strengthen the health workforce will also end up providing opportunities for strengthening health services as a whole (WHO 2006, A).

### 2.4.3 Infrastructure

Another theme in this paper is the relationship of infrastructure with the ART programme and with the health system as a whole. In this study, the infrastructure referred to is equipment, laboratory facilities, and physical space. It is important to explore how infrastructure is being used in relation to ART programmes because if it is reallocated from other aspects of the health care system, this would be a detriment to the system as a whole. However, it would be beneficial to the overall health system if the introduction of ART brings in new or improved infrastructure.

ART scale-up can have a very positive impact through strengthening the infrastructure available and freeing up infrastructure for non-AIDS related use. This is notable because research shows that the HIV/AIDS epidemic is significantly increasing demands on an already constrained health system (Attawell and Mundy 2003). For example, in Brazil, it was found that an estimated 358,000 hospital admissions were avoided between 1996 and 2002 because of access to ART treatment, which made more hospital infrastructure available for non-AIDS related needs (Attawell and Mundy 2003).

The challenge of scale-up in relation to infrastructure is that it requires more resources to expand the capacity of the health system, which may lead to re-allocating resources from non-AIDS related use (Attawell and Mundy 2003)

### 2.4.4 Funding

This study explores whether or not funding was taken from other budgets within the health care system to scale-up ART. In addition, it looks at

whether or not new funding is entering the system as a whole because of increased focus on HIV/AIDS. Thus it looks at how the funding of ART rollout impacts funding throughout the health system. This additionally impacts the ability of the health system to address human resource and infrastructure shortages.

In recent years funding for HIV/AIDS programmes has increased significantly, with twenty per cent of all international financing for HIV/AIDS currently being channeled through the Global Fund to Fight AIDS, Tuberculosis, and Malaria (UNAIDS 2006). In addition, the World Bank had committed a cumulative total of US\$2.5 billion as of the end of 2005 and the President's Emergency Plan for AIDS Response (PEPFAR) disbursed US\$570.2 million in 2004, with an additional US\$915.6 million committed for 2005 (UNAIDS 2006). In 2001 global funding for HIV/AIDS was US\$2.1 billion, and by 2004 this had increased to US\$6.1 billion (Lamptey and Wilson 2005). Unfortunately even with these increases in funding, there was still a gap of an estimated US\$18.1 billion for 2007 (UNAIDS 2006). Another concern involved with funding is the question of sustainability (WHO, UNAIDS 2005) and the question of donor dependency (WHO 2006, A).

In terms of internal funding, South Africa has committed US\$1 billion between 2005 and 2008 to scaling up ART, which is the largest budget allocation for HIV/AIDS by any low- or middle-income country (WHO, UNAIDS 2005). In 2006/2007 4.6 per cent of total public sector health spending in South Africa went to ART scale-up (Abdullah 2006). In addition, provinces contributed significantly to HIV spending (Abdullah 2006). There is a fear, however, that because fifty-four per cent of the total number of public sector ART patients are funded by external donors, pressure has been taken off of the Department of Health to use available domestic resources (Nattrass 2006). Funding has also been impacted by the recent decreased costs of ART and increased availability of generics, as discussed earlier in the section on the cost of ART (WHO, UNAIDS 2003).

## 2.5 Research Questions

This research paper seeks to determine the ways in which the scale-up of ART programmes both benefits and disadvantages the health system as a whole, looking specifically at human resources, infrastructure, funding, and other health services. The overarching aim of the paper is to look at treatment as a policy response to HIV/AIDS and as an attempt to help the country reach its development potential and to best utilize limited health system resources. The specific research questions are as follows:

1. How is the scale-up of ART programmes impacting human resources?
  - i. What is the impact on the health system as a whole, especially in light of the human resource shortages being experienced throughout the system?
  - ii. What is the impact for individuals working in the health system, in terms of morale, workload, motivation, and training?

- iii. How does staff motivation impact not only the treatment programme, but also the entire health system?
2. What is the relationship between treatment programmes and HIV prevention interventions?
  - i. In what ways is the treatment programme also a prevention programme, especially in terms of VCT uptake, stigma, and behaviour change?
  - ii. How is the treatment programme funded and is this impacting on other HIV interventions? Is the funding sustainable in the long-run?
3. What is the impact of treatment scale-up on all programmes within the health care system?
  - i. To what extent are treatment programmes integrated with other programmes and how successful has this been?
  - ii. How is treatment scale-up impacting the infrastructure in the health system, especially space, equipment, and laboratory facilities?

## 3 Methodology and Description of Sites

The data used in this report was collected by the Health Economic and HIV/AIDS Research Division (HEARD) of the University of KwaZulu-Natal in 2006 as part of a qualitative and quantitative study of the impacts of ART rollout on health services. For my study, I used the qualitative data from interviews done by HEARD which had not yet been analyzed. I supplemented these interviews done in 2006 with a site visit done in 2008.

### 3.1 Selection of sites and participants

The HEARD study was conducted in two sites: the Ilembe district (about fifty kilometres from Durban) in KwaZulu-Natal province and the Cape Winelands Region (about seventy kilometres from Cape Town) in the Western Cape province (refer to the maps at the beginning of this report). The two sites were selected to reflect the differences in the rollout of ART in South Africa. The differences can be seen in Table 1.

As the table shows, the programme in KwaZulu-Natal was more government-driven and in an earlier phase whereas that in Western Cape was more decentralized and advanced. In KwaZulu-Natal, the ART programme began in the hospital, and then went out into the step-down clinics. In Western Cape, however, the programme was more clinic-based and was a separate entity to the hospital. The prevalence rate in KwaZulu-Natal was higher than that in Western Cape and the health system was more fragile, which signifies that KwaZulu-Natal most likely faced greater challenges in ART rollout than Western Cape did. The ART coverage rate was significantly lower in KwaZulu-Natal than in Western Cape. Whereas KwaZulu-Natal had 527 people on ART in July 2004 and 6086 in January 2005, the Western Cape had 3843 in July 2004 and 6660 in January 2005 (SA DoH 2005). Although both provinces had nearly equal numbers of people on treatment in January 2005, percentage coverage per province was twenty per cent in KwaZulu-Natal and fifty-five per cent in the Western Cape because of the considerably higher need in KwaZulu-Natal (Abdullah 2006). In addition, the Western Cape had the highest number of doctors per 100,000 uninsured persons, the second highest GDP per capita, and the highest public sector health expenditure per capita in the country. Therefore, it was in a better position to achieve high ART coverage (Natrass 2006).

In the Ilembe district, ART rollout began in 2005, with Stanger Hospital as the designated key site for rollout with step-down clinics at Kwadukuza local authority clinic and the Sundumbili Community Health Centre which began accepting patients in August 2005. In February 2005, Maphumulo Hospital in Ilembe also began ART rollout in response to community pressure.

**Table 1: Profile of Study Sites**

<b>Indicator</b>	<b>Ilembe District</b>	<b>Cape Winelands Region</b>
Province	KwaZulu-Natal	Western Cape
Population	562,700	500,000
Provincial HIV Prevalence (2005)	39.1%	15.7%
ART Rollout	Started September 2005	Started February 2004
ART Coverage	20%	55%
Delivery Model	Public sector-driven, hospital-based, physician-led	Public-private partnerships with significant NGO presence, primary care-based
Description of Treatment Sites	Regional hospital with step down clinics	Primary care clinics
Facilities visited	Stanger Hospital; Sundumbili Community Health Centre; Kwadukuza Local Authority Clinic; Maphumulo Hospital	Malmesbury Hospital; Idas Valley Clinic at Stellenbosch Hospital; TC Newman Hospital; Paarl Hospital; Paarl Hospice
Health System	Relatively fragile	Relatively Strong

Source: Tobi et al, unpublished, p.7

Implementation began in the Western Cape well before any other province. Since 1999, Médecins sans Frontières has been working in Khayelitsha Township implementing South Africa's first PMTCT programme, and then in 2001 offering ART (Médecins sans Frontières et al 2003). In 2001, Paarl Hospital also began the use of nevirapine in a PMTCT programme. In February 2004, Paarl began an ART programme. Rollout began at Stellenbosch in May 2004 and at Malmesbury in September. These three sites were selected by the researchers because they have independent ART clinics and were well-established as of 2006. In addition, the researchers interviewed a nurse at a hospice in the area.

These two provinces were selected because of these significant differences in HIV prevalence, health system stability, delivery mode, and ART coverage. They were able to show the varying degrees and methods of coverage in South Africa.

While it appears that this could be a comparative study of the differences between these two sites, that is not the focus of this report. For the most part, the two provinces faced similar challenges and had similar successes. Where there were notable differences in the findings between the two sites, it is noted in the results and discussion section as well as in the conclusion.

The data collection for this report took place between January and April 2006 by researchers from HEARD. The qualitative data analyzed in this study is in the form of semi-structured interviews with twenty-one hospital and primary care workers, ten from Ilembe and eleven from the Cape Winelands. The interviews were with purposefully selected key informants from the hospitals and primary care facilities mentioned above. The informants included hospital managers, professional nurses, medical officers, and doctors. The interview guidelines used can be found in the appendices. All interviews were conducted in English and lasted between approximately forty minutes and an hour. The researchers explained the objectives of the study to the interviewees and the interviewees signed informed consent forms, which can also be found in the appendices. Researchers were aware that respondents might hope that additional funding would be forthcoming as a result of the research, so efforts were made to ensure that respondents understood that no additional funding would be made available based on their responses. No participant names are used in this report. They are referred to by their position at the hospital or clinic at which they worked. Confidentiality was assured and included in the informational sheet that participants received, which is located in the appendices. Ethical clearance for this study was received from the University of KwaZulu-Natal and from the provincial departments of health.

### 3.2 Other method used

The HEARD study looks only at the situation in 2006, shortly following the rollout of ART. Because I was not involved in these initial interviews, I visited Stanger Hospital in April 2008 to do a follow-up. I spoke with five health care personnel: the hospital manager, the PMTCT coordinator, and three ART nurses, to get an overview of what changes had occurred in the two years since the original study was conducted. The findings of this visit can be found in Section 6. This is included in a postscript as it is not a part of the main findings of the study. It was a means of seeing if there had been dramatic changes and how the programmes had developed in the time that passed. In addition, as a researcher I felt it was important to the integrity of this report that I visit at least one of the sites so that I have a better idea of the ART programme there and so that I have some first-hand experience.

### 3.3 Data analysis

Interviews had been transcribed by HEARD staff and I performed a content analysis of the twenty-one transcribed interviews. Themes were generated from the literature review, theoretical framework, and research questions for this study. I then used manual coding according to the generated themes, looking as well for other themes that emerged from the data. These generated themes were expanded upon and analyzed in the results and discussion section.

In analyzing the data, I made every attempt to interpret the data fairly and without any bias. In addition, I looked for leading questions on the part of the researchers that may have influenced the interviewees' responses. I found little evidence of this in that almost all of the questions were open-ended and free of bias. While it is impossible to ensure that my interpretation of the data is exactly as the respondents intended answers to be interpreted, I took a great deal of care in attempting to remain as honest and close to the data as possible so as not to lose the context. When possible, I used direct quotations in the results section so that the results could be in the voices of the respondents rather than my own. Where changes were made in the respondents' quotations, they are merely for grammatical reasons and are clearly indicated.

A problem in interpreting qualitative research data is how much weight to give to each individual comment, and how to assess diverse opinions. Inevitably, some respondents were more articulate and knowledgeable, and they tended to be more senior. While this may create a bias towards senior informants, they seemed to have a better understanding of the health system and on the operation of the ART programmes. All interviews conducted were given equal consideration, but some may be represented more than others in the results section because of the quality of their responses. Similarly, in some cases where only three or four respondents made a point, this may still be noted as being significant because it was brought up unprompted by questions. This is also the case with responses that are surprising or unexpected. Although the majority of respondents may not agree on a point, the fact that a few do may be significant enough for it to be noted in the results section.

### 3.4 Limitations of the study

I did not conduct the interviews myself for this study and this is a limitation in that I was unable to meet all of the respondents and to visit all of the sites. This may have limited my ability to interpret their responses. In addition, there were some places in the data where I would have liked to have had the opportunity to ask follow-up questions, but was unable to do so because I was analyzing the data, rather than speaking directly with the interviewees. A benefit of the fact that I did not conduct the interviews is that in being further removed, I may be better able to provide an objective analysis of the data.

The field work was conducted two years before I analyzed and wrote-up the findings and I felt it was important to re-visit one of the sites to get a brief idea of whether or not there had been significant changes. The data collected two years ago was collected at the beginning of ART rollout and thus provides important information on the impact of ART scale-up. ART scale-up continues to be an important policy response to the epidemic and thus the findings emerging from this study are still relevant. While some changes may have occurred between 2006 and 2008, for the most part the programmes will face the same challenges and limitations to ART rollout, and the rollout will continue to have similar impacts on the health system. This data may provide important findings for other countries that are just beginning scale-up and may provide some idea of how rollout will affect health systems.

## 4 Results and Discussion

### 4.1 The impact of ART scale-up on human resources

Human resources emerged as the most significant aspect of ART scale-up. Thus, it is a major focus of the results section. Specifically, the focus was on the importance of high staff morale and motivation in the face of increased workload and staff shortages. Several other topics were also brought up through questions or emerged unprompted from respondents' answers which were related to the issue of human resources and staff morale. These topics were: staff turnover, the relationship with non-ART staff, and training.

#### 4.1.1 Staff Morale and the Importance of Hope

Staff morale is a significant aspect of the health system because the dedication and motivation of staff play important roles in the success of programmes. In this study, the high morale among ART staff was seen as having a positive impact on the programmes and on overcoming limitations faced by the programme. Overall, it was able to bring positive energy and hope to the entire system.

For the most part, morale was very high among staff at treatment programmes. Staff often found motivation in the ability to treat an illness that was formerly untreatable, and in the success stories that they saw among their patients. The ability to give patients hope and allow them to lead a more normal life seemed to counteract the increased stress involved with the high workload faced by ART staff. According to the medical manager at Sundumbili in KwaZulu-Natal:

*...it helped a lot, the fact that we are able to provide something. It's pointless being able to see an illness and do nothing about it; obviously your morale is going to [...] come down. But if you know the person has a problem and [you] have something that can help, so obviously [you] feel a lot happier.*

Because of this, many health care personnel found working with ART patients to be both exciting and rewarding because they were able to more fully care for their patients. The senior medical officer for the Idas Valley Clinic in Stellenbosch said that once you work in HIV you would not want to work anywhere else because of the positive experience with being able to treat HIV positive patients. Similarly, a doctor at Malmesbury in the Western Cape said that,

*You know, before ARV rollout it was the most horrific disease to manage because as doctors we would just have to look at the patient and say sorry there is nothing that I can do for you... So now at least we know we have got something that we can offer them.*

The majority of the respondents brought up the issue of hope unprompted at some point during their interviews. Hope often led to increased job satisfaction and also had a positive impact on patients and on the

community. When asked to give the history of the ART programme, a nurse at TC Newman Hospital in Western Cape said that:

*When we started, the majority of people we saw had CD4+s less than fifty. Single figures. People were really sick and the difference I could see was the patients, even in their minds, is that when they came here on a trolley, in a wheelchair, and after a couple of months, maybe 2 or 3 months on ARVs [...] that Lazarus is there, you know risen out of the dead and then they walk [...]. Many people say 'when I heard I was positive I was like a dead thing...' Then we give them hope [that] there is a quality life with ARVs.*

A nurse at Paarl Hospice also said that changing the mindset of patients from dying to living was a significant challenge for the treatment programme. Because of the ability to provide people with hope for the future, this change in mindset was now possible.

Despite this positive morale that is involved with being able to provide hope to patients, there were some problems of low morale resulting from poor working conditions. For instance, the hospital manager at Maphumulo Hospital said that morale was very low because of staff shortages and lack of space, leading to the inability of staff to properly perform their work. It seemed that even when the staff members were happy working, they were still unhappy with the working conditions. For example, although the medical manager at Sundumbili Centre argues that overall the staff members were highly motivated, there was also a problem with high burnout resulting from a heavy workload and shortage of staff, leading to the inability to provide the desired quality of care. For the most part however, it seems that the positive morale linked to being able to treat people allowed personnel to cope with stress related to the work.

Staff morale was a significant finding from this study. The research showed that positive morale among staff had the potential to override negative aspects of work conditions. In this study, morale overall was positive because of the introduction of treatment, and this was working to counteract the increased workload by keeping staff satisfied. In accordance with the WHO's findings (WHO 2006, B), it seems that having staff who are motivated and capable is the key to achieving national health goals, in this case the implementation of an ART programme. Whereas some literature, however, argues that high workload and staff shortages would work to de-motivate staff (Ntuli 2003), this research found that the positive morale created from the ability to treat patients in fact overrode the challenges dealt with in the workplace in most cases. The optimism about being able to provide treatment was one of the main driving forces behind the success of treatment programmes. This reveals the importance of individual agency in the successful implementation of health programmes. The power of hope was able to override shortages in resources and staff and often difficult working conditions to create programmes that were successfully treating patients. The increased sense of hope and the ability to treat patients was mentioned by nearly all of the respondents, indicating that it was a significant impact that the treatment programme had on the health care system as a whole.

### 4.1.2 Workload

Although morale was high, there were challenges faced by health care workers. One of these was increased workload, which refers to an individual's case load. Workload relates to the overall system because it threatens staff morale and creates a risk that human resources may be pulled from other departments to address the increased demand. When asked if workload had increased because of the introduction of the ART programme, every health care worker interviewed claimed that it had.

Increased workload was cited as a cause of decreased quality of care at Maphumulo Hospital, Kwadukoza Clinic, TC Newman Hospital, and Malmesbury Hospital. When asked whether or not increased workload had resulted in increased time spent at work, one nurse at Sundumbili, one nurse at Kwadukoza, and two nurses and one doctor at TC Newman said that it had. A major reason for the increased workload was the increased number of patients without a corresponding increase in staff. Another reason was the high amount of attention required by patients receiving ART. When asked if the workload in the ART clinic was more than in other departments of the hospital, a nurse at Idas Valley Clinic at Stellenbosch reported that:

*At the moment, yes [...] The patient comes in but the patient has to be seen by somebody who counsels her, then the person [...] comes to the nurse for observation. From there the patient waits to see the doctor, and from the doctor back to the nurse for blood taking, injections, whatever.*

Similarly, a doctor at TC Newman said that:

*My friend in paedics [paediatrics]... she's burning herself [out] and she's doing such a good, nice job [...] if the mothers do not bring the children she will go and find them at home, she will phone them, she will do everything for them. And then still she cares more than the mothers, and I also think that she won't keep it up. [...] I don't think it is human to keep it up.*

As these two health care personnel argue, there was more involved with caring for ART patients and it was necessary to spend more time with patients. According to a doctor at Stanger, staff members were often unable to take breaks and often found that they "haven't had time even to smile" during the day. One example of the increase in stress given by the medical manager at Sundumbili was that patients fought with nurses because the doctor had to leave at the end of the designated clinic hours. While he said that the staff was able to cope in the short term, there was evidence of long term frustration and burn-out. In addition, none of the health care personnel interviewed said that they were receiving increased salary to compensate for the increased work required of them.

There was a question as to whether or not this increase in workload was unique to the ART programmes. Those who argued that the high workload was unique to the ART programme say that it was caused by the number of patients increasing more rapidly in the ART programme than in other programmes and that ART patients often required more attention than other patients.

However one doctor at Malmesbury claimed that:

*I think we would have had this workload anyway without the programme... People would have been getting sicker in a different way.*

This implies that in the absence of treatment, PLWHA would have been getting sicker and requiring more attention, thus increasing the workload. The chief medical officer at Maphumulo Hospital also said that the increase in workload was a result of the HIV/AIDS epidemic and not the treatment programme specifically. A nursing sister at Malmesbury also argued that workload was increasing in all departments, not just in the ART clinic.

Workload was a major problem that was identified in this study. Workload was often caused by staff shortages, which will be discussed in more detail following this. As the number of patients increased with the implementation of ART, in most cases the number of personnel did not increase, meaning that each staff member took on greater responsibility. This created a decreased quality of care in several instances. Workload may also in turn be a cause of staff shortages, as it leads to burn out and also makes the health care profession less appealing to new applicants (WHO 2006, A).

#### 4.1.3 Staff shortages

Staff shortages were examined in this study in the impact of shortages on staff motivation, on the success of ART programmes, and on the relationship with the overall health system. Staff shortages were significant because human resources were limited in the face of increased demand for care, and thus there was the potential for reallocation of human resources away from other programmes to the ART programme.

When asked if there were shortages in staff at the treatment programmes, every respondent reported that this was the case. In addition, the majority of respondents cited staff shortages as the most significant barrier to expansion of the programme when asked about limitations and challenges that they faced. It was often argued that the success of the programme was dependent on having adequate staffing. Several of the people interviewed brought up the issue of staff shortages unprompted when asked to describe the programme. When asked about the future of the programme, a nurse at Malmesbury said that:

*If it's going to stay like this with limited people, then it won't expand a lot because you can just see a certain amount, you can't see more. But if they can give [us] more staff and more days then I am quite sure we will be able to handle this programme.*

There were shortages of all health care positions, but most often mentioned were nurses, pharmacists, and social workers. According to the chief professional nurse at Maphumulo Hospital in KwaZulu-Natal,

*There is a shortage of staff, the counselors, nurses. [...] I am the only who is on duty now. It's not supposed to be like that.*

Decreased quality of care was said to result from staff shortages at Sundumbili, TC Newman, and Idas Valley Clinic in Stellenbosch. According to a nurse at TC Newman in Western Cape, because of the human resource shortages,

*Everything is in a rush, doctors [are] in a rush, everything is a rush. The patients won't get the quality care that they need.*

In addition, the staff was often not multi-disciplinary enough. For example, at the Sundumbili Centre there was no social worker, nutritionist, or dietician. Similarly, the Kwadukoza Clinic was operating without a social worker, a psychologist, or a nutritionist. According to a professional nurse at Sundumbili, the lack of a social worker was significant in particular because social workers may be able to assist patients in accessing the disability grant<sup>7</sup> and in improving patients' treatment adherence. This, however, raises the question of the perceived role of social workers versus their actual responsibility, because social workers would not define their role in the same way.

One response to the shortages of doctors was moving away from a doctor-centred programme. At Stanger Hospital and Kwadukoza Clinic nurses took on more responsibility in the administration of ART drugs. This is often argued to be a more efficient method of ART management (WHO, UNAIDS 2005). Nurses also had to fill in in other capacities as well. For example, at the Malmesbury ART clinic there was no cleaning staff so the nursing sister interviewed reported that she had to clean the clinic daily as well as serving as a nurse. Nurses also had to work as clerks in some cases, which was a problem because their skills could be better utilized in other capacities in the clinics.

Some argued however that all departments were short-staffed and that this problem was not unique to the ART programmes. For example, the nursing sister interviewed from Malmesbury Hospital said that the entire hospital was understaffed, not just the ART programme.

The issue of human resource shortages was a very significant finding in that it was the major concern among health care personnel interviewed. This was the greatest barrier to expansion and the most important limitation to meeting the needs of the community. This is in line with UNAIDS findings that building human capacity is necessary in ensuring the success of ART scale-up (UNAIDS 2006). In addition, it shows that WHO estimates about the lack of health workers on an international scale is in fact being experienced in this selection of health care facilities (WHO 2006, A). While the South African Department of Health recognizes the importance of supporting and building human resources in order to respond to the HIV/AIDS epidemic (SA DoH 2000), this study shows that in practice the human resources shortage is not being sufficiently addressed.

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<sup>7</sup> The disability grant is available to South African citizens between the ages of 18 and 59 if female and 18 and 64 if male. It is contingent upon the submission of an assessment report that confirms the disability. A CD4+ count below 200 is considered a disability in both KwaZulu-Natal and the Western Cape. As of 1 April 2007, the amount of the grant was ZAR870.00 per month. (from South African Social Security Agency at <http://www.sassa.gov.za>)

As noted by some respondents, the treatment programme was not unique in its experience of human resource shortages. Staff shortages are an issue throughout the health care system, which has been exacerbated by the AIDS epidemic and the increased demand for health care that the epidemic has created (WHO 2004). Although the perceptions of the staff interviewed was that the ART programme was not creating more of a staffing problem, other studies may have found different perceptions. Therefore, it is inconclusive whether or not the ART programme in and of itself increased the problem of staff shortages in the health system as a whole.

#### 4.1.4 Staff turnover

Staff turnover is related to shortages in that high turnover can result in high incidence of human resource shortages. In addition, it impacts on staff morale and on the overall health system by creating loss of training, investment, and knowledge. When asked about staff turnover, respondents cited it as a problem in six of the twenty-one interviews. One of the problems related to high turnover was the need to train new staff. A doctor at Stanger Hospital said that it was difficult when a highly trained person who was “a pillar of the organization” left because the programme had to reorganize and find new leadership. This led to instability and inconsistency for the programme. When asked about what might prevent expansion of the ART programme, a doctor at Malmesbury Hospital said

*We have had a few problems here with [...] the inconsistency of personnel: people going and coming, and [...] then having to be trained all over again. Every time that happens [...] I mean you actually train from start again.*

Some potential causes given for staff turnover include the appeal of moving overseas for work or moving to urban areas within South Africa. This was cited at Kwadukoza Clinic and Malmesbury Hospital. According to a doctor at Malmesbury, there had been an increase in the past two years of staff moving either internationally or domestically. Another reason given for high turnover was the newness of the programmes. A nurse at Idas Valley Clinic in Stellenbosch said that this created an unstable working environment in which staff must deal with many uncertainties. Similarly, the chief medical officer at TC Newman reported that many people got involved with HIV work because they wanted something new and were interested in cutting edge work. This type of person rarely stayed for long with one department.

It is important to note that although one-third of respondents reported that turnover was a problem when asked about it, the majority did not feel it was problematic in ART programmes. It was somewhat surprising that health care personnel moving overseas was not mentioned more often, as this has been found to be one of the leading causes of staff shortages in developing countries (Ntuli 2003). As argued by Couderc and Ventelou (2005) and as cited by a doctor at Malmesbury, this migration led to a loss of knowledge and a disruption of consistency. High staff turnover is strongly connected to staff shortages in that a lack of personnel can be a cause of high turnover, and also in that high staff turnover results in staff shortages. It is interesting to take note of the idea that staff turnover may have been high because of the newness of the programme, and the “type” of person that such a new programme appeals to. It is not clear from this data set whether or not the

turnover experienced by the ART programme was significantly different from that of other programmes, but it is clear that staff turnover was a problem for some treatment programmes.

#### 4.1.5 Relationship with non-ART staff

The relationship between the ART programme and other departments is significant because it reveals how the programme may be impacting on the rest of the health system. It also impacts on the job satisfaction of ART health care workers in that negative attitudes from other departments would be detrimental to ART staff morale.

When asked about their relationship with non-ART staff, some of the personnel interviewed reported experiencing resentment from other departments because of the increased focus on HIV and the opportunities to attend training that ART staff had. This was cited as an issue at Maphumulo, Sundumbili, Kwadukoza, Stanger, and TC Newman. For example, several of the clinics had issues with negative stigma directed towards the ART staff because of discrimination related to HIV/AIDS. A doctor at TC Newman said that:

*It feels like we do not have equality. We have no one to discuss anything with because they will just turn you down and tell you your patient's going to die.*

Reasons given for discrimination towards personnel working in the ART programme included lack of education and information, fear of the unknown, and viewing employment at the ART clinic as “a retirement job.” A doctor at Malmesbury Hospital said that there had been an issue of staff from other departments refusing to use the same toilet as staff working with the treatment programme.

Fortunately, in some cases the stigma seemed to be decreasing because of increased education and awareness. When asked whether or not stigma among non-ART staff towards those working in the ART programme had improved, a nurse at Malmesbury in Western Cape said that it had, explaining that:

*There was a sister in the same building and she didn't like this clinic at all and you know she has changed so much because we speak to her a lot. She changed so much that one day [when] I had to go somewhere and there was nobody to do the clinic for the day, she offered to do [it].*

This statement shows the impact that increased knowledge could have on individual perceptions. It also showed the power of open communication between staff members in increasing awareness and decreasing stigma.

There was a problem with increased tension caused by the ART programme utilizing staff from other departments at Maphumulo, Sundumbili, Stanger, and Malmesbury. For example, the hospital manger at Maphumulo said that a doctor was reallocated from the hospital to the ART clinic and that it was a cause of tension between the ART programme and the hospital. Similarly, a nurse interviewed from Sundumbili used to work with the PMTCT programme but was moved to the ART programme. At Malmesbury there

was an issue with borrowing staff from other departments to help with the treatment programme. Taking staff from other departments had a negative impact because it resulted in a lack of experience and staff shortages in other departments. A nurse at Kwadukoza argued against reallocating staff from other departments into the ART programme, saying that:

*I can't see myself taking staff from the other departments to put in the ARV. The only way it can be sustained or run properly is to increase the staffing.*

A doctor from Stanger Hospital said that although they had taken staff from other departments, they only did so after their places have been filled, so there was no tension created.

In some cases, the ART programmes created increased employment opportunities because new health care workers were hired specifically for the programme. Maphumulo, Sundumbili, Kwadukoza, TC Newman, the hospice in Paarl, Idas Valley Clinic in Stellenbosch, and Malmesbury Hospital all utilized funding from a non-governmental organization (NGO) called Absolute Return for Kids (ARK)<sup>8</sup> to hire new personnel for their ART programmes. In many cases, the funding from ARK to hire personnel enabled the programmes to initially begin treating patients. In cases where personnel were employed specifically for the treatment programmes, there was less impact on other departments in terms of human resources.

Occurrences of discrimination and resentment from non-ART staff members resulted from jealousy over increased opportunities available to ART staff, from stigma directed towards the programme because of its relationship with HIV/AIDS, and from issues of the reallocation of staff. This study found that for the most part, health care personnel were not being taken from other departments to work in the ART programme. In the few cases in which this did occur, their positions were filled in their old departments before they were moved to the ART programme, but this still created some animosity. Stigma remains a major issue for the ART programme, but instances of increased knowledge and awareness resulted in a significant decrease in stigma and discrimination. In terms of the health system as a whole, tension between staff in different departments could be problematic in the running of programmes. However, evidence of increased knowledge and awareness being created because of the ART programme would benefit the health system as a whole.

#### 4.1.6 Training

A final issue related to human resources that respondents were asked about was the availability of training. Training could benefit staff morale and the overall health system in that it creates more knowledgeable and well prepared staff, which is important to the success of the programme. This would especially be beneficial if training is made available to all health care workers, not just those working for the ART programme. Training in this study does not refer to the health care training that personnel received in

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<sup>8</sup> ARK is an international charity whose mission is to transform children's lives. ARK's work in South Africa focuses on addressing critical issues relating to HIV/AIDS.

their initial education for their professions, but rather seminars and workshops concerning HIV/AIDS treatment and management.

When asked about the availability of training, two-thirds of the personnel felt there was adequate training available. Much of the training was offered in the form of a workshop when the programme first began to introduce the staff to the programme and to educate them on HIV/AIDS management. In addition, regular training sessions and workshops were available for staff to attend, organized either internally or externally. In several cases in KwaZulu-Natal, training was offered by the district government, whereas this was not mentioned in the Western Cape interviews. The training at Maphumulo Hospital in KwaZulu-Natal covered topics such as adherence and stigma. However, attending these courses did not lead to an increase in salary. A nurse at Maphumulo felt that the training should also cover courses addressing issues about “caring for the carer” and providing emotional support to ART staff. In the case of Sundumbili Centre in KwaZulu-Natal, a doctor and a nurse were both completing their masters’ degrees in HIV, and were using their new learning to educate other health care workers.

A weakness cited in Maphumulo was that although training was offered and in many cases the staff who received the training offered lectures to the rest of the staff, there was an overall lack of interest among the staff, leading to low attendance at workshops and lectures. According to the chief medical officer at Maphumulo, after receiving a formal training, she and the doctor at the clinic:

*...started our own teaching process to inform about HIV and ART. [The] weaknesses unfortunately [are] the same like [in] a community. The staff is not ready to learn and there is no motivation [...] to have further knowledge.*

In the cases where there was not enough training available, the health care personnel interviewed argued that the staff wished to have more training available and that because of the lack of training, they felt under-qualified to work with the ART programme. When there was a lack of formal training, staff often received their training through daily experiences at the clinics. This was noted both at Kwadukoza Clinic in KwaZulu-Natal and at Stanger Hospital. In several cases both in KwaZulu-Natal and Western Cape it was argued that regardless of whether or not training was available, the best training was experience.

One of the major benefits of training was decreased stigma and discrimination both towards the ART staff from other departments and from the staff towards HIV positive patients. This was noted at two sites in the Western Cape: by a nurse at TC Newman Hospital and by a doctor at Malmesbury Hospital, and provides a strong argument for increasing the training available not only for ART staff, but for all hospital staff.

It is concerning that training was cited as being either unavailable or inadequate by one-third of the respondents because the expertise of health workers is important to the success of ART rollout (Martison et al 2003). As Lehman and Sanders (2003) found in their research, this study also revealed that an alarmingly large amount, although not a majority, of health workers have received insufficient training on HIV/AIDS treatment and management.

In addition it appeared that for the most part, training that was available was only available to clinic staff. Therefore, extra training created because of the ART programme was not benefiting the health system as a whole. In this way it can be concluded that training was not a benefit created by the ART programme for the health system. Where training was available, it led to increased knowledge and decreased stigma amongst hospital staff, which was beneficial to the entire health system.

## 4.2 The relationship between treatment programmes and HIV prevention interventions

### 4.2.1 Introduction

One of the over-arching themes of the study was the relationship between treatment programmes and HIV prevention. As discussed in the literature review, one of the major arguments against treatment scale-up is that it could detract resources and attention away from prevention programmes. This section looks at how treatment programmes impact other HIV programmes both negatively and positively and how treatment is also a form of prevention. Increased VCT uptake and decreased stigma in the community are both examples of how increased awareness generated by ART programmes can help prevent the occurrence of new infections. Funding plays a role in that it is necessary to determine whether or not funding for the ART programme is coming from other HIV programmes or if it comes from an independent and sustainable budget.

The other HIV programmes referred to in this section included STI, PMTCT, and condom distribution. Respondents at the following facilities felt there had been a positive impact on other HIV programmes: Maphumulo Hospital, Kwadukoza Clinic, Stanger Hospital, TC Newman Hospital, Malmesbury Hospital, and Idas Valley Clinic in Stellenbosch. A reason given for the positive impact was increased education and awareness. A chief professional nurse at Maphumulo said that there had been a positive impact on other programmes because patients brought information to friends and relatives.

There was a fear that the treatment programme scale-up may result in a shift of focus away from other programmes. A few of the respondents found this to be the case. For example, there was conflict between the treatment programme and other HIV programmes because of the question of authority on some issues. At Maphumulo Hospital there was conflict between the ART programme and the PMTCT programme because the two had different policies on breast feeding, leading to the question of who had more authority and causing tension between the programmes.

Overall, the ART programme was reported as having a positive impact on other HIV programmes through increased awareness and knowledge, through acting complementarily to other programmes, and because it brought hope to the system as a whole. In this way, the ART programmes were seen as strengthening the overall health system (WHO 2006, A). The negative impact that was reported in some sites was that it detracted attention from other programmes and that in some cases there was conflict between the ART programme and other HIV programmes. For the most part, however, the health care workers interviewed perceived the ART programme to be having a

positive impact on other health services, which benefits the greater health system. This section now turns to more specific aspects of the impacts of ART programmes on other HIV programmes within the health system.

#### 4.2.2 Treatment as prevention

The treatment programme can itself be a method of prevention, and thus complements other prevention programmes that are implemented. According to the chief medical officer at TC Newman, treatment and prevention could not be separated because the programme needed to be holistic. Treatment should not just be medical, but rather a “holistic intervention” that looks at the context and not just the scientific side.

There are several ways that treatment acts to prevent new HIV infections. For example, increased knowledge and understanding about HIV/AIDS were reported at Maphumulo and Stellenbosch. At Maphumulo, workshops were offered to the community, thereby raising awareness and leading people to take AIDS more seriously. A professional nurse at Kwadukoza and the chief medical officer at TC Newman both said that because treatment decreases the viral load of PLWHA, it made the disease less contagious and therefore helped prevent the spread of the disease. Some sites also felt that there was increased demand for condoms and increased uptake of STI prevention, although for the most part there seemed to be little impact on these two aspects of HIV intervention. Increased uptake of condom distribution was observed at Maphumulo, but this was not matched by a decrease in STI prevalence, so it was not clear whether or not the increased condom distribution was actually leading to a behaviour change.

Treatment is also a form of prevention through the availability of ART in the PMTCT programmes. This was reported at Maphumulo, Malmesbury, and Stellenbosch. There was an increased ability to care for and treat mothers and babies and an increased uptake of the PMTCT programme, which would lead to fewer births of HIV positive infants, and thus prevent the incidence of new HIV cases.

There is some fear that increased access to treatment would create a negative behaviour change in the community. According to a doctor at Stanger Hospital:

*There is obviously a negative side where people will say ‘Oh I can sleep around because I can be cured’ but we tell patients that it’s not a cure.*

A nurse at Paarl Hospice also said that the negative behaviour change was a concern, but that they had not seen any evidence of that happening. No strong evidence emerged from this study about negative behaviour change resulting from increased access to treatment at the sites visited, and thus no conclusions can be made.

For the most part, respondents felt that although the treatment programme had successfully increased knowledge and awareness about HIV/AIDS, this had not led to any notable behaviour change in the community, either negative or positive. The medical manager at Sundumbili Centre cited altering peoples’ lifestyle habits as a major challenge for the programme, saying that although there had been a perception change in peoples’ views on

HIV, knowledge did not necessarily lead to a change in behaviour. A nurse at Kwadukoza Clinic said that the programme stressed the use of condoms but some patients were becoming pregnant while on treatment so the message clearly was not getting through. According to the nurse, “You can teach the person today [but] they will forget and do it over again.”

The treatment programmes were important components of HIV prevention in that they increased knowledge and awareness. In some cases prevention and treatment programmes were integrated and were thus mutually reinforcing, which according to Lampthey and Wilson (2005) is the best way for the programmes to be implemented. Although the opinion of several interviewees was that the programme was not having an impact on behaviour change, this study did not look into that aspect of the programmes in a formal or conclusive manner. Thus, no definite conclusion can be made on the actual impact of treatment programmes on behaviour in the communities.

#### 4.2.3 Impact on voluntary counseling and testing

VCT uptake is another form of prevention in that knowledge about HIV status may help prevent new infections. Of those interviewed, two-thirds of respondents felt that there had been an increase in VCT because of the introduction of the ART programme. The reasons given for this were increased awareness and publicity about VCT because of the programme, and increased hope which provided a reason for getting tested. A positive test would no longer be a death sentence because of the availability of treatment. According to the hospital manager at Maphumulo Hospital, testing was also more attractive because of the availability of the disability grant. As discussed earlier, those with CD4+ counts below 200 were eligible to receive the grant. Two of the respondents who said that they had not observed an increase in VCT uptake did feel that treatment provided an incentive to get tested and that the availability of treatment made the job much easier for counselors because they were able to provide an option for those who tested positive.

According to a doctor at TC Newman in Western Cape:

*I really think that the patients started to talk [...]. I saw a gentleman yesterday and he tested himself not because he was ill but because he saw that other patients were ill and they got better and then he thought ‘well if I am positive I have to know.’*

A professional nurse at Sundumbili who observed an increase in uptake of VCT reported that they were now seeing approximately four hundred patients per month in VCT, whereas before the introduction of ART they were seeing between two hundred and two hundred twenty-five patients per month. This indicates a double in VCT uptake since the rollout of ART at Sundumbili. She felt that this happened because patients were telling friends to go and get tested.

According to some of the respondents, the implementation of the treatment programme has resulted in increased VCT uptake. This shows that treatment can be used as a form of prevention as well in that it encourages people to learn their status, which may lead to behaviour change. In addition, it shows that one impact of the increased awareness and the

decreased stigma may be encouraging people to get tested. This shows that WHO and UNAIDS findings that ART rollout encourages people to get tested because AIDS is no longer a death sentence is accurate in this sampling of treatment programmes (WHO, UNAIDS 2005). The increased uptake of VCT can have a positive impact on the overall health system in that it is a form of prevention and the prevention of more infections would lessen the burden on the health system. This is, however, contingent on corresponding behaviour change which is not guaranteed with increased knowledge. This study cannot say conclusively that the increased uptake in VCT was solely due to the introduction of ART programmes. Other factors, such as the progression of the epidemic or increased awareness campaigns may also have impacted the number of people seeking VCT.

#### 4.2.4 Impact on stigma in the community

Treatment can also provide a method of prevention in that treatment programmes have the potential to decrease stigma in communities, thereby making VCT and openness about AIDS more likely. This study found that unfortunately stigma was still a major problem in communities and that although treatment increased awareness, it was not successful in decreasing stigma.

Respondents from Maphumulo, Malmesbury, and Stellenbosch cited stigma in the community as a major barrier to the expansion of the treatment programme. All but four respondents felt that stigma was still a significant problem in communities and that the treatment had little impact in improving it. Stigma also acted as a barrier to getting treatment because patients did not want anyone to find out their HIV status. According to a nurse at Kwadukoza patients who were her neighbours and recognized her at the clinic often would not come back for fear of others in the community finding out that they were HIV positive.

A doctor at TC Newman also felt that stigma was a problem, saying that even her own son discriminated against people with HIV/AIDS and asked her to change her job so that he could tell his friends where she worked.

According to a doctor at TC Newman hospital, stigma was still a major problem even among other health care personnel:

*I've had several fights, like for instance one case [with] the orthopedic surgeon, a patient needed amputation and he didn't want to do it because he's HIV positive and I asked him, what's the difference with some diabetes patient? [...] For a diabetes patient we would have done it.*

On the positive side, four respondents did answer that stigma had decreased because of the scale-up of treatment. The hospital manager from Maphumulo, a professional nurse from Sundumbili Centre, a nurse at Kwadukoza, and a nurse from Paarl Hospice felt that there was an improvement in stigma because of the implementation of the treatment programme, saying that people were more open about HIV/AIDS and that there was higher awareness in the community. Similarly, a doctor at Stanger mentioned that people were no longer making them talk silently about it, indicating that although the behaviour change was not as significant as

hoped for, there was a shift in openness and knowledge about HIV/AIDS. Two of these respondents felt that support groups provided by the programme had helped create this positive impact.

Although the treatment programmes were successful in increasing awareness and knowledge in communities, they were not necessarily successful in changing the stigma surrounding HIV/AIDS. As in the case of behaviour change, increased awareness was not leading to a decrease in stigma or discrimination in the community. Stigma was still a significant barrier to receiving treatment and was still prevalent at most of the sites. This is opposed to claims made by WHO and UNAIDS that treatment would successfully decrease stigma and discrimination in the community (WHO, UNAIDS 2005). Stigma impacts on the greater health system in that it determines the success of the ART programme. If stigma prevents people from coming forward to receive treatment, the treatment programme will not successfully keep PLWHA healthy, placing a greater burden of caring for ill people on the health system. Findings around stigma, however, are opposed to the finding that VCT uptake has increased. There is a contradiction between the respondents' claims that people are more willing to get tested for HIV because of the availability of treatment and the claims that stigma is preventing people from seeking treatment.

#### 4.2.5 The allocation of funding

In looking at how the ART scale-up impacted the health system and in particular other HIV interventions, it is necessary to look at how the programmes were funded and whether or not budgets were reallocated away from other programmes to support the scale-up of ART. This section looks at how programmes were funded and how this impacted on other departments

Very few of the respondents mentioned any form of financial support for the running of the programme coming from the government. The only respondent to recognize a contribution from the government in paying for staff was the senior medical officer at Stellenbosch. A nurse at Kwadukoza and a nurse at TC Newman both felt that the government did not realize the magnitude of the problem when they began the rollout and thus did not adequately capacitate the programmes to implement treatment.

The fact that very few respondents mentioned government funding does not necessarily indicate that the ART programme was rolled out without the proper support from the government. As discussed in the literature review, the South African government has committed US\$1 billion for 2005-2008 for the scale-up of ART (WHO, UNAIDS 2005). The government has in recent years contributed a significant percentage of the budget toward ART scale-up, and provinces are additionally contributing to HIV spending (Abdullah 2006). In light of these facts, the lack of knowledge about government funding among the respondents may indicate that the health care personnel interviewed were not knowledgeable about the financing of the programme or to what extent it was supported by government funding.

However, it is notable that many respondents felt that they did not have the capacity to deal with such a large-scale treatment programme or to meet the demands of the communities. This is in line with other research that suggests that the South African government's response to HIV/AIDS and the

ART rollout in particular have been slow and uneven (Nattrass 2004, 2006). Nattrass argued that one of the failures of the nation-wide rollout was insufficient mobilization of the funds made available by the National Treasury for the programme (Nattrass 2006).

There was evidence of significant financial support from international donors and NGOs. Of the eleven respondents who mentioned receiving funding from international donors or NGOs, all but one of these said that ARK specifically contributed funding to the treatment programme. ARK provided park homes, greatly increasing the space available to the programmes at Kwadukoza and Maphumulo. It allowed the programmes at Maphumulo, Sundumbili, Kwadukoza, TC Newman, Paarl Hospice, Malmesbury, and Idas Valley Clinic to hire more personnel to run the programmes. ARK also provided ART training at Kwadukoza Clinic.

International funding was mentioned at Kwadukoza, Stellenbosch, and the hospice in Paarl. There was some fear that the funding both from ARK and from international organizations was unsustainable, leaving the question of whether or not the programmes would survive if the funding was pulled. According to a professional nurse at Kwadukoza, without NGO help, the programme would not have been able to start. While internationally there is a large amount of money available for HIV/AIDS programmes from organizations such as the Global Fund, the World Bank, and PEPFAR, there is no proof that this funding will remain sustainable over time and there is the risk of donor dependency (WHO 2006, A).

The fact that a significant amount of the financial support for the treatment programmes came from NGOs and foreign funding was also a positive aspect of the programme. It indicated that funding was not being taken from other programmes, but rather receiving independent funding from a budget created specifically for the treatment of HIV/AIDS.

Five respondents reported that there was inadequate funding to run the ART programmes. The medical manager at Sundumbili Centre felt that there were insufficient finances to support expansion of the programme, saying that it would be needed to increase the staff and space necessary for accommodating more patients. A nurse at TC Newman also felt that the lack of funding may have been a cause of the staff shortages experienced by the programme there. According to the chief medical officer at TC Newman, money was the greatest barrier to expansion. A nurse at Stellenbosch also felt that money was a limitation, saying that “we will never have enough.” Funding was an issue at Paarl Hospice, where a nurse felt that it prevented them from meeting all of the needs of their patients. She reported that:

*Our idea is really to empower people to be able to manage on their own. That's a big struggle for us because we hand out food parcels and we see people on a regular basis [...] but we have to be really quite strict about that because we don't have the resources to actually go to everyone.*

Ideally the nurse would like to have been able to provide patients with food and other resources to help improve their socio-economic status, but was prevented in doing this by financial limitations.

Although lack of funding was not a major finding of the study, it appears to be an underlying issue. Only one respondent made the connection between funding and the issues of space and staff, but it may be the case that increased funding would allow all of the treatment programmes to address these concerns. Although there are other non-financial issues involved with staff and space shortages, having more funds would greatly increase the ability of treatment programmes to address these needs. Recent decreases in the costs of drugs and the availability of generic drugs has made ART programmes more affordable, which may be one reason that lack of funding was not a major constraint for most programmes (WHO 2005).

All of the programmes reported that the funding for the ART programmes came from a separate budget and therefore was not impacting negatively on other programmes. Several of them said that the budget received was sufficient for the running of the programme and that they never ran short of funds. For example, the chief medical officer at Maphumulo Hospital said that the ART programme was not receiving more funding than other programmes.

There was, however, some evidence of funding for ART programmes impacting negatively on funding for other programmes. A professional nurse at Sundumbili in KwaZulu-Natal said that most of the HIV funding was going to ART rather than to other HIV programmes. In addition, a doctor at Malmesbury said that unfortunately, the increased funding available for ART had not brought additional funding in for other HIV programmes.

A doctor at Stanger Hospital felt that although the ART budget was not impacting other programmes, other departments were envious and often wondered where the HIV programmes were getting so much money. This was also seen at the Idas Valley Clinic in Stellenbosch, where a nurse reported that there was some animosity because of the focus on HIV. She felt that there should be equal funding available for all chronic diseases.

The chief medical officer at TC Newman in Western Cape said that funding was a:

*sensitive subject...If you come back and say, have we taken money from the budget, no, we have used extra money but that extra money could have probably been used for the rest of health.*

Therefore, while it is true that money was not being taken directly from other programmes, the money used for ART would have been allocated to other programmes had it not been used for the ART programmes. It is an important finding that there was little mention of animosity from other departments related to the funding available to the ART programme and that there was no indication that money was being taken from other programmes to support the treatment programmes. This shows that the funding for the ART programme was not impacting negatively on other HIV programmes or on the health system as a whole.

## 4.3 The impact of treatment scale-up on all programmes

### 4.3.1 Introduction

This section looks at how the ART scale-up impacted on all programmes within the health care system, not just on other HIV programmes. Specifically, it explores the integration of programmes and the allocation of infrastructure.

Nearly all respondents felt that the treatment programme was having an impact on non-HIV programmes. This included both positive and negative impacts. A nurse at Kwadukoza and a doctor at Malmesbury both felt that the programme was having a positive impact because patients on treatment were healthier and therefore required less care. This created decreased demand for care throughout the entire health system. A professional nurse at Kwadukoza said that ART was having a positive impact because it complemented other programmes in that other departments could provide better treatment for the patient if they knew their HIV status, which they were more likely to know because of the treatment programme and subsequent increases in VCT uptake. Several respondents also cited the decreased number of opportunistic infections and decreased complexity of side effects as benefiting non-HIV programmes because patients required less treatment.

One impact that treatment is having on other programmes is creating a heavier workload for them because healthier patients are now living longer and need more services, whereas before the introduction of services patients were more likely to be written off as untreatable. While this was certainly not a negative impact as it meant that patients were healthier, it did result in increased workload for other departments. For example, a doctor at Stanger hospital argued that the introduction of the treatment programme had changed the face of surgical options in that they now could operate on people who were HIV positive because their CD4+ counts could be kept high enough. This also resulted in increased referrals to other specialists because ART created a reason to treat patients for other ailments, according to the chief medical officer at TC Newman.

Some negative impacts that the treatment programme had on non-HIV programmes involved the shift of focus away from other programmes and towards the ART programme. A nurse at Kwadukoza felt that it was detrimental, however, saying that for other programmes:

*...definitely it's the training that they lost. They don't train so much for hypertension or for things like that. They focus a lot on HIV and things related to HIV.*

Another negative impact was that ART patients often require more work than non-ART patients, according to a doctor at Malmesbury. Several respondents reported that the treatment programme was increasing the burden on other programmes simply because of the sheer increase in numbers of patients going through the hospital. One doctor at TC Newman said that there was a feeling that the ART programme was overwhelming other departments with

patients. For example, an increase in the workload of TB programmes was cited as resulting from the introduction of the ART programme at Sundumbili and Stanger.

The ART programme was reported as having several notable positive and negative impacts on non-HIV programmes. The positive ones involved increased knowledge about patients' status, patients were healthier and thus required less care, and there was a decreased complexity of side effects. Negative impacts included a shift of focus away from other programmes but it was not stated specifically how this shift was impacting other programmes, i.e. whether it was a shift in funding, in allocation of resources, or just in attention. There were also reports of increased workloads for other programmes, such as TB. These two impacts, however, could be impacts of the HIV/AIDS epidemic rather than of the ART programme. According to WHO, the HIV/AIDS epidemic independent of the ART programme has created an increased demand for care on the health system (WHO 2004).

It was interesting that a couple of doctors cited having healthier patients as increasing the workload for other departments because they could no longer write-off HIV positive patients as people who were going to die and did not need treatment. This speaks to the negative attitude and stigma towards HIV/AIDS that still exists in the health care system.

#### 4.3.2 Integration of programmes

The integration of the ART programme both with other HIV programmes and with non-HIV programmes has the potential to create a health system that runs more effectively. This study explored to what extent programmes were integrated and what the impacts were of integration.

When asked what the greatest weakness of the programme was, a doctor at Paarl said that:

*I think the biggest weakness in the programme is [that] there is an HIV programme and there is a TB programme. Now we did a study last year and we saw that sixty per cent of people [who] were HIV positive and admitted to hospital had TB. So why those two systems are running separately, I don't know.*

As this statement indicates, the integration of programmes would have a significant benefit on the ART programme and on other programmes.

It seems that integration of programmes was more successful in KwaZulu-Natal, where only two respondents felt that there was inadequate integration of services, than in the Western Cape, where nine respondents felt that services were not integrated enough. The services that ART was most often linked to were STI, TB, PMTCT, and VCT. One of the benefits of increased integration was improved tracing of patients, as cited at Maphumulo Hospital and Idas Valley Clinic in Stellenbosch. Personnel at both sites said that increased integration would better allow them to stay in touch with patients and help prevent them from defaulting on treatment. A doctor at TC Newman agreed with this, saying that integration between PMTCT and ART would help mothers stay on ART because PMTCT patients tended to disappear after having their babies.

Integration of services most often took the form of open communication and successful referral systems. For example, at Maphumulo VCT patients were also sent to get tested for TB and STI. This was also the case at Sundumbili Centre, Kwadukoza Clinic, and Malmesbury Hospital. Several of the respondents also reported regular meetings between representatives from each of the programmes, increasing communication and collaboration.

Two of the main limitations to integration of programmes were lack of staff and lack of space. A nurse at TC Newman felt that if there was more space available, the programmes could all be housed in the same clinic, making the process much easier for patients. Another limitation was conflicts with other programmes. For instance, a doctor at Stanger Hospital reported that there was still some question about whose work was whose. He gave the example of whether it was the role of the paediatrician or the ART doctor to care for a paediatric patient with HIV. A doctor at Malmesbury felt that animosity from other programmes may have prevented integration, giving the example of resentment from the TB programme initially because the ART programme was increasing their workload by sending patients to get screened and treated for TB.

Regardless of the current level of integration, all respondents felt that integration of services was beneficial both to the ART programme and to other services offered by the hospital or clinic. Integration between the ART programme and other reproductive health and disease control programmes was seen as a necessity to the success of ART scale-up by WHO and UNAIDS because it increases the sustainability and effectiveness of the programme (2005). Space, staff, and stigma were the greatest barriers to successful integration of programmes, which is notable because these issues seem to be cited repeatedly as being barriers to the success of different aspects of the ART programme. It is interesting that there was better integration in KwaZulu-Natal than there was in the Western Cape. This may have been related to the fact that in KwaZulu-Natal the ART programmes were hospital-based with feeder clinics, whereas in the Western Cape the programme was implemented through individual primary care clinics. In relation to its impact on the health system, it seems that better integration of programmes benefits the health system as a whole because it increases the effectiveness not only of the ART programme, but of the programmes with which it is integrated as well.

#### 4.3.3 The allocation of infrastructure - space, equipment, and laboratory facilities

Infrastructure is an important aspect of the impact that the ART programme had on the health system. The availability of resources for the programme related to the greater health system in that without sufficient infrastructure, the programme would need to borrow from other departments, thus impacting negatively on the system. Alternatively, the programme also had the potential to either not impact the system by working independently in terms of infrastructure, or the potential to benefit other programme by bringing in increased and improved infrastructure. By infrastructure, this study refers to space, equipment and laboratory facilities.

When asked about the impact of the treatment programme on availability of infrastructure for other programmes, seven respondents reported that the

treatment programme had either no impact or a positive one. The medical manager at Sundumbili saw the ART programme as running as a parallel process, not affecting other programmes. Similarly, a nursing sister at Malmesbury believed there was no impact on other programmes, saying that “we just incorporated this one and it’s just going smoothly.” A few of the respondents felt that the hospital would be full of HIV patients regardless of the ART programme and that any impact on the hospital was from HIV/AIDS and not from the introduction of the treatment programme.

Many of the respondents did see some form of negative impact on the hospital or on other programmes resulting from the introduction of the treatment programme. In several cases the conflict between departments was caused by the ART clinic borrowing or taking equipment and space from other programmes. For example, the Maphumulo ART programme had taken space from VCT and PMTCT, and according to a chief professional nurse there, “it’s like ARV has taken everything.” Kwadukoza clinic had to borrow tables, chairs, files, and even stationary from the district hospital, which was a cause of tension between the programme and the hospital.

Another impact that the ART programme had on other departments was increasing their workload which increased demand for infrastructure and equipment. For instance, at Sundumbili the ART programme caused an increased workload for the x-ray department and TB programme. According to a doctor at Paarl General:

*I think what makes the burden more on doctors [is that] these patients on the HIV programmes need better follow-up and they need a lot more tests and more thoroughness in picking up disease early.*

Possibly because of this higher level of care required by ART patients, Paarl hospital would not allow TC Newman to set up beds for their patients in the hospital, according to a doctor at TC Newman. A doctor at Malmesbury also said that bed occupancy was an issue because when patients first go on treatment they were often very sick, and therefore there was an increase in bed occupancy at the beginning. However, overall the bed occupancy will decrease because patients are healthier than they would have been without ART. This positive impact from the treatment programme was also reported at TC Newman, where treatment was decreasing hospital workload in the long run because it kept patients out of the hospital.

Bed occupancy was an interesting issue because over time, hospital admissions for HIV positive patients who are on ART will decrease in that they are healthier and require less attention (Martison et al 2003). According to Bassett (2005), forty per cent of hospital beds were occupied by PLWHA. If this number decreases as a result of the availability of ART treatment and resulting decreases in morbidity and mortality, this would have a significant positive affect on the health system as a whole.

Amongst all treatment programmes, there had been decreases in both morbidity and mortality, which would have a positive impact on other programmes in that HIV/AIDS patients are healthier and requiring less care, thus revealing less demand on health care infrastructure. Only one respondent, a doctor at Malmesbury, claimed that mortality had remained steady because it was too soon to see a reduction resulting from ART. The rest of the respondents reported a decreased number of deaths because of

the availability of treatment. However the decrease in deaths was dependent on how soon a patient came in to receive treatment. A nurse at TC Newman said that the decreased mortality was particularly evident amongst the children on treatment. A nurse at Sundumbili also noted that along with the decrease in deaths there had also been a decrease in incidence of opportunistic infections amongst treatment patients.

There was no clear answer as to the impact that the ART programme was having on other programmes in terms of infrastructure. There was some concern that ART patients required more attention from other departments, thereby increasing the workload for other departments. However, it could accurately be argued that this increased workload was a result of HIV/AIDS rather than of treatment scale-up. Because the respondents recognized a decreased number of deaths and a decreased incidence of opportunistic infections, it is evident that the ART programme was having a positive impact on other programmes by decreasing the demand on hospital infrastructure to care for people with HIV/AIDS. This section now turns to the infrastructure situation in terms of space, equipment, and laboratory facilities to determine how these specifically are impacting on the ART programme and other health system programmes.

### *Space*

Lack of space was a pervasive problem. It will be discussed below in the context of the impacts of space limitations on the treatment programmes in the form of quality of care and on the health system in its entirety.

With the exception of two doctors at Malmesbury Hospital, every respondent reported that the treatment programme did not have enough space. The doctors at Malmesbury did say, however, that lack of space was a problem in the past that had just recently been improved. Most respondents reported that lack of space was a major weakness of the programme and that it was a significant limitation to expansion. Along with staffing shortages, this was the most often mentioned problem faced by the treatment programmes, and several times was brought up without being prompted by questions. The initial lack of space slowed the rollout of ARVs from the start at Maphumulo Hospital, Kwadukoza Clinic, and Stanger Hospital, indicating that the programme was initiated without putting in place the appropriate amount of capacity for the ART sites. According to a professional nurse at Sundumbili in KwaZulu-Natal, when the programme started they only had one room. Over time this became insufficient to deal with the number of patients, and the amount of space had to increase. Although they acquired an additional office and park home, the nurse felt that because the clients were increasing daily the space was still not enough.

Because of the rapid increase in patients at most ART clinics, there was also an increased demand for space, which in most cases was either not met or met only after a long period of time. For example, Stanger Hospital's ART programme was running with only one paediatric room and two adult rooms for 2,200 patients. According to a Stanger doctor, the ideal situation would be three to four clinical rooms for adults and at least two paediatric rooms. In several cases where more space was made available, it was not provided by government or hospital funding, but rather by ARK funding, which provided additional park homes for many of the programmes.

Two of the problems resulting from the lack of space were decreased quality of care and lack of privacy. Decreased quality of care resulting from lack of space was reported at Maphumulo and Stellenbosch. In some cases the limited space available was preventing the programmes from running daily clinics. At TC Newman, a doctor said that the lack of privacy resulting from space limitations was a major concern. They did not have doors in the clinic, so a counselor had to hold up a blanket while the doctor saw a patient, while at the same time nurses drew blood and counselors met with patients behind curtains. In the paediatric clinic, adolescent girls and boys had to undress without any privacy. According to the doctor, "It's the worst of circumstances." This raises the question of whether or not the programme was recognizing the integrity and rights of patients. A nurse at Kwadukoza said that the lack of space made patients feel uncomfortable because they were constantly moved around the congested clinic.

All of the sites that were limited in terms of space said that there were future plans to increase the amount of space allocated to the programme. Many feared that without increased space, they would not be able to treat patients. A doctor at TC Newman said that if they were unable to get more space to run daily clinics:

*We will reach a point where people are dying outside, because they don't receive medicine and they are dying for no reason because they can't get help. That's my big concern. People are dying now outside because we can't accommodate them.*

Space was the major concern in regards to infrastructure. Almost every respondent cited space, along with staff shortages, as limiting the expansion of the programme.

Another major issue that was raised in regard to space was the problem of lack of privacy. The anecdote shared by the TC Newman doctor explaining the problem of privacy raised the question of whether or not the programme was recognizing the integrity and rights of patients, and was an example of the inability to provide a high quality of care under the current circumstances. In relation to the health system as a whole, the use of space by ART programmes was not having a negative impact because most of the physical space was either built specifically for the programme or had previously been unused infrastructure. In a couple of instances, however, there was a negative impact because space had to be borrowed from other departments.

Overall space was a major concern for the ART programmes because lack of space was jeopardizing the quality of care and the ability to expand. If left unaddressed, it could not only cause difficulties for treatment programmes, but also for the rest of the health system in that it makes integration of programmes difficult and could negatively impact the morale of health care workers.

### *Equipment*

Responses to questions about whether or not they had enough equipment were split equally between those who felt their programmes had adequate equipment and those who felt their programmes were lacking. Some of the respondents at Maphumulo, Sundumbili, TC Newman, Malmesbury, and

Stellenbosch reported having adequate equipment. However, other respondents at Malmesbury Hospital and TC Newman felt that they did not have the equipment they needed. Many of the respondents who felt their programmes were well equipped also reported having quality equipment. Some of the necessary equipment for the treatment programmes included blood pressure machines, scales for weighing patients, and thermometers. Other non-medical equipment included telephones, computers, and furniture. Several of the programmes reported needing x-ray equipment on site.

Most of the personnel interviewed said they faced long waiting times before getting the equipment they needed. For example, the chief medical officer at Maphumulo Hospital said that although they were well equipped in terms of medical equipment, they were waiting for basic equipment such as desks. A nurse at Kwadukoza said that it took three to four months after motivating for equipment before it was received. A doctor at Malmesbury reported that:

*It's sometimes just the access to availability of equipment which is difficult, you know, because the red tape can be horrific, but the equipment is there.*

Another doctor at Malmesbury Hospital said that equipment was a limiting factor for the programme and that up until two weeks prior to the interview they did not have telephones. This was a major problem because in order to contact patients or other medical facilities the staff had to walk, consuming a large amount of time.

Some of the respondents who felt they were not well equipped reported having to borrow equipment from other departments. This was reported at Kwadukoza, TC Newman and Idas Valley Clinic in Stellenbosch. In most cases where equipment was borrowed this was a source of tension between the ART programme and other departments. Thus the ART programme was having a negative impact on other departments and programmes.

The main problem found by this study in terms of equipment was the length of time it took to receive equipment that had been requested. Although the majority of respondents had the equipment they needed, there were several cases where equipment had to be borrowed from other departments and this was seen as problematic. The need to expand the capacity of the health system with additional resources was recognized by Atwell and Mundy (2003) as one of the main challenges to scale-up in relation to infrastructure. This research found, similar to their study, that this increased need for resources may lead to the reallocation of equipment from non-AIDS related programmes. Several of the respondents in this study found this to be a problem, suggesting that it may be a broader problem within the system. There was no mention of improvements in equipment benefiting non-ART programmes or increased access to technology for either the ART programme or other programmes. In all cases it was either a situation where there was no impact or there was a negative impact because of the need to borrow equipment.

#### *Laboratory facilities*

Laboratory facilities were used by ART programmes to figure out CD4+ counts to determine patients' readiness to begin treatment and to monitor

their health once on treatment. The study looked at how the ART programmes were impacting laboratory facilities in terms of workload and their ability to cope with increased demand.

Almost all of the respondents reported that the laboratories were coping well with the increased workload created by the treatment programmes with little impact on the turn around time. This was especially true in the Western Cape, whereas some of the sites in KwaZulu-Natal felt that they needed more laboratory facilities in order to meet the increased demand. The majority of sites in KwaZulu-Natal used the laboratory facilities at Stanger Hospital. A doctor at Stanger Hospital said that there had been a negative impact resulting from the increased workload because the laboratories were understaffed, with just two employees working with all of the ART specimens. Many said that as the numbers of patients continued to increase, it would continue to place a heavy burden on the laboratories and could impact their ability to cope with the workload in the future.

Although it was reported that laboratories were coping with the increased workload, it is striking that there was a significantly higher demand at the laboratories and that for the majority of programmes, the laboratories were not at the treatment centre but rather at nearby hospitals. This indicates that the treatment programme may have had a negative impact on laboratories. While they were coping at the present, this may be a major problem in the future. As outlined by WHO, strengthening laboratory services was one of the primary needs to be addressed for a successful ART scale-up. Based on this study, it appears that little progress has been made in this capacity. The difference between access to laboratories between the two provinces was most likely due to the fact that the Western Cape programme was better established and had time to more adequately build up its infrastructure, such as laboratories.

In terms of space, equipment, and laboratory facilities, there were some issues of great concern. The lack of space was a major limitation to expansion of the programme and to quality of care. The fact that the programmes in some cases had to borrow space and equipment from other departments was concerning because it shows that the programme may have had a negative impact on the health system in that resources were reallocated away from other areas. In addition, although laboratories were currently coping with increased demand it was unclear whether or not this could continue as the programmes expanded. These issues need to be addressed in order to ensure that in terms of infrastructure the ART programmes were not impacting negatively on the rest of the health system.

#### 4.4 Other issues

There were several other issues that emerged from the interviews which were not related to the major areas of the research questions. Although these issues are not related directly to the major themes they still impact significantly on the overall health system. The other issues that emerged are the impact of traditional medicine on the treatment programmes, the socio-economic status of patients, and the human rights approach.

#### 4.4.1 Traditional medicine

Traditional medicine was brought up in five of the interviews, four of which were in KwaZulu-Natal. In most instances, traditional medicine was seen as a barrier to the treatment programme. According to the chief professional nurse at Maphumulo Hospital in KwaZulu-Natal:

*Most of us believe, strongly believe in these izinyanga<sup>9</sup>, because we stay with them, they take care of us. So there is that. So it's going to take a very long time to move away from them to these ARVs.*

The health care personnel that spoke about traditional medicine felt that because patients often first visited a traditional healer, they were more likely to begin treatment too late. A chief professional nurse at Maphumulo felt that the people in the community were confused and being discouraged to use the ART programme. Traditional healers were advocating for uBojane and uSindiso, which were herbal mixes said to provide a cure for AIDS. In some cases, the chief professional nurse said, patients who had already begun treatment would leave to try these cures, making traditional medicine a detriment to successful adherence to the ART programme. She felt that it would most likely be a long time before the community fully accepted the ART programme.

A doctor at Stanger, however, felt that there was already a shift in the community, saying that people used to visit the izinyanga more often, but were seeing that the doctors could help and were therefore more likely to get tested for HIV. According to a doctor at TC Newman, it was important for doctors to respect the traditional healers and to respect their patients' wishes to consult them. She said that:

*I had a patient with severe Karposi and I offered treatment and she told me she had to go back to the Eastern Cape, she has to see a sangoma<sup>10</sup>, she has to make sure that her ancestors are satisfied with treatment [...] And she came back in two weeks time and she started on the treatment. So if you have that little bit of sensitivity [...] they trust you.*

The issue of traditional medicine was significant in that it was at times sited as preventing patients from beginning treatment at an early enough stage. Although some informants were concerned about the impact of traditional medicine on delaying the uptake of ART, the study is not conclusive on the overall impact of traditional healers. Progress still needs to be made in changing the perception of medical treatment of HIV/AIDS. Recognizing the importance of traditional medicine is not only an issue of cultural tolerance, but rather a holistic approach to treating patients.

#### 4.4.2 Socio-economic status of patients

Different aspects of the socio-economic status of patients were mentioned in eight of the interviews, all but one of which were in the Western Cape. Many health care personnel interviewed felt concerned about their inability to treat

<sup>9</sup> A Zulu traditional healer who uses traditional medicine for healing purposes; an herbalist.

<sup>10</sup> A Zulu traditional healer who uses divination for healing purposes; "sees and tells."

patients holistically. While they were able to provide treatment, they were not able to provide patients with work, housing or food, making the treatment less effective. According to a nurse at Stellenbosch, this lack of holistic care was problematic, asking “how can you take the pill when you have nothing to eat?” The chief medical officer at Maphumulo also felt that poor nutrition resulted in a poor prognosis for patients. This was seen as very frustrating to many respondents because there was a limit to the treatment that they were able to provide patients.

Another socio-economic issue addressed by respondents was race. According to a nurse at TC Newman, the African communities spoke more openly about HIV and about being on treatment, whereas stigma was more of an issue in coloured communities. The nurse felt that the attitude in African communities was “we are in this together so what are we going to do about it?” A nurse at TC Newman also felt that different race groups approach HIV/AIDS differently, but saw it from another perspective. According to the nurse, among coloured and black communities there was more of an attitude that HIV was something from the white people, therefore it created suspicion toward treatment.

The socio-economic issues that emerged from this study all had the potential to significantly impact the success of ART scale-up. Most notable was the lack of a medical model that emphasized nutrition. Without proper nutritional support, the success of ART was compromised. This is representative of the relationship between HIV/AIDS and poverty, as discussed by Preston-Whyte (2003), Natrass (2004) and Demeny (2001). For example, it is illustrative of Natrass’ claim that poverty alleviation is a precondition to combating AIDS because AIDS treatment and prevention are most effective when people are well nourished (Natrass 2004). The issue of race was also notable because it would need to be addressed by treatment programmes to improve the success of programmes. Socio-economic issues emerging from the treatment programme relate to the overall health system in that they may impact the effectiveness of the programme, which in turn has an impact on the health system. For example, if a patient fails treatment because of nutritional problems, they will require more medical attention from the health system and it will have been a waste of resources used in treatment. In addition, the socioeconomic issues that patients faced, most notably poverty and malnutrition, reveal the need for comprehensive health care. Treatment alone was not enough to address AIDS or its related problems. Other important socio-economic issues also needed to be addressed.

#### 4.4.3 Human rights

A few of the respondents raised some of the issues relating to human rights and treatment for HIV. Two nurses from Kwadukoza felt that the programme was a success based solely on the fact that people were alive, some of whom had come back from CD4+ counts in the single digits and were living healthy lives. This view of the success of the programme based on their health would support the argument that health is a human right that should be provided to all people. The chief medical officer at TC Newman would agree with this, saying that in an area with such high HIV prevalence, it is necessary to recognize that people with HIV were also a part of society and of South Africa. According to the chief medical officer:

*If [...] thirty per cent of South Africa is going to be HIV positive [...] those thirty per cent of society are part of our future. Are they going to be a burden, or are we going to empower them to actually be part of our future?*

Similarly, a doctor at Malmesbury felt that a patient on ART was “just another patient with another disease” and was just as deserving of treatment as any other sick person.

The theme of human rights, which emerged from these findings, was significant because it puts forth the argument that regardless of the impact that the treatment programme may have on the health system, it is the right of patients to receive treatment. This is also related to the issues of privacy and quality of care discussed earlier because in some cases the lack of resources, staff, or space compromised these aspects of care. While the human rights based approach provides a strong argument for the scale-up of ART, it was not the focus of this study. Questions were not directed to the respondents during the interviews about human rights; rather several respondents mentioned issues of human rights unprompted. Because it was not the focus of the study, the human rights based approach is not explored in detail in this report.

## 5 Conclusion

### 5.1 Concluding remarks

The ART programmes have had an impact on the health system as a whole in South Africa. It is also clear that the impact was neither entirely negative nor entirely positive. There were positive aspects, such as the decreased morbidity of patients and decreased complexity of cases, which resulted in a decreased burden on the health system as a whole because people were healthier and needed less care. In addition, providing treatment created an incentive to get tested, and thus treatment was a form of prevention. It also raised education and awareness about HIV/AIDS in the community, which had the potential to decrease stigma, create behaviour change, and further prevent HIV infections, although this study only suggests these as possible outcomes rather than providing proof that treatment is creating these benefits.

Another benefit of the programme was increasing morale among staff and creating a sense of hope throughout the entire health system. While these results were centred in the ART programmes, they also had the potential to impact positively on health care workers in other departments by creating a positive feeling of being able to help patients and being able to address the HIV/AIDS epidemic. Staff morale was a major finding of this study. Respondents repeatedly reported that morale was high and that staff felt motivated because they were able to provide hope to patients and were able to treat PLWHA whereas before they felt helpless and unmotivated. This reveals the importance of individual agency in the success of health care programmes. Despite often difficult working conditions and increased workloads, staff felt positive about the work that they were doing.

The most commonly discussed negative impact of the ART programmes was that at times they had to borrow staff, equipment, or space from other departments. This was a cause of conflict between the ART clinic and other departments and also could be detrimental to the services provided by other sections of the hospitals or clinics. Already existing shortages of staff and space in the health care system exacerbated problems in that resources were already spread thin prior to the ART rollout. Most of the sites reported that staff shortages and lack of space were the most significant barriers to the expansion of the ART programmes.

Another negative impact of the ART programmes was that although it was rarely mentioned that the programmes were directly taking staffing, infrastructure, or funding from other departments, the resources that were allocated to the programme could have been used otherwise. For example, the ART programmes all received a separate budget meant only for the rollout. Were it not for the rollout of ART, this funding may have been otherwise allocated. Therefore, it can be argued that the ART programme was indirectly taking resources from other aspects of the health system.

It was often difficult to distinguish between impacts that were specifically felt because of the ART programme and those that were created by the HIV/AIDS epidemic. For example, many respondents felt that the treatment programme had increased workload, but it was not clear whether or not the

workload had increased because of the treatment programme or because of HIV/AIDS. In all likelihood, the workload would have increased regardless of whether or not the ART rollout happened because of the increased demand on the health systems caused by the epidemic. Furthermore, it could be argued that because of the decreased morbidity and the delayed incidence of opportunistic infections, the overall burden on the health care system was lower than it would have been without the treatment programme rather than higher. Similarly, staff and space shortages were issues for the entire health system, not just for the ART programme. These were not issues that resulted only from the treatment programme, although the treatment programmes put further strains on an already resource-limited health system.

There were several instances where the differences between the situation in KwaZulu-Natal and in Western Cape were notably different. These differences were mentioned in the results and discussion section above. There was a difference in the availability of training. Respondents in KwaZulu-Natal mentioned that there was training offered by the district government whereas this was not mentioned in Western Cape. This was most likely because the rollout in KwaZulu-Natal was more government-based, while that in the Western Cape was more NGO-based. In terms of laboratory facilities, Western Cape seemed to be coping better with the increased workload, while several sites in KwaZulu-Natal felt that they needed more laboratory facilities. This may have been a result of the KwaZulu-Natal health system being more fragile and having to deal with more patients who were HIV positive than in the Western Cape. Programmes in KwaZulu-Natal were reported to be better integrated than they were in Western Cape, possibly because the ART programme is hospital-based in KwaZulu-Natal; therefore the programmes are in closer proximity and have a closer relationship to begin with. Traditional medicine was mentioned more in KwaZulu-Natal than it was in Western Cape as a barrier to accessing treatment because patients often sought help from traditional healers before seeking the help of western medicine. This was most likely a result of there being African traditional areas in KwaZulu-Natal and near these facilities. Finally, the socio-economic status of patients was discussed more in Western Cape than in KwaZulu-Natal. It was not evident why this was the case and would need to be studied further to determine the cause.

The above differences are important in highlighting the differences between the ART programmes in the two provinces. For example, the existence of a more hospital-based programme in KwaZulu-Natal was more successful in that it allowed for more thorough integration of programmes. There is also evidence of the benefits of a government-based rollout in that there was more availability of government-supported training reported in KwaZulu-Natal than in Western Cape. However, the more stable health system in Western Cape was beneficial in that the laboratory facilities were better able to cope with the ART rollout. Because this was not a comparative study between the two sites, these issues were not developed further, but could provide issues for further research.

Treatment emerges from this study as an important policy response to the HIV/AIDS epidemic. First of all, treatment successfully created positive morale among staff, resulting in dedicated and motivated human resources. This is an integral part of both the treatment programmes and the health system as a whole. In addition, as indicated both in the literature review and in the results, access to treatment encouraged the uptake of VCT and thereby

provided a means of prevention. It created increased awareness and education, which has the potential to decrease stigma and create behaviour change in the community. In this way also, treatment is a form of prevention. Although there was some fear of increased access to treatment resulting in increased sexual promiscuity, there was no evidence of this from this data set, but it could be investigated in greater detail. An additional positive impact was the integration of ART with other health system programmes. Where this was successful, it created a more efficient and effective health system.

Overall, there was little evidence of the treatment programmes impacting negatively on the rest of the health systems. When there was a negative impact, it was in the form of having to borrow resources from other departments. Although this was an inconvenience it was not cited as being a major problem. Therefore, it appears that treatment programmes can run simultaneously with other programmes, both HIV and non-HIV, as an integral part of the response to the HIV/AIDS epidemic without having major negative impacts on the operation of the rest of the health system.

## 5.2 Further research

There are several areas that emerged through this study as areas that required further research. A more rigorous comparative study could investigate the differences between provinces in depth, trying to determine the benefits of the different forms of rollout and what characteristics create a more successful treatment policy.

The importance of morale and hope is another area that could be further investigated. This emerged as a positive result of ART scale-up in that the ability to treat patients improved the morale of staff and generated optimism and positive energy both among patients and among health care workers. Further investigations into what creates and sustains positive morale and high levels of hope among health care professionals would be beneficial to the health system as a whole in that it would help maintain human resources who are motivated and dedicated. Furthermore, research could look in more depth at the impact of positive morale and individual agency on the success of health programmes, including treatment rollout.

Another research area is the difficulties related to dependence on NGO and international funding. As discussed in the postscript, the ARK funding that many of the ART programmes relied on is not sustainable. Thus, depending on non-governmental forms of funding can be problematic in that they are not always reliable or long-term. Whether or not this is an issue on a larger scale could be further investigated to look at how to address this dependence and how to alleviate the impact of funding being withdrawn.

Although not the focus of this study, interviews showed that the creation of integrated and holistic health systems is another area that warrants further investigation. Reliance on traditional healers was cited as being problematic because patients often delayed accessing treatment by first approaching traditional healers for help. In some cases, this results in patients beginning treatment at a late stage of AIDS in which treatment is less affective. Further research could look into how much of a problem this is, in what areas of the

country it is more problematic, and how it can best be addressed while still respecting and integrating traditional values.

Another issue that emerged that could be further researched was the relationship between greater accessibility of ART and stigma in the community. This could look at to what extent treatment is effective in decreasing stigma. This could be taken further to look at the relationship between treatment and behaviour change. It would be interesting to look at whether or not through increased awareness, treatment programmes could be used more extensively as prevention programmes aimed at creating behaviour change in the community.

### 5.3 Implications for policy

In order for treatment programmes to be sustainable and to avoid potential negative impacts that they may have on the health system, a number of issues need to be addressed urgently. First, funding needs to be sustainable and separate from the rest of the hospital/clinic budget to ensure independence of the programme and to ensure that the ART programme does not take funds from other aspects of the health care system. Along with the sustainability and availability of funding, there is also a requirement that available funds be used efficiently. Although funding was not cited as being problematic by most of the respondents, the fact that staff, space, and in some cases equipment were in short supply indicates that funding was not entirely sufficient to provide for the running of the programmes. When the data was collected, most of the respondents reported having separate budgets for the ART programmes. It is important that this continues so that resources are not allocated away from other departments, thus creating a situation in which the ART programme is a drain on the rest of the health system.

Staffing is another issue that must be addressed. It is necessary to address the shortages of health care personnel, which is not only an issue for ART rollout, but for the health system as a whole. Incentives should be provided to ensure the retention of current staff and to encourage more people to enter health care professions. Addressing human resource shortages is necessary in the success of treatment programmes. It is also necessary in ensuring that ART rollout has as little an impact on other programmes as possible because there will be less necessity of borrowing staff from other departments. In addition, more training needs to be made available to all staff about HIV/AIDS management. Overall, it is important that staff morale be kept high because this was repeatedly cited by respondents as being necessary for the success of the ART programmes. Without motivated and dedicated staff, successful ART scale-up is not possible.

Finally, there is a need for increased government support, both financially and in the form of leadership. The financial needs were already discussed in terms of the need for sustainable funding. If an ART rollout is going to be successful, it needs to be properly resourced. This includes funding being made available to address shortages of human resources and of space, which were both detriments to the rollout of ART. The government also needs to provide strong and united leadership in addressing the HIV/AIDS epidemic. The government must take the epidemic seriously, and this includes

addressing the needs of the ART scale-up and more fully committing to treatment as a policy response.

## 6 Postscript: The situation at Stanger Hospital two years later

In April 2008, I visited Stanger Hospital in order to determine if any major changes had occurred in the two years since the interviews had been conducted. I spoke with the hospital manager, the coordinator of the PMTCT clinic, and three ART nurses, one of whom was the sister-in-charge. This was not a comprehensive study of all changes that had taken place or an attempt to compare the current situation to that of two years ago. It was a general overview of any significant shifts in ART rollout and its impacts on the health system. There was a major public sector strike in late 2007 that affected the entire South African health system and was taken into consideration accordingly.

Two major changes that had occurred in the ART programme as of 1 April 2008. First of all, the PMTCT programme now offers dual therapy drugs to the patients, rather than the single therapy that was formally provided, which has resulted in increased workload in the clinic. Although the PMTCT programme was not the focus of the original study, the changes in the programme are related to the ART programme as a whole. The second major change at Stanger Hospital is that the ART programme has started a process of decentralizing the ART rollout to the nine surrounding clinics. Stanger now only deals with patients with complications who are in immediate need of treatment. This has created a more nurse-centred programme and has significant impacts on all aspects of the ART programmes both at Stanger and at the clinics in the Ilembe district. I will now look at the impact of these shifts on the four major aspects of health care investigated by the study, taking note also of other changes that may have occurred over the past two years.

### 6.1 Human resources

According to the hospital manager, the staff has remained quite stable, but it is striking that the other four people interviewed were all new to the hospital in the past two years, indicating that the personnel has not been entirely unchanged. The nurses also felt that staff turnover was low, though. It is also notable that there has been no significant increase in the number of health personnel working in the ART programme, although according to the hospital manager, there has been an increase in patients enrolled. He felt that this is a national problem, arguing that there was no strong model created for the rollout. While the government has set a goal in terms of numbers of patients that should be treated, there has been no corresponding human resources plan to support the projected number of patients on ART. The nurses interviewed all agreed that staff shortages are not as much of a problem anymore at Stanger because of the downshifting to the clinics. The hospital manager, however, noted that they needed pharmacists and dieticians to work for the ART programme.

The decentralization of the ART programme has reduced the workload significantly at the ART clinic at Stanger, but according to the nurses this has shifted the burden to the clinics. The staff members at the nine clinics are now complaining of having to deal with a heavier workload. The hospital

manager also felt that the downshifting of rollout to the clinics has created “nine areas of stress now” even though it has alleviated stress at Stanger. The change in workload that occurred at Stanger results from the fact that most of the cases seen there are now only patients with complications and patients who need fast-tracked treatment. This has resulted in an increased complexity of cases that the Stanger programme must deal with.

The nurses at the ART clinic felt that staff morale is down. They said that this is not because of the work, but rather because of the new Occupational Specific Dispensation<sup>11</sup> (OSD) programme that was implemented in 2007. They reported that the OSD is having negative impacts on salary and their ability to make a good living in that it makes it more difficult to get to higher levels of pay. It is not clear whether this is in fact the case or if it is just a perception of the programme. The low staff morale may also have been impacted by the 2007 public service strike and the connected emphasis on job dissatisfaction.

The introduction of dual therapy drugs in the PMTCT programme has created a significant increase in workload because there is more need for monitoring and because the drug must be administered earlier in the pregnancy. According to the PMTCT coordinator, this is problematic because like with the ART programme, there has been no change in human resources to address the increased workload. The programme was instructed by the government to implement the dual therapy starting 1 April, but only had three weeks notice and did not receive additional staff, training, or guidance. This raises the question of sustainability. In the first three weeks of the programme, 200 patients were put on treatment. Whether or not the PMTCT programme can expand in a sustainable fashion without an increase in personnel is questionable, according to the coordinator. Although the staff is enthusiastic at this point because of the excitement related to introducing a new programme, it remains to be seen whether or not this enthusiasm will remain high as numbers of patients increase without increases in human resources.

In terms of the health system as a whole, it seems that at Stanger the new decentralized programme is addressing health personnel shortages. This is improving workload issues, but the OSD seems to be a significant obstacle to staff morale. This is important because the findings that emerged from the original study indicated that staff morale was one of the greatest strengths of the ART programmes and that often the success of the programmes was dependent on a highly motivated and dedicated staff.

## 6.2 Health services

According to the PMTCT coordinator, the new PMTCT programme is having a negative impact on other services in that the PMTCT nurses also work in other aspects of the clinic, and the new programme is consuming more of

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<sup>11</sup> The OSD was created by the Department of Health and trade unions in an attempt to increase salaries for nurses by 20-24% (from a Department of Health Press release on 15 January 2007, entitled “All nurses to benefit from an agreement with unions”). The nurses interviewed, however, felt that it actually made it more difficult to move to the next pay level, and thus in the long run their salaries were less secure than they were before the implementation of the OSD.

their time. Therefore, they are less able to focus on other aspects of the clinic. In addition, more patients are attending the clinic and requiring services now. It is also having an impact on the labour ward because the patients need drugs administered every three hours during labour. This adds to the responsibilities of doctors and nurses in the labour unit. Similarly, the post-natal unit now has additional responsibilities in that they must administer and monitor more drugs.

The nurses interviewed felt that the ART programme had a good relationship with other programmes. The sister-in-charge did say, however, that there was some friction between the ART programme and other programmes because doctors in other departments do not know enough about the programme. In some cases, this has led to patients being discharged when they should not have been.

The PMTCT coordinator felt that there was a lack of integration between the ART programme and the PMTCT programme that should be addressed. They are currently separate, with the PMTCT programme run by the antenatal clinic. Although patients are referred between the two clinics, the coordinator felt that it would be more beneficial to both if they were integrated more systematically. As it is, procedures are being duplicated and resources are being wasted. This is having consequences in that it takes up more of the patients' time and it is easier to lose track of them.

### 6.3 Infrastructure

According to the hospital manager at Stanger, space continued to be a problem for the ART clinic, but it was better now because of the new system. However this means that space is now more of an issue for the clinics. The problem is not being eradicated but rather shifted. According to the nurses, space is still a major problem for the programme. One nurse gave the example of having to do pap smears in another section of the hospital because there was nowhere to do them in the ART clinic. They are currently borrowing space from the paediatric ward in order to perform pap smears and this is causing conflict because the paediatric unit wants the space back. The PMTCT programme is also facing increased space needs, not only to address the increased workload but also space to provide training for the staff on the new programme.

In the new PMTCT programme, equipment is problematic. Because of the additional monitoring necessary for the dual therapy drug, different and more equipment is needed by the programme, which has not yet been supplied. As with human resources, it seems that issues of equipment were also not addressed in the introduction of the rollout of dual therapy drugs. As a result, the PMTCT programme has been required to take resources from other departments, which has been a source of tension between the programme and other departments.

### 6.4 Funding

Funding is an issue for the ART clinic at Stanger. According to the hospital manager, there is never enough money and they are over-spending every year. Although they want to and need to increase staffing, there is no funding to support this. He feels that the ART budget is not enough to support the

increased number of patients on ART and that the provincial government is not receiving enough from the national government for ART. However it is also an issue of efficiency, in that the hospital manager feels that the money is not always spent in the most effective way by the province. As a result, there is massive over-spending throughout the province.

The Stanger ART programme is still receiving funding from ARK, which provides the salary for some staff. This is problematic however because it creates complicated dynamics in that some staff are being paid by ARK but working for the Stanger health authority. This is also problematic because ARK is now implementing an exit strategy in order to move to higher need areas that require strengthening. While they are meant to leave the staff that they have been funding with the programme, there is question as to how Stanger will be able to match their salaries. This shows that the NGO funding that has been supporting the programme is in fact unsustainable, which was a fear that emerged from the original study. It is unclear how Stanger will reallocate funds in order to fill the gap left when ARK pulls out, but this may have an impact on the rest of the hospital and on other programmes.

## 6.5 Stigma

Another issue that was addressed by the health care personnel who were interviewed was stigma, which also emerged as an issue two years ago. However, it seems that stigma in the community has improved in the time that has passed. According to one of the nurses, stigma has changed because so many people have AIDS. In her opinion, there are now less people who are hiding their status because there is a feeling that everyone has it so there is no point in hiding it. Unfortunately, she did not feel that this has led to a corresponding change in behaviour. The PMTCT coordinator felt that any stigma change was not a result of the treatment programme. She said that stigma remains one of the major barriers to accessing to treatment.

## 6.6 Conclusion

The visit to Stanger was important in highlighting some of the changes that had taken place over the two years since the original study was done. The most significant change is the decentralization of the rollout from Stanger to the surrounding clinics. Because I did not visit the surrounding clinics and because the new programme had only been implemented a few weeks before I visited Stanger, it is difficult to say what the long-term impacts of this downshifting will be. Although the decentralization has improved some of the major problems at Stanger, most notably staff shortages and space shortages, this has shifted the problem to the clinics. It is striking that ARK will be pulling out in the near future because funding was not cited as being a major limitation two years ago, but it most likely will become more of an issue with this loss of funding. It would be interesting and beneficial to complete a more comprehensive follow-up study to investigate the long-term impacts of the new decentralized system and of the end of ARK funding on the ART programme.

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# Appendices

## Appendix 1: Research Consent Form

**Title of Study:**

A Study of the Systemic Impact of Anti-Retroviral Therapy (ART) Scale-up in South Africa

***The participant should complete the whole of this sheet him/herself or with the help of an interviewer where appropriate***

*Please tick or circle*

Have you read the Information Sheet?	Yes	No
Have you had the opportunity to ask questions and discuss the study?	Yes	No
Have you received satisfactory answers to all of your questions?	Yes	No
Have you received enough information about the study?	Yes	No
Do you understand that you are free to withdraw from the study, at any time, without having to give a reason, even after giving consent, and without affecting the quality of your present or future medical care?	Yes	No
Do you agree to take part in this study?	Yes	No

I understand that the hospital's Ethics Committee may review this form as part of a monitoring process.

**Name in block letters:**

Signature:

Date:

**Name of person obtaining consent:**

Signature:

Date:

## APPENDIX 2: Participant Information Sheet

02 December 2005

### **Information Sheet for Participants**

(to be read to participants who unable to read)

#### **Study title**

A Study of the Systemic Impact of Anti-Retroviral Therapy (ART) Scale-up in South Africa

#### **Invitation to participate in a study**

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done, what it will involve and whether or not you wish to take part. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Thank you.

#### **What is the purpose of the study?**

We wish to investigate the perceptions of health professionals about whether expanding the Anti-retroviral therapy (ART) programme in South Africa to reach more people has had any effects, positive or negative, on other HIV prevention programmes and the health care system. The study is funded by the UK Department for International Development (DFID) and is being carried out by the Health Economics and HIV/AIDS Research Division, University of KwaZulu-Natal and Imperial College, London.

#### **Do I have to take part?**

It is entirely up to you. If you do decide to take part you are free to withdraw at any time.

#### **What will happen to me if I take part?**

You will be asked to take part in an interview or a focus group discussion, which lasts around 1 hour. Your answers will be either recorded by an interviewer or on a tape recorder.

#### **Will my taking part in this study be kept confidential?**

The interviews are confidential and anonymous. No names are recorded and what you say in the interview will not be attributed to you personally. The interviews are taped because we are interested in having an accurate record of the opinions expressed. The tapes are stored in a safe place and are destroyed after they have been analysed.

#### **What if I am HIV positive, enrolled on the ART programme or receiving anti-retroviral drugs?**

Your participation in this study will not expose you to a situation where details about your identity, personal circumstances, medical treatment, or HIV status are divulged to another party other than the research members without your consent.

#### **What will happen to the results of the study?**

The results of the study will be written up into a report which will be used to identify how ART programmes can be implemented and expanded in ways that strengthen the other methods of controlling HIV/AIDS and improve the overall health care system.

**Who do I contact for further information?**

You may contact the following persons for further information about the study:

Gavin George: Health Economics and HIV/AIDS Research Division, University of KwaZulu-Natal, Durban. Tel:

Nina Veenstra: Health Economics and HIV/AIDS Research Division, University of KwaZulu-Natal, Durban. Tel:

Patrick Tobi: Dept. of Primary Care & Social Medicine, Imperial College London, UK.

Tel: +44 (0)20 7594 0768; [patrick.tobi@imperial.ac.uk](mailto:patrick.tobi@imperial.ac.uk)

Adrian Renton: Dept. of Primary Care & Social Medicine, Imperial College London, UK.

Tel: +44 (0)20 7594 0810; [a.renton@imperial.ac.uk](mailto:a.renton@imperial.ac.uk)

**Thank you for taking part in the study. Your help will be of great value to us.**

**You will be given a copy of this Information Sheet and asked to sign a consent form after reading it.**

## APPENDIX 3: Interview Topic Guide

### Interview Topic Guide

*Introduction:*

1. Interviewer starts by introducing self and research group
2. Introduce study – summary, objectives, benefits, stages, range of stakeholders to be interviewed and why, outputs and dissemination (the informant should have received and read the participant information sheet before the interview)
3. Explain that you will ask the informant to speak generally on certain issues about HIV/AIDS, ART, and health care issues and that you may need to clarify parts of his/her response by asking some specific questions
4. Explain that the session will last around 1 hour and will be taped to ensure that an accurate record of the interview is obtained
5. Obtain written consent to participate in the study. Explain that the consent may be withdrawn any time before, during or after the interview

*Note to interviewer: Not all open questions or probes may be relevant to an informant. Only relevant ones should be asked. You will find it helpful to tick each question as it is answered either during open questioning or probing.*

*Open questions      Probes*

**A. Background information on informant**

1. Hospital/Division: \_\_\_\_\_
2. Clinic: \_\_\_\_\_
3. Respondent’s job title \_\_\_\_\_
4. Respondent’s key responsibilities \_\_\_\_\_  
\_\_\_\_\_
5. Length of time in post \_\_\_\_\_

**B. Description of the ART programme**

**1. What do you know about the ART programme delivered in the hospital?**

- 1.1. How does it work?
- 1.2. Which are the main clinics/directorates involved?
- 1.3. What are the key policies/guidelines regulating it?
- 1.4. How many patients does it cover?
- 1.5. How successful has it been so far?
- 1.6. Does the programme reach those who need it?
- 1.7. What are the key successes/achievements of the programme?
- 1.8. What are the key weaknesses of the ART programme?
- 1.9. What are the key challenges/barriers in the further expansion of ART?
- 1.10. How will the programme develop in the future?

**C. Impact of ART on other HIV programme**

**1. What has been the impact of the delivery of ART on other HIV interventions delivered in the hospital so far (eg. VCT, PMTCT, IEC/BCC, condom distribution, STI prevention, etc)?**

**S**

- 1.1. Has there been any impact on political attention and support to other HIV programmes/interventions?
  - 1.2. Has there been any impact on the levels and distribution of funding for other interventions?
  - 1.3. Has there been any impact on the delivery of other HIV programmes/ interventions?
  - 1.4. Has there been any increase in provision or uptake of VCT?
- 2. Do you envisage any (further) impact in the future?**
  - 3. Have other HIV programmes had any impact (positive or negative) on the delivery of ART?**
  - 4. Do you envisage any further impact in the future?**
  - 5. To what extent has the ART programme been complementary to other HIV programmes?**
  - 6. Has there been any conflict between the ART programme and other HIV interventions?**

- D. Impact of ART on other health services**
- 1. What has been the impact of the ART programme on other services/clinics of the hospital so far (e.g. maternal and reproductive health programmes; child health programmes; STI control programmes; TB control programmes)?**
    - 1.1. Has there been any impact on political attention and support to other health services/clinics?
    - 1.2. Has there been any impact on the levels and distribution of funding between different services/clinics?
    - 1.3. Has there been any impact on the delivery of other services?
    - 1.4. Has there been any impact on the number of patients seen by this hospital?
    - 1.5. Has there been any impact on the complexity of cases seen by this hospital?
    - 1.6. Has there been any impact on integration of services and the way different clinics work together?
    - 1.7. Has there been any impact on morbidity or mortality within the hospital?
    - 1.8. How has the ART delivery affected the work of your clinic/directorate?
- E. Impact of ART on human resources**
- 1. What has been the impact of the ART delivery on human resources in the hospital so far?**
    - 1.1. What was the impact on the number of personnel in the clinics dealing with HIV/AIDS patients?
    - 1.2. What was the impact on the number of personnel in other hospital clinics/directorates?
    - 1.3. What was the impact on knowledge and skills of hospital personnel?
    - 1.4. What was the impact on training opportunities available to the personnel?
    - 1.5. What was the impact on incentives and the level of remuneration of the personnel in different clinics/directorates?
    - 1.6. What was the impact of ART programmes on relationships between the personnel within and between different clinics/directorates?
    - 1.7. What was the impact on the stigma of HIV/AIDS and people living with HIV/AIDS among health personnel?
    - 1.8. What was the impact on the morale among the personnel?
    - 1.9. What was the impact of ART on the workload of health personnel?
    - 1.10. What was the impact on the time health personnel spend at work?
    - 1.11. What was the impact on the level of stress among health personnel?
    - 1.12. What was the impact on the turnover of staff?
- F. Impact of ART on equipment and infrastructure.**
- 1. What has been the impact of ART on infrastructure and equipment?**
    - 1.1. What was the impact on the amount and quality of the equipment available to the clinics dealing with HIV patients?
    - 1.2. What was the impact on the availability of the equipment to other services/ directorates?
    - 1.3. Has running the ART clinics from the hospital affected the running of other clinics and services (e.g. shifting them to a different time, causing them to run for longer periods or stopping them entirely)?
    - 1.4. How has the hospital laboratory been able to cope with doing investigations for patients on ARVs in addition to their routine laboratory work?

**G. Socio-cultural impact of ART**

1.5. Has there been any impact on physical space available for different services or clinics?

**1. What has been the impact of ART delivery on perceptions and attitudes towards HIV/AIDS?**

- 1.1. Has there been any change in people's perceptions about the seriousness of HIV/AIDS?
- 1.2. Has there been any change in behaviours that either increase or decrease the risk of infection?
- 1.3. Has there been any change in the level of stigma and discrimination faced by PLWHA from the general society?
- 1.4. Has there been any change in the number of people presenting for voluntary counselling and testing?

## APPENDIX 4: Interview Guide for follow-up visit to Stanger, April 2008

1. Two years ago the major limitations to the ART programme found in the study were staff shortages and lack of space. Are these still issues? Have there been any changes? What other limitations do you face in expansion of the programme?
2. A major success of the programme two years ago was the dedication and commitment of the health care personnel. Has staff morale remained high? A major finding of the study was the power of morale to override poor working conditions and heavy workloads. Is this still the case?
3. In terms of funding, has ARK funding remained sustainable? Are their additional funds available from other sources now?
4. Equipment- Are labs still coping with the workload. Two years ago there were no equipment shortages at Stanger. Is this still the case?
5. Statistics- Changes in number of patients on ART, Changes in numbers of staff, changes in cost of treatment?