



Republic of Kenya

A large, three-dimensional red AIDS awareness ribbon is draped across the center of the cover, overlapping the map and the title text.

# **AIDS** **in Kenya**

**Trends, Interventions and Impact**

**Seventh Edition, 2005**

**Ministry of Health**



Republic of Kenya  
Ministry of Health

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# AIDS in Kenya

Trends, Interventions and Impact

7th edition, 2005

NATIONAL AIDS AND STI CONTROL  
PROGRAMME (NAS COP)  
Ministry of Health

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# Abbreviations

ACU	AIDS control unit
AIDS	acquired immunodeficiency syndrome
ANC	antenatal clinic
ART	antiretroviral treatment
ARV	antiretroviral (drug)
BSS	Behavioural Surveillance Survey
CBO	community-based organization
CBS	Central Bureau of Statistics
CDC	Centers for Disease Control and Prevention (of USA)
CHW	community health worker
FBO	faith-based organization
FHI	Family Health International
HBC	home-based care
HIV	human immunodeficiency virus
KDHS	Kenya Demographic and Health Survey
KEMRI	Kenya Medical Research Institute
KES	Kenya shilling; valued at 75 to the US dollar in this book
MOH	Ministry of Health
MOHA	Ministry of Home Affairs
NACC	National AIDS Control Council
NASCOP	National AIDS and STI Control Programme
NBTS	National Blood Transfusion Service
NCCS	National Council for Children Services
NGO	non-governmental organization
NLTP	National Leprosy and Tuberculosis Control Programme
NPHLS	National Public Health Laboratory Service
OVCs	orphans and vulnerable children
PLHA	people living with HIV/AIDS
PMCT	prevention of mother-to-child transmission
STI	sexually transmitted infection
TB	tuberculosis
TTI	transfusion-transmissible infection
UNAIDS	Joint United Nations Programme for HIV and AIDS
UNGASS	United Nations General Assembly Special Session on AIDS
USAID	United States Agency for International Development
USD	United States dollar
VCT	voluntary counselling and testing
WHO	World Health Organization
WOFAK	Women Fighting AIDS in Kenya

# Foreword

The publication of six editions of *AIDS in Kenya* between 1992 and 2002 has enabled the Ministry of Health to document and disseminate valuable information and data on the prevailing HIV/AIDS situation in the country, its current and projected impact, the interventions being mounted against the pandemic, and their resultant effect.

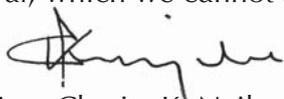
Kenya has gone through different phases of national response—widespread denial in the late 1980s and early 1990s, adoption of a multisectoral policy in the mid 1990s, and strong government leadership and political commitment since the year 2000. This 7th edition comes at a time when there has been a massive increase in the number of actors and resources to support the national response.

Despite the major strides that have been made to prevent and control HIV/AIDS, the pandemic still has a solid grip in the country and continues to reverse the gains made in key health measures and in many sectors of the economy. The recent Kenya Demographic and Health Survey of 2003 shows a decline of HIV prevalence to 7%. Despite this decline, prevalence in some parts of the country is still as high as 30%. The government, knowing that the war against the HIV/AIDS pandemic has yet to be won, will continue to lead the fight. One goal is to reduce prevalence in adults to less than 5% within the next 5 years.

During the last two decades of the national response to HIV/AIDS, focus of programme interventions has shifted from general prevention and supportive care to more specific health services such as testing and counselling and antiretroviral treatment. Linking various interventions such as behaviour change communication (BCC) and counselling and testing with prevention of mother-to-child transmission (PMCT) and antiretroviral therapy (ART) has created a continuum of prevention and care services. Other key programmes include blood safety, early diagnosis and prompt treatment of sexually transmitted infections (STIs), home-based care and support for the infected and affected, developing a strong link between TB and HIV programmes, and effective management of opportunistic diseases. Strengthening systems, developing capacity, and improving communication and flow of information have also been at the centre of the Ministry of Health's priorities in the HIV/AIDS subsector.

This edition comes at a time when the need to harmonize interventions and responses from various actors and resource partners is paramount at all levels within the framework of the 'three ones'—one national coordinating body and authority, one national strategic plan, and one national monitoring and evaluation framework. The Ministry of Health hopes that publishing and disseminating this book widely will work towards realizing this objective and contribute towards further reduction of the spread and impact of HIV/AIDS.

Development and production of this book has been made possible through the collaboration of government and non-governmental organizations, United States government agencies in Kenya with their cooperating and implementing partners, the National AIDS Control Council, and faith-based, civil society and private sector organizations. I hope that this book will challenge every one of us to play our part in this war, which we cannot afford to lose.



Hon. Charity K. Ngilu, MP  
Minister for Health

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# 1 HIV and AIDS in Kenya today

Over two decades since the first AIDS case was described in Kenya, HIV/AIDS still remains a huge problem for the country in its efforts for social and economic development. Responses to the pandemic have evolved over time as people became aware of this new disease, as they experienced illness and death among family members, and as services have developed to confront this epidemic. Initially many segments of society expressed denial of the disease. Early in the epidemic in Kenya political commitment was limited. While awareness of AIDS has been nearly universal for more than a decade, misconceptions still abound and many still have not dealt with this disease at a personal or community level.

This 7th edition of *AIDS in Kenya* comes at a crossroads in response to the epidemic. In the last 5 years HIV-related health services have expanded dramatically; they include the widespread availability of testing and counselling, and treatment with antiretroviral drugs, both to prevent mother-to-child transmission and to improve health and prolong life for people with advanced HIV infection and AIDS. While HIV remains an incurable infection, Kenya has now entered an era in which there is new hope in treating and caring for people with AIDS. This hope also offers new, effective opportunities for preventing HIV infection, as people with HIV infection learn they are infected and learn how to better protect their loved ones.

The purpose of *AIDS in Kenya* has been to inform leadership and citizens of the country about the epidemic, make projections about its impact, and describe policy. Emphasis of the publication now shifts; this edition:

- describes the level and trends of HIV infection
- assesses the breadth and depth of knowledge of HIV
- identifies behavioural patterns associated with these trends
- provides information on HIV prevalence from VCT clients, STI patients and blood donors
- describes the scale-up in HIV prevention services
- analyses the interaction of the TB and HIV epidemics
- describes the expansion of HIV care and treatment
- assesses the socio-economic impact and costs of AIDS

## Levels and trends of HIV infection and AIDS

Today in Kenya, the HIV epidemic is better understood. New information on the level of HIV infection comes from the first national HIV prevalence survey, the *Kenya demographic and health survey* (KDHS),<sup>1</sup> which estimated that 7% of adults age 15

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<sup>1</sup> Central Bureau of Statistics et al., *Kenya demographic and health survey 2003*.

to 49 years in Kenya are infected with HIV and that rates in women are nearly double the rates in men. Annual sentinel surveillance at selected sites has demonstrated significant declines of HIV prevalence in pregnant women. Using these and other sources of information, prevalence of HIV infection in adults appears to have peaked at 10% in the late 1990s and has been declining in many parts of the country since then (see chapter 2).

Evidence to support these declines also comes from behavioural information, including from KDHS and the first national Behavioural Surveillance Survey (BSS).<sup>2</sup> These surveys show an older median age of sexual debut, significant levels of secondary abstinence among youth,<sup>3</sup> and fewer people at high risk of HIV due to multiple sexual partnerships and high-risk behaviour (see chapter 3). In addition, those engaged in casual sex with non-regular or commercial partners have increased their use of condoms, although condom use is low with regular partners who are trusted—whether this trust is warranted or not.

At this stage in the epidemic, however, the decline in HIV prevalence in adults comes at a high cost. Death rates from HIV have reached an unprecedented level in Kenya, at about 150,000 per year. Even with scale-up of treatment, death rates in Kenya are likely to continue to rise because of the large number of people who were infected in the 1990s. The good news is that new HIV infections in adults, which peaked in the early 1990s at over 200,000 per year, have now dropped to well below 100,000 per year.

The number of people living with HIV in Kenya includes about 1.1 million adults between 15 and 49 years, another 60,000 age 50 and over, and approximately 100,000 children. Urban populations have higher adult HIV prevalence (10%) than do rural populations (6%). Regional variation is significant. Prevalence in Nyanza Province is 15% in adults and 10% in Nairobi. Adult prevalence in other provinces ranges around 5%, with the exception of North Eastern Province, where prevalence is less than 1%; it is the only region of the country where the epidemic is low level.

New infections in young women have significantly declined in the last 5 years, as evidenced by its decline in pregnant women under age 25. But HIV prevalence in girls 15 to 19 years old is 6 times higher than in boys in the same age group, despite lower levels of sexual activity, and the rates in pregnant teens are even higher. Protecting teenage girls and young women remains a great challenge for controlling HIV infection in Kenya.

A significant portion of new infections in adults today (likely more than half) takes place within the family; an estimated 7.5% of married couples are discordant for HIV—that is, one partner is infected with HIV and the other is not. We do not know what proportion of these couples know each other's HIV status and act to prevent transmitting the virus to their partner. Throughout the country, about 13% of adults were tested for HIV infection by 2003. Testing as couples is increasingly becoming popular, although only 8% of VCT clients in 2004 were tested and received results together as couples. Delay in disclosure of test results by those who are HIV infected places partners at high risk—faithfulness alone protects only when both

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<sup>2</sup> The Kenya Behavioural Surveillance Survey 2002–03 was a collaborative effort of the Ministry of Health working through NASCOP, FHI, CDC, CBS and KEMRI. Funding was provided by USAID and CDC.

<sup>3</sup> Abstinence after initial sexual debut.

partners are free of HIV infection. The widespread availability of HIV testing with counselling offers an opportunity for individuals and couples to learn whether they are HIV infected.

## Institutional and policy responses

The Ministry of Health instituted an AIDS Control Committee in 1987, when it developed the first 5-year strategic plan for AIDS control (1987–91). The second plan was for the period 1992–96. The *Sessional Paper No. 4 of 1997 on AIDS in Kenya* marked an important change on the political front and outlined a new institutional framework. With the creation of the National AIDS Control Council, AIDS control units (ACUs) were put in place in all the ministries where the disastrous effects of HIV/AIDS had been felt the most and where it was anticipated that interventions would have the greatest beneficial effect. Increased public political commitment was evidenced in 1999 when President Moi declared AIDS a national disaster.

A declaration of 'Total War on AIDS' was one of the first acts of President Kibaki, and bringing together an ecumenical group of religious leaders has been an important step in this fight. Constituency AIDS control committees (CACCs) and district technical committees (DTCs) embody this multisectoral response in partnership with ACUs and civil society. Now Kenyans are involved in a comprehensive effort to confront all aspects of the disease's spread and impact. The government has put in place policies and infrastructure to help implement programmes at all levels and has issued guidelines for conducting activities in all HIV/AIDS-related areas.

Greater international and national commitment to address HIV and AIDS throughout the world has been seen through the United Nations General Assembly Special Session on AIDS (UNGASS), the Abuja Declaration, and the Millennium Development Goals. This commitment has led to greatly increased resources and international support, including the World Bank Multicountry AIDS Project (MAP), the Global Fund for AIDS, Tuberculosis and Malaria (GFATM), the US President's Emergency Plan for AIDS Relief (PEPFAR), and other substantial bilateral, multilateral and charitable efforts. The WHO 3 by 5 Initiative—to place 3 million people on antiretroviral therapy (ART) by the end of 2005—has been a rallying cry for efforts to bring Africa and developing countries around the world into the treatment era for HIV and AIDS.

With these efforts and resources, the last 5 years have witnessed an increase in the number of stakeholders and partners who are fighting HIV/AIDS in Kenya. The goodwill created by the high level of political commitment and the evidence of local support and action has resulted in an increased flow of resources into the country's national HIV/AIDS programmes. But increases in funding and the number of people and organizations involved have also increased challenges in coordination to maximize efficiency and to minimize wastage and duplication of effort.

## HIV prevention services

The last 5 years has produced dramatic changes in HIV services in Kenya, described in chapter 4. Voluntary counselling and testing—VCT—has become a household word and in 2004 nearly 400,000 Kenyans came voluntarily to over 400 centres

located in health facilities, in the community, and in mobile units. This compares with fewer than 1000 who availed themselves of this service in the year 2000. Teams of counsellors have been trained to deliver a high level of service according to well-developed guidelines. Part of this revolution is the use of simple, rapid HIV tests that do not require refrigeration or special equipment and can be used with a few drops of blood collected from a fingerprick or even an oral swab. These tests provide highly accurate results within 15 to 20 minutes and can be read by the clients themselves, guided by a trained counsellor. This has made the process of learning one's HIV status both more efficient and more private and confidential.

Services for prevention of mother-to-child transmission of HIV infection are part of a revolution in pregnancy care. Focused visits include HIV testing and counselling and clinical assessment for HIV treatment for those who are infected. While public awareness of HIV transmission during pregnancy, childbirth and breastfeeding is high, knowledge of ways to reduce this risk is limited. Antiretroviral drugs for mother and baby are the centrepiece of these comprehensive services, but HIV testing before or during pregnancy is a necessary first step. These services began in research programmes and pilot sites in 1999, but they have rapidly expanded so that by the end of 2004, approximately 40% of pregnant women in Kenya were offered these services.

Blood transfusion is a life-saving but risky intervention. Voluntarily donated pints (units) of blood must be carefully tested for the presence of transfusion-transmissible infections, including HIV and hepatitis. The policy to develop a National Blood Transfusion Service (NBTS), with regional centres and satellites to collect, test and distribute blood units, is an important step in ensuring that transfusion is safe and that the right blood is available in the right amount at the right time to save a life. The frequency of voluntary blood donation by low-risk donors dropped in the 1990s due to the fear of being tested for HIV and the stigma accompanying it. But donations are now increasing, because awareness has improved among potential donors that it is safe to donate and it can save a life. Yet there is still a large gap between the need for safe blood and its availability from these low-risk donors.

Other prevention services have evolved in the last 5 years. Many focus on protecting youth from the risks of HIV. Other services target people with HIV infection (prevention with positives), couples, religious communities, prison populations, injection drug users, and commercial sex workers. These prevention services are offered in both the health sector and other sectors, including educational institutions, the workplace, the community, and through religious groups. In Kenya, the ABC message of 'Abstinence, Be faithful to an uninfected and faithful partner, and/or use a Condom' now includes a fourth component: *Diagnosis: know your status*. Promoting testing in health settings and in the community both helps prevent infection and gives access to treatment for the infected.

## Care and treatment for HIV infection

The goal of the HIV care and treatment programme in Kenya is to provide a continuum of holistic care that meets the needs of those infected with or affected by HIV and AIDS. This includes not only physical but also social, psychological, emotional

and spiritual care. Chapter 5 describes the experience of living positively with AIDS, discusses the nutritional needs of those with HIV infection, and presents the treatment for opportunistic infections, other sexually transmitted infections, and finally antiretroviral drugs. A special section in this edition answers questions on ARVs. At present, over 36,000 Kenyans are being treated with antiretroviral therapy (ART), and thousands of others are waiting to start treatment. Policy guidelines are aimed at making ART accessible to all who can benefit from such treatment. Only those with advanced HIV infection and low CD4 counts,<sup>4</sup> which measure immune function, are appropriate for treatment. A person with HIV infection may not need ART for many years; other treatment, however, may be useful to prevent or treat other opportunistic infection.

The special needs of children with HIV infection are addressed in chapter 6. The number of orphans and vulnerable children has increased 10-fold—from 150,000 in the early 1990s to a staggering 1.6 million in 2004. The resultant effect has been a rise in the number of destitute children who are disinherited of their property and who are denied care, support, and access to social amenities and services such as health care and education. In urban areas, the number of street children has increased. This complex situation of poverty and destitution causes apprehension among investors, aggravates poverty and increases the risk of HIV being transmitted among the young people concerned.

In the health sector major challenges remain: to provide the more intensive services required by HIV care and treatment throughout the country, to integrate these services into existing programmes, and to attain high levels of quality care, accountability and reporting. All this must be achieved with a limited workforce of health workers, who must acquire new knowledge and skills to deliver the new and more intensive level of services. Nurses, clinical officers and doctors require new knowledge of complex drugs and treatment regimens; they must gain new skills to assess patients clinically and to explain complex treatment. Laboratories must provide new services to monitor HIV treatment.

## Tuberculosis and HIV

The HIV epidemic has resulted in a more than 10-fold increase in tuberculosis cases in Kenya. Thus no book on AIDS in Kenya would be complete without a discussion of TB. More than half of the TB patients in Kenya are also infected with HIV, and presence of TB is one of the eligibility criteria for beginning ART. Tuberculosis is also responsible for many deaths in those with AIDS. The National Leprosy and Tuberculosis Programme provides information on the burden of tuberculosis disease in Kenya. The strategy for jointly addressing these two epidemics is given in chapter 7. The good news that TB is curable, even in a person with HIV infection.

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<sup>4</sup> CD4 cells are a section of the white blood cells (T helper cells) that help fight infection in the body, and they are the ones that HIV attacks. The CD4 count measures the number of CD4 cells in a millilitre of blood and this measure guides the clinician in managing a patient's ART. Patients with a CD4 count of 200–250 or below are eligible for ARV treatment. A person who is not infected has a CD4 count of between 500 and 1200.

## Socio-economic costs of AIDS

More than 56% of Kenyans currently live below the poverty line and have less than a dollar per day to spend on everything needed to live. Discussion over the rising poverty level in Kenya and how it has resulted in negative economic growth over the last two decades is the subject of many forums. Poverty in Kenya is a function of a number of interrelated factors: untapped or poorly used human resources, low levels of industrialization, inadequate or poorly maintained infrastructure, issues of governance and economic policy, and sociodemographic factors.

The intricate relationship between poverty and HIV continues to be a vicious cycle in the national response to the pandemic. While increasing poverty levels continue to fuel the spread of HIV, the pandemic itself exacerbates those levels in households and families with people living with HIV/AIDS. Families in vain spend huge percentages of their resources searching for cure or better health for their infected loved ones. Until 2002, when the Industrial Properties Act removed legal barriers to importing generic drugs, bringing down the cost of ARVs significantly, their cost was beyond the reach of most Kenyans.

Over the last 20 years, the socio-economic impact of HIV/AIDS has manifested itself in key areas of the economy. Health expenditures have risen and will continue to rise and productivity will be adversely affected. Controlling the HIV epidemic is a key part of strengthening the economy in the 21st century. See chapter 8 for more information on the costs of HIV/AIDS.

The increased cost of health care that HIV/AIDS is causing is a result of the prolonged disease process and multiple opportunistic infections. Out of the 1.3 million Kenyans who are living with HIV, at least 200,000 should be on antiretroviral treatment. Until recently, the cost of such treatment was beyond the reach of most Kenyans. Now that the price of these medicines has been reduced, obstacles to overcome are how to handle hidden costs such as cost of transport to health facility, cost of laboratory investigations, cost of care and support services, cost of food and other care-related commodities. These hidden costs still put adequate health care beyond the reach of many Kenyans, the majority of whom live below the poverty line.

This 7th edition of *AIDS in Kenya* describes the trends of HIV infection and AIDS, the rapid scale-up of services to prevent infection and to treat those infected and affected by HIV, and the continued impact of AIDS on Kenyan society.

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# 2 Prevalence and trends of HIV in Kenya

## How many Kenyans are infected with HIV?

HIV prevalence is the percentage of a population that is infected with HIV. Two primary methods have been used to estimate the prevalence of infection of HIV in Kenya. Sentinel surveillance of HIV prevalence in pregnant women, which has been conducted every year since 1990, provides information about the trend in the rate of infection over time. This information can also provide an estimate of the number of children who are infected with HIV since nearly all HIV infection in children is transmitted from mother to child. The second method is through a general population survey, in which a carefully selected sample of the population is tested for HIV. The Kenya Demographic and Health Survey 2003 is such a survey and has the advantage of measuring the prevalence in all women, both pregnant and non-pregnant, and also the rate of infection in men.

This chapter reviews the information from both of these sources, explains how the sources complement each other, and provides an estimate of the number of adults and children with HIV infection in the country in 2003. Following chapters present information from other sources and settings where HIV testing is routine, such as in clients who come to voluntary counselling and testing (VCT) centres and pregnant women who are tested in antenatal clinics for the prevention of mother-to-child transmission (PMCT). We can also gain information from patients who come with other diseases, including sexually transmitted infections (STIs) and tuberculosis (TB). Tuberculosis is strongly associated with HIV infection and AIDS, with more than half of TB patients in Kenya infected with HIV, so trends of TB reflect the overall prevalence of HIV in a region. Since HIV is a sexually transmitted infection, it is also associated with other sexually transmitted infections. Sentinel surveillance of HIV rates in STI patients has also been conducted every year since 1990.

## Sentinel surveillance of HIV in pregnant women

Every year since 1990 at selected ANC sentinel sites, NASCOP has conducted unlinked and anonymous testing for HIV for a 3-month period. Initially there were 13 sites, located primarily in urban areas. In addition, the University of Nairobi project 'Strengthening STD/AIDS control in Kenya' collected surveillance data from four antenatal clinics in Nairobi from 1991 through 2003. To better represent the diverse regions and populations of Kenya, the programme had expanded to 22 sites by 1995 and to 44 sites in 2004. These ANCs are located in both urban and rural areas and in a variety of health facilities, including provincial general hospitals, district or sub-district hospitals, mission hospitals, and both mission and government health centres.

Each of these ANCs is selected to represent the rural or urban population of its district and other district populations that are similar in terms of HIV prevalence.

At each of the ANC sentinel sites, leftover blood from routine testing for syphilis and anaemia is kept for later HIV testing. Demographic information on age, number of previous births and pregnancies, residence at the beginning of the pregnancy (rural or urban), marital status and education level is transferred to an anonymous form (no name or hospital number) and then later tested for HIV. Only women attending the clinic for the first time for that pregnancy are included. This method of unlinked anonymous testing has been the standard procedure recommended by the World Health Organization (WHO) and by the Joint United Nations Programme for HIV and AIDS (UNAIDS) for measuring trends in HIV infection in countries with generalized HIV epidemics. The identity and HIV results of these pregnant women cannot be known because the results are unlinked and anonymous.

Prevalence from site to site varies greatly, with a range from 1% to 41% in 2003 and from 1% to 30% in 2004 (see appendix 1). Regional variations are also large: Nyanza Province has the highest prevalence; next is Nairobi. This reflects the varied distribution of HIV infection within Kenya. The rates at any one site are calculated from a sample size of 250 to 400 pregnant women. We can therefore be confident statistically that the true rates at each site are within 3% to 5% of the percentage listed. The HIV test kits used for sentinel surveillance have changed over the years from machine-read ELISA with Western Blot confirmation (1990–96) to rapid tests performed at the sites (1997–2003) to dried blood spots tested centrally (2004). In general, quality of testing and validation has been adequate and has improved over time.

Rates of HIV infection in pregnant women are not expected to be the same as the rates in all adult women. Pregnant women tend to be younger, with a peak age range of 20 to 24 years. Obviously, all pregnant women were sexually active, so they do not represent those women who are not sexually active, nor those who are currently using contraceptive methods or who are infertile. Finally, rates in pregnant women cannot represent rates of HIV in adult men. It is for these reasons that the 2003 KDHS included testing for HIV infection to provide a better estimate of HIV in the general adult population of men and women and to provide the sentinel surveillance with a calibration factor to better estimate the trends of HIV prevalence in the general adult population.

## Kenya Demographic and Health Survey 2003

Previous demographic and health surveys were conducted in Kenya in 1989, 1993 and 1998. They provide important information on the family, including fertility, nutritional status, mortality in children and adults, household characteristics, and individual behaviour. Results from the 2003 KDHS indicate that 6.7% of Kenyan adults are infected with HIV (table 2.1). HIV prevalence in women age 15–49 is 8.7%, while for men 15–49, it is 4.6%. This female-to-male ratio of 1.9 to 1 is higher than that found in other population-based studies in Africa.

Young women are particularly vulnerable to HIV infection compared with young men. For example, 3% of women age 15–19 are HIV infected, compared with less than 0.5% of men 15–19, while HIV prevalence among women 20–24 is over 4 times that of men in the same age group (9% vs. 2%—fig. 2.1). The peak prevalence among women

is at age 25–29 (13%), while prevalence rises gradually with age among men to peak at age 40–44 (9%). Only in the 45–49-year age group is HIV prevalence among men (5%) higher than that among women (4%).

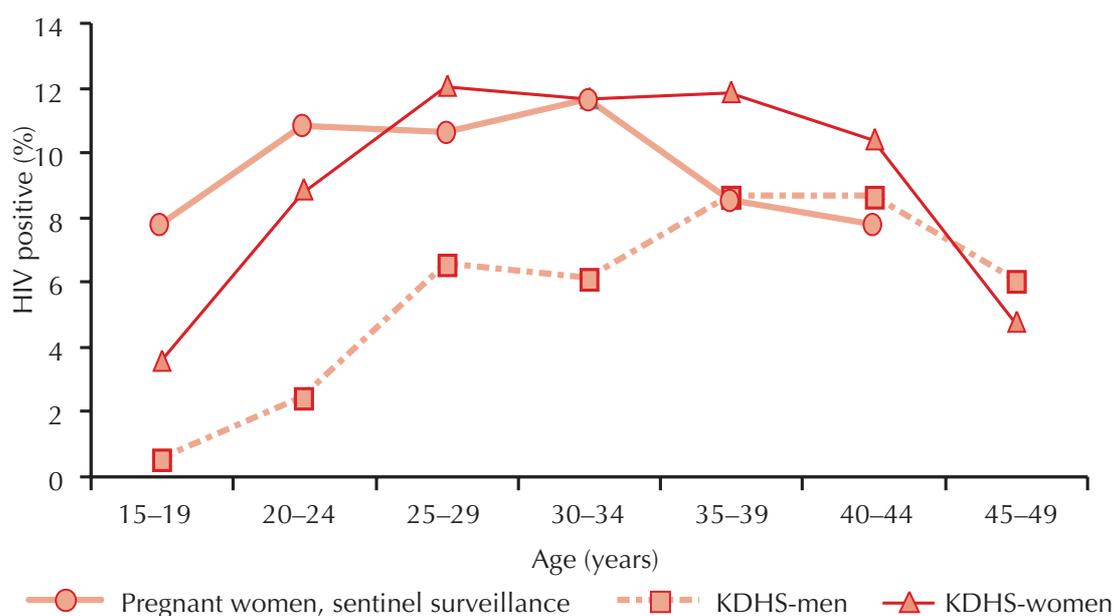
Since few HIV-infected children survive into their teenage years, infected youth represent more recent cases of HIV infection and serve as an important indicator for detecting trends in both prevalence and incidence. Overall, prevalence among women age 15–24 is 6%, compared with slightly over 1% among men the same age, for an overall prevalence in youth of under 4%.

Urban residents have a significantly higher risk of HIV infection (10%) than rural residents (6%). Prevalence in urban women is 12% compared with less than 8% for rural women, which is a 1.6 urban–rural relative risk. For men, the risk of

**Table 2.1.** HIV prevalence among adults tested, age 15–49 (%)

	Women	Men	Total
Total	8.7	4.6	6.7
<i>Age</i>			
15–49	3.0	0.4	1.6
20–24	9.0	2.4	6.0
25–29	12.9	7.3	10.4
30–34	11.7	6.6	9.4
35–39	11.8	8.4	10.1
40–44	9.5	8.8	9.1
45–49	3.9	5.2	4.4
50–54	n.a.	5.7	n.a.
<i>Residence</i>			
Urban	12.3	7.5	10.0
Rural	7.5	3.6	5.6
<i>Province</i>			
Nairobi	11.9	7.8	9.9
Central	7.6	2.0	4.9
Coast	6.6	4.8	5.6
Eastern	6.1	1.5	4.0
North Eastern	< 1.0	< 1.0	< 1.0
Nyanza	18.3	11.6	15.1
Rift Valley	6.9	3.6	5.3
Western	5.8	3.8	4.9

Sources: Central Bureau of Statistics, *Kenya demographic and health survey 2003*; population projections, CBS and NASCOP.



**Figure 2.1.** HIV prevalence by age group and sex.

urban residents is double (8% vs. 4%). Since 75% of Kenya's population is categorized as rural, however, the greatest burden of HIV infection is in the rural population. Pregnant women tested through sentinel surveillance who resided in urban areas at the beginning of their pregnancy also have a higher prevalence of HIV than rural residents (10% compared with 6%).

## Regional and sociodemographic distribution of HIV infection in Kenya

The differences in HIV infection in different regions of the country are significant. Nyanza Province (15% in adults) and Nairobi (10%) have the highest prevalence rates while Eastern (4%) and North Eastern Provinces (less than 1%) have the lowest rates (see table 2.1).

Many other demographic and social characteristics are associated with HIV infection. The wealthiest quintile of the population has the highest prevalence, nearly 10%, while prevalence among the poorest is less than 4%. Mobility and urban residence may be important contributing factors. Men who sleep away from home more than 5 days in a month have 3 times the prevalence of those who never sleep away and twice the prevalence of those who sleep away 5 or fewer nights. Women who are widowed, divorced or separated also have high rates of HIV infection.

## HIV prevalence in couples

Both partners in over 1000 cohabiting couples were tested for HIV in the 2003 KDHS. Test results of these couples were linked to each other, but before HIV test results were merged with data from the questionnaires, personal identifiers such as household and cluster numbers were removed. Therefore, no individual or couple's HIV status could be traced.

Results shown in table 2.2 indicate that in 89% of cohabiting couples both partners are HIV free of HIV infection; in 4% both partners are HIV infected; and 7% of couples are discordant, with one partner infected and the other uninfected. These discordant couples are at high risk for HIV transmission, especially if they do not mutually know their HIV status or do not use condoms consistently.

**Table 2.2.** HIV prevalence among couples (%)

Characteristic	Both infected	Male infected, female not	Female infected, male not	Neither infected	Number sampled
<i>Marital status</i>					
Married	3.3	3.1	4.4	89.2	948
Living together	7.7	0.5	6.0	85.8	92
<i>Type of union</i>					
Monogamous	3.1	3.1	3.9	89.9	913
Polygynous	7.5	1.4	9.0	82.1	128
Total	3.7	2.8	4.6	88.9	1041

Among married couples both partners are infected in 3%, the man only in another 3%, and the woman only in 4%. Among those not married but living together, the proportion is higher of couples in which both partners are infected (8%), but the proportion that are discordant is similar (7%). In polygynous marriages, 8% of couples are both infected, in 1% the man only is infected, and in 9% the woman only. Based on this information, between 400,000 and 500,000 couples in Kenya are discordant for HIV infection. The vast majority do not know their own or their partner's HIV infection status.

## Comparison of ANC sentinel surveillance and KDHS

Several subpopulations of the 2003 KDHS can be compared with the sentinel surveillance to check if the measurements from these two different survey methods are comparable.

Nearly 90% of pregnant women in Kenya attend an ANC for pregnancy care. According to the KDHS, 71% of women who gave birth in the last 5 years came to a hospital or health centre for pregnancy care, while another 18% went to government or mission hospital dispensaries, and 11% did not attend any antenatal clinic. HIV prevalence in the women who went to hospitals and health centres for ANC care was 10.1%. Sentinel surveillance health facilities are all either hospitals or health centres, and the prevalence in these pregnant women from the best fit of the curves is 10%, nearly identical to KDHS. Those in KDHS who attended smaller health facilities (dispensaries) had a similar rate (10.2%), while those who did not attend an ANC had a lower rate of 7.6%. KDHS found that prevalence among women who knew they were pregnant at the time of the survey (7.3%) is slightly higher than prevalence among all adults.

A second comparison involves women who live in the same catchment area as sentinel surveillance sites. About one-fourth of KDHS women live in catchment areas of 29 sentinel surveillance sites. These KDHS women had a prevalence of 9.0% compared with 9.2% average prevalence at these sites.

The difference is particularly large in rural areas, where the virus is 2.1 times more prevalent among females than males. The average for all studies in sub-Saharan Africa is 1.3 times more prevalence in women. The ratio of prevalence at ANC sites to prevalence among urban men and women from KDHS is nearly one (0.97); it is considerably different (0.77) for rural areas. These factors are used to adjust the ANC prevalence measured through sentinel surveillance to better represent prevalence among all adults.

KDHS found that 6.7% of adults tested are infected with HIV (see table 2.1). However, only 73% of eligible adults were tested, as 14% refused to be tested and 12% were absent at the time of the interview. The KDHS estimate of national prevalence could be inaccurate if the prevalence of those who were not tested was different from that of those who were tested. To determine if the KDHS results need to be adjusted because of this non-response, surveyors conducted an analysis of risk factors that included age, marital status, education, province, wealth, practice of higher-risk sex, practice of commercial sex, and male circumcision status. The analysis showed that those who refused to be tested were overall slightly lower in demo-

graphic or behavioural risks for HIV. Much less information is available about those who were absent at the time of the interview. The household questionnaire does provide some basic information on age, sex, location and wealth. An analysis with only these variables found no difference between those who were absent and those who were interviewed.

Information from other sources, however, indicates that those who are absent at the time of an interview may have higher HIV risk because of their greater mobility. A study in Cameroon found that men who were away from home for more than 31 days per year had 5 times the risk of HIV infection as those who declared no absences.<sup>5</sup> A recent analysis of a cohort in Kisesa, Tanzania, found that those who were not at home at the time of an interview were 30% more likely to be infected with HIV as those who were home.<sup>6</sup> If the prevalence measured by KDHS is adjusted by the predicted risk of those who refused to be tested (slightly lower) and those who were absent at the time of the KDHS interviews (30% higher prevalence) then the KDHS estimate would be essentially unchanged: 6.8% rather than 6.7%. Given the KDHS statistical limitations, it is recommended that 7% be quoted as the prevalence of HIV infection in adults age 15 to 49 years in Kenya in 2003.

## Trends in HIV prevalence

Sentinel surveillance in pregnant women since 1990 provides information on the trends of HIV prevalence over time. There have been significant declines in HIV infection overall in recent years, with a decline in many sites starting in the late 1990s. In other sites a decline has appeared more recently, while in some sites prevalence has remained stable and high. Appendix 1 gives the annual site-specific prevalence for all sites.

Although KDHS provides an estimate of the level of prevalence in 2003, no previous surveys measured prevalence in the general population. By using KDHS data to compare prevalence of recently pregnant women with that of the general population, it is possible to estimate the prevalence in the general population over time.

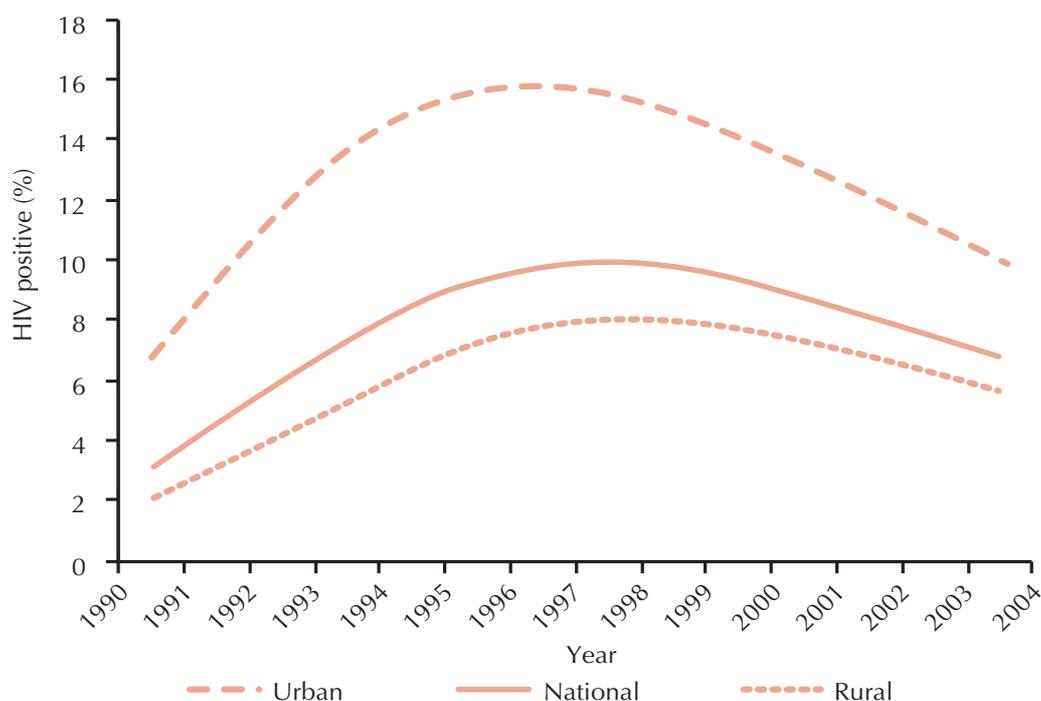
Curves created for each sentinel surveillance site using the Epidemic Projection Package, with adjustments made to predict rates in the general population, are based on KDHS. These curves are then weighted using Spectrum software to create a national estimate of trends of HIV prevalence for both urban and rural populations. These suggest that the epidemic in Kenya peaked in the late 1990s with an overall prevalence of 10% in adults, and declined to 7% by 2003 (fig. 2.2). The peak in urban residents likely occurred in the mid-1990s, while that in rural residents occurred later and has dropped at a slower rate.

Prevalence rates are a reflection of both new infections within a group and deaths of those infected. Within a certain age group (in this case adults 15–49 years), prevalence rates also change as children join this age group and older people move out of it. Very few young people are infected with HIV before their 15th birthday, but an

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<sup>5</sup> Lydie et al., 'Mobility, sexual behavior and HIV infection'.

<sup>6</sup> Way and Cross, 'Multivariate analysis of non-response in the KDHS 2003'.



**Figure 2.2.** HIV prevalence, 1984–2004.

increasing number of men and women age 50 are surviving with the infection. Still, the vast majority of Kenyans with HIV infection are in the adult age group of 15–49, and trends in this age group are the international standard for measuring the burden of HIV infection in the country.

The Spectrum software model estimates that the peak incidence (new cases) of infection in Kenya occurred around 1993, with over 200,000 new adult infections. The good news is that rates and numbers of new infections have dropped significantly in the last decade, with approximately 86,000 new adult infections occurring in 2003. The bad news is that numbers of deaths per year in HIV-infected people continue to rise and were approximately 150,000 adults in 2003. Both lower rates of new infection and high death rates contribute to this lower prevalence.

## Estimating the number of Kenyans infected with HIV

Using the population projections from the 1999 census and the general population prevalence rates from the KDHS, we can estimate the number of adults with HIV infection in Kenya. Estimates for numbers infected nationally and by residence and province are included in table 2.3.

This means that currently about 1.1 million adults age 15 to 49 years are infected with HIV. Nearly 2/3 of those infected are women. Approximately 60,000 adults aged 50 and over are also infected. Most of the infected adults live in rural areas (670,000) compared with 410,000 in urban areas of the country.

Estimates for HIV infection in children are using several sources of information. Sentinel surveillance data (along with prevalence data from the KDHS on those women who do not attend ANC) give an estimate of the number of women with HIV infection giving birth. It is estimated, based on research in Kenya and internationally,

**Table 2.3.** Estimated numbers of HIV-infected adults in Kenya, 2003

Category	HIV infected (no.)
Total, age 15–49	1,100,000
<i>Residence</i>	
Urban	410,000
Rural	670,000
<i>Province</i>	
Nairobi	130,000
Central	100,000
Coast	110,000
Eastern	110,000
North Eastern	20,000
Nyanza	310,000
Rift Valley	180,000
Western	110,000

that without treatment approximately 35% of exposed pregnancies will result in HIV infection in the infant, during pregnancy, childbirth or breastfeeding. With treatment with antiretroviral drugs for mother and baby, this rate of transmission is reduced (see chapter 4 on prevention of mother-to-child transmission). Children with HIV infection survive a median of 3 years, so approximately 100,000 children are currently infected with HIV. This number is expected to decline as more mothers learn their HIV status and either receive treatment or choose not to become pregnant.

The advent of antiretroviral drug treatment can be expected to prolong the lives of those with advanced HIV disease and improve their quality of life. Even with large numbers of people

on treatment, it is expected that there will be more deaths than new cases, particularly in adults. Reduction of risky behaviour, discussed in chapter 3, may be evidence for this dramatic decline in incidence and prevalence of HIV infection.

In summary, new information from KDHS indicates that 7% of Kenyan adults age 15–49 are HIV infected. Nearly 2/3 of the infections are in women, who tend to become infected at an earlier age than men. There are significant differences in regional prevalence, and those living in urban areas, those with greater wealth, and those in polygynous marriages are more likely to be infected. Trend information from sentinel surveillance suggests that adult prevalence peaked at a level of 10% in adults in the late 1990s. New infections in adults have declined dramatically from over 200,000 to approximately 86,000, but deaths have continued to increase to 150,000 per year. Approximately 1.3 million adults and 100,000 children are currently infected with HIV.

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# 3 Knowledge, attitudes and behaviour relating to HIV/AIDS

## Second-generation HIV surveillance

Traditional HIV surveillance systems relied on tracking HIV infection and other biological markers such as sexually transmitted infections. Second-generation surveillance broadens this approach by using behavioural surveillance to interpret serosurveillance data, to better understand the HIV epidemic and to strengthen responses to it. Second-generation surveillance recognizes the fact that HIV infection is preceded by specific behaviour patterns such as unprotected sex and multiple sexual partners.

Behavioural surveillance is a monitoring and evaluation tool designed to track trends in HIV/AIDS-related behaviour in a representative population. It involves conducting repeated cross-sectional surveys in the general population and in subpopulations that are perceived or known to be at high risk of HIV infection. Behavioural surveillance aims to:

- better our understanding of HIV trends over time
- describe the behaviour shaping the epidemic
- identify populations and subpopulations at risk of HIV infection
- predict where HIV infection could spread in the future
- inform the design of HIV/AIDS programmes and policies
- evaluate the effectiveness of HIV/AIDS interventions

## Sources of information

### THE KENYA DEMOGRAPHIC AND HEALTH SURVEYS

Every 5 years Kenya conducts a demographic and health survey to assess fertility levels and preferences, marriage and sexual behaviour, nutritional status of children and mothers, and information on mortality and specific diseases. Sexual behaviour information was collected in 1992, 1998 and 2003. In 2003, the survey was expanded to include a full HIV/AIDS module, a seroprevalence survey for HIV (see chapter 2), and clusters from the northern part of the country. This nationally representative sample survey included 8195 women age 15 to 49 years and 3578 men age 15 to 54 years selected from nearly 9000 households in 400 clusters throughout the country.

### THE 2002/03 KENYA BEHAVIOURAL SURVEILLANCE SURVEY

Data for the baseline Kenya Behavioural Surveillance Survey (BSS) were collected between 2002 and 2003 from seven populations perceived to be at high risk of HIV

infection: youth both in and out of school, men in large worksites, policemen, matatu drivers and touts, bodaboda cyclists,<sup>7</sup> women in low-income communities, and female sex workers. Over 17,800 respondents participated in the survey, which was carried out in 10 districts chosen to represent high and low HIV prevalence areas near HIV sentinel surveillance sites in different regions of the country (table 3.1)

**Table 3.1.** Kenya behavioural surveillance survey study populations, sites and samples, 2002/03

Population	Characteristics	Location and study sites	Sample size
Out-of-school youth	Never married, unemployed, or casually employed out-of-school youth aged 15–24 years	Households in catchment areas of ANC sentinel surveillance sites in Busia, Garissa, Kakamega, Machakos, Mombasa, Nairobi, Nakuru, Nandi, Suba and Thika Districts	2890 males 3239 females total 6129
In-school youth	In-school youth aged 15–19 years and attending secondary school, forms 1–4.	Schools in Busia, Garissa, Kakamega, Machakos, Mombasa, Nairobi, Nakuru, Nandi, Suba and Thika Districts	2216 females 1582 males total 3798
Men in worksites	Men aged 15–49 years employed in large worksites in urban areas	Large worksites in Bungoma, Butere Mumias, Mombasa and Nakuru urban centres	2120 males
Policemen	Men aged 18–49 years serving in the Kenya police force	Police stations in Garissa, Kakamega, Mombasa, Nairobi and Nakuru Districts	592 males
Matatu drivers and touts	Matatu drivers and touts aged 15–49 years	Matatu routes in Kakamega, Mombasa, Nairobi, Nakuru urban centres	673 males
Bodaboda cyclists	Men operating taxi bicycles aged 15–49 years	Bodaboda routes in Busia township	622 males
Women in low-income communities	Women aged 25–49 years in communities adjacent to large worksites	Communities adjacent to large worksites in Bungoma, Busia, Butere, Mumias, Kakamega, Mombasa and Nakuru Districts	2112 females
Female sex workers	Women aged 15–49 years selling sex for money	Bars, nightclubs, hotels, brothels and streets of Kakamega, Machakos, Mombasa, Nakuru and Thika urban centres	1754 females
Total			17800

<sup>7</sup> Bicyclists who serve as taxis in some of the smaller towns. The 'border border' name originated with their service on the Kenya–Uganda border.

Structured questionnaires were used to collect information on:

- Sociodemographic characteristics of the respondents
- Knowledge about HIV/AIDS, transmission, prevention and treatment
- Sexual history: number and types of partners, condom use
- Perception of risk of HIV infection
- HIV testing experience
- Stigma and discrimination against people living with HIV/AIDS (PLHA)

All questionnaires were translated into Kiswahili. Informed oral consent was obtained from all potential respondents before trained interviewers administered the questionnaire. The face-to-face interview method was used with all groups except for in-school youths, who completed the questionnaire individually.

## Survey findings

### AWARENESS OF HIV/AIDS AND EXPERIENCE WITH THE EPIDEMIC

In the KDHS 2003, awareness of AIDS is nearly universal among adults, except among women with no education (93% had heard of AIDS) and among adults in North Eastern Province (86% of men and 94% of women). Nationally, nearly 3 out of 4 men and women know someone personally who has AIDS or has died of AIDS (table 3.2); only in

**Table 3.2.** General knowledge about HIV/AIDS among youth and adult groups (%)

Population	Know anyone infected or who died of HIV	Know healthy person could be infected with HIV <sup>a</sup>	Know difference between HIV & AIDS	Know of window period <sup>a</sup>
<i>KDHS (15–24)</i>				
Women	69	83	—	—
Men	68	85	—	—
<i>Out of school (15–24)</i>				
Female	63	85	28	28
Male	68	89	37	33
<i>In-school youth (15–19)</i>				
Female	92	87	81	42
Male	68	84	79	40
<i>Adult groups</i>				
Men in worksites	91	96	57	37
Policemen	83	95	65	33
Matatu drivers/touts	88	93	43	30
Bodaboda cyclists	91	95	36	33
Women in low-income	84	92	29	23
Female sex workers	88	93	35	33
<i>KDHS (15–49)</i>				
Women	74	85	—	—
Men	75	90	—	—

BSS data are based on number of respondents who had ever heard of HIV/AIDS; KDHS data are based on all respondents.

— Data not obtained.

North Eastern Province is this direct experience with AIDS uncommon. Similarly, most Kenyan adults know that abstaining from sex, limiting sex to one faithful partner, using condoms, or both being faithful and using condoms are ways to reduce the risk of getting the AIDS virus. This knowledge is limited, however, in young people 15–19, in those with no education, and in the poorest portion of the population.

In the BSS 2002/03 nearly all youth and adults surveyed (over 98%) had heard of HIV/AIDS. In-school youth were more likely to know the difference between HIV (*virusi vya ukimwi*) and AIDS (*ukimwi*) than out-of-school youth (table 3.2). However, less than half of all youth and adult groups knew of the *window period*, during which a person may be infected with the HIV virus yet test negative on antibody tests for several weeks.

## KNOWLEDGE OF HIV PREVENTION, TRANSMISSION AND TREATMENT OF AIDS

In BSS, respondents were asked a set of six questions on common misconceptions about HIV transmission (box 3.1). Respondents in both KDHS and BSS were asked whether persons could protect themselves from HIV infection through abstinence, faithfulness to one uninfected partner, and consistent and correct use of condoms. Except for female sex workers, all youth and adult groups perceived abstinence to be a more effective method of HIV prevention than faithfulness or condoms (table 3.3).

### Box 3.1. Questions on misconceptions about HIV transmission

- Can a person get HIV from mosquitoes or other insect bites?
- Can a person get HIV by sharing a meal with someone who is infected with HIV?
- Is it possible for a person get HIV through a taboo, a curse, or by other witchcraft?
- Can having sexual intercourse with a virgin cure AIDS?
- Do you think that if one has HIV and spreads it around through unprotected sexual intercourse with different people, the amount of virus will reduce and that person will live longer?
- Do you think that a healthy-looking person can also be infected with HIV, the virus that causes AIDS?

Overall, respondents in all groups in KDHS and BSS except female sex workers perceived abstinence and faithfulness to be more important than condoms in preventing HIV (table 3.3). And female sex workers (91%) were aware of the effectiveness of condoms. But fewer than 1/2 of adult respondents and 1/3 of youth in BSS had comprehensive knowledge of HIV/AIDS (knowledge of abstinence, faithfulness, condom use, and absence of all six misconceptions about HIV/AIDS transmission). In both KDHS and BSS, male youth and adults were more likely to be knowledgeable about condoms than females, but knowledge of other prevention methods was similar.

## KNOWLEDGE OF MOTHER-TO-CHILD TRANSMISSION OF HIV AND PREVENTION

In both KDHS and BSS, over 70% of respondents in all groups knew about mother-to-child transmission of HIV (table 3.4). About 2/3 in both surveys knew that

**Table 3.3.** Perception of HIV prevention and transmission (%)

Population	Abstinence	Faithfulness to uninfected partner	Condoms	Know of all 3 methods	Comprehensive knowledge of HIV/AIDS <sup>a</sup>
<i>KDHS (15–19)</i>					
Women	74	72	53	48 <sup>b</sup>	—
Men	81	77	60	57 <sup>b</sup>	—
<i>Out of school (15–24)</i>					
Female	82	77	56	44	23
Male	86	80	66	53	30
<i>In-school youth (15–19)</i>					
Female	80	63	30	25	13
Male	75	62	42	26	15
<i>Adult groups</i>					
Men in worksites	94	95	73	68	48
Policemen	87	90	71	62	42
Matatu drivers/touts	85	85	63	50	30
Bodaboda cyclists	89	88	69	58	30
Women in low income	92	92	66	58	33
Female sex workers	89	85	91	73	39
<i>KDHS (15–49)</i>					
Women	79	81	61	58 <sup>b</sup>	—
Men	89	89	72	70 <sup>b</sup>	—

<sup>a</sup> Entails knowledge of abstinence, faithfulness, condom use, and absence of all six misconceptions about HIV transmission among respondents who had ever heard of HIV/AIDS.

<sup>b</sup> KDHS data combine using condoms and limiting sex to one faithful partner.

— Data not obtained.

**Table 3.4.** Knowledge of mother-to-child transmission (MTCT) of HIV (%)

Population	Know of MTCT	Know of MTCT thru breast feeding	Actions mothers can take to prevent MTCT <sup>a</sup>			
			Seek medical advice	Take medication, ARVs	Don't know	Nothing
<i>KDHS (15–24)</i>						
Women	—	71	—	30	—	—
Men	—	66	—	31	—	—
<i>Out of school (15–24)</i>						
Female	82	78	23	7	38	29
Male	84	77	22	9	35	30
<i>In-school youth (15–19)</i>						
Female	85	71	71	22	34	11
Male	89	69	55	29	21	15
<i>Adult groups</i>						
Men in worksites	79	79	26	15	36	19
Policemen	81	64	29	26	30	17
Matatu drivers/touts	81	66	16	9	36	35
Bodaboda cyclists	76	78	31	13	30	30
Women in low income	79	80	19	9	42	27
Female sex workers	82	80	23	9	29	37
<i>KDHS (15–49)</i>						
Women	—	72	—	33	—	—
Men	—	68	—	38	—	—

<sup>a</sup> Based on number of respondents who knew about mother-to-child transmission of HIV. Figures do not add to 100% since only selected responses are shown in this table.

— Data not obtained.

HIV can be transmitted through breastfeeding. However, knowledge of specific actions that mothers could take to prevent mother-to-child transmission was low, and fewer than 1/3 of respondents in all groups suggested that medications could reduce transmission of HIV from mother to infant. Dealing with the incomplete knowledge of ways to reduce mother-to-child transmission remains an important challenge for the national programme. Rapid scale-up of coverage in the last 2 years (see chapter 4) may have changed these statistics since 2002/03.

## KNOWLEDGE OF AIDS TREATMENT

Although most of the BSS respondents had heard of AIDS 'cures' fewer than 1/3 in all groups knew about antiretroviral therapy (ART).

## HIV/AIDS-RELATED BEHAVIOUR: YOUTH

Close to 2/3 of out-of-school youth reported they had ever had sex (table 3.5). Male youth were more likely to have had sex than female youth. Regional variations in sexual debut among the youth were evident. Out-of-school youth in rural areas were more likely to have had sex (76%) than their urban counterparts (57%). Among out-of-school youth, abstinence was highest in Garissa (76%) and lowest in Suba (10%). Condom use among out-of-school youth during the first sexual intercourse was low, especially among males (table 3.5).

**Table 3.5.** Sexual and HIV testing behaviour among in-school and out-of-school youth (%)

Behaviour and attitude towards testing	In-school youth (15–19)		Unmarried out-of-school youth				KDHS (never married)			
	female	male	(15–19)		(20–24)		(15–19)		(20–24)	
			female	male	female	male	female	male	female	male
<i>Sexual behaviour</i>										
Ever had sex	17	49	48	67	68	84	—	—	—	—
Used condom at first sex	31	23	28	18	25	17	12	10	12	17
Had sex in the last 12 months <sup>a</sup>	5	19	55	57	55	63	18	29	31	59
Had multiple non-commercial partners in the last 12 months <sup>b</sup>	—	—	20	45	20	46	—	—	—	—
Used condom at last sex with higher-risk partner <sup>c</sup>	—	—	35	40	36	40	23	41	28	51
<i>HIV testing</i>										
Ever tested for HIV <sup>a</sup>	8	18	10	8	18	15	7	6	19	15
Willing to use VCT	71	69	84	88	87	90	—	—	—	—

<sup>a</sup> Based on all youth surveyed.

<sup>b</sup> Based on number of youth who had sex in the last 12 months.

<sup>c</sup> Based on number of youth who had higher-risk sex in the last 6 months.

— Data not available.

In both surveys male youth age 15–24 were more likely to have had sex in the last 12 months and to have had multiple partners (table 3.5). In KDHS, 2% of female and 11.3% of male youth (15–24) had sex with more than one partner in the 12 months before the survey. In BSS, less than 1/2 of out-of-school youth who were sexually active in the last 12 months used a condom during the last sex with a non-commercial partner (table 3.5). Unavailability of condoms (22%) and dislike for them (18%) were the main reasons for not using condoms with non-commercial partners.

Less than 1/3 of in-school and out-of-school youth who had ever had sex had taken an HIV test. At least 2/3 of youth in BSS expressed willingness to use VCT services if they were made available (table 3.5).

## HIV/AIDS-RELATED BEHAVIOUR: ADULT GROUPS

In KDHS, 2% of women and 12% of men age 15–49 had sex with more than one partner in the 12 months before the survey. Men were also more likely to engage in higher-risk sex (40%) than women (18%) and to use a condom during the last higher-risk sex (men 47%, women 24%).

In BSS, over 80% of respondents in all adult groups had sex in the 12 months before this survey. Nearly half the matatu drivers who were sexually active during this period had one or more non-regular partners (table 3.6). Less than 2/3 of the adult respondents used a condom during the last sex with a non-regular partner. Women in low-income settings were the least likely to have used a condom (table 3.6). Among all adult groups, trust of partner was the most commonly cited reason for not using condoms with non-regular partners.

**Commercial sex.** In KDHS, only 3% of men age 15–49 said they had paid for sex in the year preceding the survey. Respondents in all adult groups reported low

**Table 3.6.** Multiple sex partnerships among adult respondents who had sex in the last 12 months and HIV testing behaviour (%)

Behaviour and attitude towards testing	Men in worksites	Police-men	Matatu drivers, touts	Bodaboda cyclists	Women in low-income settings	Female sex workers
<i>Sexual behaviour</i>						
Had non-regular sex partner(s) in the last 12 months <sup>a</sup>	21	35	47	42	12	n.a.
Used condom at last sex with non-regular partner	57	68	56	55	39	n.a.
Had commercial sex partner(s) in the last 12 months <sup>a</sup>	4	6	12	14	2	n.a.
<i>HIV testing</i>						
Ever tested for HIV	24	24	24	24	17	35
Willing to use VCT	83	73	80	86	84	78

<sup>a</sup> Based on respondents who had sex in the last 12 months.

n.a. – not applicable

commercial sex in the last 12 months. However, matatu and bodaboda operators were more likely to report having had one or more commercial sex partner in the 12 months preceding the survey (table 3.6).

**Female sex workers.** While 88% of female sex workers used a condom at last sex with paying clients in the last 7 days, only 50% used a condom with non-paying clients during the same period. Low condom use with non-paying clients was mainly attributed to trust of partner (71%) and partner objection (25%).

**HIV testing.** Less than 1/3 of respondents in all groups other than female sex workers had ever tested for HIV (table 3.6). Most of those ever tested had received their test results. Notable is the willingness of respondents in all adult groups to use VCT services if these are made available.

## TRENDS IN SEXUAL RISK BEHAVIOUR

Comparing the results of the KDHS 1993, 1998 and 2003, we see that there has been a significant reduction in sexual risk behaviour. The proportion of adolescent girls who had sex before the age of 15 declined from 16% in 1993 to 14% in 2003 and the median age of sexual debut increased from 16.8 to 17.8 years. For boys (who were not interviewed in 1993) the changes are smaller; the proportion who had sex by age 15 dropped from 32% in 1998 to 31% in 2003, and sexual debut increased from 16.8 to 17.1 years. The proportion of individuals who had more than one sexual partner in the last year (or 6 months in the case of the 1993 KDHS) declined significantly. In addition, knowledge of someone who has AIDS or died from AIDS increased dramatically after 1993 (table 3.7).

Frequent changes or multiple concurrent sexual partnerships are key factors in driving an epidemic of a sexually transmitted infection such as HIV. Decreases in numbers of recent sexual partners occurred in all age groups between 1993 and 2003 in both men (fig. 3.1) and women (fig 3.2). In 1993, more than half the young men 20 to 24 had had more than one sexual partner in the last 6 months, but by 2003, only 16% reported more than one partner in the last 12 months. Few women reported multiple sexual partners; in 1993 among women 15 to 24, 4% reported more than one sexual partner in the last 6 months while in 2003 less than 2% reported more than one partner in the last 12 months.

Note that in 1993 it is the percentage of men or women with more than one sexual partner in the last 6 months. In 1998 and 2003 it is the percentage of men or women with more than one sexual partner in the last 12 months, of those who had ever had sex. Thus the differences between 1993 and 1998 are greater than they appear.

## ACCEPTANCE OF PEOPLE LIVING WITH HIV/AIDS

In both KDHS and BSS, respondents were asked to express their opinion about statements that reflect attitudes towards PLHA (box 3.2).

Throughout all youth and adult groups in KDHS and BSS, most respondents expressed their willingness to care for HIV-infected male and female relatives (tables 3.8, 3.9). However in BSS, fewer respondents felt that families should care for PLHA and less than half in all groups showed acceptance of PLHA on all of the first seven (six for female sex workers) statements listed in box 3.2.

**Table 3.7.** Indicators of sexual behaviour and HIV/AIDS knowledge in 1993, 1998 and 2003 (%)

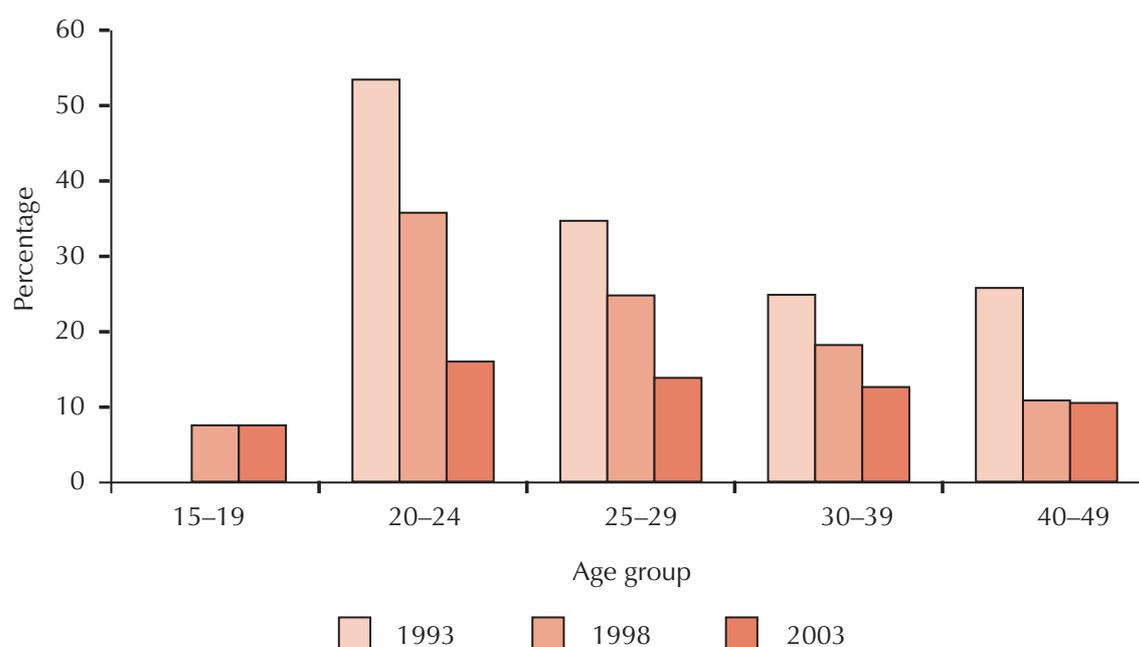
Indicator	1993	1998	2003
15–19-year-olds who had sex by age 15 (%)			
• Women	15.8	15.0	14.5
• Men	—	31.7	30.9
Median age at first sex (years)			
• Women 20–49	16.8	16.7	17.8
• Men 20–54		16.8	17.1
Had more than one sex partner in the last 12 months (%)			
• Women	—	4.2	1.8
• Men	—	24.1	11.9
Sexually active in the last 4 weeks (%)			
• Women	58.3	51.6	47.6
• Men	—	55.5	47.0
Used a condom at last higher-risk sex (%) <sup>a</sup>			
• Women	—	15.1	23.9
• Men	—	42.5	46.5
Know someone who has AIDS or has died from AIDS (%) <sup>b</sup>			
• Women	42.0	71.7	75.1
• Men	40.2	70.0	75.8

Sources: National Council for Population and Development et al., *Demographic and health survey 1993*; *ibid.*, *Demographic and health survey 1998*; Central Bureau of Statistics et al., *Kenya demographic and health survey 2003*. Where possible, values for 2003 have been adjusted to remove North Eastern Province since it was not included in the 1993 and 1998 KDHS.

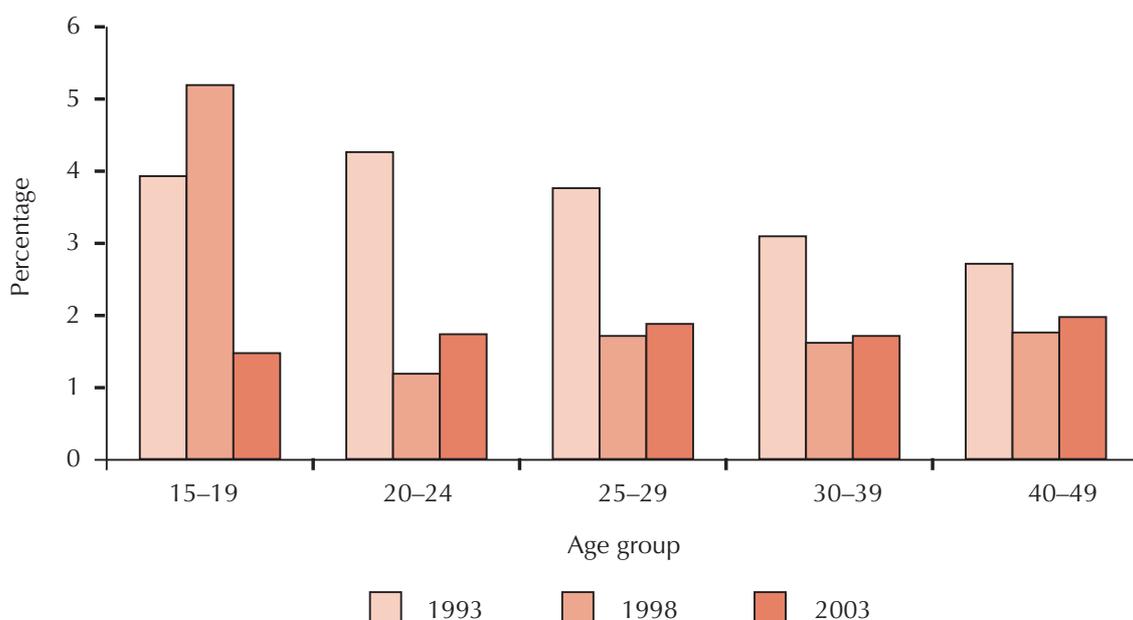
<sup>a</sup> For 1998 the indicator was condom use at last sex with someone other than a spouse or regular partner. For 2003 it was condom use at last sex with a non-marital, non-cohabiting partner.

<sup>b</sup> In 1993 and 1998 the question was whether the respondent knew someone with AIDS or who had died of AIDS. In 2003 the question was whether the respondent knew someone personally with AIDS or who had died of AIDS.

— Data not available.



**Figure 3.1.** Men with multiple partnerships by age group, 1993–2003 (note that the scale on the Y axis is 0–60%).



**Figure 3.2.** Women with multiple partnerships by age group, 1993–2003 (note that the scale on the Y axis is 0–6%).

### Box 3.2. Questions on stigma and discrimination against people living with HIV/AIDS

- Do you think people infected with HIV should be quarantined?
- Would you be willing to share a meal with a person you knew had HIV or AIDS?
- If a male relative of yours became sick with AIDS would you be willing to care for him in your household?
- If a female relative of yours became sick with AIDS would you be willing to care for her in your household?
- If a colleague has HIV but is not sick, should that person be allowed to continue working? (*for all groups except female sex workers*).
- If you knew a shopkeeper or food seller had HIV, would you buy food from them?
- If a member of your family became ill with HIV, the virus that causes AIDS, would you want it to remain a secret?
- If a teacher has HIV but is not sick, should that person be allowed to continue teaching? (*for in-school and out-of-school youth only*)

## RECOMMENDATIONS

**Knowledge about HIV/AIDS.** Information, communication and education interventions need to go beyond raising general awareness of HIV/AIDS. Such interventions must incorporate specific aspects of HIV/AIDS that have implications for prevention and AIDS treatment. Messages that focus on HIV prevention methods and misconceptions about HIV transmission should be strengthened in view of the low levels of comprehensive knowledge of HIV/AIDS throughout all youth and adult groups.

**Prevention of mother-to-child transmission of HIV.** The low levels of knowledge about mother-to-child transmission of HIV and its prevention throughout all risk groups calls for developing and disseminating information and education materials that target not only girls and women but also boys and men. Specific materials

**Table 3.8.** Acceptance of people living with HIV/AIDS, Behavioural Surveillance Survey (%)

Population	Willing to care for infected male relative	Willing to care for infected female relative	Think families should care for PLHA	Accepting attitude towards PLHA <sup>a</sup>
<i>Out-of-school (15–24)</i>				
Female	83	86	41	17
Male	87	82	40	20
<i>In-school youth (15–19)</i>				
Female	69	76	37	15
Male	77	73	34	13
<i>Adult groups</i>				
Men in worksites	94	94	50	43
Policemen	91	89	52	36
Matatu drivers/touts	91	88	63	23
Bodaboda cyclists	92	87	86	15
Women in low-income	92	93	51	25
Female sex workers	87	89	55	28

<sup>a</sup> Proportion of respondents who expressed accepting attitudes on all applicable statements assessing attitudes toward people living with HIV/AIDS.

**Table 3.9.** Acceptance of people living with HIV/AIDS, KDHS 2003 (%)

Age group	Willing to care for HIV-infected relative at home	Would buy food from HIV-infected vendor	Believe HIV-infected teacher should continue teaching	Would not want HIV-infected status to relative to remain secret	Accepting attitudes on all 4 conditions
<i>15–19</i>					
Female	79	57	51	52	20
Male	81	64	46	59	25
<i>20–24</i>					
Female	85	64	60	58	30
Male	90	78	62	75	41
<i>15–49</i>					
Female	84	60	57	59	27
Male	88	74	60	72	40

that address HIV transmission through breastfeeding and various prevention options will be critical in facilitating the ongoing expansion of PMCT services in Kenya.

**Knowledge about AIDS treatment.** Intensifying information, education and communication about antiretroviral therapy is important in view of the low awareness of AIDS treatment throughout all risk groups and the increased opportunities for treatment of AIDS in Kenya. Such interventions must also address the efficaciousness (or lack of it) of other commonly and locally known cures such as herbs and immune boosters.

**Sexual behaviour.** It is important to intensify the promotion of both primary and secondary abstinence among youth who have never had sex and to promote faithfulness to one uninfected partner among sexually active youth. Promoting faithfulness to one uninfected partner implies knowledge of that partner's HIV status.

In view of the low levels of HIV testing among youth who had ever had sex, it is important to strengthen interventions that encourage sexually active youth to know their HIV status.

Multiple partnerships coupled with low condom use in all adult risk groups need to be addressed in prevention efforts that target these risk groups—specifically, interventions that discourage trust of non-commercial partners among youth and non-regular partners among all adult groups. Behaviour change interventions that target female sex workers ought to emphasize and promote greater condom use with non-paying partners as well as paying clients.

**HIV testing.** More effort is needed to encourage HIV testing, especially among sexually active youth and all adult risk groups. Interventions that ensure that those tested will receive their test results are essential, given that some of those tested did not learn their results. The widespread willingness among all groups to use VCT services is a challenge to HIV/AIDS programmes to expand HIV testing services that target these groups.

**Perceptions and practices relating to care and support of PLHA, stigma and discrimination.** Working to reduce stigma and discrimination against PLHA should continue to be an important component of all HIV/AIDS interventions that target all risk groups surveyed. These interventions need to address the low acceptance of PLHA among women.

## Drugs, alcohol and HIV/AIDS in Kenya

Two reports released in 2004 highlight the abuse of drugs and alcohol in Kenya and the links between drug abuse and HIV/AIDS. The first is a study of substance abuse among youth conducted by the National Agency for the Campaign against Drug Abuse (NACADA).<sup>8</sup> It points to the high prevalence among youth in abuse of alcohol, cannabis, miraa and inhalants, and a lower abuse prevalence of other narcotic drugs and psychotropic substances.

The second report is a study commissioned by the United Nations Office on Drugs and Crime (UNDOC) and conducted by the University of Nairobi to investigate the links between drug abuse, injecting drug use and HIV/AIDS in Kenya.<sup>9</sup> It reveals that over and beyond the findings of the NACADA study, heroin, cocaine and amphetamines are also abused. The report shows that injecting drug use is high in Mombasa and Malindi in Coast Province, followed by Nairobi, and that sharing of needles is quite common. It estimates that 68% to 88% of injection drug users (IDUs) are HIV positive. A limited seroprevalence study among IDUs in Mombasa indicates that 50% of those in the city are HIV positive, and 70% are positive for hepatitis C. Six out of seven women in the sample tested positive for HIV.

Persons under the influence of drugs and alcohol lose their inhibitions and are more likely to engage in risky sexual behaviour. Such behaviour includes casual sex with a number of partners, having sex without a condom or using the condom wrongly. Injecting drugs is 'a most efficient way of getting infected' by using contaminated injection equipment, and it is emerging as an important vector in Kenya for transmitting HIV.

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<sup>8</sup> National Agency for the Campaign against Drug Abuse, *Youth in peril and drug abuse in Kenya*.

<sup>9</sup> Ndeti, *Study on the assessment of the linkages between drug abuse, injecting drug abuse and HIV/AIDS in Kenya*.

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# 4 HIV prevention services

The government of Kenya, international donor partners, local and international non-governmental organizations, faith-based organizations, and many other facets of civil society are involved in activities and services to prevent HIV/AIDS. Some of the activities implemented by these organizations are these:

- basic education and dissemination of information about HIV
- communication about behaviour change
- community mobilization to change social norms
- mass media campaigns
- participatory 'edutainment', including drama and puppetry
- training youth and adolescents in life skills and behaviour change
- peer education and youth-to-youth initiatives
- voluntary counselling and testing
- prevention and treatment of other sexually transmitted diseases
- prevention of mother-to-child transmission
- prevention of transmission in medical settings, including safe blood transfusion and proper infection control
- condom education, promotion, and distribution

The specific behaviours promoted by these activities include the basic ABC approach:

- *A*bstinence (including secondary abstinence)
- *B*e faithful
- *C*ondom use—correct and consistent

Added to these is the important component of testing for HIV.

The various organizations and programmes implementing these activities often have specific target groups that include youth of all ages; students and their teachers; workers in both formal and informal sectors; faith-based groups; those in high-risk occupations such as long-distance drivers, fishermen and commercial sex workers; women; married couples; members of the uniformed services; and refugees. Essentially all sectors of society have been targeted by one programme or another.

The success of these efforts to educate the people of Kenya about AIDS is documented in the extremely high rates of correct knowledge found in KDHS 2003 and in other behavioural surveys conducted in Kenya. Another measure of the success of these efforts can be found in the studies that indicate reduction in high-risk behaviours (chapter 3). One indication of the effectiveness of HIV prevention messages is the high rate at which VCT services are being used if they are easily accessible.

Numerous programmes advocate abstinence and faithfulness, emphasizing change in personal behaviour and in social norms. Prevention services to university students and other young people have been scaled up and rapidly expanded through A-B-C initiatives, some adding a *D* for 'diagnosis—know your status'. Much effort

still needs to be made in delivering AIDS education to schools. Moreover, with increased primary school enrolment since the declaration of universal free primary education, schools remain the single most important place to reach massive numbers of youth with prevention education at an appropriately early age. The earlier investment of resources into the education sector through curriculum development needs to be scaled up to cover schools throughout the country. Having parents and supporting adults participate in HIV prevention efforts is necessary, particularly for young people, to reinforce their efforts to change their behaviour.

Some specific groups remain poorly reached by HIV prevention efforts, however. The problem of HIV discordance among married couples remains poorly understood by the general public (see section 'Couples seeking VCT', page 34), and programmes addressing the 'Be faithful to one partner' aspect of ABC do not yet adequately emphasize 'Be faithful to a partner *whose status you know*'. Premarital HIV testing is still not widely practised, and comprehensive post-testing programmes are not yet available to serve HIV-infected young people, whose weddings in some instances have been cancelled when the results became known. Adolescent prevention programmes need to be developed to help young people adopt a positive style of living and bring down their high infection levels. Also needed are programmes for adolescent care. Prisoners have only recently begun to be provided intensive HIV prevention programmes. Programmes serving rural-to-urban migrants, nomads and pastoralists need to be expanded, as do services meeting the needs of married couples separated by employment—a common pattern in Kenya. The pervasive problem of alcohol abuse and the relapse to high-risk behaviour while under the influence of alcohol has not yet been adequately addressed, and programmes reaching out to injection drug users have only recently been established. Although there are programmes for commercial sex workers, services designed to divert impoverished young women from both formal sex work and informal trading of sex for cash or commodities remain scattered and ineffective.

With the continuing high demand for VCT and with the growing number of AIDS treatment programmes, an increasing percentage of those living with HIV infection are learning of their infection. Intensive programmes for 'prevention with positives' have not been implemented, however, and disclosing one's HIV status to sexual partners remains difficult and inconsistent. Expanding the access to antiretroviral drugs needs to be accompanied by services that help patients on these drugs to inform and protect their partners.

A multitude of prevention programmes have been developed in Kenya; the specific services this chapter focuses on include VCT, safe blood and safe injection, PMCT, programmes based in the workplace, and condom promotion.

## Voluntary counselling and testing

VCT is an important strategy for prevention of HIV/AIDS. It is a powerful weapon in the fight against HIV/AIDS since it is associated with behaviour change that reduces HIV transmission and serves as a point of entry into care for those testing positive.

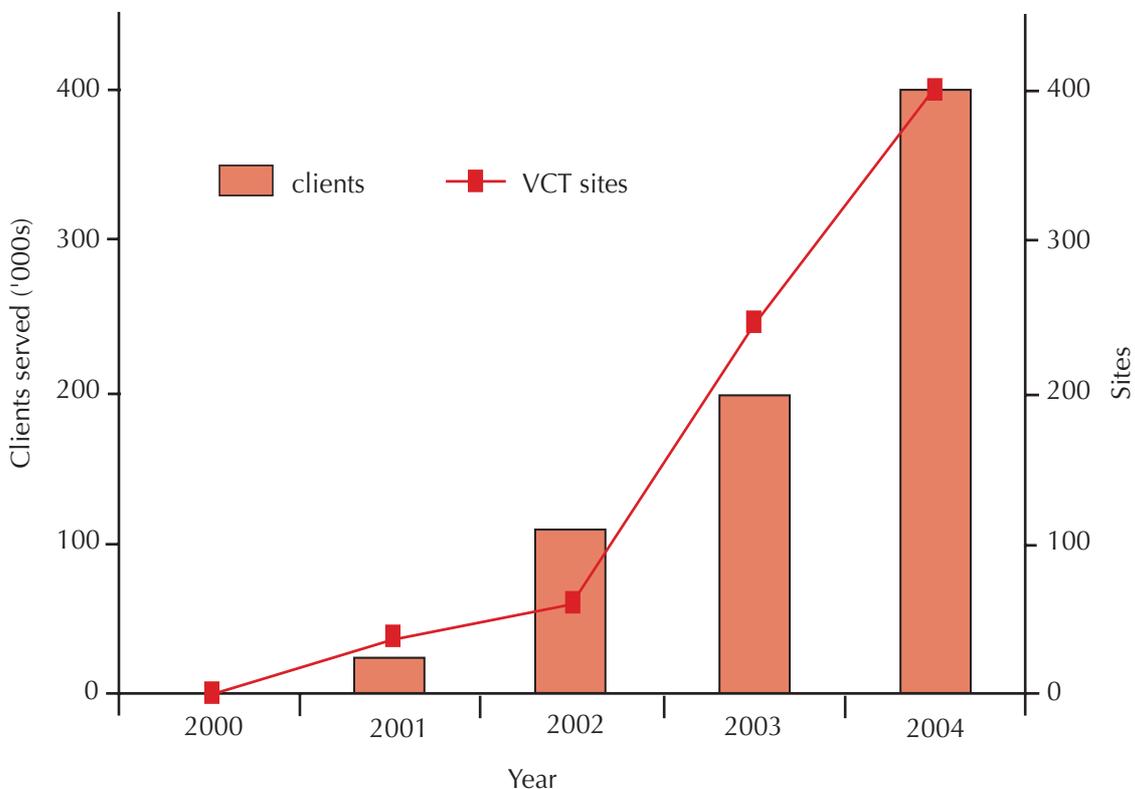
Joint efforts by the Kenya government, international donors and partners, non-governmental organizations and faith-based organizations have resulted in a rapid

increase of VCT sites from 3 in the year 2000 to 555 sites by May 2005. Over the same period, annual VCT service uptake increased from about 1000 to 380,000. Client-initiated VCT has been the predominant model of HIV testing in Kenya up to the end of 2004, although an increasing number of people are being tested through PMCT services, hospitals and other care programmes. Expanding the number of people who are tested in medical facilities is essential to expand access to AIDS care and treatment.

VCT services are offered through sites registered by the Ministry of Health after meeting prescribed standards contained in the VCT guidelines published in 2001. VCT has been a major success story in Kenya, and the eagerness of Kenyans to take advantage of this service is an indication of this success (fig. 4.1).

The national VCT programme uses four models of service delivery: integrated, stand-alone, community-based and mobile. In integrated sites, a VCT centre is usually located within the grounds of health facilities such as hospitals, health centres or dispensaries. Their main advantages include easier referral to medical care services and low start-up costs that allow for rapid scale-up. Difficulties sometimes arise because health workers have more urgent medical problems to attend to and cannot devote enough time to VCT. About 83% of registered VCT sites in Kenya are integrated sites in health facilities.

Stand-alone sites are usually not associated with any existing medical institution and usually have staff fully devoted to VCT. They are largely operated by non-governmental agencies and are usually located in densely populated urban areas. Their main advantages are that the staff can work full time on VCT services, and they may



**Figure 4.1.** Increase in VCT sites and clients served in Kenya, 2000–04.

have donor funds that facilitate their work. About 17% of registered VCT sites in Kenya are stand-alone or community-based sites.

In the community-based approach, VCT is either integrated into other social services or implemented as the sole activity of a local community-based organization (CBO) or a faith-based organization (FBO). This approach offers good opportunities for widespread scale-up of VCT at the grassroots, given the widespread distribution of CBOs and FBOs in Kenya. In the mobile approach VCT is provided as an outreach to remote or hard-to-reach communities where other models of VCT are either not feasible or unavailable. Most mobile VCT services are offered by stand-alone or community-based VCT programmes. Different models work well in different settings. In some cases, a combination of elements of different models may be most appropriate.

In addition to these four models of service, there are also VCT services for special target groups. Three sites serving the deaf, with trained counsellors fluent in sign language, opened in 2004. Many of the centres are youth friendly and in various locations throughout the country also serve as youth centres. Many religious organizations now offer VCT services on the grounds of their churches and mosques.

Ongoing and planned expansion of VCT services will continue to provide more Kenyans with the opportunity to know their HIV status. But recognizing increased need for HIV testing in varying settings, the Ministry of Health has developed and published broader policies to make testing more accessible in clinical settings. The policy defines different categories of HIV testing and approaches to consent and counselling that are distinct from those in VCT. The policy forms a basis for aggressively promoting HIV testing initiated by the provider of health care to complement VCT. Medical patients and TB suspects often present with symptoms that may be attributed to HIV disease, thereby making testing for HIV an important step in their diagnostic work-up. Routine testing in clinical settings is expected to enhance early access to appropriate care and early initiation of prophylactic therapy for those testing positive.

In spite of the rapid increase in the number of VCT sites in Kenya, some geographic disparities remain, as can be seen in table 4.1.

**Table 4.1.** VCT site coverage by province (December 2004)

Province	Pop. $\geq$ 15 yr (2004)	Estimated adult HIV prevalence (%)	VCT sites in 2004	Pop. per VCT site
Nairobi	1,839,953	9.9	73	25,204
Central	2,919,049	4.9	49	59,572
Coast	1,502,575	5.8	41	36,648
Eastern	3,291,815	4.0	46	71,561
North Eastern	314,244	<1.0	4	78,561
Nyanza	3,186,210	15.1	62	51,390
Rift Valley	4,363,464	5.3	79	55,234
Western	2,140,670	4.9	46	46,536
Total Kenya	19,557,980	6.7	400	48,895 <sup>a</sup>

HIV prevalence data are based on KDHS 2003

<sup>a</sup> average

As of December 2004, Nairobi is well supplied with VCT sites (one site for every 25,000 adults); Western and Coast are reasonably well supplied (one site for around 36,000–46,000 adults); Central, Nyanza and Rift are less well supplied (around 50,000 to 60,000 adults per site); and Eastern and North Eastern Provinces have the lowest access to VCT (about 70,000 to 80,000 adults per site). However, it is important to take into consideration the burden of HIV infection in each province, and in this regard, Nyanza, with the highest rates of HIV in the country at about 15% among adults, may require more sites in proportion to its population.

Particularly as access to antiretroviral drugs increases in Kenya, those parts of the country with high rates of HIV should have readily accessible VCT services, as well as clinical facilities offering testing and counselling. Population distribution is also a factor, and those areas such as the North Rift Valley and North Eastern, with low population density and nomadic populations, may benefit more from mobile VCT than from a few fixed sites. These mobile services may use all-terrain vehicles, containers moved on wheels, and even bicycles to reach distant populations.

According to the 2003 KDHS, only 13% of women and 14% of men said they had been tested for HIV, although approximately 2/3 of respondents said they were willing to learn their status. This means that most Kenyans do not know their own HIV status or that of their spouse or sexual partner, and many may therefore be unknowingly exposed to HIV. Further scale-up of VCT, especially for couples, provides an opportunity to prevent HIV infections from occurring within stable sexual relationships.

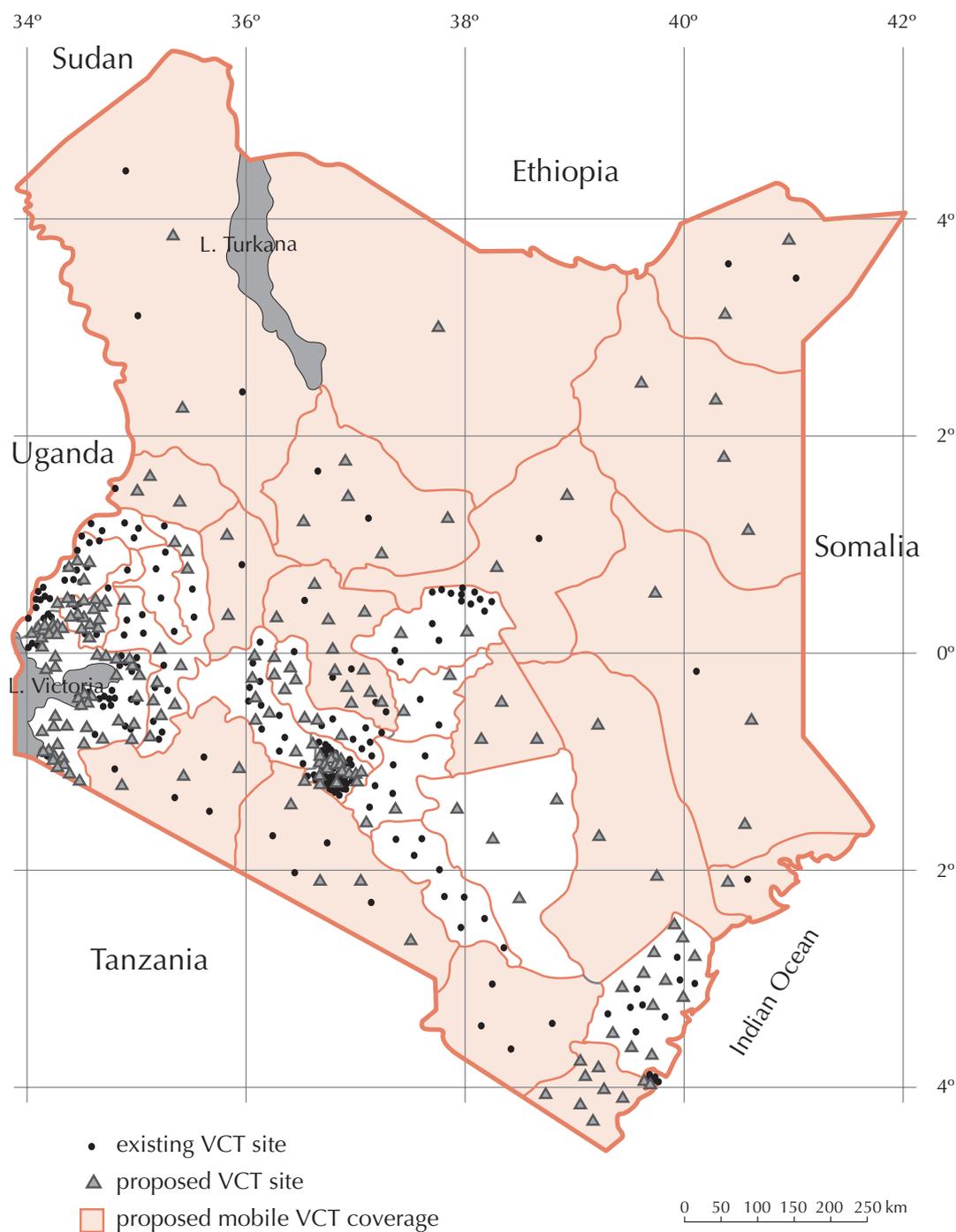
Equity in access to VCT is being improved through a nationally coordinated programme that gives priority to underserved communities and diversifies approaches to delivering VCT services. Kenya is therefore preparing for a major scale-up of VCT services and centres as well as other forms of HIV testing to expand both prevention and access to care (fig. 4.2).

## WHO COMES FOR VCT?

Although all registered VCT sites must complete a data form on each client, many sites have not yet been able to enter their data on computers, which would permit easy data analysis. About 30% of the sites, supported by CDC and other partners, have entered all client records and by analysing data from these sites we can get a good picture of who comes for VCT, rates of HIV infection among VCT clients, and reasons for coming compared with HIV rates.

An analysis of the age and gender of VCT clients served between 2001 and 2004 shows that over 60% of the clients are below 30 years of age (fig. 4.3). This suggests that the services are reaching the most sexually active segment of the population, particularly young males.

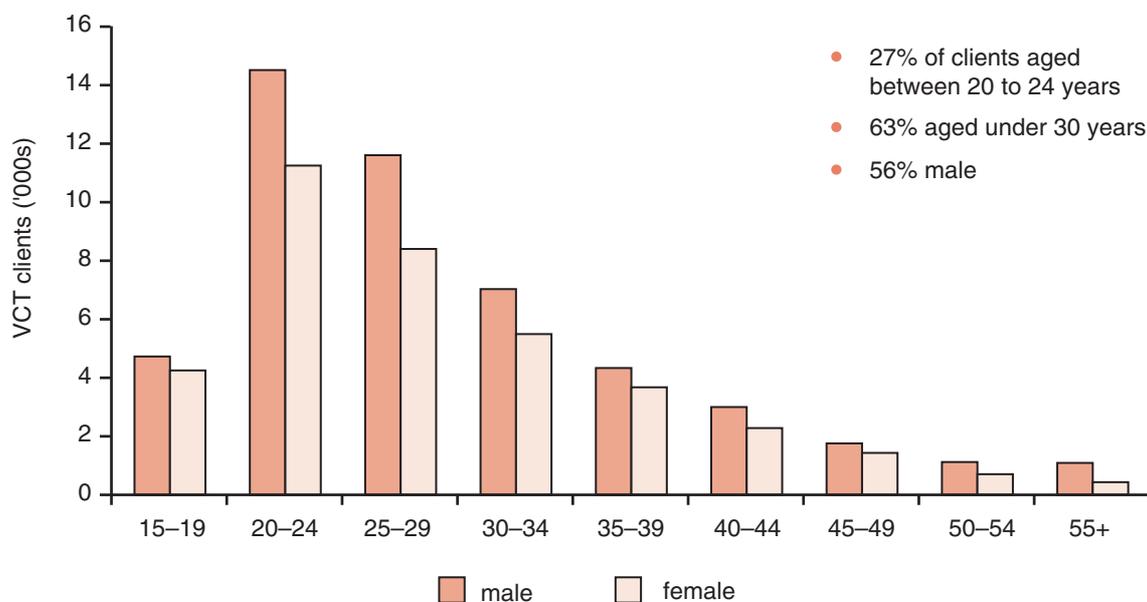
The HIV rate among female VCT clients (22.9%) is twice that of their male counterparts (11.4%). This ratio is similar to that found in the general adult population according to the KDHS (see chapter 2). The greater vulnerability of women to HIV infection has been attributed to biological, sociocultural and economic factors. Peak prevalence among female VCT clients occurs in those aged 35–39 years, while peak prevalence among males is in the 40–45 age group (fig. 4.4). This is slightly older than the prevalence peaks in the general population (see fig. 2.1, page 9).



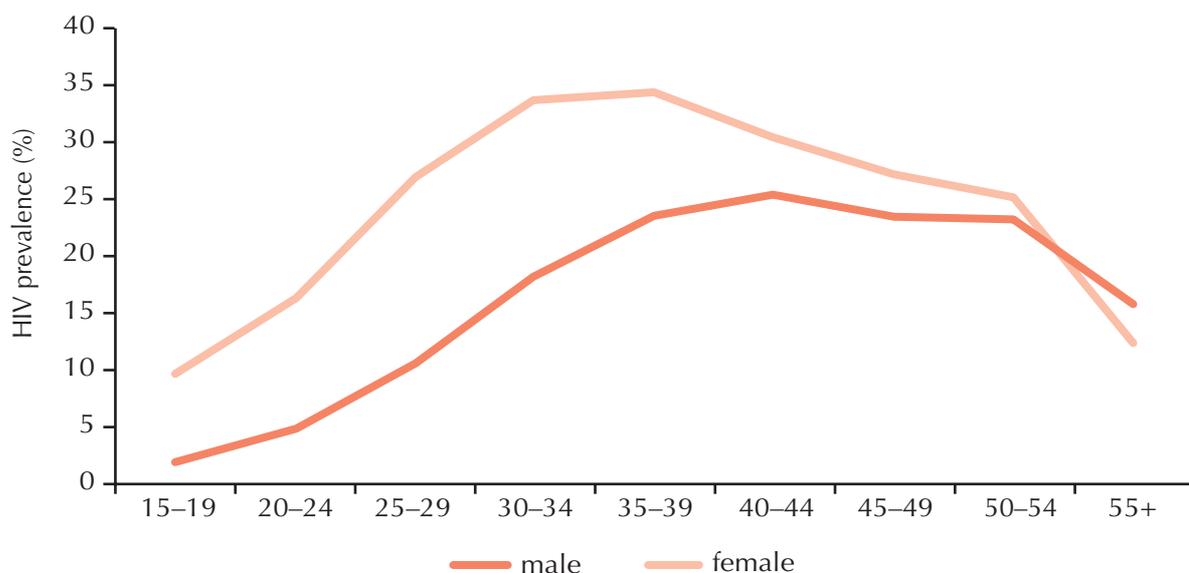
**Figure 4.2.** Planned scale-up of VCT services in Kenya, 2004–07.

## REASONS THAT CLIENTS GIVE FOR SEEKING VCT

The national VCT data form provides for recording of over 20 different reasons why clients seek VCT. The reasons are not mutually exclusive, meaning that one client can give more than one reason. For the purpose of this analysis, the reasons were clustered into broad categories: medical reasons (for instance, self, partner or child unwell), referral (such as by a health care worker), high-risk exposure (such as one's own risky behaviour or that of a partner, injection drug use, commercial sex work, survivors of rape), social reasons (such as planning for the future, premarital



**Figure 4.3.** Distribution of VCT clients by age and gender, 2001–04.

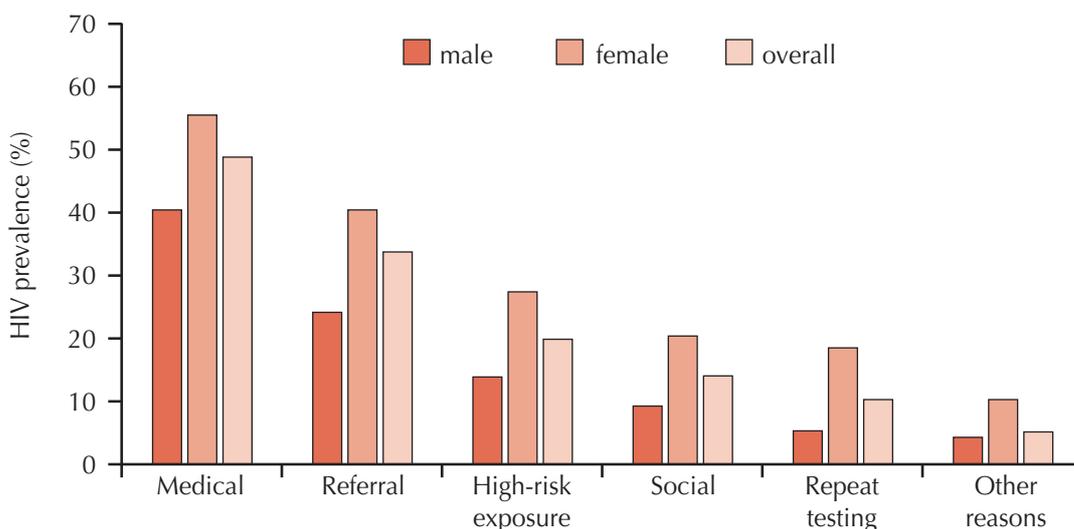


**Figure 4.4.** Prevalence among VCT clients by age and gender, 2001–04.

planning), testing issues (such as the window period), and other (such as testing for insurance or foreign travel).

Overall, about 86% of VCT clients give at least one of the ‘social’ reasons for coming for VCT, with ‘planning for the future’ the most commonly given. About 15% of clients give a reason related to medical issues, such as feeling unwell. There is a very different pattern of HIV infections depending on the reasons clients give, as seen in figure 4.5.

The pattern is clear that regardless of the reason given for seeking VCT, females had a higher prevalence than their male counterparts. As expected, clients seeking VCT for medical reasons, referral or high-risk exposure had the highest HIV



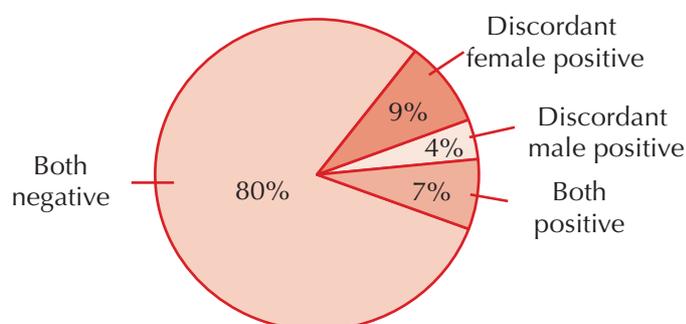
**Figure 4.5.** HIV prevalence by gender and reason for seeking VCT, 2000-04.

seroprevalence. Seeking VCT for social reasons is associated with lower risk of infection. Providing testing services for Kenyans who want to make informed life decisions, such as before marriage, offers a valuable opportunity for intensive prevention counselling to help this largely HIV-negative group remain uninfected. Counselling and testing for medical reasons, referral and high-risk exposure leads to identifying large numbers of HIV-infected persons and should therefore be promoted in clinical settings.

## COUPLES SEEKING VCT

As of the end of 2004, the proportion of VCT clients who came with a partner remained low, at about 8%. Although most couples coming for VCT are both HIV negative (80%), it has been found that 13% of them are 'discordant', that is, one is HIV infected and the other is not yet infected. As expected, couples coming for VCT are at slightly higher risk than the general public for having HIV infection (see chapter 2). In many of these situations, the infected partner does not yet have symptoms, and the couple may be practising faithfulness, and therefore they may believe they are at no risk for HIV when in fact the uninfected partner is in a highly risky relationship.

Data from 14,074 clients who came for VCT together with their partners are illustrated in the pie chart in figure 4.6, which shows that one in eight (13%) of the couples who came for VCT services were discordant and in need of intensive counselling and ongoing care so that the HIV-infected partner can receive treatment and the HIV-negative partner can remain free of infection. VCT sites are an ideal setting for these services,



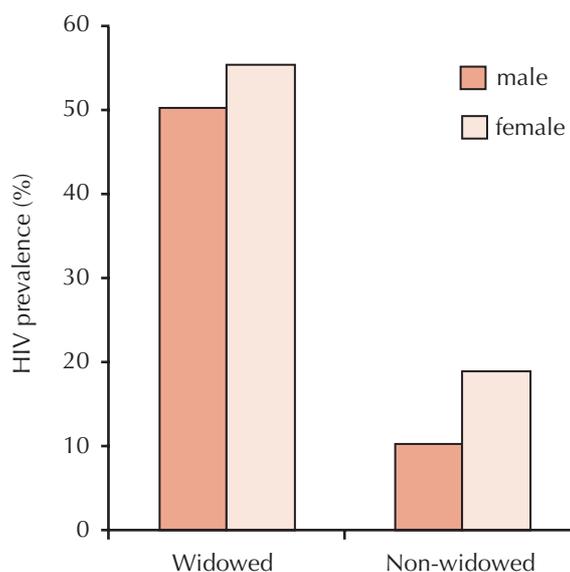
**Figure 4.6.** HIV rates among VCT clients served as partners.

and every effort is needed to increase the number of couples who come together for VCT services.

## HIV PREVALENCE AMONG WIDOWED VCT CLIENTS

For a widow in many Kenyan communities, initiation of a new sexual relationship with a male partner, known as 'widow inheritance', is an accepted and sometimes required practice. Some communities deem widow inheritance a mandatory sexual cleansing rite. Since HIV is now the leading cause of death in Kenya, widow inheritance may be an important factor driving the HIV/AIDS epidemic in communities where the practice is common. According to the analysis of data from selected sites, 6% of VCT clients served were widowed.

From 2001 through 2004, half of the 1866 widowers and 56% of the 7724 widows who came for VCT were HIV infected. Overall, HIV prevalence was 3 times higher among widowed clients than among non-widowed clients (fig. 4.7). Widowed clients seeking VCT in preparation for remarrying had significantly lower HIV rates (33%) than those seeking VCT for other reasons, although these rates are still significantly higher than among other VCT clients. Widows may be an important HIV transmitter group and are themselves at risk of acquiring new infections through sexual cleansing associated with inheritance. Widowers who marry younger women, another common pattern, may also be a high transmitter group. Promoting widespread counselling and testing of widows and widowers and their proposed partners before inheritance or remarrying offers an important opportunity for reducing the spread of HIV.



**Figure 4.7.** HIV prevalence among widowed VCT clients.

## PRIORITY AREAS FOR THE FUTURE EXPANSION OF VCT SERVICES IN KENYA

- Expand mobile VCT services to improve access to VCT, especially in rural areas and for pastoral and nomadic communities where VCT in a fixed site is not feasible.
- Promote counselling and testing in clinical settings to complement VCT and address additional needs for testing created by emerging opportunities for care including ARV therapy.
- Develop innovative approaches to VCT service delivery to address the unique needs of traditionally marginalized persons such as the deaf and other disabled persons, and ensure that young people have access to youth-friendly VCT services.

- Promote VCT for couples to reduce risk of HIV transmission within stable relationships, including married couples.
- Promote widespread counselling and testing of widows and widowers and their proposed partners before inheritance or remarrying.
- Enhance referral of HIV-positive clients for appropriate care including routine screening for TB and promote prevention interventions with those who are infected with HIV (prevention with positives).

## Medical transmission of HIV infection

A recent national survey of health workers demonstrated high rates of needlestick injuries, potentially exposing them to HIV or hepatitis infection. Poor disposal of medical waste also increases the risk of hospital and clinic workers, patients and the public to exposure. Exposed health workers often delay in reporting injuries, and only a minority receive post-exposure prophylaxis to prevent HIV infection. Several pilot initiatives are being developed to educate health workers about risks and to provide post-exposure prophylaxis for those exposed. Pilot programmes have been developed to introduce safer injection equipment, including equipment that protects against needlestick injury and autodestruct syringes to prevent their reuse. Standard universal precautions remain the centrepiece of medical transmission prevention programmes and need to be observed in care settings—both the health facility and the home.<sup>10</sup>

## Safe blood

Blood transfusion is a vital component of the health care delivery system. Although often a life-saving intervention, it comes with a risk, because it can transmit infection if strict safety measures are not followed. Infections that may be transmitted through blood include HIV, hepatitis B, hepatitis C, syphilis and malaria. Blood transfusion is not a major route of HIV transmission but it is nevertheless estimated to cause 5% to 10% of HIV cases worldwide.

Blood transfusion services in Kenya have undergone major changes since the turn of this century. Policy guidelines were launched in a publication entitled *Policy guidelines on blood transfusion in Kenya*<sup>11</sup> in 2001 in response to an increasing demand for a safe and sufficient blood supply in the country. Blood safety was recognized as a national public health priority. The policy aims to protect and promote the health of both blood donors and blood recipients by establishing an efficient, self-sustaining and safe transfusion service. These guidelines stipulate that all donated blood must be screened and only units in which no infection that is transmissible by transfusion is detected may be used.

In accordance with this policy the National Blood Transfusion Service (NBTS) has spearheaded the transition from a hospital-based transfusion system to a national one. It comprises a network of regional and satellite transfusion centres, which aim to achieve national coverage. Regional transfusion centres were established in

<sup>10</sup> Ministry of Health, *National home-based care programme and service guidelines*.

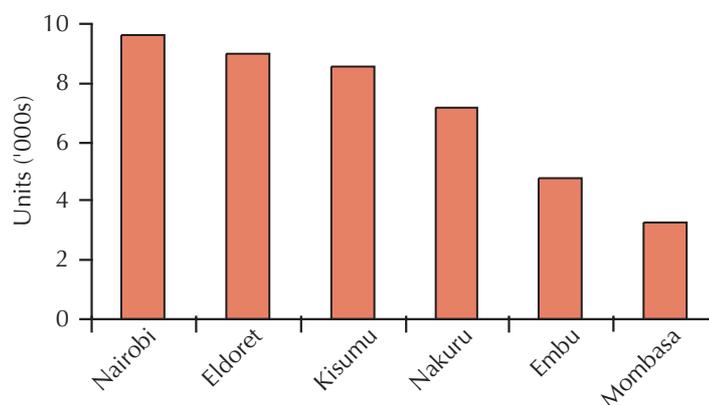
<sup>11</sup> Ministry of Health.

Kisumu and Nairobi in 2001; Embu, Nakuru and Mombasa in 2002; and Eldoret in 2003. In addition, satellite centres were identified in Kericho, Naivasha and Voi.

A well-organized national service is safer and more cost effective than a hospital-based system. A national service promotes adherence to quality standards, minimizes duplication, and achieves economies of scale through a centralized mechanism for recruiting donors and for screening and processing blood. Additionally, NBTS has begun to shift from relying on donors who give for a particular patient, such as for a relative, to voluntary, non-remunerated blood donors. Studies worldwide indicate that the volunteers produce the safer blood supply. In Kenya, school students are the main donor group. NBTS aims for zero tolerance in transmitting transfusion-related infections to recipients of blood and blood products.

## BLOOD DONATIONS 2003

A core activity of NBTS is to increase the country's blood supply. It is estimated that the country uses 110,000 blood units annually (fig. 4.8). In 2003 NBTS met over 40% of this requirement through supplies to more than 60 public and private health-care facilities. This amount was achieved through intensive outreach activities targeting the recruitment of



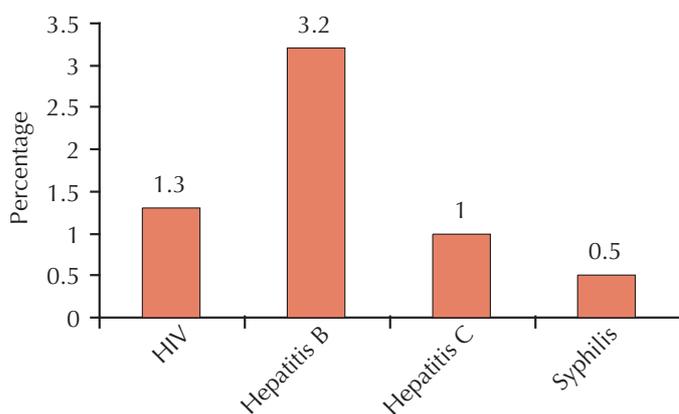
**Figure 4.8.** Pints of blood donated in Kenya centres in 2003.

volunteer blood donors with a low risk of transfusion-transmissible infections (TTIs). Potential donors are provided with screening criteria to determine if they are at risk for transmitting an infection and are also checked to ensure that they are not anaemic or whether donating will be risky for their health. Only healthy persons are accepted as donors. The examination aims first to protect the potential donor, whose health must not be put at risk by donating blood. Equally important is to protect the recipient, which is achieved by assessing the potential risk of infectious agents in the donor.

## BLOOD SCREENING RESULTS

In addition to achieving a marked increase in the total number of units collected annually, NBTS has produced a gradual decrease in the number of units with TTIs and in particular HIV infection. HIV prevalence in donors has fallen from 7% before the national service was established to only 1.3% (fig. 4.9). This has been achieved partly by implementing more stringent donor selection criteria and by education, which will result in overall improvement in blood safety.

The national policy on blood transfusion stipulates that all blood must be screened for HIV, hepatitis B virus and syphilis. Since the beginning of 2003 NBTS has additionally tested all blood for hepatitis C virus (fig. 4.9).



**Figure 4.9.** Mean prevalence among blood donors of transfusion-transmissible infections (TTIs).

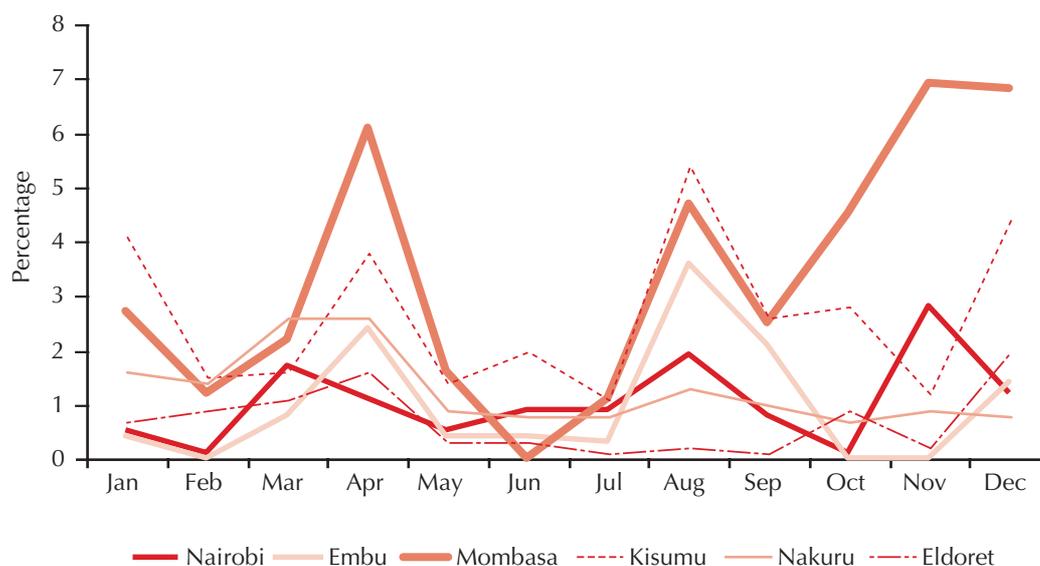
**Table 4.2.** Hepatitis and syphilis in blood donors, 2003

RBTC	Hepatitis B	Hepatitis C	Syphilis
Eldoret	2.4	—	0.4
Embu	3.3	0.4	0.2
Kisumu	3.9	2.2	0.5
Mombasa	5.4	3.4	1.5
Nairobi	3.9	0.8	0.3
Nakuru	5.4	0.1	0.5

fusion centres rely on out-of-school donors. Infection rates are higher in this population group. Efforts are being made to create a pool of low-risk volunteer out-of-school donors.

## CHALLENGES

Currently NBTS meets only 40% of the national blood requirement. There is need to establish a pool of regular, repeat volunteer blood donors and to establish a self-sustaining and self-financing blood donation centre.



**Figure 4.10.** Percentage of donors who are HIV positive, by month and site, 2003.

Hepatitis B virus is the commonest TTI among volunteer blood donors (table 4.2).

Screening methods used are highly sensitive, making it exceedingly unlikely that donors positive for any infectious agent will be missed. All blood units that test positive are discarded.

Trends in the prevalence of TTIs among blood donors are a reflection of both the prevalence of infection in the general population and the degree to which low-risk donors are selected.

Figure 4.10 indicates the HIV prevalence rate in six regional transfusion centres and the variation by months. It is evident that HIV prevalence rates are markedly elevated in April, August and December. These are periods when schools are closed and the trans-

## Prevention of mother-to-child transmission

Because HIV/AIDS is now an established epidemic in Kenya, it has significantly set back achieving both health and development goals, offsetting the progress made in the 40 years of independence. Mother-to-child transmission of HIV is responsible for most HIV infections in children. A pregnant woman who is HIV infected is 30% to 40% likely to transmit HIV to her newborn child. The baby can become infected during pregnancy, during labour and delivery, or through breast milk. Most infected children acquire the infection from their mothers at or around the time of birth.

### INTERVENTIONS TO REDUCE MOTHER-TO-CHILD TRANSMISSION OF HIV

The number of children who are infected can be reduced in various ways:

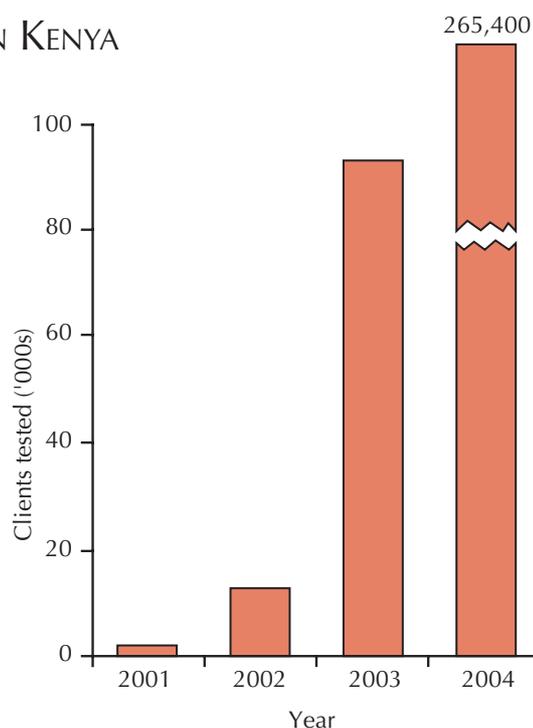
- **Prevent HIV infection in women.** The best way to prevent mother-to-child transmission of HIV is to prevent the woman from becoming infected. Feasible strategies that are known to work are for teenage girls to delay their sexual debut; for girls to stay in school; for women to have a single, uninfected sexual partner; and for young women, pregnant women and lactating mothers to use condoms.
- **Reduce the number of HIV-exposed pregnancies.** Women who are HIV infected can use family planning methods to prevent pregnancy.
- **Prevent HIV transmission from HIV-infected pregnant women to their infants:**
  - **Antiretroviral therapy.** Antiretroviral drugs such as zidovudine (AZT) and nevirapine given during pregnancy or labour or both can reduce viral load in the mother and reduce by half the risk of her transmitting HIV to the newborn child. AZT is taken in the last weeks of pregnancy and during labour. Nevirapine is taken at the onset of labour and given to HIV-exposed babies within 3 days after birth.
  - **Modified obstetrical practices.** Reducing trauma and shortening exposure of the baby to the virus during labour and delivery can reduce HIV transmission. Practices include ensuring that a woman gives birth within 4 hours after the membrane ruptures (the water breaks), avoiding routine episiotomy, avoiding prolonged labour, minimizing the use of vacuum or forceps delivery, and electing to use caesarean section.
  - **Appropriate choice for feeding infants.** One-third of mother-to-child transmission occurs through breastfeeding. HIV-infected mothers should be counselled on infant feeding to help them make the choice for feeding that is safe, available and affordable. Main choices are breastfeeding without any supplements followed by abrupt but timely weaning, or replacement feeding from birth without any breastfeeding.
- **Follow-up and care (PMCT-plus).** PMCT-plus provides a package of services that include prophylaxis against opportunistic infections, treatment of HIV complications, and antiretroviral therapy for eligible mothers, children and family.

## IMPLEMENTATION OF PMCT SERVICES IN KENYA

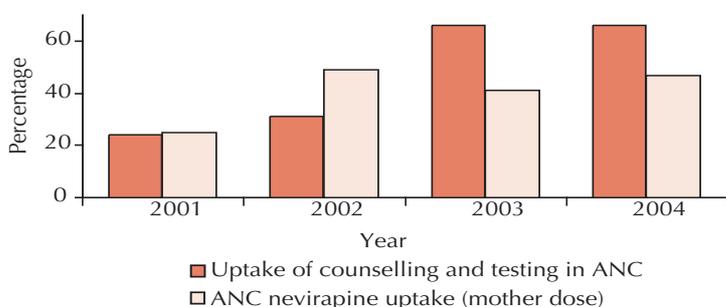
In 2000 PMCT services were initiated in Kenya on a pilot basis. Lessons learned from the pilot sites were used to initiate the national programme in 2001. Now nearly 600 facilities in the country are providing the services. A list of the facilities currently offering PMCT in each district is presented in appendix 3.

The increased number of health facilities offering PMCT services over the past 4 years means that the number of women tested, counselled and offered treatment has progressively increased from just over 1000 in 2001 to over 265,000 in 2004 (fig. 4.11). This represents an increase in coverage of pregnant women receiving basic PMCT services from less than 1% to 22% of all pregnant women in the country.

To implement PMCT services widely, a large number of obstacles must be overcome. Many women who have access to antenatal care do not agree to be tested for HIV. Acceptance of testing at sites varies from 25% to over 95%, with an average of approximately 65%. Lack of male involvement and stigma about HIV remain significant barriers to accepting these services. Due to various



**Figure 4.11.** Women counselled and tested at antenatal clinics.



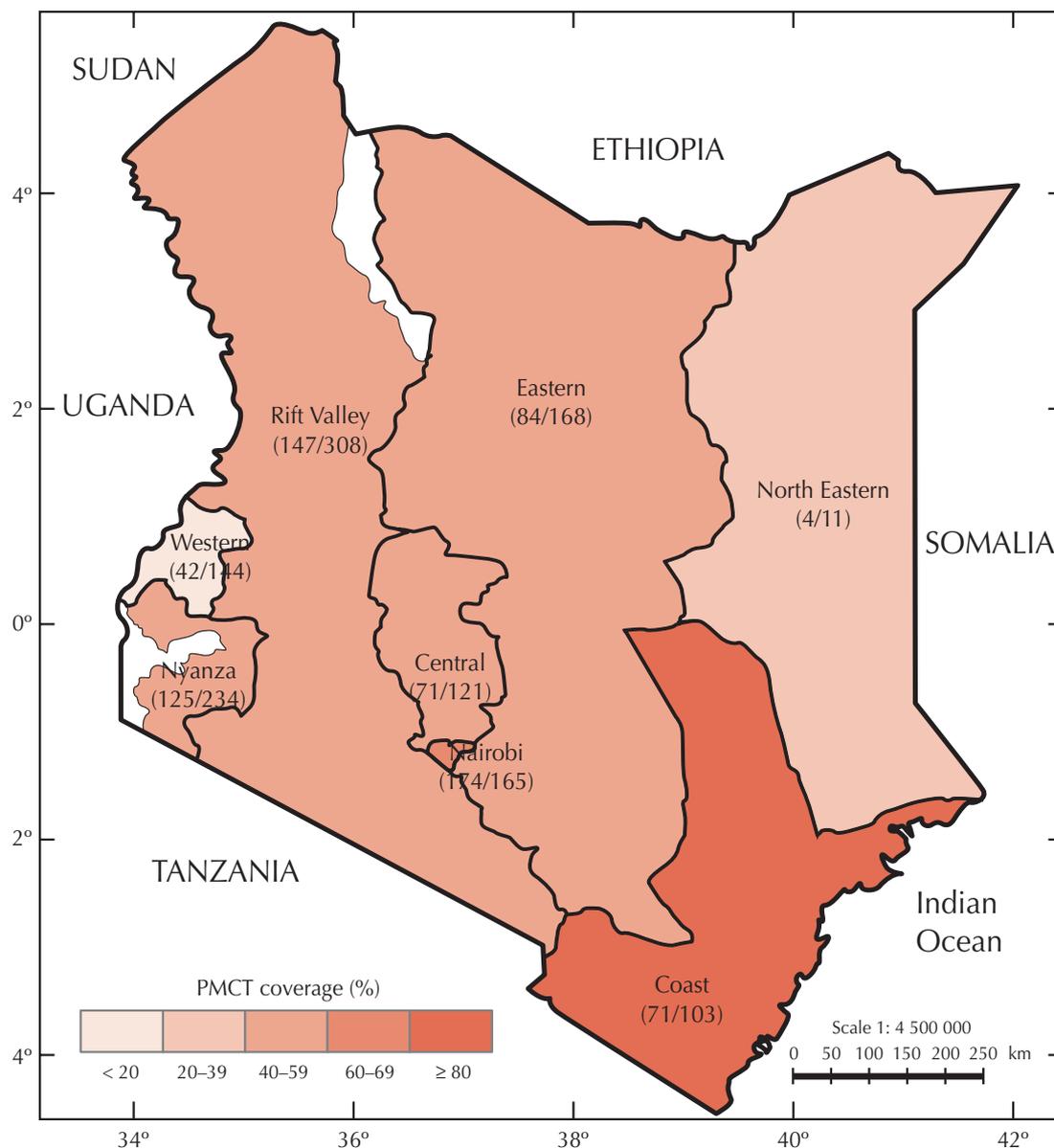
**Figure 4.12.** Trends in antenatal clinics of mothers using counselling services and taking antiretroviral drugs.

reasons including failure to return to the clinic at the appropriate time and shortage of drugs, only half of HIV-infected women receive nevirapine tablets (fig. 4.12). By the end of 2003, approximately 20% of all maternal and child health facilities were offering PMCT services. This is good progress towards reaching the national targets, which are to introduce these services in at least 50% of all facilities offering antenatal care by the end of 2005 and 80% by 2007. According to the 2003 PMCT service statistics, approximately 9% of all pregnant women received PMCT services in that year.

HIV prevalence among pregnant women continued to drop to about 8%. New strategies are being developed to improve the effectiveness of antiretroviral treatment and other interventions to prevent mother-to-child transmission. The Ministry of Health through the Division of Reproductive Health and NASCOP has set up measures to improve the use of PMCT services by improving communication to communities, informing them that PMCT-plus services are available, with a continuum of care for mothers, children and family.

Critical activities that are necessary for national implementation of the programme include 1) improving infrastructure, 2) training health workers, 3) improving communication about PMCT, 4) strengthening management and administrative systems, and monitoring and evaluation systems, and improving existing delivery of services. Routine HIV testing should be introduced as an integrated service in maternal and child health services.

By mid-2005 nearly half (47%) of all maternal and child health facilities offer PMTCT services. The map in figure 4.13 shows the proportion of facilities in each province that offers those services (see also appendix 3). This is good progress towards reaching the national targets, which are to introduce these services in at least 50% of all facilities offering antenatal care by the end of 2005 and 80% by 2007.<sup>12</sup>



**Figure 4.13.** Proportion of facilities offering PMCT by province, 2005.

Ministry of Health, *National prevention of mother to child transmission strategic plan 2003–2008*.

## Workplace-based programmes

An increasing number of programmes are focusing on the workplace, not only for prevention but also as a way to deliver care. The National AIDS Control Council (NACC) has encouraged the development of the 34 AIDS control units now within ministries, including Education, Defence, and Home Affairs, along with the long-established unit within the Ministry of Health. Many of these ACUs focus on prevention services, chiefly for their employees, but they also provide some services for the public. They are expected to help not only their staff and families but to act for the benefit of the broader community.

The Kenya Department of Defence has been actively promoting HIV prevention since the late 1990s; it has implemented an intensive programme promoting VCT, PMCT and care since 2001. There are now 16 VCT centres on Defence Department bases and barracks, which serve not only servicemen and women but also their dependants and civilians living in the vicinity of the base. The National Youth Service (NYS) introduced a comprehensive HIV prevention programme in 2004, to an enthusiastic response from its members. When VCT was made readily accessible to NYS recruits in May 2004, over 3300 recruits (95%), took advantage of the service and learned their results. In 2003, VCT services were introduced for prisoners in two of Kenya's largest prisons, in Nairobi and Kisumu, and in late 2004, the Kenya Prison Service extended the programme to an additional eight prisons, with plans for further expansion in 2005. The Kenya Police service, including administration police, which have had some prevention education activities since 1994, have plans to expand and intensify these efforts, as does the Kenya Wildlife Service. The private sector 'uniformed services'—the large number of young men working as residential and business guards, drivers, and gardeners—have benefited only sporadically from HIV prevention services.

The formal private sector, especially larger, more organized businesses, have in many cases encouraged HIV prevention education for their employees. Effective programmes for those working in the informal private sector have been more difficult to implement for obvious reasons such as too few workers in any one site, lack of appropriate venues for educational sessions, and small profit margins that discourage small business owners from releasing employees for educational sessions.

Household helpers and nannies, who often are young, poorly educated rural girls vulnerable to sexual exploitation, have not benefited to any significant degree from targeted HIV prevention services, although a few scattered programmes do serve this almost invisible high-risk population.

## Condom promotion, distribution and use

The use of condoms has increased markedly in recent years in Kenya. Condoms are available through free distribution from the government; subsidized sales through socially marketed, donor-funded projects; and sales in the private sector.

Distribution of free condoms through the government has been supported under the World Bank-funded DARE project (Decentralized AIDS and Reproductive Health) of the Ministry of Health. Distribution figures show a strong gain in the number of condoms being demanded—50 million in 2002, 80 million in 2003 and 110 mil-

lion in 2004. If trends continue, the next 3-year procurement plan should be for at least 500 million condoms (2005–07). Sales in the private sector have also been increasing, and now account for about 150 million condoms sold per year.

Free condoms supplied by the Ministry of Health are available at ministry dispensaries, health centres and hospitals. However, it was recognized that limiting condom distribution to these health facilities was not meeting the demand for condoms in non-traditional sites. In August 2004, NASCOP working through the Division of Environmental Health initiated a pilot scheme with public health technicians at the most basic levels and in the smallest administrative units. This cadre of staff, in addition to the many staff members working in the Division of Reproductive Health, is now deployed to distribute condoms. These public health technicians fill condom dispensers at bars and other social locations. They reach the most rural communities to ensure that all have access to condoms. This pilot approach in four provinces resulted in a considerable increase in the demand for condoms through the public sector, and over 29 million condoms were distributed by public health technicians in 4 months, from August to November 2004. Condom distribution by the Ministry of Health is now approximately 7 million per month, up from 3 million per month in 2001. Demonstrated as effective, this method of using public health technicians has now been expanded throughout the country.

Public sector condoms are distributed through KEMSA, the Kenya Medical Stores Agency. Non-governmental organizations, volunteer groups and faith-based organizations also have access to these condoms, for their staff and volunteers to distribute.

Barriers to condom distribution remain, however—lack of transport and inadequate storage in public facilities continue to hamper these national efforts. Some health workers have negative attitudes towards distributing condoms, considering them a non-essential medical commodity, and there are also concerns about proper disposal of used condoms. Negative attitudes persist in the general public as well, with some groups perpetuating fears that condoms are ineffective in preventing HIV infection, and myths still circulating about alleged contamination of condom lubricant with HIV. The continuing increase in the demand for condoms, however, suggests that these fears are subsiding.

## CONDOM SOCIAL MARKETING

Social marketing plays an increasingly important role in the growing availability and use of all condoms in Kenya. Brand-name condom sales grew to 27.4 million in 2004—a 28% increase over the previous year—contributing approximately 22% of all condoms distributed in Kenya. One socially marketed condom, Trust, uses the entrepreneurial energy of the private sector through 45 distributors, and these condoms are now available in approximately 15,000 retail outlets nationwide. It is particularly encouraging to note that about 50% of Trust sales now occur in rural areas, where, given population patterns, the majority of HIV-positive Kenyans live. Direct rural sales grew by 68% in 2004.

The public health sector is also introducing a product line with its own brand, SURE, promoting it to serve a dual purpose: acting as a family planning commodity and protecting against HIV and STI infection. This is in line with modern principles of social marketing, which dictate that adolescents in particular want to have a

choice—not only of method, but also of brand and kind. The government of Kenya has recognized that although unbranded, free condoms will long remain necessary to meet the demands of the rural poor, modern young Kenyans and many rural Kenyans prefer to spend a small amount for a condom of their choice. There is no reason for the public sector to leave this market niche to the private sector alone. Presently this branded condom SURE also serves a secondary purpose: its distributors make a very small profit from their role as franchise agents, which is an incentive for them to continue their work as community-based resource persons. During 2005 the government of Kenya with support from the German NGO GTZ will repackage and distribute 30 million of these new condoms.

In addition to encouraging the private sector to play an active role in increasing the accessibility and use of condoms, social marketing plays an important role in increasing demand for and use of all condoms in Kenya, whether they are supplied from the public sector, social marketing, or commercial sources. Mass media campaigns have greatly reduced the societal stigma associated with condoms, which in turn have facilitated their increased availability and use. A generic 'condom efficacy' behaviour change campaign has increased Kenyans' faith in the effectiveness of condoms in preventing disease from 50% to over 80%, and although social marketing contributes only a relatively small share of the total condom supply, its promotion of condoms has resulted in a more active role by commercial-sector participants, as is evident by the fact that eight new brands appeared on the market in 2004.

While social marketing serves an integral role in increasing condom availability and use in Kenya, key hurdles remain to overcome. First, knowledge regarding how to use the condom correctly needs to be increased. Second, since research shows that condom users prefer to 'graze shop' and purchase condoms from a variety of retail outlets, condoms need to be more readily available in retail outlets. Third, availability of condoms in high-risk social establishments such as bars and guest-houses needs to be dramatically increased. Currently it is estimated that only 50% of these high-risk settings stock any condoms. And fourth, while the stigma associated with condoms has been reduced, hurdles to overcome in encouraging condom use still remain within ongoing, long-term relationships. Increasing use among discordant couples is thus a key challenge for the future.

## FEMALE CONDOMS

Almost all condoms distributed and used in Kenya are male condoms, but there is also a small market for a female-controlled method. Since their introduction into Kenya in 2002, female condoms have been used increasingly, from an average of 15,000 per month to around 50,000 per month by the end of 2004. Over 600,000 female condoms had been distributed by January 2005. The demand for female condoms has steadily been growing, although it still accounts for only 0.5% of condom use.

The government of Kenya with support from the United Nations Population Fund (UNFPA) is distributing female condoms free in Ministry of Health facilities countrywide. In 2004, USAID facilitated training of Ministry of Health master train-

ers on how to insert, remove and dispose of the female condom, so they could equip service providers with skills necessary to counsel clients on female condom use.

Female condoms are also available in the private sector but they are expensive, costing an average of KES 120 in a pharmacy—around 40 times the cost of a male condom from the private sector.

# # # # #

Kenya has implemented a wide range of HIV prevention interventions, and countless organizations are working to prevent HIV transmission—from small, grassroots groups to religious institutions to sophisticated mass media outlets. Almost all Kenyans have been exposed to HIV prevention messages and many have benefited from specific services, such as VCT, PMCT, condom distribution, and a safer blood supply. A challenge for the future will be to assess which of these multiple prevention interventions are the most effective in changing behaviour, which are most cost efficient, and which need improvement. Continuing a focus on preventing new HIV infections will be essential as Kenya enters the AIDS treatment era.

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# 5 Care for people with HIV and treatment of those with AIDS

Care for people living with HIV/AIDS must be comprehensive and continuous and not simply restricted to treatment. Care focuses on the patient and provides the patient with not only physical but also social, psychological, emotional and spiritual care. Such comprehensive care

- encourages disclosure of status, thus helping prevent ongoing transmission
- promotes positive living
- promotes good nutrition and encourages living a healthy lifestyle
- manages opportunistic and sexually transmitted infections medically
- provides treatment with antiretroviral therapy
- provides home-based care and end-of-life support

The most important entry point into this continuum of care is HIV testing and knowing one's HIV status. This testing and counselling is now available through VCT centres, pregnancy care (PMCT), and diagnostic testing and counselling in TB clinics as well as out- and inpatient departments.

A well-organized and properly focused treatment programme can go a long way towards keeping HIV-positive people healthy by using preventive therapies along with nutritional counselling and food supplements.

## Living positively

Following is a personal account of an HIV-positive woman, who is living her life positively. Dorothy Onyango is the executive director of Women Fighting AIDS in Kenya (WOFAK) and the chair of the National Empowerment Network of People Living with HIV/AIDS in Kenya (NEPHAK). Helping her write this account was Philippa Lawson, a senior HIV adviser for the Futures Group, POLICY Project. Dorothy was diagnosed with HIV in 1990, Philippa in 1986.

HIV infection was and still continues to be associated with death. Indeed, the many billboards that the public was treated to in the initial stages of the pandemic dismally failed to inform the population but succeeded in instilling fear and confusion. In addition, people who discovered they were HIV infected were likely to be labelled as 'dirty', 'promiscuous', 'immoral' or 'a prostitute'. Fear of how others will treat you if you are found to be HIV positive has stopped many people from getting tested—'It is better not to know', 'I would kill myself if I found out I was positive', 'I couldn't cope'.

This is the fear that prevents many Kenyans from seeking to know their HIV status. They could be right as we've seen people testing positive and dying soon afterwards—not from the HIV infection but from fear.

But recent scientific and social advancements now demonstrate that certain processes and practices can enable a person living with HIV/AIDS to lead a quality wholesome life. My own experience as a woman living with HIV/AIDS forcefully attests to this. More and more research shows people are living 18 to 20 or even more years after finding out that they are HIV positive. Some have never been on medication yet still are healthy and well.

The phrase 'positive living' is now common terminology in the field of HIV care and support. In my own words, the phrase simply means an endeavour to live well with HIV infection without being a danger to others or myself. Also, it means there is hope and that it is important to focus on the quality of life rather than the quantity of life.

Living positively requires deliberate steps towards learning self-respect and self-discipline. It is a walk that requires patience, perseverance and the right state of mental health and attitude.

Having lived with the virus for some 15 years, I have learned that strategies must be applied if I am to live positively with the infection.

*Emotional composure:* Every person is alive in both mind and body. The state of mind influences the physical being of the individual, and the physical state of the body influences the state of the mind.

HIV infection adds a lot of implications for both body and mind. This is why the emotional attention that caregivers refer to as counselling becomes a critical component in caring for PLHA (people living with HIV/AIDS). Dealing with grief, loss and stress is essential. Finding ways to release stress from daily living and fears is critical. Stress, anxiety and depression are all common for those living with HIV. Accepting these emotions and finding ways to cope with them, like talking to others, engaging in sports and meditation, and recognizing our spirituality, has helped many people living with HIV.

I was competently counselled and still continue taking advantage of counselling services to enable me to live. Counselling allays myths of HIV/AIDS, provides a new perspective on life, and brings about the desired psychological frame of mind. Proper counselling enables people to live with HIV.

*Competent medical care:* Since HIV infection makes people more vulnerable to infection, one who is HIV positive is likely to frequently suffer from opportunistic infections. Their frequency may determine the rate at which the HIV disease progresses. People who suffer major opportunistic diseases like Kaposi's sarcoma, extrapulmonary TB and cryptococcal meningitis are 10 times more likely to succumb to AIDS than those who don't. Also, recurrent bacterial infections are very common and should be treated.

I have personally learned that I must treat every opportunistic disease promptly and competently. This is part of how I have managed to live with the infection.

*Nutritional therapy:* It is conventional wisdom that food is medicine. I have learned it is more than just that. For a person living with HIV, food is critical. Persons who are malnourished and are HIV positive are much more likely to succumb to AIDS than those who have access to basically good nutrition. Cases abound where people have lived for over 20 years without any form of medical intervention. For them the secret of living with HIV lies with proper nutrition. Loss of appetite and poor absorption of nutritional intake complicate the general nutritional therapy for PLHA. Diarrhoea and

stomach difficulties are quite common. Most of the time, however, these are minor complications that can be dealt with at home, often with the expert advice of a qualified medical or nutritional practitioner. But it is important to discuss all symptoms with a medical practitioner.

*Direction and purpose:* Having a purpose for focusing on living has helped many of us not to dwell on our own personal fears but rather to focus on doing something for others. The focus could be on our children, family, support groups, job, income-generating activity or a hobby. It is important to remember that you are not alone and that there are many of us living, coping and doing something to make a better world, even as we are living with HIV.

## Role of nutrition in comprehensive HIV/AIDS care

Adequate food security in the household is requisite for optimum nutrition, health and survival. But HIV/AIDS reduces the household's ability to produce and buy food by taking away the adult labour that would otherwise be engaged in agricultural production or in earning an income. At the same time, HIV disease increases health expenditure. The capacity of an affected household to obtain an adequate amount and variety of food, and to adopt appropriate health and nutritional responses to HIV/AIDS, especially for the already vulnerable ones, is grossly reduced. On the other hand both HIV/AIDS and malnutrition compromise the immune system, resulting in increased susceptibility to severe illnesses, which reduce the quality of life and shorten life expectancy.

Malnutrition due to HIV/AIDS is linked to inadequate food intake, poor uptake of food into the body, and poor use and storage of nutrients. Each of these factors must be considered in providing the most appropriate nutritional care for the HIV-positive person.

### REDUCED FOOD INTAKE

Reduced food intake in persons with HIV may be due to painful sores in the mouth and throat, loss of appetite, or fatigue. The main causes of loss of appetite are infections and depression. Other causes include side effects of medication such as nausea and vomiting, and inadequate access to and availability of appealing foods.

### POOR NUTRIENT ABSORPTION

Poor absorption of nutrients results when HIV damages the small intestine and alters the healthy bacteria of the digestive system, causing malabsorption of fats and carbohydrates and frequent episodes of diarrhoea. Intestinal infections also cause diarrhoea, with loss and waste of nutrients.

### INCREASED METABOLISM

Infections, including HIV itself, lead to increased requirements for energy and protein, inefficient use of nutrients, and loss of nutrients. Energy requirements are likely

to increase by 10% to maintain body weight and physical activity in adults and growth in symptomatic children.

These overlapping processes have key implications:

- Persons with HIV/AIDS are at increased risk of malnutrition through mechanisms that are related to food intake or its absorption and use.
- Poor nutrition increases susceptibility to opportunistic infections and in so doing accelerates progression of HIV to AIDS.
- The relationship between malnutrition and HIV/AIDS is synergistic and creates a vicious cycle that additively weakens the immune system.

## WHAT GOOD NUTRITION DOES FOR PEOPLE LIVING WITH HIV/AIDS

What does good nutrition entail? It means eating a well-balanced diet that contains all the nutrients the body needs for growth and proper functioning. What does healthy, balanced nutrition do for the body?

- It increases resistance to infection and disease and improves the energy supply.
- It boosts the immune system and therefore reduces the frequency of episodes of morbidity.
- It lessens severity of infections, improves the response to treatment for opportunistic infections such as TB, and speeds the rate of recovery.
- It replaces lost micronutrients and provides the body with all essential nutrients required for good health.
- It preserves muscle mass, slows or stops the loss of lean tissue, prevents weight loss, and improves body strength and energy.
- It delays the rate of progression of HIV to AIDS and the further advance of AIDS itself.
- It keeps PLHAs alive and able to lead an active life; this in turn reduces their dependence, thus allowing them to take care of themselves and to delay early orphanhood of their children.

Studies show that nutrition interventions can positively affect nutrition status, the immune system and even personal esteem, by maintaining body weight, improving effectiveness of medication and prolonging life. Supplementing micronutrients has been shown to increase life expectancy of subjects with fewer than 200 CD4 cells per millilitre.<sup>13</sup>

A number of micronutrient supplements including vitamin A, zinc and iron have been found to boost the immune system in a person with HIV infection. Multivitamins can reduce the risk of death and improve immune function.<sup>14</sup>

## PRINCIPLES OF NUTRITION SUPPORT FOR PEOPLE LIVING WITH HIV/AIDS

Good nutrition can therefore play an important role in the comprehensive management of HIV/AIDS, as it improves the immune system, boosts energy, and helps recovery from opportunistic infections.

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<sup>13</sup> See note 4, page 5.

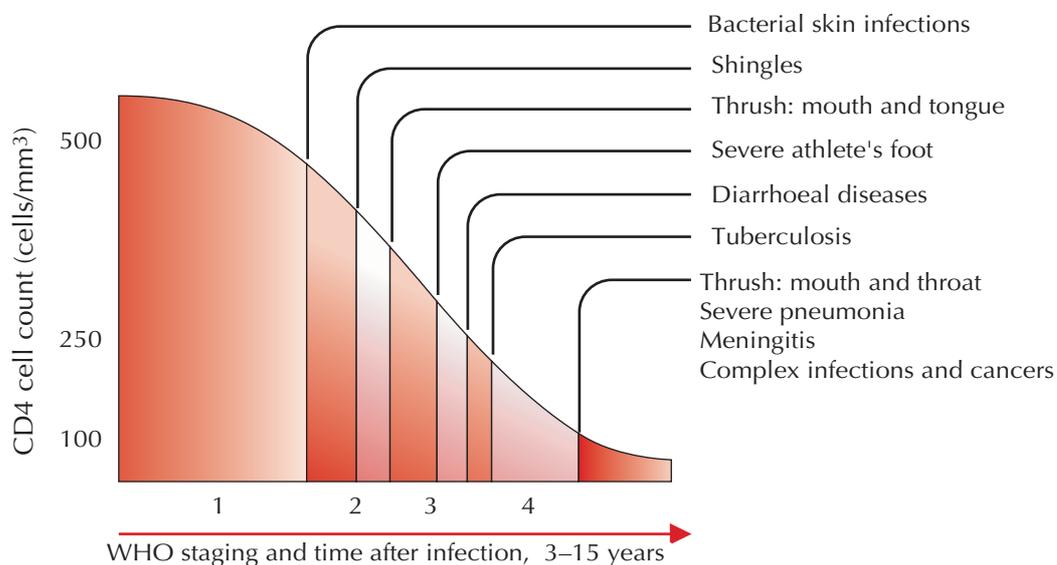
<sup>14</sup> Food and Agriculture Organization, *Living with HIV/AIDS*.

The following basic principles are being advocated for all programmes of HIV/AIDS patient management, counselling or education:

- nutritional education and counselling
- water and food safety intervention to prevent diarrhoea
- income-generating activities to enhance food security
- nutritional supplementation
- meal designing and planning using locally available foodstuffs

## Preventing and treating opportunistic illnesses

Because their immune system is weakened, people with HIV infection are at risk for certain infections, often called 'opportunistic infections', and cancers, many of which can be treated or even prevented. Figure 5.1 depicts HIV progression and the point during disease progression and immune suppression where complicating infections might occur (fig. 5.1).



**Figure 5.1.** Opportunistic infections during disease progression.

The World Health Organization has issued general guidelines for managing HIV-infected patients based on their stage of disease:

- WHO 1: Follow-up and disease monitoring, nutritional support
- WHO 2: Opportunistic infection management and preventive therapy, nutritional support
- WHO 3: Opportunistic infection preventive therapy with ART being considered
- WHO 4: Opportunistic infection management, preventive therapy and ART

In addition to these guidelines and to good nutrition, recommendations for preventing and treating opportunistic infections in patients with HIV include

- providing safe drinking water
- preventing malaria by using bednets and insecticides

- taking cotrimoxazole to prevent diarrhoea, pneumonia and malaria
- treating and managing opportunistic infections as they occur

## Treating sexually transmitted infections

Sexually transmitted infections (STIs) have spread very fast among sexually active groups. STIs and HIV are both spread through the same type of risky behaviour such as having multiple partners and frequent partner change. Common STIs, especially those that cause genital ulcers, facilitate rapid entry of HIV into the body. This information is of public health importance and must be a concern of every Kenya policy-maker and programme designer to ensure measures are taken to control both HIV/AIDS and STIs.

For health service providers in all health facilities, NASCOP provides guidelines, flow charts and training protocols that guide in managing STIs. The Ministry of Health also provides standard drug kits for managing the common STI, usually through the syndromic approach.

People with an STI are more likely to be HIV infected, and should be offered HIV testing and counselling. Sentinel surveillance in STI patients began in 1990. In 2003, HIV prevalence was 23% in women with an STI syndrome and 37% in women with genital ulcer disease; prevalence was 22% in men with genital ulcers.

In the 2003 KDHS, out of 108 women who had an STI, 19.0% tested HIV positive whereas out of 2529 who had no STI only 9.7% tested positive. Among 78 men who reported an STI in the last year, 14.8% tested HIV positive while among 1046 men who had no STI, only 4.9% tested HIV positive.

NASCOP reports that promoting STI treatment, counselling to reduce risky sexual behaviour, and promoting proper use of condoms have contributed to reduced incidence of STIs.<sup>15</sup> The 2003 KDHS also indicates that both women and men are seeking treatment when they have an STI—2% of the men and women who had had sex in the 12 months before the study said they had an STI. Among them 90% of the men and 68% of the women sought treatment or advice of their problem. More men (71%) than women (59%) sought treatment from a health facility.

Treating STIs can reduce the spread of HIV by reducing the amount of virus shed in the genital tract of those infected and reducing susceptibility to HIV infection among those not infected.

## Treating HIV infection with antiretroviral drugs

Antiretroviral therapy (ART) has received much national and international attention and support in recent years. Nationally the government of Kenya is committed to deliver ART progressively—to 95,000 patients by the end of 2005, which is 50% of the eligible HIV-positive population, and to 75% of eligible patients by 2008.

In the public sector, providing ART began in five pilot sites. Lessons learned from these sites have been used in planning for national scale-up. Currently over 50 public health facilities and many mission and private facilities are providing compre-

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<sup>15</sup> Ministry of Health, *AIDS in Kenya*, 6th ed.

hensive HIV care. The expansion plan aims at building the capacity of regional centres, which will in time act as referral centres. Priority is given to areas with a high disease burden, although NASCOP will soon scale up the services to all 72 district hospitals. The expansion is expected that providing ART will change the impact and course of the epidemic in Kenya. The therapy is expected to

- reduce mortality and morbidity resulting from HIV/AIDS
- maintain a healthy, productive community with reduced stigma towards people living with AIDS
- reduce the escalating burden of AID orphans
- improve quality of life of the infected
- reduce HIV/AIDS-related hospital admissions by 60%
- enhance national prevention efforts

The ARV programme will be integrated into existing health care services and offered as part of HIV comprehensive care in the health facilities. Key policies developed are eligibility criteria, cost of services and legalizaion of parallel importation of generic and patented drugs. To standardize care, standard treatment guidelines were developed in August 2002. The guidelines include standard regimens that simplify ART delivery and commodity management and that minimize procurement costs. Lessons learned at the pilot sites greatly helped in selecting drug regimens.

The standard first-line regimen for adults in Kenya is a combination of three antiretroviral drugs:

- stavudine (d4T)
- lamivudine (3TC)
- nevirapine (NVP) or efavirenz (EPZ)

For women of child-bearing age nevirapine is used because efavirenz can affect the foetus; for those taking rifampicin for TB treatment, efavirenz is used. These combinations are associated with excellent tolerability; they are cost effective and efficacious. Fixed-dose formulations are also available in the market that improve compliance and adherence to therapy.

The medical eligibility criterion for initiating ARV therapy for HIV-infected adults and adolescents is one of the following:

- WHO clinical stages 1 and 2, with a CD4 cell count  $< 200/\text{mm}^3$
- WHO stage 3 with CD4 cell count  $< 350/\text{mm}^3$
- in WHO clinical stage 4 regardless of CD4 cell count
- total lymphocyte count less than  $1200/\text{mm}^3$

The social criteria are that the patient must be

- able to demonstrate an understanding of the importance of strict, long-term adherence to therapy, and monthly attendance at the clinic
- able to afford the cost of the drugs and investigations on a *long-term* basis (if in a cost-recovery programme)
- able to identify a 'treatment assistant'—a family member or friend who will support them in adhering to the therapy
- willing to disclose their contact details and physical address (patient locator card) and be contacted if they miss appointments
- willing to commit themselves to safer sex practices

The success of the ART programme is largely dependent on the patient population achieving high levels of adherence to therapy—not less than 95%. Hence ad-

herence counselling is an important element in providing the therapy. With this level of adherence, experts believe that the selected first-line regimen (stavudine, lamivudine and nevirapine or efavirenz) will be successful in keeping the virus suppressed for several years in the vast majority of people living with AIDS in Kenya. In this respect, Kenya is fortunate not to have participated in the early years when ARVs were first introduced. First only one drug was administered, then two, and finally it was realized that it was necessary to use three drugs to successfully suppress the virus. That slow process of scientific experiment and accumulated learning about what drugs it takes to successfully prevent viral mutation and resistance was all performed in the Western developed countries. Thus, most HIV- positive people in these countries have a virus that is resistant, and they therefore are not able to benefit from the new, inexpensive first-line regimen of drugs.

In the year 2000, the cost of drugs to the patient was prohibitively high for the majority, at USD 10,000 per year. Today the first-line regimen costs between USD 77 per year in the public sector and USD 700 in the private sector. A cost-waiver system is available for patients who need these drugs but are not able to afford them. ARVs at government facilities are currently highly subsidized. Efforts are continuous to reduce their costs and costs of the associated clinical and laboratory evaluations.

Figure 5.2 illustrates the ART programme milestones realized so far. The government is committed to developing public and private partnerships to strengthen the fight against HIV/AIDS. For the ART programme, a task force comprising sectoral and multidisciplinary members meets monthly to deliberate on programmatic and technical issues to advise the Ministry of Health. This has led to a national coordinated response and consensus building.

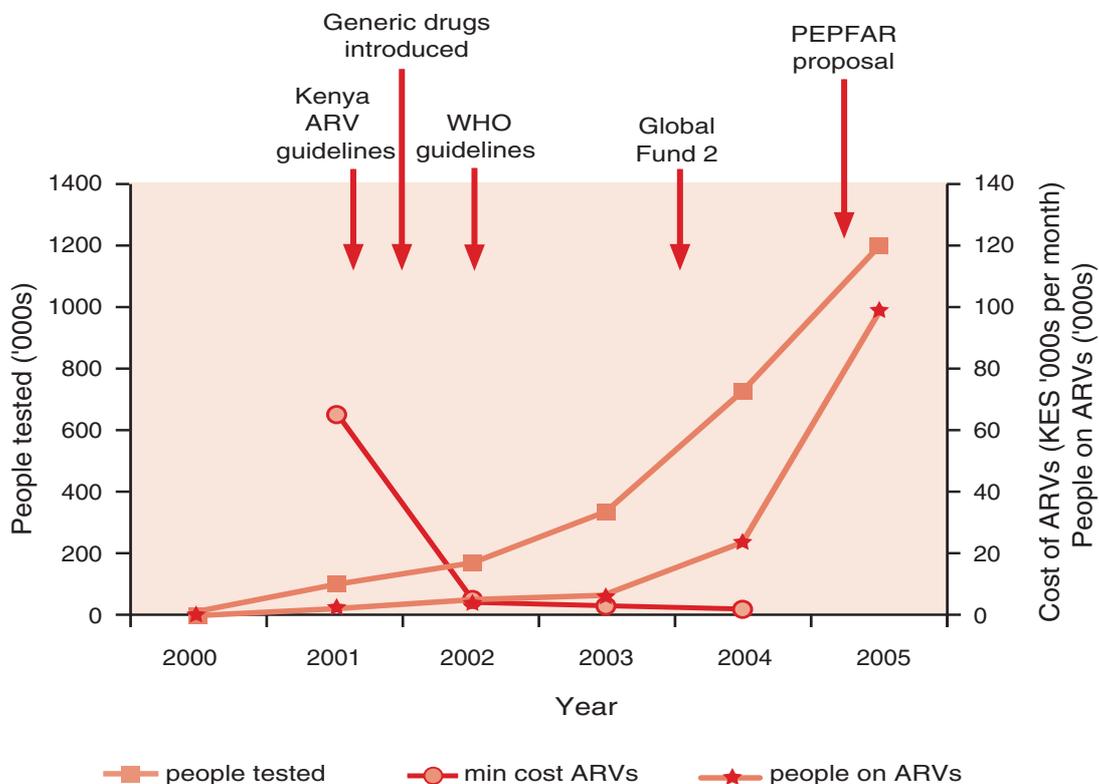


Figure 5.2. Critical events in HIV treatment in Kenya.

The key tasks in implementing the policy are these:

- continuous adaptation of policy and practice
- human resource planning and implementation to ensure adequate staffing
- physical infrastructure development
- strengthening of monitoring and target evaluation through operational research for improved services
- coordination and decentralization of programme management

Rapid scale-up of the ART programme has been possible because the cost of drugs has been reduced, resources have been mobilized, guidelines and systems developed, HIV testing in VCT and in clinical settings has increased, and health workers throughout the country are firmly committed to their tasks. The number of patients on ARV therapy has increased more than 10-fold—from 3000 in 2002 to more than 30,000 in 2004. This number will increase rapidly in the coming years as national capacity increases and those with advanced HIV infection seek ART services.

## QUESTIONS AND ANSWERS ABOUT ANTIRETROVIRAL DRUGS

### *Q What are antiretroviral drugs?*

Antiretroviral drugs, or ARVs, are drugs that work against the HIV virus replicating in a person. At present two main groups are available in Kenya:

- reverse transcriptase inhibitors (RTIs)
  - nucleoside RTIs (NRTIs) and nucleotide RTIs (NtRTIs)
  - non-nucleoside RTIs (NNRTIs)
- protease inhibitors (PIs)

However, two others are currently being developed:

- entry and fusion inhibitors
- integrase inhibitors

### *Q How do antiretroviral drugs work?*

ARVs keep the multiplication of the virus in check and therefore decrease the amount of virus in the body. This gives the body the opportunity to restore its immune system, which further enables it to fight against any opportunistic infection or condition (fig. 5.3).

### *Q Are ARVs a cure for HIV?*

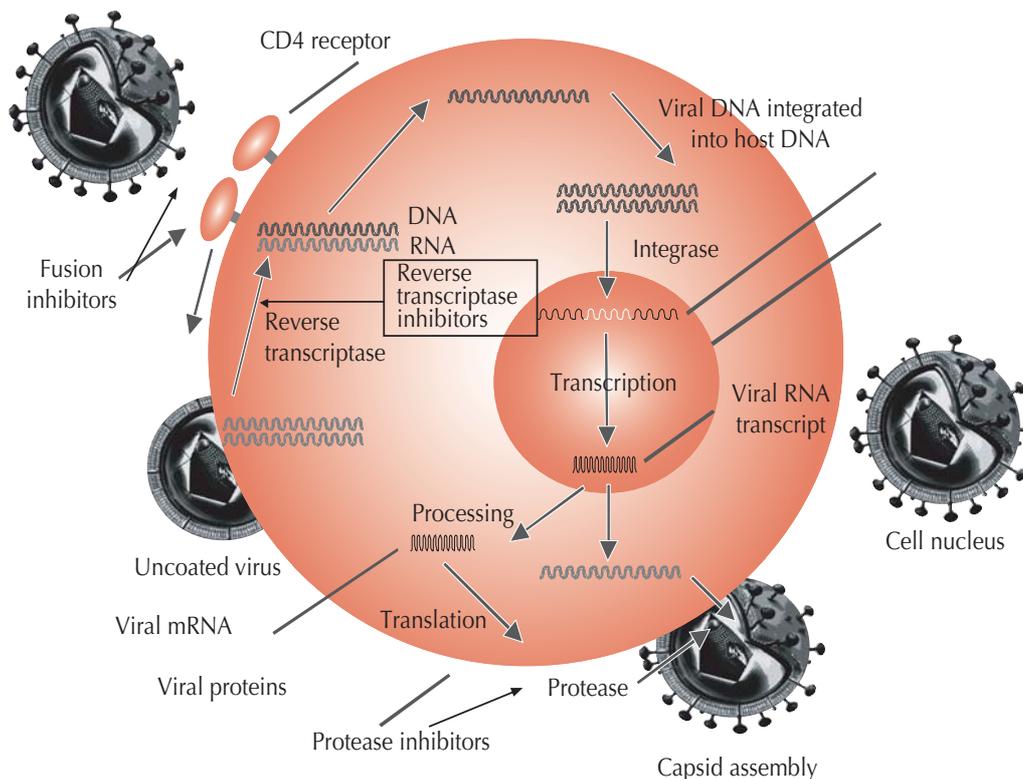
ARVs are not a cure for HIV/AIDS. But they can help people live longer, stronger and in better health.

### *Q After I am feeling better can I stop taking the drugs?*

These drugs should be taken for life once a patient starts on them unless the doctor stops or changes them for a very good reason.

### *Q Can people who are on ARVs still transmit the virus?*

People on ARVs can still transmit the virus to their sexual partners. Refraining from sexual contact is the only way to guarantee that HIV will not be transmitted sexually.



**Figure 5.3.** HIV replication cycle and site of action of ARV.

Therefore, patients are advised to practise safe sex even while on ARVs to reduce the risk of transmitting the virus to their partners.

**Q** *What does taking ARVs involve?*

Antiretroviral drugs work only if they are taken as prescribed. For effective suppression or control of the virus, a cocktail of at least three different drugs is required. This is known as highly active antiretroviral therapy (HAART). Missing doses will allow the virus to become resistant to the medicines. If the virus becomes resistant, the medicines lose their effectiveness. To prevent resistance from developing, it is best to adhere strictly to the medication regimen. If less than 95% of the doses are taken, resistance can develop very quickly. This implies one must not share drugs with another. Every patient needs to have their own set of drugs.

**Q** *Are there side effects that can be expected when one is on ARVs?*

All antiretroviral drugs have side effects, which are commonly experienced by some patients during the first 1 to 2 months after starting antiretroviral therapy. Some examples of side effects are skin rash, vomiting, abdominal pain, burning sensation of feet and hands, and diarrhoea. Most of these side effects subside within 2 months.

**Q** *What should a patient do if they experience side effects?*

If the patient thinks they are having a bad side effect from antiretroviral drugs they should tell the community worker, clinical officer at the community-based organization, or doctors at the clinic as soon as possible. In case of severe side effects, the patient should consult the attending clinician for further advice.

*Q Are there other drugs that are taken with ARVs?*

Other medicines to prevent other infections will be prescribed and should be taken every day as prescribed by the doctor. An example of these drugs is cotrimoxazole, which helps protect against infection with some types of pneumonia and diarrhoeal disease. These prophylactic measures will help to prevent infections that patients might otherwise get if they do not take them. If the patient stops taking antiretroviral drugs they can still take drugs to prevent other infections as chosen by the doctor.

*Q Can I use herbal drugs together with ARVs?*

This is not advisable because ARVs tend to interact adversely with many other drugs. As yet we are not clear about the possible interactions between herbal drugs and chemicals.

## Home-based care

Home-based care (HBC) is the care of persons infected and affected by HIV/AIDS (PLHA) within the home and community, serving as a link between hospital or health facility and the client's home through family participation and community involvement.

Home-based care in Kenya is community based with most of the care provided by community health worker volunteers supported by clinicians, nurses, psychological and spiritual counsellors and social services. Quality home-based care has four main components:

- **Clinical care.** Makes early diagnosis, prescribes rational treatment and plans for follow-up care of HIV-related illnesses.
- **Nursing care.** Promotes maintaining good health, hygiene and nutrition.
- **Counselling and psychospiritual care.** Reduces stress and anxiety, promotes positive living, and helps persons make informed decisions on testing for HIV, changing their behaviour, planning for the future, and involving sexual partner(s) in such decisions.
- **Social support.** Provides information about support groups and welfare services and refers patient to them, provides legal advice for individuals and families, including surviving family members, and where feasible, provides material assistance.

## COMMUNITY HEALTH WORKER VOLUNTEERS

Community health workers (CHWs) are a community's own resources—volunteers from the community itself. These CHWs play a significant role in providing care and support for PLHA in the home. They operate under the supervision of NGOs, CBOs, FBOs or women's groups, who mobilize them after a community is sensitized about the significant role it can play in supporting home-based care. But these important volunteers need training and motivation to keep them playing their role effectively.

## TRAINING COMMUNITY HEALTH WORKERS

Using the national curriculum 'Training home-based caregivers to care for people living with HIV/AIDS at home', volunteers are trained to provide a wide range of services in the home and community, encompassing the four main components of HBC. Most volunteers are given a basic 3-week course, with periodic updates, in-service sessions and annual refresher courses. Training for CHWs has also been expanded and strengthened to include family planning options, basic counselling skills, and the role of the CHW in the era of antiretroviral therapy.

## EXPANDING ROLES OF COMMUNITY HEALTH WORKERS

Community health workers are strategically positioned to facilitate a wide range of care and support services for clients and families infected and affected by HIV/AIDS. The CHWs' role is ever expanding to assist vulnerable families with food production and food security by referring the most vulnerable to emergency food programmes. They also link clients, caregivers and mature orphans with programmes that train or assist in food production. Strong links with microfinance programmes and income-generating activities have been established for HBC recipients and families to help clients, caregivers, and guardians of orphans and vulnerable children (OVCs) with economic support. Strong links with health facilities and community-based support programmes have evolved, thus strengthening the 2-way referral system between community home-based care programmes and local health facilities. This further ensures that PLHAs, caregivers and vulnerable family members are provided with a comprehensive package of care, treatment and support services.

HBC also provides a way to identify orphaned and vulnerable children, with the CHW acting as a referral agent to link such children and their guardians with appropriate health and nutritional services, educational support programmes, and when necessary, legal aid programmes.

HBC in Kenya is striving to deal with such problems that HIV/AIDS poses as the overburdened health care infrastructure and the stigma associated with HIV. HBC providers have moved from the traditional role of one who provides home nursing care to that of one who provides and facilitates multifaceted health and support services.

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# 6 HIV and children

## Care of the HIV-infected child

### MAGNITUDE OF THE PROBLEM

Current estimates are that there are 100,000 children living with HIV in Kenya.<sup>16</sup> The vast majority acquired infection through mother-to-child transmission. The HIV epidemic in Kenya has resulted in a 30% increase in mortality among infants and young children. This means that 1/3 of all infant deaths can now be attributed to AIDS. Thus the AIDS epidemic is rapidly reversing the gains in child survival accrued through child survival programmes.

HIV disease follows a more rapid course in children than in adults. HIV-infected children can be divided into those with rapidly progressing disease (children who generally die within the first year of life) and those with slower disease progression (children who survive beyond the first year). Without treatment more than half of all HIV infected children die in the first 3 years of life with a large number of those deaths occurring in the first 6 months. It is therefore crucial to diagnose HIV early to be able to introduce life-prolonging interventions.

### DIAGNOSING HIV INFECTION IN CHILDREN

It is difficult to diagnose HIV in children by using clinical signs and symptoms alone since these often overlap with the symptoms seen in malnutrition and other common diseases in the tropics. Accurate diagnosis depends on laboratory tests. The most readily available tests for diagnosing HIV detect antibodies in the blood. Unfortunately these tests are not appropriate for use in children in the first 12 to 18 months since many still have antibodies that were passed across the placenta from their mothers during pregnancy. Therefore for children aged younger than 18 months special tests that directly detect the virus are required to distinguish between maternal antibodies and infant infection. These virologic tests require more sophisticated laboratory infrastructure, which currently exists in only a few sites in Kenya.

### HIV DISEASE IN CHILDREN

Children with HIV disease initially present with common childhood infections, which then recur with more frequency and severity. As the immune status deteriorates opportunistic infections become more common. Common opportunistic infections in children include oral thrush, pneumocystis carinii pneumonia, tuberculosis and diarrhoeal

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<sup>16</sup> Office of the President, *Kenya national HIV/AIDS strategic plan 2005/6–2009/10*.

infections. Common AIDS-defining conditions include failure to thrive, delay or loss of motor developmental milestones (such as sitting, crawling, walking) and recurrent severe bacterial infections. Clinical criteria have been used to stage HIV disease in children that can be used to guide initiation of antiretroviral therapy. The WHO clinical staging is shown in box 6.1.

## CARE OF THE HIV-INFECTED CHILD

The care of an HIV-infected child requires a broad multidisciplinary, child-focused approach. It should include:

- regular growth monitoring and nutrition promotion
- nutritional care and supplementation
- immunization
- prompt treatment of infections
- prophylaxis to prevent infections such as pneumocystis carinii pneumonia and tuberculosis
- antiretroviral therapy
- ongoing psychosocial support
- palliative care

Basic principles of primary health care such as immunization, growth monitoring and nutrition promotion are vital for maintaining health in HIV-infected children. Childhood immunizations should be given according to the Kenya Expanded Programme on Immunization guidelines for HIV-infected children. All infants of HIV-infected women should receive prophylaxis with cotrimoxazole from 6 weeks to 1 year of age or until it is established that the child is not HIV infected. Children who are exposed to tuberculosis through close household adult contacts should be screened for tuberculosis and given preventive isoniazid treatment if they are found not to have tuberculosis disease.

Care of the HIV-infected child should include emotional support for both the child and the caregiver. Their HIV status should be disclosed to children according to their level of understanding and in consultation with their parents or with the primary caregiver if the child is orphaned. As children grow into adolescence it is important for the health care providers to give them the support that will empower them to deal with their sexuality, adherence to their medication, and peer pressure.

Antiretroviral therapy in children is part of the comprehensive HIV care that prolongs survival and promotes quality of life. Children on antiretroviral therapy thrive better and are subject to fewer opportunistic infections than children who are not treated. Children should be started on antiretroviral therapy if the diagnosis of HIV has been confirmed and they have advanced HIV disease according to either

### Box 6.1. WHO paediatric clinical staging

#### *Clinical stage 1*

- Asymptomatic
- Generalized lymphadenopathy

#### *Clinical stage 2*

- Unexplained chronic diarrhoea
- Severe persistent or recurrent candidiasis outside the neonatal period
- Weight loss through failure to thrive
- Persistent fever
- Recurrent severe bacterial infections

#### *Clinical stage 3*

- AIDS-defining opportunistic infections
- Severe failure to thrive
- Progressive encephalopathy
- Malignancy
- Recurrent septicaemia or meningitis

clinical or laboratory criteria. The WHO recommendations for ART in children are given in table 6.1. Treatment should be initiated according to the national first-line regimen.

**Table 6.1.** WHO recommendations for initiating ART in children

<i>When CD4 test is available</i>
Confirmed HIV infection with: WHO stage 2 and 3 irrespective of CD4 cell percentage <i>or</i> CD4 < 20% for children < 18 months CD4 < 15% for children > 18 months Antibody-positive children < 18 months with no virologic test WHO stage 3 and CD4 < 20% (must have confirmatory test at 18 months to continue ART)
<i>When CD4 test is NOT available</i>
Less than 18 months of age: WHO stage 3 irrespective of total lymphocyte count WHO stage 2 and total lymphocyte count < 2500/mm <sup>3</sup> More than 18 months of age: WHO stage 3 irrespective of total lymphocyte count WHO stage 2 and total lymphocyte count < 1500/mm <sup>3</sup>

The long-term management of antiretroviral therapy in children depends on social, educational and emotional support for the family as a whole but more specifically for the caregiver. They have special needs when children fail therapy or during terminal illness. Open and clear communication with caregivers and with the children themselves is particularly important at this stage of illness. The focus should be to ensure quality of life through symptom control and adequate pain relief.

## Orphanhood and children's living arrangements

Kenya has observed an upsurge in the number of orphans due to the high number of deaths from HIV/AIDS-related infections. The 2003 KDHS sought information on orphanhood and fostering. Box 6.2 shows the percentage distribution of children under age 15, by children's living arrangements and survival status of parents, according to background characteristics.

Almost three in five children (58%) under age 15 live with both their parents, while 25% live with their mothers but not their fathers, 3% live with their fathers but not their mothers, and 11% do not live with either of their parents—

### Box 6.2. Children orphaned

Lost father only: 5.8% living with surviving parent + 1.3% living with non-parent = 7.1%  
Lost mother only: 1.1% living with surviving parent + 0.6% living with non-parent = 1.7%  
Lost both: 2.1% = 2.1%  
Total orphans = 10.9%  
Population 32.8 million (2004)  
Under 15 years of age, 14.3 million, 44%  
Number of orphans, 14.3 x 10.9% = 1.6 million  
Number of double orphans, 14.3 x 2.1% = 300,000

that is, they are considered 'fostered'. The observed pattern has not changed much since the 1998 KDHS. Younger children and those in Nairobi Province are more likely than other children to be living with both their natural parents.

Data on orphaned children (children under 15 who have lost either one or both of their natural parents) show that 9% have lost their fathers, 4% have lost their mothers, and 2% have lost both of their biological parents. Male prevalence of HIV is 5%, female prevalence is 9%, yet far more children have lost their fathers than their mothers. More analysis is needed, but it has been found in the past that unmarried mothers will sometimes report deceased husbands to legitimize (and 'orphan') their children. Altogether 11% of children under 15 have lost one or both parents and are thus considered orphans. Corresponding data from the 1998 KDHS show the level of orphanhood has increased slightly, from 9% to 11%.

Nyanza Province has by far the highest level of orphanhood, with almost one in five (19%) children under 15 having lost one or both of their biological parents.

Orphans are usually considered to be disadvantaged compared with children whose parents are living. To assess whether orphans are educationally disadvantaged, an indicator was devised that compares the proportion of children age 10 to 14 who are attending school among those whose parents are both dead with those whose parents are both alive and who are living with one or both of them. The results indicate that 92% of children whose parents are both alive and who are living with one or both parents are in school compared with 88% of children who have lost both parents (double orphaned). The ratio of school attendance among orphaned to non-orphaned children is 0.95, indicating that their disadvantage in school attendance is only slight. Interpretation of this index by background characteristics is hampered, however, because in many categories the number of orphans is small.

## Broader than health—orphans and other children made vulnerable by HIV/AIDS

Orphans and vulnerable children (OVC) are a major concern, nationally, regionally and internationally. A study conducted by the Ministry of Home Affairs (MOHA) under the auspices of the national OVC steering committee in 2004 and a similar study by UNICEF have pointed out the magnitude of the detrimental socio-economic effect of HIV/AIDS on children.<sup>17</sup>

Half of the 31.5 million people in Kenya are children under 18 years of age. There has not been a comprehensive assessment of the OVC situation in the country, but it is estimated that 1.5 million Kenyans have died of AIDS, leaving approximately 1.6 million orphans. From 55% to 60% of orphaned children aged to 14 years have lost their parents due to HIV/AIDS. An estimated 8.6 million children form part of the 56% of the Kenyan population that is living below the poverty line. It is a concern that a number of household surveys on OVC have not included data for all children up to age 18. The estimates do not include orphans aged 15–18 despite the fact that 20% of orphans fall within this age group.<sup>18</sup>

<sup>17</sup> Ministry of Home Affairs, *Rapid assessment, analysis and action planning process*; UNAIDS/UNICEF/ASAID, *Children on the brink 2004*.

<sup>18</sup> UNAIDS/UNICEF/ASAID, *Children on the brink 2004*.

Broader OVC issues are that these children do not have the basic material needs that their family would supply—food security, shelter, clothing, schooling, access to health and medical services (including psychological support services), and parental love and the feeling of belonging. They may not have a positive connection with their primary caregiver; they may be dispossessed of property and disinherited. HIV/AIDS has placed an enormous strain on families and has reduced the capacity of most families to provide for and take care of their children. Most double orphans and many single orphans<sup>19</sup> live in households headed by their elderly grandparents. Women bear most of the brunt of caring for these children—women who may be widows or grandparents with meagre resources and who themselves may not have support from any of their adult children. Most of such households were already living below the poverty line, before they took on the burden of caring for the orphans. Also increasing is the number of households headed by children, struggling to survive.

In areas highly affected by HIV/AIDS such as Nyanza, Western and Central Provinces, the heavy orphan burden is affecting the gains made in development, such as in food production and the agricultural industry in general. The reduced family income is reducing the ability of OVC caregivers to children in schools. Social instability may be on the rise due to poverty levels, especially with older male children, while girls will be lured into commercial sex for survival.

## Structures to manage OVC issues in Kenya

Kenya needs a formal structure to oversee the general welfare of orphans and vulnerable children. Although the National Council for Children Services (NCCS) within the MOHA has the overall responsibility of coordinating children's issues in the country, it does not have the capacity to respond effectively to OVC issues. It is limited by the lack of clear policies and resources. NCCS works in collaboration with the Children's Department in the MOHA, with the roles of each stipulated and governed by the Children's Act of 2001. Their roles and responsibilities need to complement and supplement each other for effective management and coordination of OVC programming in the country.

Efforts are being made to draw up a policy on orphans and vulnerable children that will command broad-based acceptance and ownership and that will integrate, protect and promote for all children orphaned and made vulnerable by HIV/AIDS their active participation in economic, social and political processes of national development and ensure them enjoyment of their full rights. The OVC policy being developed should be comprehensive enough to address all the OVC issues by borrowing from the Children's Act of 2001 and other documents.

The government, in partnership with civil society, NGOs, CBOs, FBOs and development partners, although supportive of OVC issues is constrained by limited technical and professional skills.

Due to the social issues many OVCs and their caregivers face, they do not have access to the health services offered by both government and non-governmental organizations. Although primary education is free in Kenya, many OVCs cannot take advantage of it because of they do not have uniforms or books.

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<sup>19</sup> A single orphan is a child who has lost either the mother (maternal) or father (paternal). A double orphan is a child who has lost both mother and father.

Kenya has an obligation to implement the five UNGASS deliverables<sup>20</sup> that pertain to orphans and vulnerable children, but currently the country has done poorly on this. The country index score—the measure of success in implementing the deliverables—for the five was a very low: 1.43 in the 2001 baseline and only 2.3 by July 2004.<sup>21</sup>

Financial resources for OVCs have been limited, and those available do not generally reach the beneficiaries directly. The country needs a national monitoring and evaluation system for OVC issues. Kenya is a signatory to an UNGASS Declaration<sup>22</sup> of 2001, which states in part that countries will aim by 2003 to develop and by 2005 to implement strategies for creating a supportive environment for orphaned girls and boys infected and affected by HIV/AIDS. In this respect, though modest, the government's progressive acknowledgement of the plight of OVCs in Kenya has led it to make some financial commitments specifically for HIV/AIDS and children in 2002/03. In its 2002/03 budget, in addition to the regular health budget, the government set aside KES 300 million (USD 4 million) for an initial purchase of antiretroviral drugs for treating HIV/AIDS patients, and KES 50 million (USD 667,000) towards setting up a national bursary fund for HIV/AIDS orphans and children with disabilities.

The government also made a commitment towards moving ahead with implementing the Children's Act that was enacted in 2001 by establishing the National Council for Children's Services, tasked with designing, formulating and implementing policies relating to children and with coordinating the implementation of strategies outlined in the Children's Act.

The OVC National Steering Committee was constituted in May 2004 and is chaired by the permanent secretary in the Office of the Vice President and Ministry of Home Affairs. It has representatives from government line ministries and departments that deal with OVCs, as well as from NACC, interagency organizations, umbrella national and international NGOs, development partners, FBOs, civil society organizations and the private sector.

The main strategies as outlined within the national OVC action plan are to strengthen the capacity of families to protect and care for OVCs; provide economic, psychosocial and other forms of social support; mobilize and support community-based responses; and increase OVC access to essential services including food and nutrition, education, health care, water and sanitation, and housing shelter. The government has the responsibility to ensure the most vulnerable children are protected and that is why there are efforts to improve policy and legislation, mobilize resources and make resources and services available to communities through the existing community structures such as community AIDS control councils.

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<sup>20</sup> The five are:

1. Disseminate and promote the Convention on the Rights of the Child
2. Combat childhood diseases, strengthen PHC, prioritize prevention and treatment of HIV/AIDS
3. Overcome malnutrition
4. Reduce maternal mortality
5. Support parental responsibility and alternative care

<sup>21</sup> Ministry of Home Affairs, *Rapid assessment, analysis and action planning process*.

<sup>22</sup> Government of Kenya, *National report for the special session of the UN General Assembly . . .*

However, effective leadership needs to be enhanced if these structures are to function effectively. An effective monitoring and evaluation framework needs to be developed, as does capacity building for coordination and management at all levels. However frail, there are already structures that seek to place the OVC agenda in the mainstream in all spheres.

The National AIDS Control Council in its strategic plan (2006–10) stipulates activities to mitigate the deleterious socio-economic effects on the individual, family and community as one of their priorities. Mitigating these effects on HIV/AIDS orphans and vulnerable children is a major component in this strategy.

# 7 The burden of tuberculosis disease in Kenya

Kenya has a large and rising tuberculosis (TB) disease burden. The trend in case finding from 1987 to 2004 shows a marked increase in TB cases notified to the National Leprosy and Tuberculosis Control Programme (NLTP) (fig. 7.1). During this period the number of cases per year increased 10-fold from 10,515 to 106,000. This dramatic increase is largely due to HIV disease and rising poverty levels. HIV is the most powerful factor known to increase the risk of TB in dually infected persons. A person infected with HIV has 10 times more risk of developing active TB disease than does a person without the infection. The average annual increase in the number of TB cases notified to NLTP in the last 10 or so years has been about 16%. Thus the TB case notification rate has increased from 110 per 100,000 persons in 1987 to 321 per 100,000 in 2004 (fig. 7.2). These figures include all forms of TB, but the increase in smear-negative pulmonary tuberculosis has been disproportionately large. The statistics show more males affected than females, in the ratio of 1.6 : 1. Most TB patients are in the age group 15–35 years, corresponding to the age group most affected by HIV and supporting the view that the dramatic increase in the national TB burden is largely caused by HIV.

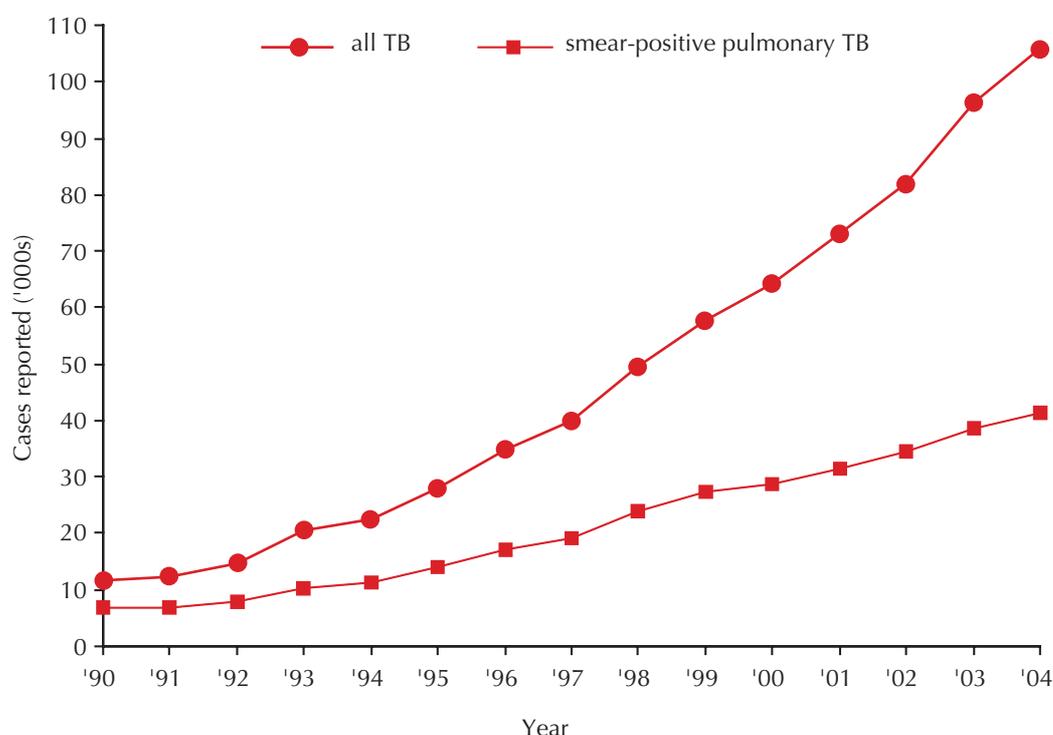
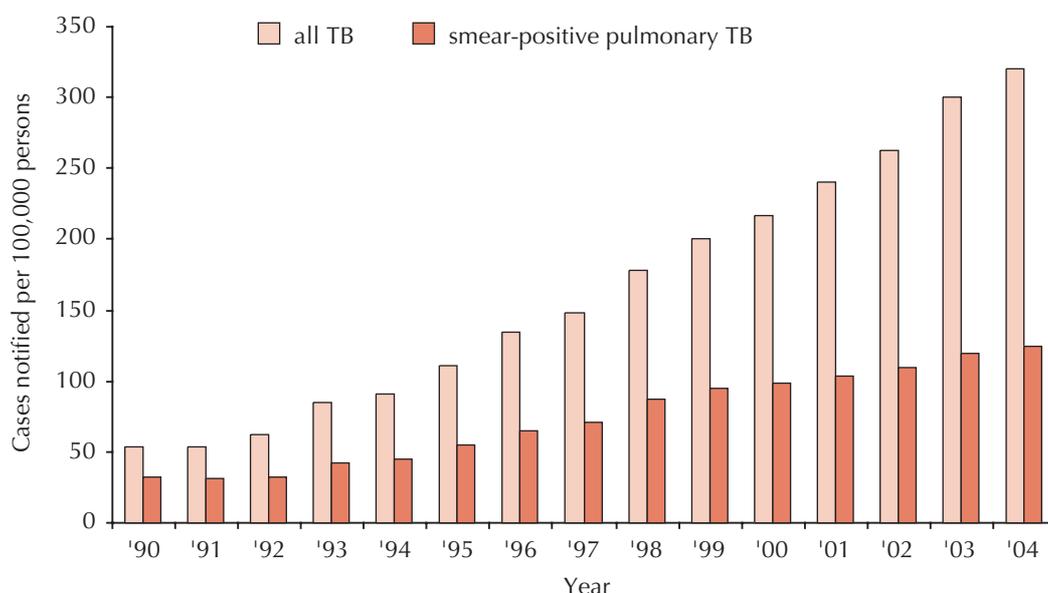


Figure 7.1. Tuberculosis case findings, 1990–2004.



**Figure 7.2.** Notification rate of tuberculosis cases per 100,000 persons, 1990–2004.

Only one countrywide survey, carried out by NLTP in 1994, has examined HIV seroprevalence in TB patients in Kenya. The survey showed a national average of 40% HIV seroprevalence in newly diagnosed TB patients with wide site variation—from about 18% in Trans Nzoia District to nearly 80% in Homa Bay District. Currently an estimated 50–60% of TB patients in Kenya are HIV infected.

It is now clear that the HIV epidemic is augmenting the TB epidemic in Kenya and that TB and HIV/AIDS programmes must collaborate in fighting the two epidemics: ‘one patient, two diseases’. It is important to note, however, that the classical poverty-related risk factors for TB still exist. They act in synergy with HIV to compound the situation. These factors include rising poverty levels characterized by people forced to live in sprawling informal urban slums and TB occurring in congregate settings such as prisons and health facilities. On the positive side, the increased TB notification rate arises, at least in part, to improved TB programme performance and increased community awareness and response.

## National TB control strategy

Tuberculosis disease plans and programmes were highlighted and given priority in the national health sector strategic plan for 1999–2004. Tuberculosis control in the country is based on elements of the WHO strategy, the Directly Observed Treatment Short Course (DOTS), which has been found the most cost-effective intervention for controlling TB. The DOTS strategy has five key elements:

- Political commitment to sustain TB control over the long term by providing human, financial and other resources.
- Case finding through providing a quality-assured network of laboratories for smear microscopy.
- Standardized drug therapy using short course regimens with direct observation of treatment in at least the first 2 months of treatment.
- Uninterrupted supply of quality anti-TB drugs.

- Standardized case recording and reporting so that the treatment outcome of every TB patient is known.

Kenya piloted the DOTS strategy for TB control in 1993 and achieved countrywide geographic coverage in 1997, but it is yet to achieve internationally agreed TB control targets, which are to detect 70% of infectious cases (smear-positive pulmonary TB cases) and to successfully treat 85% of these cases. These targets, set up by the World Health Assembly in 1993, are to be achieved by the end of 2005. WHO estimates that Kenya's case detection rate for 2003 was around 50% while the treatment success rate has been a steady 80% since DOTS was adopted. It is for this reason that NLTP, in line with international trends, has launched several new approaches to increase access to DOTS and truly expand its coverage. These approaches include community-based DOTS, a public–private mix for DOTS, collaboration between TB and HIV control programmes, and development of an elaborate communication strategy aimed at influencing health-seeking behaviour.

The institutional framework for TB control and treatment is part of the broader primary health care strategy of the government of Kenya, since controlling endemic diseases is one of the 10 elements of the strategy. Within Kenya's Ministry of Health, NLTP holds the responsibility for directing and coordinating TB control activities. Structurally, NLTP consists of the central unit at the headquarters—the head of programme, two medical officers, and currently five paramedical officers. The main functions of the central unit are to formulate TB control policy and strategies, identify and mobilize resources, coordinate the procurement and distribution of anti-TB drugs and other commodities, collect and collate TB-related data, and coordinate training and supervision. Tuberculosis control activities are coordinated by provincial and district TB and leprosy coordinators. These coordinators are integral members of the provincial and district health management teams. The delivery of DOTS services is integrated into the general health services provided at health care delivery points.

From national to district level NLTP has a staff of 150. As at December 2003, TB services were available in 1562 public, NGO and private health care facilities, the majority of which are treatment centres; 620 centres were offering smear microscopy services.

## Tuberculosis treatment outcomes

Table 7.1 indicates the trend of treatment results for new smear-positive pulmonary TB cases between 1993 and 2003. The treatment success rate has overall been steady at about 80%. Although this is below the WHO target of 85%, NLTP considers it a reasonable performance. Currently, most TB patients are not tested for HIV and therefore have little access to life-saving treatment with cotrimoxazole or ARVs. The reported death rate of only 5% among registered TB patients may thus be spuriously low. As the fate of patients lost to follow-up or of those transferred out remains largely unknown, it is important to consider that they likely contribute to higher TB death rates.

It has not been easy to obtain information on these patients, as most do not report to rural health care facilities. NLTP is making efforts to improve its generally

**Table 7.1.** Treatment results of new smear-positive pulmonary TB cases (category 1), 1993–2003

Cohort	Cured		Treatment completed		Failure		Died		Absconded		Transferred out		Total n
	n	%	n	%	n	%	n	%	n	%	n	%	
1993	250	66	42	11	4	1	34	9	26	7	25	7	381
1994	1211	61	270	14	28	1	204	10	182	9	104	5	1999
1995	3622	59	941	15	50	1	492	8	616	10	408	7	6129
1996	8038	64	1647	13	91	0.7	795	6	1147	9	912	7	12630
1997	10073	63	2324	14	96	0.6	917	6	1414	9	1271	8	16095
1998	13892	63	2961	14	94	0.4	1166	5	2317	11	1455	7	21885
1999	15709	64	3545	14	73	0.3	1477	6	2334	9	1532	6	24670
2000	16762	65	3689	14	76	0.3	1371	5	2304	9	1617	6	25780
2001	18424	66	3829	14	88	0.3	1452	5	2390	9	1823	7	28006
2002	20247	65	4304	14	135	0.4	1519	5	2746	9	2016	7	30967
2003	22741	67	4282	13	79	0.2	1725	5	2999	9	2042	6	34068

weak mechanisms for retrieving default patients. With funds from the Global Fund for AIDS Tuberculosis and Malaria and from WHO, NLTP is rolling out community TB care in which it is planned that community-based health care workers will retrieve defaulters. NLTP is also putting in place a patient-tracking system, in which lists of those who transfer out and default will be circulated regionally and nationally at quarterly intervals to facilitate data reconciliation.

The standard regimen for new smear-positive pulmonary TB cases (category 1) is 2 months of rifampicin, isoniazid, pyrazinamide and ethambutol, followed by 6 months of ethambutol and isoniazid (2RHZE/6EH) but the private health care sector in general uses 4RH in the continuation phase. For patients with recurrent smear-positive pulmonary disease or smear-positive pulmonary TB returning to treatment after default and those who have failed category 1 treatment (collectively lumped in WHO category 2) the regimen includes streptomycin (2SRHZE/1HRZE/5RHE). Table 7.2 shows the trend of treatment outcomes. Results of treatment for this group are usually not disaggregated into disease type (failures, relapses or returnees after default). Overall the treatment success rate has stabilized at around 77% since DOTS was adopted countrywide. Of greater significance is that the failure rate is low at below 1% for this category, suggesting perhaps that there is not much multiple drug resistant TB in these patients.

**Table 7.2.** Treatment results of smear-positive relapse cases (category 2), 1994–2003

Cohort	Cured		Treatment completed		Failure		Died		Absconded		Transferred out		Total n
	n	%	n	%	n	%	n	%	n	%	n	%	
1994	133	58	44	19	7	3	18	8	14	6	13	6	229
1995	483	58	82	10	7	0.8	73	9	123	15	65	8	833
1996	644	65	103	10	12	1.2	85	9	91	9	63	6	998
1997	659	66	99	10	9	0.9	85	9	80	8	59	6	991
1998	842	63	144	11	12	0.9	104	8	161	12	64	5	1327
1999	960	62	172	11	10	0.6	172	11	155	10	76	5	1545
2000	1119	65	178	10	11	0.6	154	9	171	10	88	5	1721
2001	1545	66	249	11	12	0.5	223	10	153	7	148	6	2330
2002	1611	65	293	12	9	0.4	252	10	167	7	164	7	2495
2003	2035	67	228	8	16	0.5	326	11	220	7	207	7	3032

## TB/HIV collaborative activities

As mentioned, the massive increase in the burden of TB in Kenya is primarily attributed to the concurrent HIV epidemic. Kenya cannot therefore tackle TB without tackling HIV, as it is the greatest risk factor for TB. In the same vein, Kenya cannot tackle HIV without tackling TB, because TB is the leading preventable and curable killer of people living with AIDS and HIV. It is clear that implementing DOTS alone will be inadequate to control TB since DOTS targets only those individuals with active TB—the last stage through which HIV fuels TB. The following HIV-related activities are essential adjuncts to TB control efforts in Kenya:

- **Control of the HIV epidemic and prevention of new HIV transmission.** All efforts to control HIV and prevent new HIV transmissions are essential for TB control. Appropriate in this context is the universal call, ‘know your HIV status in health and in sickness’.
- **Screening persons infected with HIV for TB.** Those with active TB are treated for TB while those without are considered for TB preventive treatment where appropriate. All persons found HIV positive at HIV testing sites (VCT sites, STI and antenatal clinics) should be referred to the nearest TB screening centre. This is particularly critical for clients with cough, fever, enlarged lymph nodes, weight loss, or chronic diarrhoea lasting more than 2 weeks.
- **Provision of TB preventive therapy for HIV-infected persons with a negative screen for TB.** NLTP recommends cautious use of isoniazid preventive therapy (IPT) in HIV-infected individuals in whom active TB has been excluded. Caution is raised here due to the potential of amplifying isoniazid resistance if this valuable drug is given alone in the presence of unrecognized active disease. Therefore the screening for TB must be thorough and should include a chest radiograph. In addition, the treatment should be carefully monitored. NLTP has provided interim guidelines for isoniazid preventive therapy in HIV-infected persons that recommends IPT for limited use in feasibility studies and for specific, captive populations including prisoners, the military, industrial clinics and health care workers. NLTP recommends implementation of simple infection prevention procedures at all health care facilities to reduce the risk of their transmitting TB, especially to staff and other people living with HIV/AIDS in health care settings. These procedures include training TB suspects and patients in cough hygiene including hand capping, triaging of patients to allow for physical separation of TB suspects (the coughers) from other patients, rapid screening of coughers for TB, and promoting natural ventilation and lighting in wards and outpatient areas.
- **Screening TB patients for HIV.** Screening should be offered as the primary responsibility of care providers, as the standard of care and part of a comprehensive care package. The patient’s right to decline the HIV test should, however, be respected in line with existing policies and guidelines. Many HIV-infected TB patients are candidates for ARVs, and TB clinics in resource-constrained settings such as Kenya provide excellent sites for accessing ARVs. HIV-infected TB patients should be offered low-dose daily cotrimoxazole to prevent common opportunistic infections. At an appropriate moment, all HIV-infected TB patients should be referred to patient support centres

for comprehensive HIV care including ARVs. Guidelines, training manuals, referrals forms and other tools have been developed for implementing, monitoring and evaluating these interventions.

- ***Delivery of collaborative TB/HIV services.*** TB and HIV/AIDS programmes must deliver collaborative TB/HIV services based on the above rationale. In this effort the two programmes are currently planning and working together with a view to rationalizing use of resources and establishing functional patient referral mechanisms and infrastructure.

To successfully implement these activities, Kenya is currently working in collaboration with several bilateral and multilateral partners who are providing essential technical and financial support in this joint effort. These partners include WHO, the Global Fund for AIDS, Tuberculosis and Malaria, and several United States government agencies such as CDC and USAID. The aim of implementing collaborative TB/HIV activities is to reduce the burden of TB in people living with HIV/AIDS, and on the flip side to reduce the burden of HIV in TB patients. To coordinate implementation of collaborative TB/HIV activities, Kenya has established a national TB/HIV steering committee, which is currently guiding establishment of similar coordinating bodies in the provinces and districts. The targets are that all provinces and at least 30 districts will have in place functional TB/HIV coordinating bodies by the end of 2005. National coverage is expected in 2006. For the TB programme, the success of the collaborative TB/HIV services will be pegged on the following three parameters:

- The proportion of TB patients tested for HIV as part of the standard of care
- The proportion of HIV-infected persons screened for TB
- The proportion of HIV-infected TB patients who are placed on cotrimoxazole or ARVs or both

To successfully implement these services, both NLTP and the Kenya government look forward to sustained support and goodwill from all local and international partners.

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# 8 Impact and cost of HIV/AIDS

## Demographic impact

AIDS will continue to affect population growth and other demographic variables. This is because population growth results from two main processes—births and deaths. According to population projections by the Central Bureau of Statistics in 2002, HIV/AIDS will continue to slow down the rate of population increase. Taking into account all the factors, including HIV/AIDS, it was projected that population growth rate will decrease from 2.2% in the year 2001 to 1.64% in the year 2020, translating to an increase in population from 30,208,365 in 2000 to 43,113,069 in 2020. Without AIDS, the population growth rate would have decreased from 2.68% in 2001 to 2.01% by 2020.

These projections estimated that over the period 2001–20, HIV/AIDS mortality would reduce population by 5.1 million people. Infant and child mortality rates in Kenya show increasing trends, which have been attributed mainly to HIV/AIDS.<sup>23</sup> The pandemic has already reduced life expectancy from 62 years in 1990 to 47 years in 2001 and is expected to slow down future gains in life expectancy.<sup>24</sup> Despite this drop, it is projected that life expectancy at birth will increase from 46 years (males) and 53 years (females) in the period 2000–05 to 51 years (males) and 57 years (females) during the period 2015–20. Without HIV/AIDS, life expectancy at birth would have increased from 56 years (males) and 65 years (females) in the period 2000–05 to 60 years (males) and 68 (females) in the period 2015–20.<sup>25</sup> While these projections were made before newer estimates of HIV prevalence and before the expansion of HIV treatment, there can be no doubt about the serious effect HIV has had on both life expectancy and quality of life.

## Impact on households

The available evidence shows that AIDS epidemic is having an enormous effect on households, which comes in various forms: increased medical and health expenditures, funeral expenses, and decreased income.<sup>26</sup> The result is a loss of savings, assets and property in the affected households. Households contribute 51% of the total health financing (out-of-pocket is 45% of the total), and HIV/AIDS imposes significant additional costs.<sup>27</sup> This problem is magnified when the infected person is

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<sup>23</sup> Ministry of Health, *National health sector strategic plan 1999–2004*.

<sup>24</sup> Central Bureau of Statistics, *Analytical report on population projections*.

<sup>25</sup> *Ibid.*

<sup>26</sup> United Nations, *Impact of AIDS*.

<sup>27</sup> Ministry of Health, *National health accounts*.

the breadwinner. Absenteeism from work due to poor health as the disease progresses affects household income. Consequently affected households are poorer than they would be without HIV/AIDS. About 56% of the population in Kenya lives below the poverty line, subsisting on less than one dollar per person per day. HIV and AIDS push affected households deeper into poverty. The vicious cycle of HIV/AIDS and poverty reduces resources to invest in health and education of children, depleting the country of human capital in both the present and the next generation.

Another effect of HIV/AIDS has been an increasing number of orphans in Kenya, estimated at about 1.6 million children in the year 2005. These orphans in some cases are taken care of by the older generation, whose level of income is low, and in other cases are in child-headed households, which may not be able to provide essential requirements, including education and health services. A report on the effect of HIV/AIDS on education in Kenya by the government of Kenya and UNICEF<sup>28</sup> found that in all the districts surveyed respondents indicated that children in the affected households lacked basic needs. The recent rapid assessment by the Children's Department<sup>29</sup> found these orphans and vulnerable children had priority needs that affected their growth, reduced access to basic education, and increased their risk of acquiring HIV infection due to lack of parental guidance and other socio-economic factors.

## Impact on industry and the business sector

Industry and business form the basis for production and supply of goods and services in an economy. The most critical factor in producing goods and services is labour, which generally takes the largest portion of the cost of production. The effect of HIV/AIDS has on businesses is transmitted through its effect on labour. According to the UN,<sup>30</sup> the consequences of HIV/AIDS include increased absenteeism, decreased productivity, and reduced number of employees through death, with loss of accumulated skills and declining morale. Businesses with health schemes incur increased medical costs. The declining productivity and increasing medical costs result in declining profits.

A survey carried out in Kenya found that absenteeism due to HIV/AIDS accounted for 54.3% of total HIV/AIDS-related costs within firms.<sup>31</sup> Recruitment and training to replace those leaving firms due to HIV-related sickness and deaths took 26.3% of the costs. Medical and funeral expenses accounted for 12% and 10.1% respectively.

A study funded by USAID under the AIDS Control and Prevention project<sup>32</sup> found that the cost of HIV/AIDS per employee took a large portion of profits, especially in wood processing and sugar processing firms in Kenya. The findings and projected costs are presented in table 8.1.

A study on the effect of HIV/AIDS in labour productivity in Kenya provides evidence that HIV/AIDS indeed reduces the productivity of the labour force.<sup>33</sup> HIV-

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<sup>28</sup> Government of Kenya and UNICEF, *Impact of HIV/AIDS on education . . .*

<sup>29</sup> Ministry of Home Affairs, *Rapid assessment, analysis . . .*

<sup>30</sup> United Nations, *Impact of AIDS*, 2004.

<sup>31</sup> Loewenson and Whiteside, *Social and economic issues . . .*

<sup>32</sup> Hancock et al., 'Macroeconomic impact of HIV/AIDS'.

<sup>33</sup> United Nations, *Impact of AIDS*.

**Table 8.1.** Costs of HIV/AIDS per employee in Kenya (US dollars)

Type of industry	1992	2005
Heavy industry	16.45	39.03
Transportation	30.83	75.12
Wood processing	114.62	331.09
Sugar estate	237.81	720.05

Source: Adapted from United Nations, *Impact of AIDS*.

positive workers plucked less tea in the 18 months preceding AIDS-related termination. The tea output per the positive person was less by between 4.11 kg and 7.93 kg per day. Furthermore, these workers utilized more leave days in the 3 years preceding termination of employment.

## Impact on agriculture

Agriculture remains the mainstay of Kenya's economy; next is the tourism sector. The impact of HIV and AIDS on agriculture is visible through lower productivity in farming areas due to illness, absenteeism, death and subsequent loss of farming skills. These translate into less land under cultivation, less labour-intensive crop production, less crop variety and less livestock production. Family members' time is also diverted to care for the sick and attend funerals, which also contributes to loss of household income and farm assets. The end results are declines in agricultural income and food production and increased food insecurity.<sup>34</sup> HIV/AIDS-affected households in Kenya generally have less capital. Women and children especially are liable to being disinherited of their land rights, and the family may face disintegration.

Although the national magnitude of impact has not been quantified, empirical evidence points to the adverse effect of HIV/AIDS on agriculture in Kenya. Labour productivity is reduced by HIV/AIDS in a commercial farming setup.<sup>35</sup> This is also applicable to subsistence farming. HIV and AIDS have been found associated with decreased acreage under cultivation, loss of income and increased in food insecurity in smallholder farming in Nyanza and Eastern Provinces.<sup>36</sup>

## Impact on education

The impact of HIV/AIDS on education is evident on both the supply and the demand side of the equation. The effect of increased morbidity, absenteeism and attrition of teachers, the reduced number of school-aged children attending school, and poor performance in the classroom are a combination of factors wreaking havoc with the education sector and resulting in a decline in the quality of education. They also impose higher costs on the education system.<sup>37</sup>

The report on impact on HIV/AIDS on education in Kenya by the government of Kenya and UNICEF indicates that teachers' participation and performance in the learning process were reported as being affected adversely by HIV/AIDS when the teachers were absent and hence unavailable to their pupils.<sup>38</sup> The pupils also reported that they were afraid of being taught by infected teachers. The report further indicates that teach-

<sup>34</sup> Fox et al., 'Impact of HIV/AIDS on labour productivity in Kenya'.

<sup>35</sup> Ibid.

<sup>36</sup> Rugalema et al., *HIV/AIDS and the commercial agricultural sector in Kenya*.

<sup>37</sup> United Nations, *Impact of AIDS*.

<sup>38</sup> Government of Kenya and UNICEF, *Impact of HIV/AIDS on education . . .*

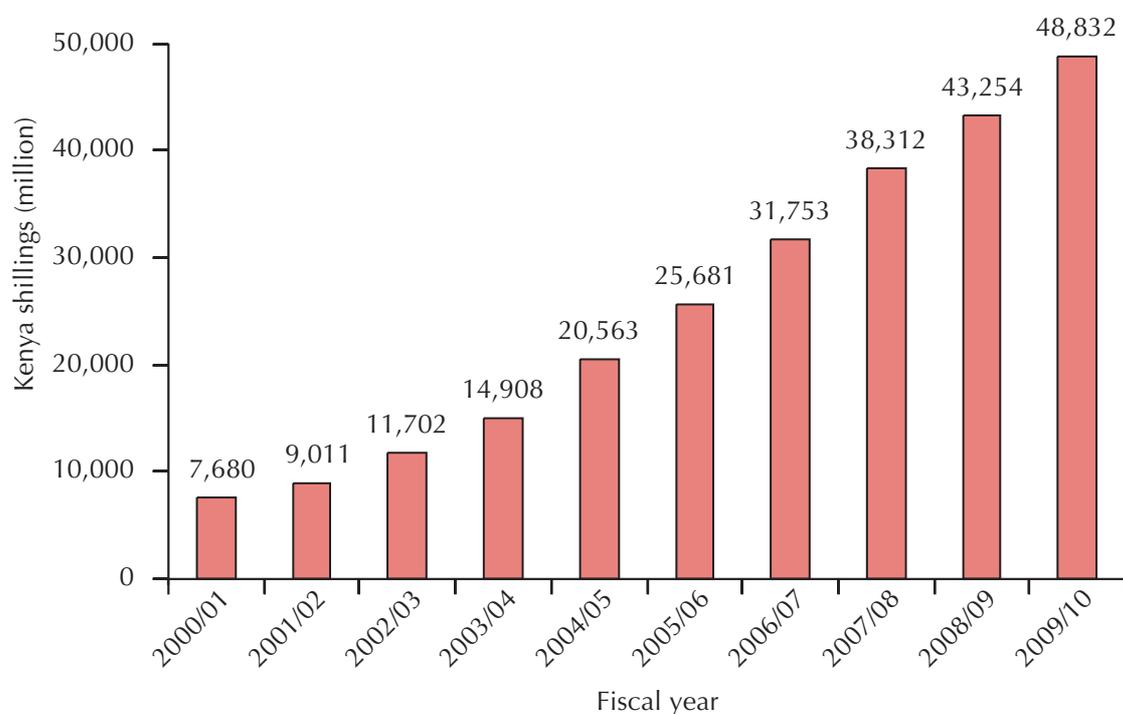
ers who were reported as dying of AIDS were not being replaced. The loss of trained and experienced teachers and interruption of teaching programmes due to illness were noted as compromising the quality of education. The report also found that in both communities and households, resources available to support education were increasingly being diverted to meet HIV/AIDS-related needs.

The report also indicates that both pupils and community leaders were aware that the attendance of infected and affected pupils was poor. Children from affected families would absent themselves to care for sick family members. Additionally, poor attendance and dropping out of school were attributed to impoverishment of the affected families and death of parents.

## Impact on the health sector

Although Kenya committed itself to achieving the Millennium Development Goals, it is unlikely to achieve the targeted goals in health because the effect of HIV and AIDS on the health sector. One way this effect is manifested is by the increased demand for health services due the number of infected persons. Consequently, more health resources and workforce are diverted to HIV/AIDS treatment, creating shortages for other health care needs. Half or more of beds in public hospitals are occupied by HIV-infected patients, creating a big burden on the health sector. HIV/AIDS reduces the morale of health workers as patients with AIDS respond poorly to treatment or die. HIV-infected health workers also may have low productivity and morale.

Figure 8.1 shows that the actual expenditure on HIV/AIDS activities was approximately KES 7.7 billion in fiscal year (FY) 2000/01, KES 9 billion in FY 2001/02, and KES 12 billion in FY 2002/03. These expenditures translate to about 1% of the gross domes-



**Figure 8.1.** Total resource requirement for HIV/AIDS interventions and related activities, 2005–10. Source: Government of Kenya, Kenya national HIV/AIDS strategic plan 2005–2010 (draft).

tic product (GDP) in each of these years. According to National Health Accounts 2001/02, sources of the HIV/AIDS funds were donors (50.9%), households (26.3%), government (21.2%), private companies (1%) and others (0.6%).<sup>39</sup>

According to the Kenya National HIV/AIDS Strategic Plan 2005–10, Kenya requires about KES 25.7 billion (USD 342 million) in FY 2005/06 increasing to KES 48.8 billion (USD 651 million) in FY 2009/10 to implement various HIV/AIDS interventions (see fig. 8.1). These resource requirements are national and cover all sectors; however, the largest proportion goes to the health sector. According to preliminary estimates in the draft Kenya Health Sector Strategic Plan 2005–10,<sup>40</sup> HIV prevention and treatment and care of those infected require KES 13 billion (USD 176 million) in FY 2005/06, increasing to KES 19.7 billion (USD 263 million) in the last year of the plan. On an annual basis, these amounts translate to about 15% of the resource requirements for the entire health sector. Taking into account resources required for diagnosis and treatment of STIs and TB, HIV/AIDS consumes about 20% of all health sector resources.

Antiretroviral treatment is costly. In a review of costs of branded ARVs, first-line regimens cost KES 47,000 to 55,280 annually.<sup>41</sup> Laboratory tests to monitor patients cost about KES 13,000 annually per patient. In addition, the annual cost treatment of opportunistic infections is about KES 2000 per person and opportunistic infections prophylaxis cost about KES 1875 per person per year. Costs of ARVs are coming down, and according to NASCOP, generics provided at public health facilities cost about KES 12,000 annually per patient. But the overall cost of AIDS care and treatment is out of reach for the majority of families affected by HIV and AIDS, given widespread poverty and reduced household income. Fortunately, increased donor commitment for HIV/AIDS care and treatment has provided additional resources for drug procurement and other costs that have reduced the burden on both government and household resources.<sup>42</sup> Current user fees for HIV care are a small fraction of their actual costs and are subsidized by the Ministry of Health and donor contributions, but they still represent a significant burden to individuals and families.

## Impact on economic growth

Economic growth is dependent on a sustained increase in productive capacity and real output resulting in a growing national income. The most critical factors that determine economic growth are labour, capital and technical progress. HIV and AIDS slow economic growth by their effect on labour and capital investment.

The AIDS pandemic slows or reverses growth in labour supply as it affects mainly the most productive members of the population. It also reduces the productivity of infected workers. This problem is exacerbated and economic growth is reduced if those dying of AIDS are skilled persons. Increased medical costs associated with HIV/AIDS reduce the level of domestic savings and investment that are crucial for

<sup>39</sup> Ministry of Health, *National health accounts 2001/02*.

<sup>40</sup> Ministry of Health, *Kenya health sector strategic plan 2005–2010*.

<sup>41</sup> Family Health International, *Costing ART scaleup* . . .

<sup>42</sup> Government of Kenya, *Kenya national proposal* . . . ; United States of America, *President's Emergency Plan for AIDS Relief* . . .

capital formation. Furthermore, reduced income and increased poverty in the household imply decreased purchasing power of the household, which translates to deficient demand for goods and services, hence undermining economic growth.

In a study that simulated the effects of AIDS on economic growth in Kenya, AIDS was projected to reduce the average age of workers from about 34 years in 1996 to 25 years by 2005, resulting in a less experienced workforce.<sup>43</sup> This would result in slower economic growth as compared with a non-AIDS scenario. The simulations also indicated that savings and investment would be reduced, resulting in a slower rate of capital formation. As a result, formal sector employment would stand at 13% of the total employment instead of 15% in 2005. Consequently, the study predicted that by 2005, GDP would be 14.5% lower with AIDS than it would have been without AIDS.

The impact of HIV and AIDS is felt in all sectors of the economy, both in the household and nationally. Mitigating these effects is a goal of the Kenya National AIDS Strategic Plan and part of the multisectoral approach to the epidemic. More study of the economic impacts of HIV and AIDS is required, as well as better dissemination of studies already conducted in Kenya. HIV/AIDS depletes and weakens the labour force, reduces productivity and household income, increases health and other costs to society, and diverts resources from national development. Control of the HIV epidemic is not only important for the health and well-being of Kenyans, it is critical for economic and national development.

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<sup>41</sup> Hancock et al., 'Macroeconomic impact of AIDS'.

# Appendixes

## 1. Percentage of HIV prevalence in pregnant women attending antenatal clinics in sentinel surveillance sites

PROVINCE/Site	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<b>NAIROBI</b>															
Babadogo HC	-	18	17	22	22	18	20	-	-	22	25	15	20	20	18
Dandora HC	-	12	14	17	13	18	15	-	-	16	14	15	9	12	5
Kariobangi HC	-	10	15	17	18	16	19	-	-	17	16	14	14	17	15
Riruta HC	-	-	9	10	8	11	11	-	-	11	11	14	10	8	10
Dagoreti-Chandaria HC	-	-	-	-	-	-	-	-	-	-	-	-	-	6	5
Jericho HC	-	-	-	-	-	-	-	-	-	-	-	-	-	12	10
Pumwani	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-
<b>CENTRAL</b>															
Nyeri PGH	2	3	8	2	5	20	8	6	15	-	12	11	8	8	6
Thika DH	2	9	2	27	39	-	12	18	31	16	19	11	7	8	8
Maragua DH	-	-	-	-	-	-	-	10	5	-	8	8	8	5	6
Njabini HC	-	-	-	-	-	-	-	4	2	-	7	6	6	10	10
<b>COAST</b>															
Mombasa PGH	9	16	10	16	10	15	11	16	14	-	10	14	15	16	10
Tiwi RHTC	-	-	-	-	16	23	-	-	31	21	12	10	7	10	7
Kilifi DH	-	-	-	-	-	-	-	-	-	-	-	10	5	8	4
Bamba HC	-	-	-	-	-	-	-	-	-	-	-	9	5	1	2
Wesu HC-Wundanyi HC	-	-	-	-	-	-	-	-	-	-	-	7	5	3	3
<b>EASTERN</b>															
Kitui DH	0	4	1	7	19	3	3	5	8	7	12	17	6	6	6
Karurumo RHTC	-	-	-	-	1	9	-	26	10	-	-	6	4	7	3
Kangundo SDH	-	-	-	-	-	-	-	-	-	-	-	14	7	4	5
Mutomo MH	-	-	-	-	-	-	-	-	-	-	-	2	5	4	5
Meru DH	2	-	-	1	10	8	15	13	21	28	23	10	5	8	3

PROVINCE/Site	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<b>NORTH EASTERN</b>															
Gariisa PGH	4	-	4	3	14	5	4	7	4	4	-	9	4	2	1
<b>NYANZA</b>															
Kisumu PGH	18	18	19	19	29	24	26	32	27	25	33	29	26	26	11
Chulaimbo RHTC	-	-	-	-	-	20	26	-	35	24	29	25	22	22	14
Kisii DH	1	3	0	2	8	3	15	15	13	11	14	17	14	9	6
Tabaka MH	-	-	-	-	-	-	-	-	-	-	-	11	4	9	3
Suba DH	-	-	-	-	-	-	-	-	-	-	-	31	34	41	30
<b>RIFT VALLEY</b>															
Lodwar DH	-	-	-	-	-	-	-	-	-	-	-	16	18	13	11
Kitale DH	2	5	20	7	10	9	11	12	8	16	5	13	16	11	7
Baringo DH	-	-	-	-	-	-	-	-	-	-	-	10	6	4	6
Maralal DH	-	-	-	-	-	-	-	-	-	-	-	15	13	18	8
Mosoriot HC	-	-	-	-	1	12	-	8	1	1	5	4	3	3	5
Sirikwa HC-Turbo HC	-	-	-	-	-	-	-	-	-	-	-	5	5	4	5
Nakuru PGH	9	12	12	22	-	26	10	24	23	25	9	12	12	10	7
Kajiado DH	-	-	-	-	-	5	6	9	6	-	-	8	5	4	2
Fatima HC	-	-	-	-	-	-	-	-	-	-	-	2	8	10	7
Kaplong MH	-	-	-	-	-	-	3	5	4	4	2	9	6	3	3
<b>WESTERN</b>															
Kakamega PGH	4	12	14	8	13	11	9	9	14	10	10	11	14	13	9
Busia DH	16	9	29	21	22	21	27	28	28	32	20	15	16	16	16
Mbale RHTC	-	-	-	-	11	10	-	15	10	11	23	11	11	8	10
Mt. Elgon DH	-	-	-	-	-	-	-	-	-	-	-	21	6	5	5
Amagoro DH	-	-	-	-	-	-	-	-	-	-	-	-	6	-	4

DH – district hospital; HC – health centre; MH – mission hospital; PGH – provincial general hospital; RHTC – rural health training centre;

SDH – subdistrict hospital

## 2. Registered VCT sites, as at end 2004

### NAIROBI

- 101-1 NASCOP VCT Centre
- 101-2 Kenyatta National Hospital VCT Centre
- 101-4 Pumwani Maternity Hospital
- 101-5 Riruta Health Centre
- 101-6 KICOSHEP Clinic
- 101-7 KICOSHEP Youth Centre
- 101-8 KICOSHEP Kianda
- 101-9 KICOSHEP Mugomo-ini
- 101-10 KICOSHEP Ngong Road
- 101-11 Baba Dago VCT Centre
- 101-12 St Teresa's
- 101-13 Sokoni Arcade VCT
- 101-14 Kayole
- 101-15 Redeemed Gospel Church Hospital
- 101-16 Mbagathi District Hospital VCT Centre
- 101-17 Mathare VCT Site
- 101-18 FPAK Youth VCT Site
- 101-19 Casino VCT Centre
- 101-20 Kangemi VCT Centre
- 101-21 Masaba Hospital VCT Centre
- 101-22 Liverpool VCT and Care
- 101-23 FPAK Nairobi West VCT Centre
- 101-24 New AMUAA-VIPS VCT Site
- 101-25 KAPC Kariobangi North
- 101-26 Githurai VCT Centre
- 101-27 Family Planning of Kenya–Phoenix House
- 101-28 Nairobi Women's Hospital VCT Site
- 101-29 Metropolitan Hospital VCT Centre
- 101-30 Transcom Medical Centre
- 101-31 Baraka Medical Centre
- 101-32 Nakava Gynae. Care Medical Centre
- 101-33 Donholm Catholic Church
- 101-34 AMDA VCT Centre
- 101-35 Coptic Hospital VCT Site
- 101-36 Hope Africa Women's Organization
- 101-37 Shauri Moyo Baptist VCT Site
- 101-38 Reuben Centre Clinic
- 101-39 Ruben Village VCT Centre
- 101-40 Kamiti Prison VCT Centre (1)
- 101-41 Kamiti Prison VCT Centre (2)
- 101-42 DACOPAWO VCT Centre
- 101-43 M.M.L Medical Centre
- 101-44 DOD VCT Site
- 101-45 Embakasi Garrison VCT Site
- 101-46 Kahawa Garrison VCT Site
- 101-47 7 KA Langata Barracks
- 101-48 Moi Air Base VCT Site
- 101-49 Forces Memorial Hospital VCT Site
- 101-50 Rotaract District 9200 VCT Centre
- 101-51 Soweto Kayole Clinic VCT Centre
- 101-52 Tumaini Clinic–Kibera VCT Centre
- 101-53 Mathare North City Council Clinic VCT Centre
- 101-54 Korogocho Tumaini VCT Centre
- 101-55 Administration Police Counselling and VCT Centre
- 101-56 SUPKEM VCT Site
- 101-57 Mater Hospital VCT Centre
- 101-58 Community Health Foundation VCT Centre
- 101-59 AMREF Health Centre–Laini Saba VCT Centre
- 101-62 KMTC Nairobi VCT Centre
- 101-63 AMURT VCT Centre (Kangemi)
- 101-64 Nairobi Deaf VCT
- 101-65 Living Hope VCT Centre
- 101-66 Halvidad VCT Centre
- 101-67 Providence VCT Centre
- 101-68 St Johns Ambulance VCT Centre
- 101-69 Zinduka VCT Centre
- 101-70 Mary Immaculate VCT Centre
- 101-71 GSU HQ–Ruaraka VCT Centre
- 101-72 Riaru Health Project VCT Centre
- 101-74 Stay Alive Youth VCT Centre
- 101-75 SOS VCT Centre–Buruburu
- 101-76 Nairobi Equator Hospital
- 101-77 Makadara Mercy Sisters VCT
- 101-78 Langata Health Centre VCT Site
- 101-79 Hand in Hand VCT Centre
- 101-80 Kayole Jua Kali Self-Help Group
- 101-81 Alice Nursing Home VCT
- 101-82 KENWA

### CENTRAL PROVINCE

#### *Kiambu District*

- 201-1 Kiambu District Hospital VCT Centre
- 201-2 Karuri Health Centre VCT Site
- 201-3 Githunguri Health Centre VCT Site
- 201-4 Nazareth Hospital VCT Site
- 201-5 Tigoni Sub-District Hospital VCT Centre
- 201-6 KIPC Kikuyu VCT Centre
- 201-7 KIPC Dagoretti Market VCT Centre
- 201-8 Ndeiya Health Centre VCT Site
- 201-9 AIC Kijabe Hospital VCT Centre
- 201-10 Mabrook Factory VCT Centre
- 201-11 Limuru Health Centre VCT Centre
- 201-12 Lari Health Centre VCT Centre
- 201-13 Ngewa Health Centre VCT Centre
- 201-14 PCEA Kikuyu Hospital VCT Centre

#### *Kirinyaga District*

- 202-1 Kerugoya District Hospital VCT Centre
- 202-2 Difathas VCT Centre
- 202-3 Kagio Nursing Home VCT Centre

#### *Muranga District*

- 203-1 Muranga District Hospital VCT Centre
- 203-2 MTC Muranga VCT Site
- 203-3 Kangema Health Centre VCT Site
- 204-4 Muriranjas Subdistrict Hospital

#### *Nyandarua District*

- 204-1 Nyandarua District Hospital
- 204-2 Lahaco VCT Centre

### *Nyeri District*

- 205-1 Nyeri Provincial Hospital
- 205-2 Othaya Subdistrict Hospital
- 205-3 ACK Good Samaritan Health Services VCT Site
- 205-4 Karatina Hospital VCT Centre

### *Thika District*

- 206-1 Thika District Hospital
- 206-2 Ruiru Health Centre
- 206-3 Gatura Health Centre
- 206-4 Ngenda Health Centre
- 206-5 Juja Farm Dispensary
- 206-6 Ngorogo Health Centre
- 206-7 Igegania Health Centre
- 206-8 Munyu Health Centre
- 206-9 Gatundu Subdistrict Hospital
- 206-10 Ngoliba Health Centre
- 206-11 Kirwara Health Centre
- 206-12 WEM Int. Health Services
- 206-13 JKUAT Hospital
- 206-14 Gatukuyu VCT Centre
- 206-15 Kenyatta University VCT Centre
- 206-16 Mwathi Family Care Medical VCT
- 206-17 Mary Help of the Sick Mission Hospital VCT Centre

### *Maragua District*

- 207-1 Maragua District Hospital
- 207-2 Kandara Health Centre
- 207-3 Kangari Subhealth Centre
- 207-4 Saba Saba Subhealth Centre
- 207-5 Makuyu Health Centre
- 207-6 Kambiti Dispensary

## COAST PROVINCE

### *Kilifi District*

- 301-1 Kilifi District Hospital
- 301-2 Vipingo Health Centre
- 301-3 Mariakani Health Centre
- 301-4 Rabai Health Centre
- 301-5 Bamba Health Centre
- 301-6 Mariakani Barracks
- 301-7 KEMRI VCT–Kilifi

### *Kwale District*

- 302-1 Msambweni District Hospital VCT Centre
- 302-2 Kwale Subdistrict Hospital VCT Centre
- 302-3 Kinango Hospital VCT Site
- 302-4 Tiwi RHTC VCT Site

### *Lamu District*

- 303-1 Lamu District Hospital VCT Centre

### *Mombasa District*

- 304-1 Coast General Provincial Hospital
- 304-3 Magongo Clinic
- 304-4 Mvita Clinic
- 304-5 Ganjoni Clinic

- 304-6 Kisauni clinic
- 304-7 Tudor Clinic
- 304-8 Likoni Clinic
- 304-9 Mkomani Society Clinic
- 304-10 Youth Counselling Centre–FPAK
- 304-11 Mikindani Catholic Church Dispensary
- 304-12 Mombasa HIV Clinic
- 304-13 Kenya Navy Mtonge VCT Sites
- 304-14 Port Reitz District Hospital VCT Centre
- 304-15 JOCHAM Hospital VCT Centre
- 304-16 Bamburi Cement
- 304-17 Likoni Catholic Dispensary
- 304-18 Joy Medical Clinic
- 304-19 Coast Deaf VCT Centre
- 304-20 Nyali Barracks VCT Centre
- 304-21 ENE Medical Clinic
- 304-22 NEWA Hospital

### *Taita–Taveta District*

- 305-2 Moi Hospital VCT Centre
- 305-3 Wesu Subdistrict Hospital VCT Centre
- 305-4 Taveta Hospital VCT Centre
- 305-5 Wundanyi Health Centre VCT Site

### *Tana River District*

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### *Malindi District*

- 307-1 Malindi District Hospital
- 307-2 Gede Dispensary
- 307-3 Malindi SA Clinic

## EASTERN PROVINCE

### *Embu District*

- 401-1 Embu PGH
- 401-2 Embu VCT Centre
- 401-3 Karurumo VCT Centre
- 401-4 Runyenjes
- 401-5 Kianjokoma

### *Isiolo District*

- 402-1 Isiolo District Hospital VCT Centre
- 402-2 Isiolo Barracks VCT Site

### *Kitui District*

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### *Machakos District*

- 404-1 Machakos District Hospital
- 404-2 By Grace–Tala VCT Centre
- 404-3 KIKOSHEP–Machakos VCT Site
- 404-4 Mwala Rural Demonstration Health Centre
- 404-5 World Provision VCT Centre
- 404-6 Kathiani Subdistrict Hospital VCT Centre
- 404-7 Matuu Subdistrict Hospital VCT Centre
- 404-8 Kivaa Health Centre VCT Centre
- 404-9 Masinga Health Centre VCT Centre
- 404-10 Kithyoko Health Centre VCT Centre

- 404-11 Kikumini Dispensary VCT Centre
- 404-12 Kalimani Baptist VCT Centre

#### *Mbeere District*

- 405-2 Kiritiri HC
- 405-3 Karaba Dispensary VCT Centre

#### *Meru Central District*

- 406-2 Kanyakine Subdistrict Hospital VCT Centre
- 406-3 Riples International VCT Centre

#### *Makueni District*

- 407-1 Makueni District Hospital VCT Centre
- 407-2 Makindu Children Centre
- 407-3 Kibwezi VCT Centre
- 407-4 German Agro-Action (GAA) VCT Centre
- 407-5 Mbooni Subdistrict Hospital
- 407-6 Tawa Health Centre VCT Site
- 407-7 Kibwezi Health Centre VCT Site
- 407-8 Kikoko Mission Hospital VCT Centre
- 407-9 Makindu Subdistrict Hospital

#### *Meru South District*

- 408-2 Chuka Baptist Church VCT Centre
- 408-3 PCEA–Chogoria Hospital VCT Centre

#### *Meru North District*

- 409-1 Nyambene District Hospital VCT Centre
- 409-2 Kangeta Health Centre VCT Site
- 409-3 Mau Methodist VCT Centre
- 409-4 Nthambiro Health Centre VCT Site
- 409-5 Mutionjuri Dispensary VCT Centre
- 409-6 Muthara Dispensary VCT Centre
- 409-7 Akachiu Health Centre VCT Site
- 409-8 Mutuati Health Centre VCT Site
- 409-9 Laare Health Centre VCT Site

#### *Mwingi District*

- 410-1 Mwingi District Hospital VCT Centre
- 410-2 Migwani VCT Centre

#### *Marsabit District*

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#### *Meru East District*

- 412-1 Tharaka District Hospital VCT Centre

#### *Moyale District*

- 413-1 Moyale District Hospital VCT Centre

## **NORTH EASTERN PROVINCE**

#### *Garissa District*

- 501-1 Garissa PGH VCT Centre
- 501-2 IFO Refuge Camp VCT Centre
- 501-3 Simaho MCH/FP VCT Centre

#### *Wajir District*

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#### *Ijara District*

- 504-2 Msalani Hospital VCT Centre

## **NYANZA PROVINCE**

#### *Kisii Central District*

- 601-1 Kisii Central District Hospital VCT Site
- 601-2 Keumbu Subdistrict Hospital
- 601-3 Nyanchwa Medical Centre VCT Site
- 601-4 At Famica Action Times VCT Centre
- 610-5 Oresi Municipal Health Centre VCT Site

#### *Kisumu District*

- 602-1 New Nyanza PGH VCT Centre
- 602-2 Kisumu District Hospital
- 602-3 CDC Clinic (New Nyanza PGH)
- 602-4 Lumumba Health Centre
- 602-5 Pand Pieri Catholic Church Clinic
- 602-6 AIDS Resource Centre
- 602-7 Magadi Catholic Centre
- 602-8 Kombewa VCT Centre
- 602-9 Chulaimbo VCT Centre
- 602-10 Manywanda Dipensary
- 602-11 Kodiaga Prison VCT Centre
- 602-12 OLPS Kisumu VCT Centre
- 602-13 Nyanza Deaf VCT Centre
- 602-14 Ondiek VCT Centre

#### *Siaya District*

- 603-1 Siaya District Hospital
- 603-2 Kenya Society of People Living with AIDS (KESPA)
- 603-3 SPECOOP VCT Centre
- 603-4 Sagam Community Hospital VCT Centre

#### *Homa Bay District*

- 604-2 Konyango PHC/BI VCT Site
- 604-3 Upendo Woven Group VCT Centre

#### *Suba District*

- 604-4 Ratanga VCT and Care Centre Site

#### *Migori District*

- 606-1 Migori District Hospital VCT Centre
- 606-2 Nyarami VCT Centre
- 606-3 Sony Medical Centre VCT Centre
- 606-4 Raneni SDA Health Centre
- 606-5 Pona VCT Centre

#### *Nyamira District*

- 607-1 Nyamira District Hospital VCT Centre
- 607-2 Ekerenyio Health VCT Centre
- 607-3 Keroka Subdistrict Hospital VCT Centre
- 607-4 Tinga Subdistrict Hospital VCT Centre

### *Rachuonyo District*

- 608-1 Rachuonyo District Hospital
- 608-2 Kendubay Subdistrict Hospital
- 608-3 Kabondo Health Centre
- 608-4 Kandiege Health Centre
- 608-5 Miriu Health Centre
- 608-6 Ober Health Centre
- 608-7 Badilika CBO VCT Centre
- 608-10 Yofak CBO VCT Centre
- 608-11 Int. Development Fund (IDF) VCT Centre
- 608-12 Oriang VCT Centre
- 608-13 Kargeno Morcao VCT Centre

### *Kuria District*

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### *Nyando District*

- 610-1 Paponditi District Hospital VCT Centre
- 610-2 Ahero Subdistrict Hospital VCT Centre
- 610-3 Muhoroni Subdistrict Hospital VCT Centre
- 610-4 Sondu Dispensary VCT Centre
- 610-5 Awasi Catholic Dispensary VCT Centre
- 610-6 Nyabondo Mission Hospital VCT Centre
- 610-7 OLPS Nyando VCT Centre

### *Bondo District*

- 611-1 Bondo District Hospital VCT Centre
- 611-2 AIC Asembo Bay
- 611-3 St Elizabeth Lwak Hospital
- 611-4 ITM-Asembo VCT Site

### *Gucha District*

- 612-1 Gucha District Hospital VCT Site

## **SOUTH RIFT PROVINCE**

### *Kajiado District*

- 701-1 Kajiado District Hospital VCT Centre
- 701-2 Beacon of Hope (CBO)
- 701-3 Osiligi VCT Centre
- 701-4 Mawepi VCT Centre
- 701-5 Tusaidiane VCT Centre
- 701-6 Namanga Health Centre VCT Site
- 701-7 Isinya Health Centre VCT Site
- 701-8 Magadi Hospital VCT Centre
- 701-9 Loitokitok Hospital VCT Centre
- 701-10 Boma La Tumaini VCT Centre
- 701-11 Ngong Health Centre
- 701-12 Entasopia Health Centre VCT Site

### *Kericho District*

- 702-1 Kericho District Hospital VCT Centre

### *Laikipia District*

- 703-1 Nanyuki District Hospital (Laikipia)
- 703-2 Laikipia Air Base VCT Site
- 703-3 Ndindika Health Centre VCT Site

- 703-4 Rumuruti Health Centre VCT Site
- 703-5 Nanyuki Cottage Hospital VCT Site
- 703-6 Kenya Army-10 Engineers VCT Centre

### *Nakuru District*

- 704-1 Nakuru Provincial General Hospital
- 704-2 Molo Hospital VCT Site
- 704-3 Gilgil R. Hospital VCT Site
- 704-4 Lanet VCT Site
- 704-5 NACOHAG VCT Centre
- 704-6 Naivasha Hospital VCT Centre
- 704-7 Gilgil Hospital VCT Site
- 704-8 Nakuru Municipality Langa Langa VCT Centre
- 704-9 Egerton University VCT Centre
- 704-10 FPAK Nakuru Youth-Friendly VCT Centre
- 704-11 Njoro Local Church VCT Centre
- 704-13 Olenguruone Hospital VCT Centre
- 704-14 Elburgon Hospital VCT Centre
- 704-15 Rongai VCT Centre
- 704-16 Kapkures VCT Centre
- 704-17 Valley Hospital VCT Centre
- 704-18 Oserian Flower Farm VCT Centre
- 704-19 National Youth Service Gilgil
- 704-20 Subukia Health Centre VCT Site
- 704-21 Mogotio Health Centre VCT Site
- 704-22 Dundori Health Centre VCT Site
- 704-23 Bahati Health Centre VCT Site

### *Narok District*

- 705-1 Narok District Hospital VCT Centre
- 705-2 Pillar of Hope
- 705-3 Nile Interdevelopment Programme VCT Centre
- 705-4 Nairekia Enkare VCT Centre

### *Trans Mara District*

- 706-1 Kilgoris District Hospital VCT Centre

### *Bomet District*

- 707-1 Longisa District Hospital VCT Centre
- 707-2 Tenwek CHD VCT Centre
- 707-3 Bomet VCT Centre
- 707-4 Tenwek Hospital VCT Centre

### *Bureti District*

- 708-1 Kapkatet District Hospital VCT Centre
- 708-2 Kaplong Mission Hospital VCT Centre

### *Koibatek District*

- 709-1 Eldawa Ravine District Hospital

## **NORTH RIFT PROVINCE**

### *Baringo District*

- 801-1 Kabarnet District Hospital VCT Centre

### *Uasin Gishu District*

- 802-1 Uasin Gishu District Hospital VCT Centre
- 802-2 Burnt Forest Health Centre
- 802-3 Turbo Health Centre VCT Site
- 802-4 Family Planning Association VCT Centre
- 802-5 Moi Barracks VCT Centre
- 802-6 St Mary's VCT Centre
- 802-7 Moi Teaching and Referral Hospital VCT Centre
- 802-8 Moi University Main Campus VCT Centre

### *Nandi District*

- 803-1 Kapsabet District Hospital VCT Centre
- 803-2 Olemila VCT Centre
- 803-3 Mosoriot Health Centre VCT Site
- 803-4 Meteitei Health Centre VCT Site
- 803-5 Nandi South District Hospital VCT Centre

### *Keiyo District*

- 804-1 Iten District Hospital VCT Centre

### *Samburu District*

- 805-1 Maralal District Hospital VCT Centre
- 805-2 Wamba Catholic Mission VCT Centre

### *West Pokot District*

- 806-1 Kapenguria District Hospital VCT Centre
- 806-2 Ortum Mission Hospital

### *Trans Nzoia District*

- 807-1 Kitale District Hospital VCT Centre
- 807-3 Chanuka Kitale VCT Site

### *Turkana District*

- 808-1 Lodwar District Hospital VCT Centre
- 808-2 Multipurpose Centre (MPC) 1
- 808-4 Multipurpose Centre (MPC) 4
- 808-5 Kakuma Mission Hospital VCT Centre
- 808-6 Lokichogio VCT Centre

### *Marakwet District*

- 809-2 Chebiemit Health Centre VCT Site

## **WESTERN PROVINCE**

### *Bungoma District*

- 901-1 Bungoma District Hospital VCT Centre
- 901-2 Kimilili Subdistrict Hospital VCT Site
- 901-3 Sirisia VCT Centre
- 901-4 Friends Lugulu Hospital VCT Centre
- 901-5 Misikhu Mission Hospital VCT Centre
- 901-6 Webuye Subdistrict Hospital
- 901-7 Chwele Health VCT Site

### *Busia District*

- 902-1 Busia District Hospital VCT Centre
- 902-2 Holy Rosary Nangina Mission Hospital VCT Centre
- 902-3 Mukhobola Health Centre VCT Site
- 902-4 Butula Mission Hospital VCT Centre
- 902-5 Port Victoria Subdistrict Hospital
- 902-6 Kyunyangu Health Centre VCT Site
- 902-7 Bumala B. Health Centre VCT Site
- 902-8 Sio Port Health Centre VCT Site
- 902-9 Nangina Dispensary VCT Centre
- 902-10 Nambale health Centre VCT Site
- 902-11 Matayos Health Centre VCT Site

### *Kakamega District*

- 903-1 Kakamega Provincial General Hospital
- 903-2 FPAK-Western(Kakamega) Branch VCT Centre
- 903-3 Kakamega Municipality (SA)
- 903-4 Mukumu Mission Hospital
- 903-5 Malava Subdistrict Hospital VCT Centre

### *Vihiga District*

- 904-1 Vihiga District Hospital (Mbale RHTC)
- 904-2 Mbale Health Centre VCT Site
- 904-3 Kima Mission Hospital VCT Centre
- 904-4 Hamisi Health Centre VCT Site
- 904-5 Sabatia Health Centre VCT Site
- 904-6 Shiru Dispensary VCT Centre
- 904-7 Ipali Health Centre VCT Site
- 904-8 Tigo Health Centre VCT Site
- 904-9 Lyanagina Health Centre VCT Site
- 904-10 Ebusiratsi Health VCT Site

### *Lugari District*

- 905-2 Matete Health Centre VCT Centre
- 905-3 Mautuma Health Centre VCT
- 905-4 Soy AIDS Resource Centre VCT Site

### *Teso District*

- 906-1 Kocholya District Hospital VCT Centre
- 906-2 Alupe Subdistrict Hospital VCT Site
- 906-3 Amukura VCT Centre

### *Mt Elgon District*

- 907-1 Mt. Elgon District Hospital VCT Site
- 907-2 Cheptais Health Centre VCT Site

### *Butere–Mumias District*

- 908-1 Butere–Mumias District Hospital VCT Site
- 908-2 St Mary's Hospital (Mumias)
- 908-3 Khwisero Health Centre VCT Site
- 908-4 Namasoli Health Centre VCT Site
- 908-5 Shikunga Health Centre

### 3. PMCT sites as at May 2005

#### NAIROBI

##### *Central District*

Crescent Med Aid Jamia  
Crescent Med Aid Pangani  
FPAK  
Huruma Lions  
Huruma Maternity  
Huruma NCKK  
Kariokor Health Centre  
Marie Stopes Pangani  
NCC Staff Clinic  
Ngara Health Centre  
Pangani Clinic  
Wakibe

##### *Dagoretti District*

Chandaria Health Centre  
Kenyatta National Hospital  
Mbagathi  
Meckizedek Hospital  
Mid Hill Nursing Home  
Muteithania Health Centre  
Ngong Road Health Centre  
Riruta Health Centre  
St Catherine  
Waithaka Health Centre  
Woodley

##### *Embakasi District*

Alice Nursing Home  
Dandora I  
Dandra II  
Diwopa  
Doccare  
Embakasi G  
Embakasi Health Centre  
GSU TS  
Huruma Nursing Home Pipeline  
Kayole I Health Centre  
Kayole II Health Centre  
Mkunga Nursing Home  
Mukuru kwa Njenga  
Reuben Dispensary  
Ruai Health Centre  
Soweto Kayole Health Centre  
St Annes Kayole  
St Begson  
Umaja I Health Centre

##### *Kasarani District*

Babadogo Health Centre  
GSU Kasarani  
Kahawa Garrison  
Kahawa Health Centre  
Kamiti Health Centre  
Kariobangi Health Centre

Kasarani Health Centre  
Kasarani Maternity  
Mathare North Health Centre  
Mukasa Clinic  
National Youth Service  
Dispensary  
Provide Nursing Home  
PSTC Ruiru  
Redeemed GS  
Roundabout Med  
Ruaraka Health Centre  
St Francis  
St Francis Dispensary Kasarani  
St Johns Clinic

##### *Langata District*

AMREF Clinic  
FPAK  
Jinnah Health Centre  
Karen Health Centre  
Kibera  
Langata Health Centre  
Nairobi Women's Prison Clinic  
St Marys Medical Centre  
Ushirika Clinic

##### *Makadara District*

Canal Family  
Jamaa Hospital  
Jericho Health Centre  
Kaloleni Health Centre  
Loco Health Centre  
Lunga Lungu Health Centre  
Makadara Health Centre  
Makandara Mercy  
Makongeni Dispensary  
Maringo Dispensary  
Mbotela Dispensary  
Metropolitan Hospital  
Nairobi South Clinic  
Ofafa 1  
Post & Telcom  
Remand Health Centre  
Sandford Clinic  
Shephard

##### *Pumwani*

Eastleigh Health Centre/Maternity  
Family Life Promo  
Marie Stopes Eastleigh  
Mother and Child  
Pumwani (Majengo)  
Pumwani Maternity Hospital  
St Theresa

##### *Westlands*

Coptic

Highridge Health Centre  
Kabete Approved Health Centre  
Kangemi Health Centre  
Karura Health Centre  
Maria Immaculate  
Nairobi Women Hospital  
Padens Clinic/Maternity  
St Florence Clinic/Maternity  
St Joseph the Worker  
Westlands Health Centre

#### CENTRAL PROVINCE

##### *Embu District*

Consolata Hospital Kyeni

##### *Kerugoya District*

Baricho Health Centre  
Jifathas Health Centre  
Kabare Health Centre  
Kagumo Health Centre  
Kerugoya District Hospital  
Kianyaga Health Centre  
Kimbimbi Health Centre  
Mwea Mission Hospital  
Sagana Health Centre

##### *Kiambu District*

Ahadi Maternity/Nursing Home  
Ebenezer (Kiambu) Medical  
Clinic  
Githiga Health Centre  
Githunguri Health Centre  
Health Watch Clinic/Maternity  
Kagwe Health Services  
Kahuho Private Dispensary  
Karuri Health Centre  
Kiambu District Hospital  
Kigumo Health Centre  
Kijabe Hospital  
Kikuyu Hospital  
Kikuyu Nursing Home  
Lari Health Centre  
Limuru Health Centre  
Limuru Nursing Home  
Mabroukie  
Midways Maternity  
Nazareth Hospital  
Ndeiya Health Centre  
Ngewa Health Centre  
Nyathuma Health Centre  
Ruthingiti Health Centre  
St Jude Medical Clinic  
St Teresa Maternity  
Tigoni Health Centre  
Topkins Medical Clinic  
Wangige Health Centre

### *Kirinyaga District*

ACK Mt Kenya East Hospital

### *Maragua District*

AIC Muraiga Health Centre  
Gikoe Health Centre  
Githimu Hospital  
Githunguri Dispensary  
Kamahuha Health Centre  
Kambiti Health Centre  
Kandara Health Centre  
Kanderendu Health Centre  
Kangari Health Centre  
Kariua Health Centre  
Kigumo Health Centre  
Kigumoini Health Centre  
Kiriti Health Centre  
Makuyu Health Centre  
Maragua District Hospital  
Maragua Ridge Dispensary  
Mugumoini Health Centre  
Muruka Health Centre  
Mutheru Health Centre  
Muthithi Health Centre  
Naaro Health Centre  
Nguruweini Health Centre  
Saba Saba Health Centre

### *Murang'a District*

Kangema Health Centre  
Kiriani Health Centre  
Kirogo Health Centre  
Marie Stoppes Health Centre  
Mugeka Dispensary  
Muranga District Hospital  
Muriranjias Subdistrict Hospital

### *Nyandarua District*

Flyover Medical Clinic  
Mukeu Health Centre  
North Kinangop Hospital  
St Ann's Clinic Flyover

### *Nyeri District*

Consolata Hospital Mathari  
Ebenezer (Nyeri) Medical Centre  
Karatina District Hospital  
Mariine Maternity and Nursing Home  
Mary Immaculate Hospital, Nyeri  
Mukuruweini Health Centre  
Mweiga Rural Health Unit  
Nyeri District Hospital  
Outspan Hospital  
Tumutumu Hospital  
Waka Maternity and Nursing Home

### *Thika District*

Charity Medical Clinic  
Ebenezer (Thika) Medical Clinic  
Mary Help of the Sick Hospital  
Ndonyero Maternity Home  
St Matias Mulumba Hospital  
Thika District Hospital  
Tiritha Medical Maternity  
Woodpark Clinic

## COAST PROVINCE

### *Kilifi District*

Amani Medical Clinic  
Bamba Health Centre  
Bamba Medical Clinic  
Jibana Health Centre  
Mariakani Health Centre  
Matsangoni Dispensary  
Mtwapa Medical/Nursing Home  
Nuru Health Care Centre  
Rabai Health Centre  
Sharian Medical Clinic  
Tchamalo Medical Clinic  
Vipingo Health Centre  
Wanainchi Maternity/Nursing Home

### *Kwale District*

Diani Dispensary  
Lunga Lunga Dispensary  
Mazeras Dispensary  
Samburu Health Centre  
Shimba Hills Health Centre  
Ukunda Medical Centre  
Ukunda Primary Health Care/  
Family Planning

### *Malindi District*

Adu Dispensary  
Garashi Dispensary  
Gede Health Centre  
Gongoni Health Centre  
Kakuyuni Dispensary  
Marafa Health Centre  
Marereni Dispensary  
Mwawesa Medical Clinic  
St Andrews Medical Clinic  
Super Clinic  
Upendo Health Care Clinic

### *Mombasa District*

APIA Medical Services  
Bamburi Medicare  
Ene Medicare Centre  
Jamii Medical Clinic  
Jocham Hospital  
Joy Medical Services  
Kisimani Health Care Services  
Kongowea Municipal Clinic

Mary Immaculate (Mombasa)  
Mary Immaculate Maternity  
Meditrust Health Care  
Mother Amadea's Health  
Mt Sinai Community Medical  
Clinic  
Mtongwe Municipal Clinic  
Palani Healthcare Clinic  
Shika Adabu Dispensary  
Singawa Medical Clinic  
St Hilarious Nursing and  
Maternity Home  
St Valeria Medical Clinic  
Wanainchi Maternity/Nursing  
Home

### *Taita-Taveta District*

Moi Hospital Voi  
Mwatate Health Centre  
Taveta Hospital  
Wesu Hospital  
Wundayi Health Centre

### *Tana River District*

Bura Health Centre  
Garsen Health Centre  
Kipini  
Madogo Health Centre  
Ngao Subdistrict Hospital  
Tana River District Hospital

## EASTERN PROVINCE

### *Meru Central District*

Cotterengo  
FPAK  
Gatimbi  
Giaki Health Centre  
Githongo Health Centre  
Kagoji Dispensary  
Kanyakine Subdistrict Hospital  
Kaongo Health Centre  
Kathigu  
Kathiranga Dispensary  
Kathithi Dispensary  
Kibaranyaki Dispensary  
Kibirichia Health Centre  
Kiirua Dispensary  
Kinoro Dispensary  
Meru District Hospital  
Mikumbune  
Mitunguu Dispensary  
Naari Health Centre  
Nkubu Conso Hospital  
Nkubu Dispensary  
Ontulili Dispensary  
Ruiru Health Centre  
St Annes  
Timau Health Centre  
Uruku GK Dispensary  
Uruku Health Centre

### *Isiolo District*

Isiolo District Hospital

### *Machakos District*

Kangundo Hospital  
Kathiani Subdistrict Hospital  
Machakos General Hospital  
Masii Health Centre  
Matuu Subdistrict Hospital

### *Makueni District*

Kibwezi Health Centre  
Makindu Subdistrict Hospital  
Makueni Hospital  
Sultan Hamud Health Centre

### *Kitui District*

Ikanga Health Centre  
Katulani Health Centre  
Kauwi Health Centre  
Kisasi Health Centre  
Kitui District Hospital  
Matinyani Health Centre  
Mbitini Health Centre

### *Meru North District*

Akachiu Health Centre  
Kiengo Maternity  
Maua Meth Hospital  
Maua Methodist Hospital  
Mbeu Health Centre  
Miathene SDH  
Mikinduri Catholic Health Centre  
Muthara Dispensary  
Mutijunji Dispensary  
Mutuati  
Nyambene District Hospital  
Tigania Mission Hospital  
Turu Health Centre

### *Meru South District*

Chogoria Hospital  
Chuka District Hospital  
Consolata Cot Hospital  
Kanjuki Health Centre  
Kibugua Dispensary  
Kiini Dispensary  
Magutuni SDH  
Mpukoni Health Centre  
Muthambi Health Centre  
PCEA Chogoria  
St Lucies

### *Mwingi District*

Kyuso Health Centre  
Mathuki Health Centre  
Migwani Health Centre  
Mwingi District Hospital  
Ngomeni Health Centre

Nguni Health Centre  
Nuu Health Centre  
Nzawa Health Centre  
Teiwayesu Health Centre  
Thitani Health Centre  
Tseikuru Subdistrict Hospital

### *Tharaka District*

Chiakariga Health Centre  
Gatunga Dispensary  
Kathangacini Dispensary  
Mukothima Health Centre  
Nkodi Dispensary  
St Orsula Hospital  
Tharaka District Hospital  
Tunyai Dispensary

### *Laikipia District*

Dod Lab

### *Nanyuki District*

Nanyuki District Hospital

## **NORTH EASTERN PROVINCE**

### *Garissa*

Mogadishu Health Centre  
Provincial General Hospital  
Sinaho Maternity Home

### *Moyale District*

Moyale District Hospital

## **NYANZA PROVINCE**

### *Bondo District*

Abidha Health Centre  
Bondo District Hospital  
Got Agulu Health Centre  
Manyuanda Health Centre  
Matangwe  
Midiani Subdistrict Hospital  
Nyangunda Dispensary  
Papkodera  
St Elizabeth Lwak Health Centre  
Usigu Dispensary

### *Gucha District*

Gucha District Hospital  
Kenyanya Health Centre  
Metaburo Health Centre  
Nduru RHDC  
Nyacheki Health Centre  
Nyamache Health Centre  
Omerembe Health Centre  
Tabaka Mission Hospital

### *Homa Bay District*

Asumbi Mission Hospital  
Bora Bora Clinic  
Got Kojowi Health Centre  
Homabay District Hospital  
Johpas Clinic  
Lambwe Forest Dispensary  
Magina Health Centre  
Malela Dispensary  
Marino Dispensary  
Ndhiwa Health Centre  
Ndiru Health Centre  
Nyagoro Health Centre  
Ombo Kachieng Health Centre  
Rangwe Health Centre  
St Paul's Health Centre

### *Kisii District*

ELCK Iterierio Health Centre  
Gesusu Subdistrict Hospital  
Ibeno Health Centre  
Itiero Mission Hospital  
Keumbu Subdistrict Hospital  
Kisii District Hospital  
Marani RHDC  
Masimba Subdistrict Hospital  
Oresi Health Centre  
Riana Health Centre

### *Kisumu District*

Chuliambo Provincial Rural  
Training  
Kisumu District Hospital  
Kodiaga Health Centre  
Kombewa Health Centre  
Lumumba Health Centre  
Manywanda Dispensary  
Maseno Mission Hospital  
Maseno Mission Hospital  
Nyagande Dispensary  
Nyahera Health Centre  
Nyalenda Health Centre  
Nyanza Provincial General  
Hospital  
Ober Kamoth Health Centre  
Rabuur Dispensary  
St Monica Hospital Kisumu

### *Migori District*

Ranen Health Centre  
St Camillus Karungu Hospital

### *Nyamira District*

Chep Ngombe Health Centre  
Ekerenyio Health Centre  
Gekano Mission Hospital  
Keroka Subdistrict Hospital  
Manga Subdistrict Hospital  
Nyamaiya Health Centre  
Nyamira District Hospital

Nyamusi Health Centre  
Nyansiongo Health Centre  
Tinga Health Centre

### *Nyando District*

Ahero Subdistrict Hospital  
Awasi Health Centre  
Bunde Dispensary  
Chemelil Health Centre  
Koru Mission Hospital  
Masogo Health Centre  
Muhoroni Health Centre  
Nyabondo Hospital  
Pap Onditi District Hospital  
Sigoti Health Centre  
Sondu Health Centre  
St Joseph Nyabondo Hospital  
Tamu Dispensary

### *Rachuonyo District*

Kabondo Health Centre  
Kandiego Health Centre  
Kendu Bay Hospital  
Kendu Health Centre  
Matata Nursing Home  
Miriu Health Centre  
Ober Health Centre  
Rachuonyo District Hospital  
Wagwe Health Centre

### *Siaya District*

Akala Health Centre  
Aluor Mission Health Centre  
Ambira Health Centre  
Kadenge Health Centre  
Ligega Health Centre  
Malanga Health Centre  
Mbage Mission Health Centre  
Ndere Health Centre  
Ngiya Health Centre  
Ngiya Mission Health Centre  
Nyawara Health Centre  
Ramula Health Centre  
Rangala Mission Health Centre  
Rangala Mission Health Centre  
Rwamba Health Centre  
Sega Cottage Hospital  
Siaya District Hospital  
Sigomere Health Centre  
Tingwangi Health Centre  
Ukwala Health Centre  
Yala Subdistrict Hospital

### *Suba District*

Kisegi Subdistrict Hospital  
Kitare Health Centre  
Magunga Health Centre  
Mbita Health Centre  
Ogongo Health Centre  
Sena Health Centre  
St Luke's Health Centre

St Mary's Health Centre  
Suba District Hospital  
Tom Mboya Health Centre  
Ugina Health Centre

## **RIFT VALLEY PROVINCE**

### *Buret District*

Kapkatet District Hospital  
Lietein Hospital  
St Clares Kaplong Hospital

### *Koibatek District*

Eldama Ravine District Hospital

### *Laikipia District*

Nanyuki District Hospital

### *Narok District*

Ewaso Nyiro  
Lolngorian  
Narok District Hospital  
Narosura  
Siyapei Health Centre

### *Samburu District*

Maralal District Hospital

### *Kericho District*

Kericho District Hospital

### *Turkana District*

Kakuma

### *Bomet District*

Longisa District Hospital  
Tenwek  
Tenwek Hospital

### *Nakuru District*

Chamasis Annex Maternity Home  
Consolata Medical Clinic  
Esther Memorial Maternity and  
Nursing Home  
Gilgil Health Centre  
Kapkures Health Centre  
Kenyatta  
Kerol Health Services  
Kwambary Medical Clinic  
Lanet  
Langalanga  
Molo  
Mother Kevin  
Naivasha S/D Hospital  
Nakuru Nursing Home  
Nakuru Provincial General  
Hospital

Njoro Health Centre  
Nyonjoro Medical Clinic  
Oljorai  
Sher Agencies  
Sogoo  
St Teresa Maternity  
Subukia  
Vinet Medical Services  
Wayside Medical Clinic

### *Kericho District*

Ainamoi Health Centre  
Changoi Health Centre  
Chepgoiben dispensary  
Chepkemel Health Centre  
Cheptabes Dispensary  
Engineering Dispensary  
James Finely 1 Dispensary  
James Finely Hospital  
Jamji Health Centre  
Kabianga dispensary  
Kapkoret Dispensary  
Karenga Health Centre  
Kericho District Hospital  
Kericho Health Centre  
Ketepa Health Centre  
Kipkelion Health Centre  
Koiwo Health Centre  
Lemotit Dispensary  
Londiani SDH  
Maua Tea dispensary  
Simotwet dispensary  
Sosiot Health Centre  
St Leonard Hospital  
Tea Research dispensary  
Tendwet Dispensary  
Unilever Hospital

### *Nandi North District*

Chepterit Mission  
Chepterwai SDH  
Kaiboi Mission  
Kaimosi Health Centre  
Kapkangani Health Centre  
Kapsabet District Hospital  
Kilibwoni Health Centre  
Lelmkwo Dispensary  
Mosoriot Health Centre  
Mosoriot RHDC

### *Kajiado District*

Athi River Medical Services  
Entasopia Health Centre  
Family Life Promotion Services  
Fatima Dispensary  
Junemar Maternity Home  
Kajiado District Hospital  
Kimana Health Centre  
KKIT Health Services  
Loitoktok Health Centre  
Matasia Health Clinic/Home

Mwangaza Medical Clinic  
Ngong Health Centre  
Ongata Rongai Health Centre  
Rombo Health Centre  
St Mary's Health Centre  
St Mathews Maternity Home  
Wanainchi Jamii Clinic and  
Maternity  
Zamzam Medical Clinic

#### *Marakwet District*

Kapsowar Hospital

#### *Nandi South District*

Kabunyeria Dispensary  
Kapsumberiwo Dispensary  
Kaptumo Health Centre  
Kemeloi Health Clinic  
Kibabet Dispensary  
Kobujoi Mission  
Meteitei Health Centre  
Nandi Hills District Hospital

#### *Trans Nzoia District*

Kapsara Health Centre  
Kiminini Cottage  
Kiminini Cottage Hospital  
Kitale District Hospital  
Tulwet Health Centre

#### *Transmara District*

Lolgorian SDH  
Longisa District Hospital  
St Joseph Hospital Kilgoris

#### *Uasin Ngishu District*

Burnt Forest Health Centre  
Chepkoilel Campus  
FPAK Clinic  
Huruma Health Centre

Moi Teaching and Referral  
Hospital  
Moi University Health Centre  
Moiben Health Centre  
Moisbridge Catholic Mission  
Moisbridge Health Centre  
Plateau Mission  
Plateau Mission Hospital  
Railways Dispensary  
Segero SDA  
Sosiani Health Centre  
Soy Health Centre  
St Briggitta  
St Marys Kapsoya  
Turbo Health Centre  
UGDH  
West Clinic  
Ziwa Health Centre

#### *Mt Elgon District*

Kaptama Health Centre  
Kisigon Health Centre

#### *West Pokot District*

ELCK Chesta Dispensary

## WESTERN PROVINCE

#### *Bungoma District*

Bungoma District Hospital  
Chwele Health Centre  
Kabuchai Health Centre  
Kimilili Subdistrict Hospital  
Lugulu Hospital  
Misikhu Mission Hospital  
Naitiri Health Centre  
Webuye Subdistrict Hospital

#### *Butere/Mumias District*

Butere/Mumias District Hospital  
Khwisero Health Centre

Manyala Subdistrict Hospital  
Namasoli Health Centre  
St Mary's Mumias Hospital

#### *Busia District*

Matayos Health Centre  
Nambale Health Centre  
Port Sio  
Port Victoria Subdistrict Hospital  
Tanaka Maternity/Nursing Home

#### *Kakamega District*

Eshisuru Maternity/ Nursing Home  
Kakamega Provincial General  
Hospital  
Kambiri Health Centre  
Malava District Hospital  
St Elizabeth Mukumu Hospital

#### *Lugari District*

Likuyani Health Centre

#### *Teso District*

SA Kolanya Health Centre  
Teso District Hospital

#### *Vihiga District*

Ebusiratsi Health Centre  
Friend's Kaimosi Hospital  
Hamisi Health Centre  
Kima Mission Hospital  
Lyanaginga Health Centre  
Mbale Rural Health Training  
Centre  
Tigoi Health Centre  
Vihiga District Hospital  
Vihiga Health Centre

## 4. NASCOP-registered ART sites, April 2005

### NAIROBI

101-A1	Mbagathi District Hospital (GOK)
101-A2	Kenyatta National Hospital (national referral)
101-A3	Kibera Community Health Clinic (AMREF) (GOK)
101-A4	Liverpool VCT & Care, Hurlingham (private)
101-A5	SOS Buru Buru (private)
101-A6	Aga Khan Hospital - Nairobi (private)
101-A7	Cottolengo Centre (FBO)
101-A8	New Life Home Trust (FBO)
101-A9	Getrude's Garden Children's Hospital (private)
101-A10	Nyumbani Children of God Relief Institute (FBO)
101-A11	St Mary's Mission Hospital (FBO)
101-A12	SDA Medical Health Services, Milimani (FBO)
101-A15	Metropolitan Hospital (private)
101-A16	Mater Hospital (private)
101-A17	AAR Health Services Limited (private)
101-A18	Coptic Church Nursing Home (FBO)
101-A19	Avenue Hospital (private)
101-A21	Guru Nanak Hospital (private)
101-A22	MP Shah Hospital (private)
101-A23	Forces Memorial Hospital (GOK)
101-A24	Nairobi Hospital (private)
101-A25	Nairobi West Hospital (private)
101-A26	STI Clinic (NCC)
101-A27	Pumwani Maternity Hospital (NCC)
101-A29	Jamaa Mission Hospital (FBO)
101-A30	Lea Toto Clinics (FBO)
101-A31	Crescent Muslim Hospital (FBO)
101-A32	KEMRI Research Clinic (GOK)
101-A33	Nairobi Women's Hospital (private)
101-A34	Riruta Health Centre (NCC)
101-A36	KAVI Clinic, Kangemi Health Centre (NCC)
101-A37	Kangemi Health Centre (NCC)
101-A39	Riruta Health Centre (NCC)
101-A40	Liverpool VCT & Care, Hurlingham (NGO)
	St Vincent's Clinic (FBO)
	Kariobangi Clinic (FBO)
	Baba Dogo Clinic (FBO)
	Dandora Clinic (FBO)
	Dandora HC (NCC)
	Kayole Clinic (FBO)
	Muthare 3 Clinic (FBO)
	Shaurimoyo Clinic (FBO)
	Muthare North Health Centre (NCC)

### CENTRAL PROVINCE

#### Kiambu District

201-A1	Kiambu District Hospital (GOK)
201-A2	PCEA Kikuyu Hospital (FBO)
201-A3	Nazareth Hospital (FBO)

201-A4	Kijabe Hospital (FBO) Tigoni Subdistrict Hospital
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#### Kirinyaga District

202-A1	Kerugoya District Hospital (GOK)
202-A2	Mwea Mission Hospital (FBO)

#### Meru

	Chogoria Hospital (FBO)
	Chogoria Mission Hospital (FBO)
	Tharaka – St Orslos Clinic (FBO)

#### Murang'a District

203-A1	Muranga District Hospital (GOK)
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#### Nyandarua District

204-A1	Nyahururu District Hospital (GOK)
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#### Nyeri District

205-A1	Nyeri Provincial General Hospital (GOK)
205-A2	Karatina District Hospital (GOK)
205-A3	Othaya Sub-District Hospital (GOK)
205-A4	PCEA Tumu Tumu Hospital (FBO)
205-A5	Consolata Hospital, Mathari (FBO) Muguda Clinic (FBO)

#### Thika District

206-A1	Thika District Hospital (GOK)
206-A2	St Mulumba Hospital (FBO)
206-A3	Central Memorial Hospital (private) Mary Help of the Sick Mission Hospital (FBO) Thika Nursing Home (private)

#### Maragua District

207-A1	Maragwa District Hospital (GOK)
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### COAST PROVINCE

#### Kilifi District

301-A1	Kilifi District Hospital (GOK)
301-A2	—

#### Kwale District

302-A1	Msambweni District Hospital (GOK)
302-A2	Kinango District Hospital (GOK)

#### Lamu District

—	Lamu Subdistrict Hospital (GOK)
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### *Mombasa District*

- 304-A1 Coast Provincial General Hospital (GOK)
- 304-A2 Port Reitz District Hospital (GOK)
- 304-A3 Mombasa Hospital (private)
- 304-A4 Pandya Memorial Hospital (private)
- 304-A5 Aga Khan Hospital – Mombasa (private)
- 304-A6 Kenya Ports Authority Clinic (parastatal)
- 304-A7 Bomu Clinic (private)
- 304-A8 Mkomani Clinic (private)
- 304-A9 Mewa Muslim Hospital (FBO)
- 304-A10 Mikindani Catholic Dispensary (FBO)
- 304-A11 Likoni Catholic Dispensary (FBO)

### *Taita-Taveta District*

- 305-A1 Voi District Hospital (GOK)

### *Tana River District*

- Tana River District Hospital (GOK)

### *Malindi District*

- 307-A1 Malindi District Hospital (GOK)

## **EASTERN PROVINCE**

### *Embu District*

- 401-A1 Embu Provincial General Hospital (GOK)
- 401-A2 Kyeni Consolata Hospital (FBO)

### *Isiolo District*

- 402-A1 Isiolo District Hospital (GOK)

### *Kitui District*

- 403-A1 Kitui District Hospital (GOK)
- 403-A2 Mutomo Mission Hospital (FBO)
- 403-A3 Muthale Mission Hospital (FBO)

### *Machakos District*

- 404-A1 Machakos District Hospital (GOK)
- 404-A2 Bishop Kioko Hospital (FBO)
- 404-A3 Kangundo Sub-district Hospital (GOK)

### *Mbeere District*

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### *Meru District*

- 406-A1 Meru District Hospital (GOK)
- 406-A2 Nkubu Consolata (FBO)

### *Makueni District*

- 407-A1 Makueni District Hospital (GOK)
- Makindu Subdistrict Hospital (GOK)

### *Meru South District*

- Chuka District Hospital (GOK)

### *Meru North District*

- 409-A1 Maua Methodist Hospital (FBO)

### *Mwingi District*

- 410-A1 Mwingi District Hospital (GOK)

### *Marsabit District*

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### *Meru East District*

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### *Moyale District*

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## **NORTH EASTERN PROVINCE**

### *Garissa District*

- 501-A1 Garissa Provincial General Hospital (GOK)

### *Mandera District*

- Mandera District Hospital (GOK)

### *Wajir District*

- Wajir District Hospital (GOK)

### *Ijara District*

- Ijara District Hospital (GOK)

## **NYANZA PROVINCE**

### *Kisii Central District*

- 601-A1 Kisii District Hospital (GOK)

### *Kisumu District*

- 602-A1 New Nyanza Provincial General Hospital (GOK)
- 602-A2 Kisumu District Hospital (GOK)
- 602-A3 Aga Khan Hospital – Kisumu (private)
- 602-A4 Maseno University Clinic (parastatal)
- Chulaimbo Rural Health Training Centre (GOK)
- St Monica's Clinic (FBO)
- Coptic Hospital Maseno Branch (FBO)

### *Siaya District*

- 603-A1 Siaya District Hospital

### *Homa Bay District*

- 604-A1 Homa Bay District Hospital (GOK)
- MSF Clinic (NGO)

### *Suba District*

605-A1 Suba (Sindo) District Hospital (GOK)

### *Migori District*

— Migori District Hospital (GOK)  
St Joseph's Ombo (FBO)  
St Camillus Clinic (FBO)

### *Nyamira District*

— Nyamira District Hospital (GOK)

### *Rachuonyo District*

608-A1 Rachuonyo District Hospital (GOK)  
608-A2 Kendu Bay Adventist Hospital (FBO)

### *Kuria District*

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### *Nyando District*

— Ahero Sub-district Hospital (GOK)  
Chemelil Sugar Health Centre (private)  
St Joseph's Hospital Nyabondo (FBO)

### *Bondo District*

611-A1 Bondo District Hospital (GOK)

### *Gucha District*

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## **SOUTH RIFT PROVINCE**

### *Kajiado District*

701-A1 Kajiado District Hospital (GOK)  
Mbirikani Clinic (GOK)

### *Kericho District*

702-A1 Kericho District Hospital (GOK)  
JK Findlay Hospital (private)  
Unilever Hospital (private)

### *Laikipia District*

— Nanyuki District Hospital (GOK)  
Naro Moru Catholic Clinic (FBO)

### *Nakuru District*

704-A1 Nakuru Provincial General Hospital (GOK)

### *Narok District*

705-A1 Narok District Hospital (GOK)

### *Trans Mara District*

— Kilgoris District Hospital (GOK)

### *Bomet District*

— Tenwek Mission Hospital (FBO)

### *Bureti District*

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### *Koibatek District*

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## **NORTH RIFT PROVINCE**

### *Baringo District*

801-A1 Baringo District Hospital (GOK)

### *Uasin Gishu District*

802-A1 Moi Teaching and Referral Hospital (GOK)  
Burnt Forrest Rural Health Demonstration  
Centre (GOK)

### *North & South Nandi Districts*

803-A1 Nandi Hills District Hospital (GOK)  
803-A2 Kapsabet District Hospital (GOK)  
Mosoriot Rural Health Training Centre (GOK)

### *Keiyo District*

804-A1 Keiyo (Iten) District Hospital (GOK)

### *Samburu District*

805-A1 Maralal District Hospital (GOK)

### *West Pokot District*

806-A1 Kapenguria District Hospital (GOK)

### *Trans Nzoia District*

807-A1 Kitale District Hospital (GOK)  
807-A2 Kitale AIDS Program (NGO)

### *Turkana District*

808-A1 Lodwar District Hospital (GOK)  
808-A2 Kakuma Hospital (NGO)

### *Marakwet District*

809-A1 —

## **WESTERN PROVINCE**

### *Bungoma District*

901-A1 Bungoma District Hospital (GOK)  
Webuye Hospital (GOK)  
Friends Lugulu Mission Hospital (FBO)  
Misikhu Mission Hospital (GOK)

*Busia District*

902-A1 Busia District Hospital (GOK)

*Kakamega*

903-A1 Kakamega Provincial General Hospital (GOK)  
St Elizabeth's Mission Hospital Mukumu (FBO)

*Vihiga District*

— Vihiga District Hospital (GOK)

*Lugari District*

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*Teso District*

— Teso District Hospital (GOK)

*Mt Elgon District*

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*Butere-Mumias District*

— St Mary's Mission Hospital (FBO)

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For more information and services, refer to the Kenya AIDS NGOs Consortium (KANCO) HIV/AIDS Service Organization directory, the Kenya Federation of Employers, NACC, NASCOP, your local VCT centre, networks, your AIDS control unit (ACU).

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