OFFICE OF THE PRESIDENT
NATIONAL AIDS CONTROL COUNCIL

The Kenya AIDS epidemic

UPDATE 2012

NATIONAL AIDS AND STI
CONTROL PROGRAMME

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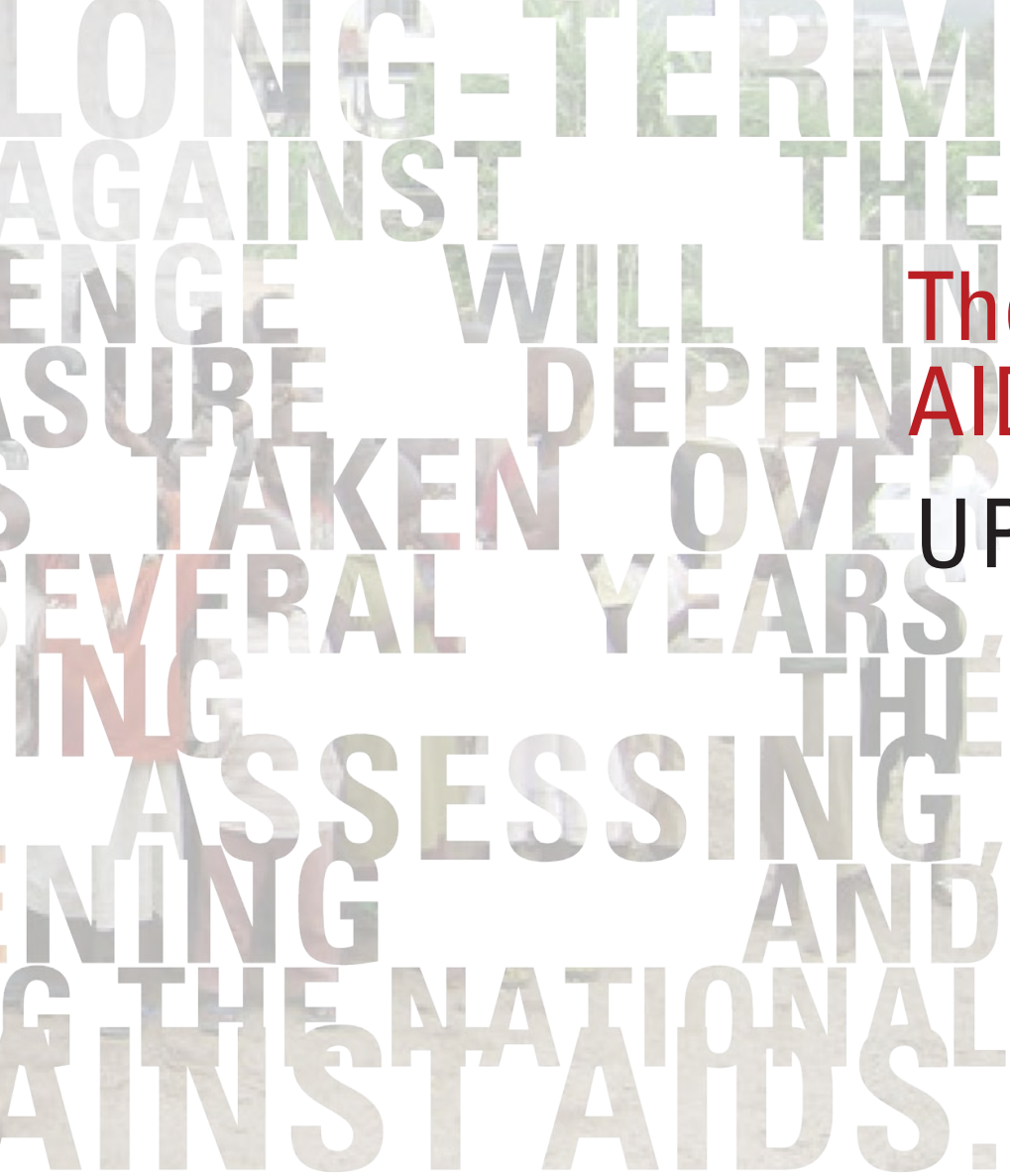

The Kenya AIDS epidemic

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LONG-TERM
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Contents

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Glossary

AED	Academy for Educational Development
AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral therapy
GOK	Government of Kenya
HIV	Human Immunodeficiency Virus
ICRH	International Centre for Reproductive Health
IPPF	International Planned Parenthood Federation
KARSCOM	Kenya HIV and AIDS Research Coordination Mechanism
KDHS	Kenya Demographic and Health Survey
KEMRI	Kenya Medical Research Institute
KNASP	Kenya National AIDS Strategic Plan
MSF	Médicins sans Frontieres
MSM	Men who have sex with men
NACC	National AIDS Control Council
NASCOP	National AIDS and STI Control Programme
NBTS	National Blood Transfusion Service
NGO	Non-governmental organization
PEP	Post-exposure prophylaxis
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
STI	Sexually transmitted infection
SW	Sex worker
TB	Tuberculosis
TOWA	Total War Against HIV and AIDS
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNODC	United Nations Office on Drugs and Crime
WHO	World Health Organization

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Foreword

Since HIV and AIDS first appeared in 1984, the epidemic has exacted an enormous price from the people of Kenya. However, nearly three decades into the national HIV response, there is substantial good news to report.

This first-ever comprehensive update of the HIV and AIDS epidemic in Kenya summarizes progress achieved over the last decade. The rate of new HIV infections has fallen by 40%, 69% of HIV-positive pregnant women received drug prophylaxis to prevent transmission to their infants in 2011, and antiretroviral therapy reached 83% of all adults who were medically eligible. Kenya is in the forefront of global efforts to implement voluntary medical male circumcision for HIV prevention, with more than 60% of adult males in Nyanza Province having been circumcised as of December 2010. The country also continues to serve as a pivotal host for some of the most important HIV-related research studies in the world, expanding the evidence base to support more effective interventions here and in other countries.

Through these and other concrete achievements, Kenya is accelerating progress towards national and global HIV goals and targets. Along with other countries, Kenya has embraced the goal of ensuring universal access to HIV prevention, treatment, care and support. Attaining this goal is essential to usher in the vision of a world with zero new HIV infections, zero AIDS deaths, and zero AIDS discrimination.

Despite the good news, Kenya's struggle against HIV is far from over. The number of people living with HIV continues to increase, as effective treatments help maintain good health and increase longevity. In other countries in sub-Saharan Africa and elsewhere, progress against HIV has sometimes been followed by a resurgence of the epidemic, underscoring the critical importance of continuing vigilance.

Perhaps most concerning is the effect of continuing global financial and economic difficulties. In 2010, total HIV assistance worldwide declined by about 10 per cent. With access gaps remaining for essential prevention, treatment, care and support services, it is essential that we not only redouble efforts to mobilize needed resources but also ensure that every iota of funding is used as effectively and efficiently as possible.

Kenya's national vision calls for concerted efforts towards a national transformation that ensures our prosperity and global competitiveness by 2030. A healthy, vibrant and productive population is essential if Kenya is to achieve this aim.

This report provides the latest facts on Kenya's epidemic – how far we have come, how far we have to go, and the steps we need to take to achieve ultimate victory over the epidemic. We hope and trust that readers will take inspiration from what has been achieved and redouble collective efforts to meet the challenges that remain.

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Executive summary

HIV represents one of the greatest public health challenges confronting the Kenyan people. In the face of this challenge, Kenya has mounted an exceptional challenge that has drawn on the passion and wisdom of people from all walks of life. A review of the most recent data underscores the epidemic's continuing threat but also demonstrates the extraordinary impact of the programmes and policies put in place to address HIV.

The epidemic and the response

As of December 2011, 1.6 million people in Kenya were living with HIV. With HIV-infected individuals living longer as a result of increased treatment access, Kenya projects that the number of people living with HIV will continue to grow, placing continuing demands on health and social service systems.

There is considerable good news to report. Adult HIV prevalence in 2010 (6.2%) is about 40% lower than at the epidemic's peak. The number of new HIV infections among adults in 2010 was less than one-third the number reported in 1993, when the country's epidemic peaked. An estimated 49,126 people died of AIDS-related causes in 2011, slightly more than one-third the annual number who died in 2002–2004.

Sexual transmission is the primary driver of Kenya's epidemic. Heterosexual transmission within a union or primary partnership accounts for an estimated 44% of new infections. Among adults living with HIV, women represent 58% of prevalent infections. The large number of sexually acquired HIV infections among women has given rise to substantial transmission to newborns, with an estimated 12,894 children in Kenya becoming newly infected in 2011.

Periodic household surveys indicate that Kenyans on average are less than half as likely to have multiple sex partners than in the late 1990s, while condom use has more than doubled. Untreated sexually transmitted infections significantly increase the likelihood of sexual HIV transmission, while men who are circumcised are substantially less likely than other uncircumcised men to acquire HIV during heterosexual intercourse. Various social factors – such as gender inequality, sexual violence, and anti-HIV stigma – increase HIV risk and vulnerability.

Urban dwellers have historically been more likely to become infected than people living in rural areas, although this disparity in HIV prevalence has narrowed considerably in recent years. Nyanza has the highest HIV prevalence of any province – more than 15-fold higher than in North Eastern Province.

Several populations have been especially heavily affected by HIV. HIV prevalence exceeds 18% among both men who have sex with men and people who inject drugs, while 29.3% of all female sex workers are living with HIV.

Kenya's response to HIV is guided by a strategic plan that aims to harmonize and align the HIV-related activities of diverse partners and stakeholders. Coordinated by the National AIDS Control Council, the HIV response builds on the robust engagement of civil society and people living with HIV. The National AIDS and STI Control Programme within the Ministries of Health administers the bulk of HIV-related services in Kenya. The country has developed a series of performance indicators to drive progress and promote accountability in the response.

Knowledge of HIV status is the cornerstone of Kenya's response to the epidemic. In 2010, more than 5.7 million people were tested for HIV through a combination of channels, including testing centres, provider-initiated counselling and testing in health settings, and time-limited campaigns.

Preventing new infections

Important gains have been made in preventing new HIV infections. Kenya has one of the world's highest coverage rates for services to prevent mother-to-child HIV transmission, with 69% of HIV-positive pregnant women receiving antiretroviral prophylaxis in 2011. As a result of scaled-up prevention services, the proportion of HIV-exposed infants who contract HIV themselves has fallen from 27% in 2007 to 14.9% in 2011.

Kenya is also the global leader in scaling up voluntary medical male circumcision for adult males, while reduces the risk of female-to-male HIV transmission by at least 60%. Kenya performed more than 230,000 voluntary medical male circumcision procedures from November 2008 to December 2010, reaching more than 60% of previously uncircumcised adult males in Nyanza Province, where circumcision prevalence is much lower than the national average.

Kenya has also taken steps to enhance access to other biomedical HIV prevention interventions. In 2009, more than 110,000 individuals received antiretroviral prophylaxis following a potential HIV exposure. In 2010 and 2011, studies emerged documenting the efficacy of pre-exposure use of antiretrovirals to prevent sexual HIV transmission. In 2009, Kenya health facilities delivered more than 175,000 individual consultations for the diagnosis and treatment of sexually transmitted infections. A national network of six regional blood transfusion centres ensures that 100% of all donated blood units are routinely screened for HIV and other blood borne pathogens. As of December 2010, more than 30,000 health care workers had been trained in adherence to recommended infection control procedures to prevent HIV transmission in health care settings, and 98% of health facilities surveyed made clean gloves available to workers.

Emerging evidence that antiretroviral treatment supports HIV prevention has generated new hope and optimism regarding Kenya's ultimate triumph over the epidemic. Modelling exercises commissioned by Kenya in 2012 indicate that antiretroviral treatment has averted nearly as many infections as the number of AIDS-related deaths that have been directly prevented by expanded treatment access.

Kenya also works to forge safer sexual behaviours, focusing behaviour change communications strategies on the general population and on key populations at heightened risk. Using numerous channels, including but not limited to schools, the country delivers HIV prevention services to young people, launching youth prevention networks in all provinces in 2010. The annual number of male condoms distributed in Kenya increased by one-third from 2007 to 2009, with

15 million condoms distributed monthly. The national AIDS strategy also prioritises scale-up of female condoms.

Emerging data underscore the elevated risk of infection experienced by several key populations, prompting Kenya to take steps to strengthen prevention services for these groups. Under the national AIDS strategy, prevention programming for people living with HIV has been strengthened. In 2009, the number of serodiscordant couples accessing HIV counselling and testing services nearly doubled, reaching more than 51,000 couples. Studies continue to demonstrate that diverse prevention strategies help reduce the risk of transmission among sex workers. Steps have also been taken to strengthen HIV prevention programming for men who have sex with men (MSM), including condom distribution and peer-based programming. However, effective HIV prevention measures remain scarce for people who inject drugs.

Care, treatment and support

Kenya has made substantial gains in delivering life-preserving treatment to people living with HIV, contributing to a notable reduction in AIDS-related deaths. In 2011, 83.1% of adults who were eligible for antiretroviral therapy were receiving it. Antiretroviral coverage is considerably lower for children (31.1%), although paediatric antiretroviral treatment coverage is also on the rise. Elimination of user fees for antiretroviral administration has aided in treatment scale-up.

In 2011, one in six health facilities in Kenya were administering antiretroviral therapy. In response to evidence demonstrating the health benefits of earlier therapy, Kenya has revised its adult treatment guidelines to raise the CD4 count threshold for initiating therapy from 250 to 350. Changes in paediatric treatment guidelines have also expanded the number of HIV-infected children who are eligible for therapy.

Most patients are on first-line antiretroviral regimens, although it is expected that demand for second-line regimens will increase over time. In response to the growing evidence base on optimal regimens, Kenya has taken steps to reduce use of the antiretroviral drug d4T, although roughly 200,000 individuals were receiving d4T-containing regimens in January 2011. Clinical sites in Kenya have adopted various innovations to enhance treatment adherence, including SMS reminders to patients and establishment of treatment literacy initiatives. Additional efforts are needed to promote maintenance in care, as roughly one in three antiretroviral patients are no longer enrolled in care two years after starting therapy. Treatment programmes in Kenya have recorded high survival rates, and cohort studies have correlated receipt of antiretroviral therapy with improved productivity and enhanced household well being.

With HIV infection significantly increasing the likelihood of active tuberculosis among individuals who are dually infected, Kenya has prioritized efforts to address HIV/TB co-infection. Kenya was the first country in sub-Saharan Africa to achieve the global target for TB case detection (80%) and TB cure rate (85%). Kenya has taken steps to increase collaborative programming involving HIV and TB systems, with the percentage of TB patients tested for HIV rising from 83% in 2008 to 95% in 2009, surpassing Kenya's national target for 2013 of 90% testing among TB patients.

Kenya's approach to treatment and care emphasizes a comprehensive approach. From 2007 through March 2011, food-by-prescription served 176,268 malnourished and vulnerable people living with HIV. Virtually all (97%) of health facilities in Kenya offer basic pain relief for people living with HIV, although morphine, the recommended international standard pain treatment, is often unavailable.

The sustainability of Kenya's care and treatment initiatives, as well as biomedical interventions for HIV prevention that are delivered in clinical settings, will depend on the strength of the country's health system. Major improvements have been made in the quality and distribution of health services in Kenya since 2004, although basic health indicators offer a mixed picture regarding the impact of these reforms. Kenya continues to struggle with a health worker shortage, with

only 0.1 physicians available to serve every 1,000 people, compared to 7.9 in the Euro zone. With the aim of strengthening the evidence base for health policy-making, Kenya in 2009 launched a five-year strategic plan for health information systems.

In addition to delivery of essential care and treatment to people who are living with HIV, Kenya has prioritized efforts to mitigate the epidemic's impact on households and communities. An estimated 1.1 million children in Kenya have lost one or both parents to AIDS. As a result of declines in AIDS-related mortality, the number of children orphaned due to AIDS has declined over the last several years, helping drive an overall reduction in the number of orphans nationwide. Most children orphaned or made vulnerable by HIV received no free assistance, which prompted Kenya to call for increasing funding for children-focused support services under the current national AIDS strategy.

The future of the response in Kenya

Financing for HIV programmes in Kenya rose roughly seven-fold from 2000–2001 to 2008–2009. However, the continuing global financial and economic downturn threatens future HIV funding. The U.S. government, the single largest source of HIV funding in Kenya, is capping its financial support for HIV programmes in the country. In response to the uncertainty of future international HIV assistance, Kenya has embarked on a national effort to mobilize new sources of financing, with particular focus on increasing domestic funding for HIV. The Government of Kenya has already taken steps to increase domestic support for HIV programmes, with domestic HIV outlays nearly doubling between 2006–2007 and 2008–2009.

The epidemic's future in Kenya will be determined, in large measure, by the country's success in attracting the resources needed to continuing scaling up essential services. According to a modelling exercise undertaken by Futures Institute, continuing Kenya's push to achieve universal access to HIV prevention, treatment, care and support would result in 57% fewer new HIV infections in 2030 than in 2005, lower AIDS-related deaths by 41%, and reduce HIV prevalence by more than 60%. Refocusing limited resources on the especially cost-effective interventions would reduce the number of new infections by 45% and the number of AIDS-related deaths by 34%.

Were AIDS funding to stagnate in the coming years, it is projected that the annual number of new infections would likely *increase* between now and 2030, reversing Kenya's historic gains. Even more alarming, were AIDS funding to decline, the number of new infections and AIDS deaths would be *substantially higher* in 2030 than they are today.

PRIORITY RECOMMENDATIONS FOR ENSURING LONG-TERM SUCCESS IN KENYA'S AIDS RESPONSE

- AIDS must remain a preeminent national priority.
- Kenya should take steps to enhance the strategic focus of its AIDS response.
- Intensified efforts are needed to enhance coordination, harmonization and alignment of the national response.
- Support should be expanded for grassroots community action and capacity development.
- A high-profile, multi-pronged strategy should be implemented to ensure sufficient financial resources to address the long-term challenge posed by AIDS.
- All partners engaged in the AIDS response in Kenya should intensify efforts to enhance the efficiency of AIDS programmes and the quality of AIDS services.
- Kenya should re-commit to achievement of the 2013 targets in KNASP III.
- Kenya should elevate the priority accorded efforts to prevent new HIV infections, including focused efforts to maximize the prevention impact of antiretroviral therapy.
- Strategies to reduce HIV risk must be supported by energetic, courageous efforts to address the social determinants of vulnerability.
- Kenya should accelerate scaling up of comprehensive HIV treatment, care and support.
- At the same time that AIDS programmes are brought to scale, dramatically stronger efforts are needed to strengthen the country's health system.

Overview

Since Kenya recorded its first case of HIV in 1984, the AIDS epidemic has evolved to become one of the central impediments to national health, well being and development. AIDS has deepened poverty; slowed economic growth; reduced life expectancy; worsened other infectious diseases; and visited particular ills on affected households, with the harshest effects experienced by women and children. Major, sustained progress in the AIDS response will be critical to achievement of Vision 2030, which seeks to galvanize a national transformation that ensures Kenya's status as a prosperous, globally competitive country within the next two decades.

In the face of this preeminent health challenge, Kenya has mounted a robust national response that has yielded concrete advances in the struggle against AIDS. National HIV prevalence has markedly declined over the last decade; unprecedented levels of financing have been mobilized to support evidence-based efforts to address AIDS; effective treatments that were once out of reach are being brought to scale; notable changes in sexual behaviours have slowed the rate of new infections, especially among young people; and tangible progress has been achieved towards the ultimate goal of eliminating mother-to-child HIV transmission. Kenya is in the vanguard of efforts to scale up male circumcision for HIV prevention and has adopted visionary new approaches to mitigate the epidemic's impact on children.

These efforts are saving lives and yielding lasting public health dividends. Still, AIDS poses a continuing threat to Kenya's future – one that will demand untiring national resolve and evidence-based action in the years and decades to come.

This report provides the most comprehensive assessment ever of Kenya's progress in addressing AIDS. The report summarizes available evidence regarding the national AIDS challenge, the epidemic's current rate of growth, its variability within and between regions and populations, and the factors that are influencing its continued spread. It also describes how Kenya is responding to AIDS, noting achievements to date, continuing gaps and challenges, and key priorities for moving forward. The report specifically focuses on national progress towards agreed national AIDS goals for 2013, such as the national aim to achieve 71% coverage for antiretroviral treatment, provision of antiretroviral prophylaxis to at least 80% of all HIV-infected pregnant, and a 50% reduction

in the number of new HIV infections. To drive continued progress in the AIDS response, Kenya intends to produce a report of this kind every two years, allowing ongoing monitoring and evaluation of national efforts.

In addition to surveying present conditions, the report also looks to the future, summarizing results of modelling exercises that project the many ways in which the epidemic in Kenya could evolve in future years. This modelling work demonstrates that the epidemic will need to remain a major national priority, but its severity can be sharply reduced through sustained mobilization of resources, focused support for high-impact strategies, and timely introduction and scale-up of new health tools that are likely to emerge in the coming years. Critically, long-term success against the AIDS challenge will in large measure depend on actions taken over the next several years, underscoring the urgency of assessing, strengthening and accelerating the national fight against AIDS.

Due to the uncertainty of future international support for the AIDS response, the fight against AIDS in Kenya is at a critical crossroads. Although the challenges ahead may appear daunting, the passion, creativity and commitment of the people of Kenya know no bounds. It is in a spirit of optimism, determination and solidarity that the Government of Kenya submits this report.

HOW THIS REPORT WAS PREPARED

This report is based primarily on a desk review of published studies and analytical reports on AIDS in Kenya. In that respect, it reflects the limitations inherent in the universe of published information regarding Kenya's epidemic. Although Kenya's epidemic is among the world's best-documented, it is inevitable that important features of the national response remain inadequately documented. As compensation for these limitations, the report includes examples of programmatic and innovative best practices, with particular emphasis on community-based efforts, as well as the results of modelling exercises commissioned by the Government of Kenya and its international partners.

Chapter One

AIDS in Kenya: A status report

Key messages

A GENERALIZED EPIDEMIC

With HIV having spread throughout the Kenyan public at large, relatively low levels of risk behaviour may carry considerable risks of HIV transmission.

REDUCED HIV PREVALENCE

An estimated 6.2% of adults between ages 15 and 49 were living with HIV as of December 2011. The percentage of Kenyans living with HIV has fallen by roughly 40% since 1995–1996, although the number of people living with HIV is increasing due to population increases and a decline in AIDS deaths. Altogether, 1.6 million Kenyans were living with HIV in 2011, with women representing 59% of all people living with HIV.

DECLINING, YET STILL SUBSTANTIAL, HIV INCIDENCE

The annual number of new HIV infections is roughly one-third the number in 1993, when Kenya's epidemic peaked. However, the number of new infections remains unacceptably high, with an estimated 104,137 Kenyans becoming infected in 2011.

A SEXUALLY DRIVEN EPIDEMIC

Sexual transmission accounts for an estimated 93% of new HIV infections in Kenya, with heterosexual intercourse representing 77% of incident infections. Adults in stable, seemingly low-risk heterosexual relationships make up the largest share of new HIV infections.

KEY POPULATIONS

Several key populations – namely, sex workers and their clients, men who have sex with men, and people who inject drugs – account for roughly one in three new HIV infections, a far larger share than previously understood.

SUB-NATIONAL VARIATION

The epidemic varies widely between and within provinces, with a 15-fold difference in HIV prevalence between the most heavily affected province (Nyanza) and the least affected (North Eastern).

YOUNG PEOPLE AND HIV

With 43% of the national population under the age of 15, the future of Kenya's epidemic will be determined in large measure by the success of efforts to slow the spread of HIV among young people. Prevention programmes should aim to build on statistically significant declines in HIV prevalence that have occurred over the last decade among both young men and women.

AN OVERRIDING NATIONAL PRIORITY

AIDS remains one of the central impediments to national health, development and well-being. AIDS has lowered life expectancy, deepened poverty in Kenya, reduced economic growth, exacerbated hunger, and worsened basic health indicators. In 2011, at least 1.1 million children in Kenya had lost one or both parents to AIDS.

AN EVOLVING EPIDEMIC

Kenya's epidemic continues to evolve, underscoring the need for continued vigilance and evidence-based action to respond to new challenges and opportunities.

LARGE MEASURE DEPEND ON ACTIONS TAKEN OVER THE NEXT SEVERAL YEARS UNDERSCORING THE URGENCY OF ASSESSING

Kenya has what is known as a "generalized" epidemic, with the virus having spread beyond discrete groups to affect the whole of society.

With a significant proportion of the national population already infected, the risks of encountering HIV during any single episode of risk behaviour are considerable, meaning that relatively low levels of risk behaviour may nevertheless carry a substantial likelihood of transmission. Among adult participants in the 2003 Kenya Demographic and Health Survey who said they had "no risk" for HIV, nearly 1 in 20 (4.6%) were in reality HIV-infected (Montana et al., 2007).

Since HIV was first recognized in Kenya in 1984, the universe of knowledge about the epidemic has continually expanded, providing national decision-makers with an ever-growing foundation for evidence-informed strategies. Although major progress has been achieved in Kenya's response to HIV, the epidemic remains one of the country's greatest health and development challenges. Moreover, the epidemic continues to evolve, presenting both new challenges and new opportunities as Kenya looks to the future.

Kenya:

The socio-economic context

A young, rapidly growing population

With a population of 38.6 million people (Kenya National Bureau of Statistics, 2010), Kenya has a rate of population growth (2.8% annually in 1990–2008) that exceeds the average for low-income countries overall (2.2%) and for sub-Saharan Africa as a whole (2.6%) (World Bank, 2010). Forty-three per cent of Kenya's population is below age 15 (World Bank, 2010). The large majority (78%) of Kenyans currently live in rural areas (World Bank, 2010), with 60% of Kenyan households engaged in farm work (Kenya Institute for Public Policy Research and Analysis, 2009).

Economic conditions

After experiencing modest economic growth in the 1990s (2.2%) annually, Kenya improved its economic performance during the last decade, with an average annual increase in the gross domestic product of 4.5% (World Bank, 2010; see Kenya Institute for Public Policy Research, 2009). The social and political crisis that followed the December 2007 election interrupted a five-year period of growth, although the country's economic performance has subsequently rebounded (Kenya Institute for Public Policy Research, 2009). Achieving the goals set forth in Vision 2030 will require annual increases of gross domestic product of 10% (Kenya Institute for Public Policy Research and Analysis, 2009) – a pace far in excess of Kenya's current and historic rates of growth.

A substantial portion of Kenya's population struggles to obtain the basic necessities of life. Nearly half (46.6%) of all Kenyans were living below the national poverty line in 2005–2006, and 40% of the population subsists on less than US$ 2 a day (World Bank, 2010). The country ranks 177th in per capita gross national income (World Bank, 2010).

Kenya is also among the world's most economically inequitable societies. Between 1995 and 2008, the poorest quintile (20%) accounted for only 4.7% of national wealth (World Bank, 2010). By contrast, the richest quintile claimed 53% of national income (World Bank, 2010).

The myriad ways in which Kenyans live and relate to each other are intrinsically linked with the epidemic's past, present and future.

Education and health

Kenya's literacy rates – 90% for males and 83% for females – are considerably higher than for sub-Saharan Africa generally (76% and 63%, respectively) (World Bank, 2010). Primary school completion rates are high (80%), but significantly fewer young people (49% in 2008) attend secondary school (World Bank, 2010). While Kenya outranks most African countries on basic education indicators, experts say that the country's rapidly growing labour force is generally lacking in the skills that will be required for the country to become globally competitive (Kenya Institute for Public Policy Research and Analysis, 2009).

Kenya's health profile is mixed. Largely because of the heavy impact of HIV, life expectancy in Kenya has fallen sharply (Gelmond et al., 2009), although it has begun to rebound in recent years, as HIV-related mortality has declined. The population-based mortality rate for children under age five was higher in 2008 (128 per 1,000 live births) than it was in 1990 (105 per 1,000) (Kenya National Bureau of Statistics, 2010), but the under-five mortality rate has fallen over the last 10 years (Kenya National Bureau of Statistics, 2010). By contrast, maternal mortality in Kenya (560 per 100,000 live births in 2008) is considerably lower than the average for low-income countries (790 per 100,000) or for sub-Saharan Africa as a whole (900 per 100,000) (World Bank, 2010). Pregnant women in Kenya are significantly more likely to receive antenatal care than sub-Saharan African women as a whole (World Bank, 2010), with 92% of Kenyan women receiving an antenatal care from a medical professional (Kenya National Bureau of Statistics, 2010). Kenya also outperforms sub-Saharan Africa overall with respect to access to sanitation, child immunization, and tuberculosis treatment success (World Bank, 2010).

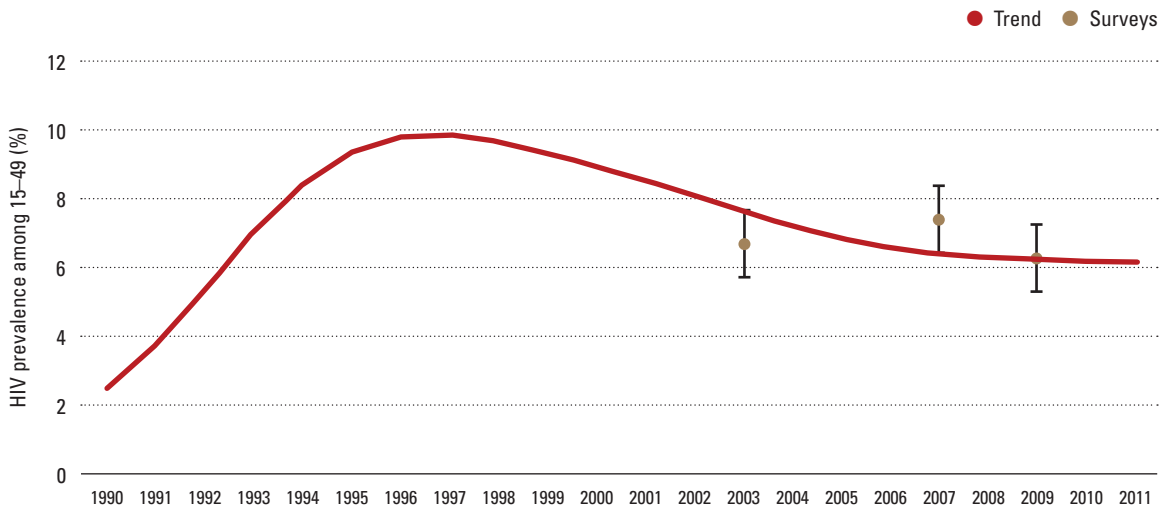
HIV prevalence in Kenya

In 2011, Kenya estimates that approximately 6.2% of the adult population is HIV-infected.[1] HIV prevalence in Kenya is believed to have peaked in 1995–1996, at 10.5%, subsequently falling by approximately 40% and remaining relatively stable for the last several years.

Historically a key marker for national progress in the AIDS response, HIV prevalence becomes more difficult to interpret as antiretroviral treatment is scaled up. Because treatment extends life and reduces rates of AIDS deaths, increases in HIV prevalence are likely even with incremental declines in the rates of new infections. Accordingly, performance indicators for Kenya's most recent national AIDS strategy project a relatively modest decline in HIV prevalence between 2007 and 2013, with an actual uptick on overall HIV prevalence anticipated over time due to the health benefits of improved treatment access.

Figure

Trends in national HIV prevalence in Kenya



An estimated 1.6 million Kenyans were living with HIV in 2011. This equals the peak number of HIV-infected people that had previously been maintained annually between 1996 and 2002, and it represents a nearly four-fold increase over the 400,000 people estimated to be living with HIV in Kenya in 1990. Kenya has the third largest population of people living with HIV in sub-Saharan Africa and the highest national HIV prevalence of any country outside Southern Africa (UNAIDS, 2008). As people living with HIV are living longer as a result of improved access to HIV treatment, it is anticipated that the total number of HIV-infected individuals in Kenya will continue to increase, approaching 1.8 million by 2015.

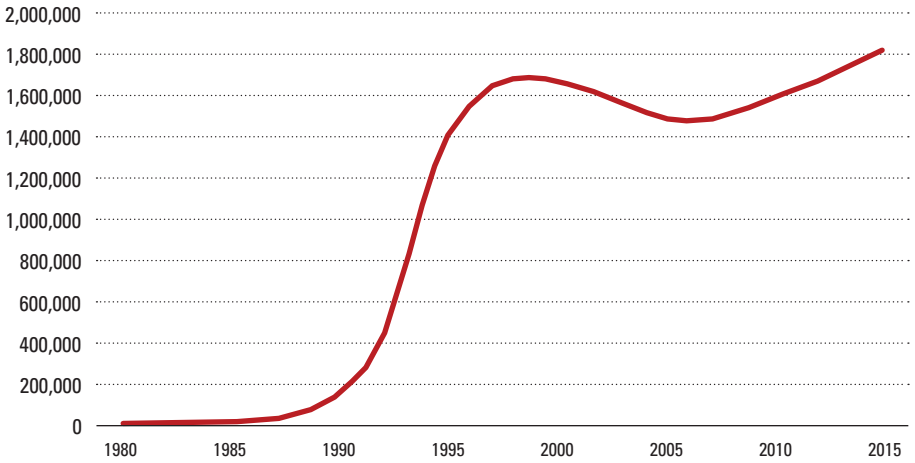
There is considerable geographic variability in the burden of HIV in Kenya. Provincial HIV prevalence ranges from a high of 13.9% in Nyanza Province to a low of 0.9% in North Eastern Province – a more than 15-fold variation (Kenya National Bureau of Statistics, 2010). Nyanza Province alone accounts for one in four HIV-infected people in Kenya.

Kenya's epidemic disproportionately affects women, who account for 59.1% of adults living with HIV. Among people between 15 and 49 years, HIV prevalence among women (8.0%) is nearly twice that among men (4.3%) (Kenya National Bureau of Statistics, 2010).

The odds of being infected increase as individuals transition from adolescence to adulthood. Although HIV is most likely to affect young adults, a considerable number of older people are living with HIV. In 2008–2009, roughly one out of 11 (9.1%) Kenyan men ages 50–54 were HIV-positive (Kenya National Bureau of Statistics, 2010).

For Kenyans as a whole, urban residents have historically more likely to be HIV-infected than rural dwellers (Kenya National Bureau of Statistics, 2010). However, there is a notable distinction between men and women in this

1 National surveys over the last several years have yielded somewhat different estimates of adult HIV prevalence in Kenya: 6.7% in 2003 (Central Bureau of Statistics, 2004), 7.4% in 2007 (NASCOP et al., 2009), and 6.3% in 2008-2009 (Kenya National Bureau of Statistics, 2010). Kenya's latest estimate for 2010 is derived from modelling based on the most recent available epidemiological evidence.



Figure

Number of children and adults living with HIV in Kenya

regard, with men in rural areas more likely to be HIV-infected than their urban counterparts (4.5% vs. 3.7%) (Kenya National Bureau of Statistics, 2010). Over time, HIV prevalence in urban and rural settings have converged, with HIV prevalence in urban areas only modestly higher than prevalence in rural settings.

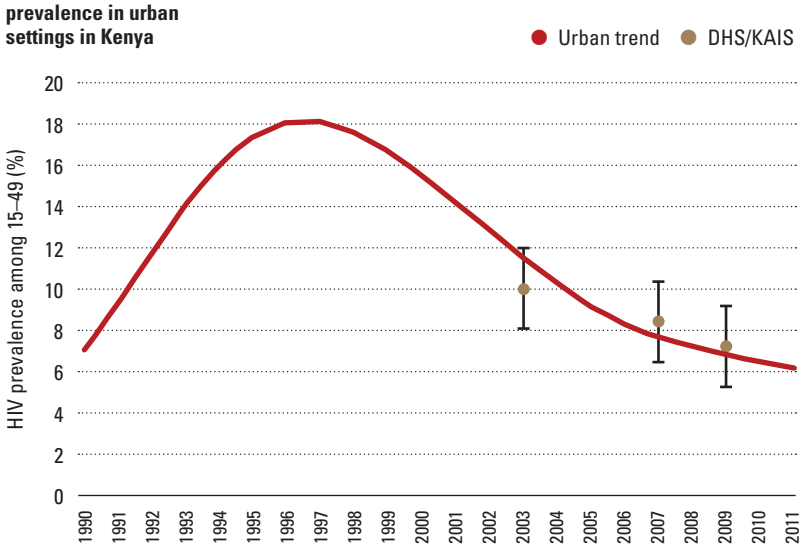
HIV affects Kenyans from all socioeconomic strata. Highest HIV prevalence (7.2%) is among the top wealth quintile, with the second highest HIV prevalence among the second lowest (6.8%). The poorest Kenyans (lowest wealth quintile) are least likely to be living with HIV, with a prevalence of 4.6%.

For sub-Saharan Africa generally, educational attainment is inversely correlated with HIV risk for women, at least according to surveys conducted over the last 10–15 years (Hargreaves et al., 2008). In Kenya, this pattern is not so clearly established. Although women with secondary education or higher have lower HIV prevalence (6.9%) than women who completed only primary education (8.9%), lowest HIV prevalence is reported among women with no education (5.8%) (Kenya National Bureau of Statistics, 2010).

Muslim Kenyans have HIV prevalence roughly half the national average (3.3%), compared with 5.9% of Roman Catholics and 6.6% of people of Protestant or another Christian denomination (Kenya National Bureau of Statistics, 2010). Among Kenyan tribes, the Luo are notably more likely to be living with HIV than other ethnicities, with more than one in five Luo (20.2%) testing HIV-positive in the 2008–2009 national

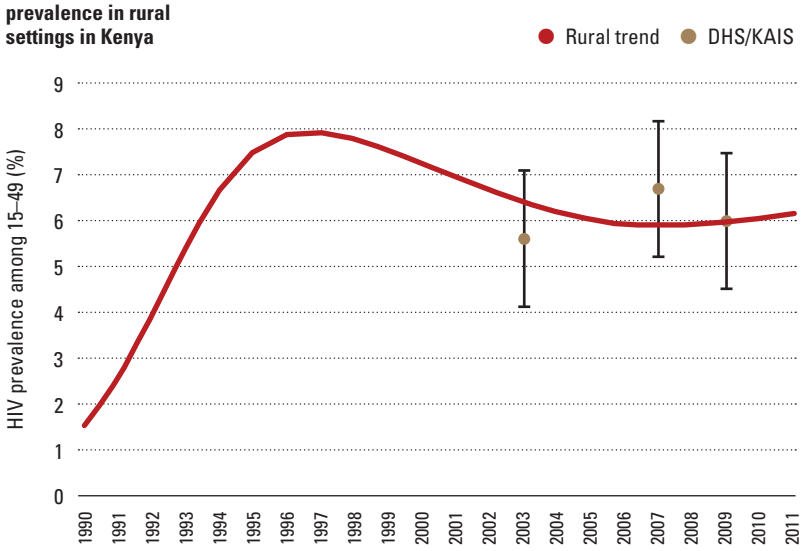
Figure

Estimated HIV prevalence in urban settings in Kenya



Figure

Estimated HIV prevalence in rural settings in Kenya



household survey (Kenya National Bureau of Statistics, 2010). Somalis have the lowest HIV prevalence of any ethnicity (0.8%).

New HIV infections in Kenya

Each year, roughly 0.5% of the Kenyan adult population (or 1 out of every 200) are newly infected. In 2011, more than 91,000 Kenyan adults became infected. The number of new infections in 2011 was less than one-third the annual number of new infections at the epidemic's peak in 1993, when more than 350,000 adults were newly infected. Although the pace of new HIV infections has slowed in Kenya, the number of new infections remains high. Based on current trends, it is projected that the number of new HIV infections will continue its slow, steady decline, with 81,972 new infections among people over age 15 anticipated in 2013.

In addition to the approximately 91,000 new infections among adults, it is estimated that 12,894 children under age 15 became newly infected with HIV in 2011, with the overwhelming majority contracting the virus during pregnancy or delivery or as a result of breastfeeding. With continuing success in expanding access to services to prevent new infections in children, it is estimated that the number of children newly infected in 2011 was 30% lower than in 2010. The number of people 50 years and older who were newly infected in 2011 is unclear, although comparison of the most recent estimates with the modes-of-transmission analysis for the 15–49 age cohort suggests that the annual number of newly infected older adults could range from 5,000 to 15,000.

In comparison to earlier stages of the epidemic, fewer young people in Kenya today are entering adulthood with HIV infection. Kenya is one of 10 high-burden countries in which HIV prevalence among young women (ages 15–24) has declined by significantly more than 25% (UNAIDS, 2010). Studies over time suggest that declines in new infections may be greater among young women than among young men. In such a young and comparatively sexually inexperienced segment of the population, HIV prevalence is regarded as a useful surrogate for HIV incidence. It is not altogether clear whether the pace of decline in the level of HIV infections among young people is sufficient to achieve the country's 2013 HIV prevalence targets for young women (3%) and young men (1%).

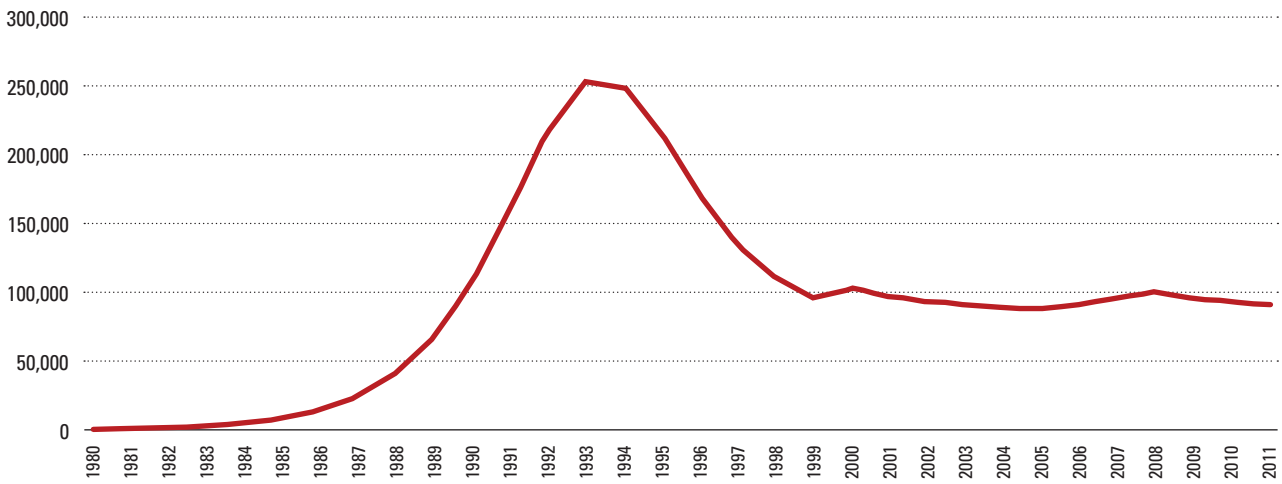
Understanding the rate and distribution of new HIV infections is critical to effective HIV prevention planning. According to Kenya's first-ever study to estimate new infections by modes of transmission, new infections derive from the following sources (Gelmon et al., 2009):

- Heterosexual sex within a union or regular partnership (44.1%)
- Casual heterosexual sex (20.3%)
- Sex workers and clients (14.1%)
- Men who have sex with men and prisons (15.2%)
- Injecting drug use (3.8%)
- Health facility related (2.5%).

Nyanza Province contributes roughly one-third of all new HIV infections in Kenya. The other two provincial centres for new HIV

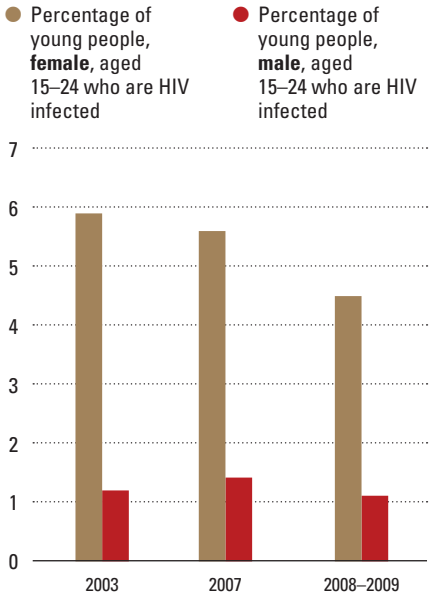
Figure

New HIV infections among adults in Kenya



Figure

HIV prevalence among young people by sex, 2003–2009



infections are Nairobi (10,155 new infections in 2006) and Coast Province (6,656 new infections in 2006) (Gelmon et al., 2009).

Although heterosexual intercourse remains the driving force in Kenya's epidemic, accounting for more than 77% of all new infections, other transmission routes contribute a much larger share of new HIV infections than previously estimated (see Guows et al., 2006). Sex work, sex between men, and injecting drug use together account for nearly one-third of all new infections (Gelmon et al., 2009).

The epidemic continues to exert a disproportionate effect on adolescents and young adults. Young people between ages 15–35 represent 38% of the national population but are believed to make up more than 60% of new HIV infections (NACC, 2009).

AIDS mortality in Kenya

Since the epidemic began, HIV has claimed the lives of at least 1.7 million people in Kenya. In 2011, an estimated 49,126 people in Kenya died of AIDS-related causes.

The AIDS death toll in 2010 represents a nearly two-thirds drop from the peak in AIDS deaths in 2002–2004, when an estimated 130,000 people died each year. Peak mortality followed peak HIV incidence in Kenya by roughly a decade, which one would expect given the roughly 10-year life expectancy of a newly infected individual in the pre-ART era.

Were current trends to continue, Kenya would achieve its 2013 target for reducing the annual number of AIDS deaths to 61,000 or lower. Indeed, current projections indicate that 26,720 Kenyans are likely to die of AIDS-related causes in 2013.

The impact of HIV in Kenya

The epidemic continues to have far-reaching social, economic, health and population effects. In addition to the harms directly inflicted on HIV-infected individuals and the households in which they live, AIDS has had indirect effects that are nevertheless real and substantial on communities and the whole of society.

In particular, HIV infection results in severe economic consequences for affected households (Bates et al., 2004). One out of nine households in Kenya has been affected by AIDS, with the head of household having HIV in more than three out of four AIDS-affected households (NASCOP, 2009).

The epidemic has resulted in a sharp deterioration of basic health indicators. Between 1998 and 2003 – or roughly between the epidemic's peak in Kenya and the early introduction of antiretroviral therapy – the adult mortality rate (ages 15–49) rose by 40% for women and by 30% among men (Gelmond et al., 2009, citing findings from consecutive Demographic and Health Surveys). With a large number of newborns newly infected each year, the epidemic has also increased mortality among children under five (Gelmond et al., 2009).

The concentration of the epidemic's burden among young adults has visited particular hardships on Kenya's children, regardless of whether children themselves become HIV-positive (K'Oyugi, Muita, 2002). In 2011, an estimated 1.1 million children in Kenya had lost one or both parents to AIDS. Kenyan children with one or more HIV-infected

parents are significantly less likely than other children to be in school, more likely to be underweight, and less likely to receive basic medical care (Mishra et al., 2005).

While children have experienced among the harshest effects of the epidemic, AIDS has burdened Kenyans from all age strata and all walks of life. Nearly one in five (18%) Nairobi residents over age 50 report having been personally affected by AIDS, such as becoming infected, caring for an AIDS patients or orphaned child, or losing a loved one (Kyobutungi et al., 2009).

AIDS appears to have affected fertility patterns. On average, HIV-infected women have 40% fewer children than the norm (Akinyi Magadi, Agwanda, 2010). HIV-infected women are notably less likely to express a desire for a child within the next two years than women who had tested HIV-negative or who had not received HIV test results; women living with HIV are also significantly more likely than other women to report not desiring to have a child at any point in the future (NASCOP, 2009).

An ever-evolving epidemic

Change has been a constant feature of Kenya's experience with AIDS, as the epidemic's trajectory has repeatedly defied predictions. The epidemic continues to evolve, and it is certain that AIDS has additional surprises in store for the future.

When the epidemic was first recognized in Kenya in the 1980s, evidence indicated that HIV transmission was primarily concentrated among female sex workers and their clients, especially mobile workers such as long-distance truck drivers. Although these populations remain highly vulnerable to HIV, their relative roles in the spread of HIV have declined over time. The constant evolution of national and sub-national epidemics underscores the importance of continued vigilance, even following extended public health successes.

■ ■ ■ *Available data leave little room for doubt. While HIV prevalence and the rate of new HIV infections are lower now than at earlier points in the epidemic, AIDS will remain a preeminent national priority for decades to come. The generations-long challenge posed by AIDS not only highlights the need for urgent action to address the epidemic, but also for a long-term perspective that emphasizes sustainability, national resolve, and policy and programmatic responses that address the root causes of HIV risk and vulnerability.* ■ ■ ■

LIMITATIONS OF AVAILABLE DATA SOURCES

Few, if any, data sources are flawless. While the magnitude and range of data collected on Kenya's epidemic are impressive, there are limitations to each of these studies and monitoring mechanisms.

Core data sources for Kenya's epidemic include national household surveys undertaken over the last decade – notably, Kenya Demographic and Health Surveys in 2003 and 2008–2009, as well as the Kenya AIDS Indicator Study in 2007. Each of these studies employed comparable methodology, supplementing extensive surveys of household participants with serosurveys to measure HIV prevalence. Although such household surveys are rightly regarded as among the most reliable of data sources regarding national epidemics, they depend in large measure on self-reports and the recollections of survey participants. Although the 2007 and 2008–2009 surveys yielded roughly comparable findings, there were certain differences; however, such differences tend not to be statistically significant.

An important resource – and one that has prompted notable changes in Kenya's strategic approach to AIDS – was the country's first-ever modes-of-transmission study, the results of which were released in 2009 (Gelmon et al., 2009). The exercise extrapolated from existing data sources to estimate the number and distribution of new infections in a single year (2006), using methodology developed by UNAIDS (Guows et al., 2006). Although a major step forward in efforts to understand the dynamics of Kenya's epidemic, the study offers only a snapshot in time and does not purport to characterize epidemiological trends. Dependent on existing data sources, the methodology also incorporates a number of assumptions that in many cases aim to compensate for the absence of reliable data on key aspects of the epidemic.

The most recent epidemiological estimates in this report derive from modelling performed according to the SPECTRUM protocol developed by UNAIDS. Countries throughout the world use SPECTRUM to make estimations of HIV prevalence, HIV incidence, AIDS mortality, treatment needs, and the number of children orphaned by AIDS. From standard data sources, the SPECTRUM model uses "back-calculation" to develop annual estimates, allowing comparison of estimated values for the most recent year with earlier years. Although back-calculation is a well-recognized and generally accurate epidemiological tool, it cannot account for changing dynamics that may yet to be reflected in standardized data sources and has less reliability with respect to estimates for recent years.

NACC M&E TWG together with multiple multiple stakeholders – including the national government, UNAIDS, WHO and key donors – have collaborated to estimate service coverage, using diverse data sources to gauge the reach of key HIV interventions. In addition, the report highlights service utilization data compiled by the National AIDS and STI Control Programme (NASCOP) (NASCOP, 2010). NASCOP has taken steps in recent years to improve the completeness and timeliness of reporting from health facilities throughout the country. Nationally, NASCOP estimates that service utilization reports reflect a completeness rate of 84% (NASCOP, 2010). Completeness of reporting varies among the provinces, ranging from 67% in Nairobi to 97% in Western province. These variations make it difficult to discern whether national service utilization figures are representative of the country as a whole. In addition, given the strides that have been made in improving reporting rates, utilization trends should be interpreted with caution, as it may be unclear whether trends represent actual increases in service utilization or improvements in the completeness of reporting.

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Chapter Two

The national response to the HIV epidemic in Kenya

Key messages

LEGAL AND POLICY FRAMEWORK

HIV-related discrimination is prohibited by national law, and the country is officially committed to working towards gender equality and women's empowerment. Kenya does not afford formal legal protections for certain key populations, such as sex workers, men who have sex with men, and people who inject drugs.

STRATEGIC ACTION

Responding to emerging evidence of changing epidemiological dynamics, Kenya launched a new national HIV strategy for 2009/10–2012/13. This latest strategy continues the country's commitment to universal access to HIV prevention, treatment, care and support. The plan emphasizes improved health sector service delivery, sectoral mainstreaming of the HIV response, support for community-based efforts, and enhanced strategic information.

INSTITUTIONAL RESPONSE

The National AIDS Control Council (NACC) is responsible for coordinating the national response. The National AIDS and STI Control Programme (NASCOP) within the ministries of health administers the bulk of HIV services.

INVOLVEMENT OF CIVIL SOCIETY

Civil society, especially people living with HIV, play a key role in the national response, participating in NACC and the Global Fund's Country Coordinating Mechanism and assisting in development of the country's strategic HIV framework.

MONITORING AND EVALUATION

Kenya has taken steps to implement a unified HIV monitoring and evaluation framework. Improved linkages among diverse sectors is needed to fully implement this approach.

TREND TOWARDS DECENTRALIZATION

The national government has historically driven Kenya's HIV response, although recent steps have been taken to increase the engagement of provinces, districts, and local communities in HIV service planning.

UNDERSCORING THE URGENCY OF ASSESSING

Since 1999, when HIV was declared a national disaster, Kenya has mounted a robust and multi-faceted response to HIV involving the Government of Kenya (GOK), communities, and local and international partners.

This chapter focuses on the legal and policy framework, as well as strategic approach and institutional infrastructure, that characterizes Kenya's HIV response. As this chapter explains, Kenya has adapted its national response to emerging epidemiological and programmatic evidence.

Policy framework

Declaring HIV a national disaster in 1999, the Government established the National AIDS Control Council (NACC) within the Office of the President to coordinate the national response to the epidemic. An important step in establishing a rights-based framework for effective action on HIV occurred in September 2003, when the Government approved legislation making it illegal to engage in employment discrimination on the basis of a person's HIV status. The law also prohibited insurers from withholding services to people living with HIV or from imposing discriminatory premiums on HIV-infected individuals.

In 2006, Kenya enacted the HIV and AIDS Prevention and Control Act. The law formally protects the rights of people living with HIV, prohibits mandatory HIV testing, and authorizes various measures to mitigate the epidemic's impact. It also prohibits discrimination on lthe basis of ones HIV status and disallows insurers from withholding services to people living with HIV. Although this law does not specifically address vulnerable populations, other laws, such as the Sexual Offence Act and the Children Act, provide explicit protection to women, children and young people.

Formal policies and guidelines have been developed to support programme planning and implementation with respect to specific aspects of the HIV response. These normative frameworks aim to ensure that Kenya's HIV response is firmly grounded in available evidence.

Strategic approach

Through the NACC, GOK has overseen the development of three strategic plans for the HIV response. Each of these plans was developed through a consultative process involving diverse stakeholders.

The emergence of important new findings on Kenya's epidemic – notably, the 2007 Kenya AIDS Indicator Survey and the first-ever modes-of-transmission analysis in 2008 – prompted the NACC, in consultation with stakeholders, to move directly from a scheduled mid-term review of the second strategic plan to the development of a new strategic framework. The result was the most recent strategic plan – the Kenya National HIV and AIDS Strategic Plan for 2009/10–2012/13 (KNASP III).

KNASP III is built on four pillars, each of which is supported by specific strategies, with roles and responsibilities delineated. KNASP III sets forth the following primary strategies:

- *Health sector HIV service delivery:* Provision of cost-effective prevention, treatment, care and support services, informed by an engendered rights-based approach, to realise Universal Access;
- *Sectoral mainstreaming of HIV:* HIV mainstreamed in key sectors through long-term programming addressing both the root causes and effects of the epidemic;
- *Community-based HIV programmes:* Targeted, community-based programmes supporting achievement of universal access and social transformation into an AIDS-competent society;
- *Governance and strategic information:* All stakeholders coordinated and operating within a nationally owned strategy and aligned results framework, grounded in mutual accountability, gender equality and human rights.

Overarching goals for KNASP III include a 50% reduction by 2013 in the number of new HIV infections and a 25% decline in AIDS deaths. KNASP III emphasizes results-based management, linking outputs, outcomes and impact and specifying clear lines of accountability. Responding to documented gaps in the national response, KNASP III prioritizes efforts to prevent

HIV transmission, with particular focus on interventions targeting women, most-at-risk populations, people living with HIV, married couples and other stable partnerships. KNASP III is expressly oriented around the goal of universal access as a unifying aim of the national response.

The HIV response has been mainstreamed throughout the breadth of Kenya's health and development efforts. For example, HIV indicators and targets are reflected in Kenya's Medium Term Plan for 2008–2012. KNASP III is also aligned with the Kenya Joint Assistance Strategy for 2007–2012, a results framework representing the mutual commitment of the GOK and 17 development partners.

Institutional framework

The NACC functions as the formal coordinating authority for HIV activities in Kenya, spearheading strategic planning for the HIV response. NACC's national coordination is complemented by diverse decentralized structures, including district technical committees, constituency AIDS control committees, and various structures for civil society. NACC includes representatives from key national ministries, faith-based communities, people living with HIV, the private sector, non-governmental organizations (NGOs), and other civil society groups.

To maximize the coherence and coordination of Kenya's HIV response, an Inter-Agency Coordinating Committee (ICC) serves as a multi-stakeholder forum. Consisting of more than 50 members and a 17-member advisory committee, the ICC engages all development partners and includes representation from the private sector and civil society. Other frameworks – including the National Sectoral Mainstreaming of HIV Committee under the Kenya 2030 umbrella – support the coordination of the diverse range of ministries and sectors that contribute to the HIV response.

National-level planning is linked to sub-national planning through provincial and district HIV coordinating forums. KNASP III specifically emphasizes the importance of tailored strategies that address the geographical, epidemiological and demographic diversity of the epidemic in Kenya (NACC, 2009a).

A central player in Kenya's HIV institutional infrastructure is the National AIDS and STI Control Programme (NASCOP). Situated with the ministries of health, NASCOP delivers HIV-related and other health services, formulates evidence-based guidelines for HIV service delivery, and works to build the health sector's capacity to respond effectively to health needs. What was previously known as the Ministry of Health has been bifurcated to create the Ministry of Medical Services and the Ministry of Public Health and Sanitation; both of these ministries operate health facilities throughout the country.

Monitoring the response

HIV monitoring and evaluation is a responsibility shared by a number of arms of the national government, coordinated by the KNASP III Oversight and Monitoring Committee.1 Kenya has developed a series of 55 concrete, time-bound indicators to track implementation of its national AIDS strategy and to drive accelerated progress. Subsequent chapters identify progress to date against key indicators, with results for all indicators described in Appendix A.

Each year, the NACC oversees a Joint Annual Program Review, which comprehensively assesses progress in implementing the strategic plan and analyses key developments that occurred since the plan was originally formulated. The ICC provides technical oversight for the annual review. During the joint review, impediments to service access and to achievement of agreed national goals are identified, analysed and addressed. More than 3,500 stakeholders participated in the joint review in November and December 2009 (NACC, 2010).

1 The Kenya National Bureau of Statistics oversees periodic Demographic and Health Surveys, which have yielded invaluable information relevant to the AIDS response. NACC oversees compilation of biennial reports to UNAIDS on progress towards global and national HIV targets. NACC spearheaded the Kenya National AIDS Spending Assessment for 2006–2007 and 2007–2008, and was the GOK partner for the 2009 modes-of-transmission study, with results validated and approved by the Kenya AIDS Research and Study Committee. The National AIDS and STI Control Programme within the ministries of health also generates extensive strategic information, such as the 2007 Kenya AIDS Indicator Survey (undertaken with the strong support of the U.S. Centres for Disease and Prevention) and a 2010 annual report on the health sector response to AIDS.

Engaging civil society in the response

It is estimated that more than 16,000 community organizations as at end to 2010 engage in AIDS activities of some kind. In addition, numerous international NGOs deliver HIV services, undertake research, engage in policy analysis and advocacy, and play other important roles in Kenya's AIDS response. Especially vital are the critical contributions made by people living with HIV, as well as groups that serve, support and advocate for key populations. The active engagement of diverse stakeholders at all levels in HIV efforts both reflects and deepens Kenya's vibrant civil society.

The critical contribution of civil society is specifically recognized in Kenya's national strategic HIV plan, which devotes one of its four pillars to enhancing the coordination of community participation in the response. In addition to providing essential community-based services, civil society participates as part of the institutional architecture of the HIV response, serving on the NACC and the Global Fund's Country Coordinating Mechanism, participating in Constituency AIDS Coordination Committees and Community Partnership Forums, participating in annual reviews of the national strategic plan, and assisting in biennial reviews of the national response as part of the monitoring process for the 2011 Political Declaration on HIV/AIDS. However, many civil society organisations have limited access to financial support, according to non-governmental informants who participated in completion of the 2010 National Composite Policy Index. To enhance the ability of civil society to serve as full and equal partners in the HIV response, the NACC provides leadership development and capacity-building support for civil society and people living with HIV.

Challenges in the response

Kenya adheres to the "Three Ones" principles, which calls for a single national strategy to guide the HIV actions of all country-level stakeholders, one coordinating authority to oversee the work of country partners, and one monitoring and evaluation system with a unified set of agreed indicators. In light of the large number of national ministries and sectors, development partners, and service providers engaged in the HIV response, however, effective coordination remains a challenge.

Kenya has taken a number of steps to address the challenge of coordinating the contributions of thousands of participants in the HIV response. The NACC used the launch of KNASP III to improve harmonization and alignment, implementing partnership frameworks with key development partners and undertaking efforts to execute formal Memoranda of Understanding with diverse sectors (NACC, 2010). Steps are also planned to train civil society organisations on using standardized tools for data reporting (NACC, 2010).

ENHANCING THE COHERENCE AND COORDINATION OF UN EFFORTS TO SUPPORT KENYA'S NATIONAL RESPONSE

In 2007, UN partners launched the five-year Joint Programme of Support on AIDS, which aims to unite diverse UN agencies in a common effort to "deliver as one" in support of Kenya's national AIDS strategy. Under the Joint Programme of Support, UN partners in 2008–2009 focused particular efforts on supporting national efforts to reduce new infections, providing technical and financial support for national initiatives to document the rate and distribution of new infections, aiding in a national HIV prevention summit, supporting NASCOP in improving data reporting and analysis for prevention of mother-to-child transmission, advocating for increased attention to the prevention needs of most-at-risk populations, supporting early efforts to roll out voluntary medical male circumcision (UN-Kenya, 2009).

■■■ *Kenya has made considerable advances in implementing a strategic, rights-based, evidence-informed approach to HIV. However, as the passages above reflect, important gaps remain, including imperfect coordination of the many thousands of entities that contribute to Kenya's HIV response. KNASP III represents a thoughtful, considered effort to close many of these gaps, but effective follow-through and strong national leadership will be required to ensure that the country's latest HIV strategy achieves its aims.* ■■■

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Chapter Three

HIV risk and vulnerability: Factors that contribute to the continued spread of HIV in Kenya

Key messages

SEXUAL RISK-TAKING

Although Kenyans exhibit high levels of HIV-related knowledge and have collectively adopted notable changes in sexual behaviours, substantial unsafe sexual behaviour still persists. Condom use remains sub-optimal, and many Kenyans have multiple sexual partners.

CO-FACTORS

Certain behaviours – such as concurrent sexual partnerships or alcohol use during sex – enhance the risk of HIV transmission. Various biological factors – such as a man's circumcision status, the presence of an untreated sexually transmitted infection, or very recent HIV infection – also increase the likelihood that any single instance of unsafe sexual behaviour will result in HIV transmission.

WOMEN AND GIRLS

In addition to their heightened physiological susceptibility to sexual HIV transmission, women and girls confront an array of social, legal, economic and cultural disadvantages that compound their HIV-related risks and vulnerabilities. On average, Kenyan women and girls are less knowledgeable than males regarding HIV and are less likely to use condoms.

NEWBORNS AND HIV

The large number of sexually transmitted cases of HIV in Kenya indirectly contributes to substantial transmission of the virus from mother to child. Each year, more than 20,000 children become infected after exposure to the virus during pregnancy or delivery or as a result of breastfeeding.

KEY POPULATIONS AND SOCIAL MARGINALIZATION

Institutionalized discrimination and stigmatizing attitudes contribute to the disproportionate risk and vulnerability experienced by sex workers, men who have sex with men, and people who inject drugs. These three populations are estimated to have HIV prevalence of 29.3%, 18.2%, and 60.4%, respectively. Other groups – such as prisoners, long-distance truck drivers, and fishing communities – also experience elevated risk of HIV infection.

HEALTH CARE DELIVERY

While the vast majority of new infections in Kenya are the result of sexual behaviour, a small fraction of new infections stem from inadequate adherence to standard infection control practices during health care delivery.

All epidemics are complex, but AIDS is perhaps the most complicated ever to appear. The result of the most intimate of human behaviours, HIV transmission is influenced by a host of biological, social, legal, cultural and environmental factors that differ between and within settings and populations. These vulnerabilities are compounded by the nature of the virus itself, which may lie undetected for years, allowing extensive unknowing transmission to occur.

Like other aspects of AIDS in Kenya, our understanding of the conditions that facilitate or impede the spread of HIV has steadily expanded in the more than 25 years since the epidemic first appeared. This chapter summarizes available evidence regarding the sources of HIV risk and vulnerability, highlighting the segments of the population that have been most affected by the epidemic.

As this chapter explains, many of the reasons the epidemic continues to expand are directly related to fundamental inequities in Kenyan society and to the unfinished business of national development. Further reductions in HIV risk and vulnerability – vital to achievement of the country's long-term goals for the AIDS response – will require more rapid, sustained progress in making Kenya a fairer, more inclusive and more tolerant society.

Knowledge and awareness of HIV

Awareness of HIV, an understanding of how it may be transmitted, and a perception of individual risk are essential to sexual risk reduction, although they are often insufficient on their own to prevent transmission. Nearly all Kenyans have heard of HIV, although only 73% of adult women and 79% of adult men surveyed in 2008–2009 knew that condoms could prevent HIV transmission. HIV-related knowledge has increased over the last decade in virtually every age cohort (Kenya National Bureau of Statistics, 2010). However, the most recent assessment of HIV-related knowledge reveals knowledge levels below 2013 targets. This is especially true for women – 58.3% of whom have comprehensive HIV knowledge, well below the 75% target for 2013.

Young people are less likely than adults to exhibit accurate, comprehensive understanding of how to prevent HIV transmission (Tegang et al., 2007). Certain misconceptions about HIV also persist; in 2008–2009, nearly one in five adult men and almost one in four women were not aware that mosquito bites could not transmit HIV. In the predominantly Somali population of Garissa, 20% of men and 15% of women said they believed condoms caused disease (Pathfinder International, 2009).

Sexual behaviour patterns

The epidemic has prompted notable changes in sexual behaviour in Kenya. In comparison to the early 1990s, rates of condom use have significantly increased, while the average number of sexual partners has fallen. Other indicators, such as age of sexual debut, have shown more modest declines.

Condom use

Evidence indicates that condom use has increased. From 1998 to 2008–2009, the percentage of women who used a condom at last sex more than doubled – from 15.1% to 35.3% – and the proportion of men using a condom the last time they had sex rose from 42.5% to 61.5%, according to national household surveys.

Despite certain favourable trends, condom use in Kenya remains sub-optimal. In 2007, 72% of adults surveyed reported having had unprotected sex with a partner of unknown or discordant HIV status in the previous 12 months (NASCOP, 2009). Among adults who reported sexual intercourse with a person who was neither their spouse nor a co-habitant, 65% used a condom the last time they had sexual intercourse with that person.

Kenyan men are more likely to use condoms during intercourse with a female sex worker than when they have sex with their spouse or regular partner (Ferguson et al., 2004). Kenyans with a post-secondary education are three times more likely than those who have completed primary school to use a condom and 12 times more likely than those without any formal education (Central Bureau of Statistics, 2004).

HIV RISK AND VULNERABILITY

UNAIDS defines "risk" as "the probability that a person may acquire HIV infection," usually as a result of specific behaviours that allow HIV transmission to occur (UNAIDS, 2007). By contrast, an individual is "vulnerable" to HIV when his or her ability to avoid infection is diminished by one or more other factors, such as lack of personal knowledge or skills, the influence of cultural norms that validate risky behaviours, or physical surroundings that make risk reduction difficult or impossible (UNAIDS, 2007; see Bates et al., 2004).

COULD TREATMENT SCALE-UP AFFECT SEXUAL BEHAVIOURS?

In high-income countries, treatment-related declines in HIV-related illness and death have been accompanied by increases in sexual risk behaviours and new HIV infections, especially among men who have sex with men (UNAIDS, 2009). Could the same pattern occur in Kenya, with improved health outcomes encouraging some people to take greater risks due to a perception that AIDS is no longer quite as serious?

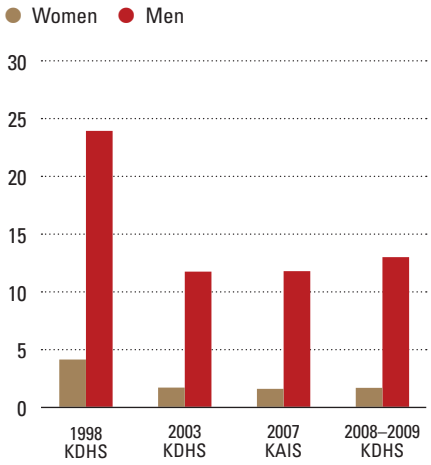
One recent study provides some cause for concern. Among 1,655 people surveyed (ages 15–49) in Kisumu, nearly one in four (23%) of those who had heard of antiretroviral treatment erroneously believed the drugs were a cure for AIDS (Cohen et al., 2009). Male survey participants who increased their risk behaviours as a result of their optimism about treatment advances were 45% more likely to be HIV-positive than those who did not report a change in risk behaviours. Among men who said that antiretroviral therapy could cure AIDS, the odds of being HIV-positive were more than double those who did not have this belief.

Multiple partners and sexual concurrency

It is well established that the risk of becoming infected with HIV is directly correlated with the number of sexual partners (Mishra et al., 2009). This finding has been repeatedly confirmed by epidemiological studies in Kenya (Amornkul et al., 2009; Mattson et al., 2007). Men are significantly more likely than women to have four or more lifetime sexual partners, with the percentage of men reporting 10 or more partners (16.9%) outweighing the share of women (1.1%) more than 15-fold (NASCOP, 2009).

Figure

Prevalence of multiple sex partners by sex, 1998–2009



The average number of sexual partners for Kenya as a whole has fallen over time. For example, the percentage of young men (ages 20–24) who report having had multiple sex partners fell from 44.7% in 1993 to 16.4% in 2003, according to national household surveys. Among men overall, the proportion reporting multiple sexual partners fell from 24.1% in 1998 to 9.4% in 2008–2009. By 2008–2009, Kenya had already reached its 2013 target for the percentage of females who report sexual intercourse with more than one partner (Kenya National Bureau of Statistics, 2010). While declines in the prevalence of multiple partnership are also apparent among men, the rate for men documented in 2008–2009 (9%) remains shy of the 2013 target of 5%.

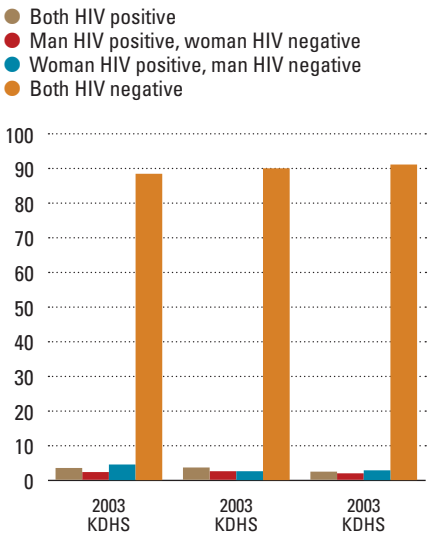
Condom use among people with two or more partners in the last year remains sub-optimal. Among adults with multiple partners, 34.9% reported using a condom during last sexual intercourse – a modest increase over the 32.8% reported in 2003 but still lower than needed to slow the spread of HIV.

In recent years, particular interest has focused on the potential role of concurrent sexual partners in accelerating the spread of HIV within sexual networks (Epstein, 2007; Halperin, Epstein, 2007). As mathematical modelling has illustrated, HIV may be rapidly dispersed throughout sexual networks when sexual concurrency (e.g., having an ongoing sexual relationship with more than one person at the same time) is common (Morris, Kretzschmar, 2000; Morris, Kretzschmar, 1997). Researchers who conducted Kenya's recent modes-of-transmission analysis cited social acceptance of concurrent and/or multiple partnerships as a major driver of the country's epidemic (Gelmon et al., 2009). However, while the mathematical modelling on sexual concurrency is persuasive, evidence to date has yet to definitively link HIV prevalence with rates of sexual concurrency (Mishra, Bignami-Van Assche, 2009).[1]

1 Methodological challenges have complicated efforts to obtain a clear understanding of the role of sexual concurrency in the continued spread of HIV in Kenya and other high-prevalence countries. Concurrency is difficult to define (e.g., duration of overlap, number of partners and sexual encounters involved) and perhaps even more difficult to measure (Lurie, Rosenthal, 2010). Perhaps due to these methodological challenges, the few surveys that have attempted to quantify the prevalence of sexual concurrency have yielded widely varying results (Lurie, Rosenthal, 2010).

Figure

Prevalence of serodiscordant couples 2003–2009



Serodiscordant couples

HIV transmission risks are especially elevated in couples with one infected and one uninfected partner, as condom use is least likely and repeated sexual exposure most likely in stable, long-term relationships. Among the 1 in 10 Kenyan couples in which at least one partner was infected in 2007, only one partner was infected in 60% of the cases (NASCAP, 2009). National authorities estimate that the number of serodiscordant married or cohabiting couples approaches 350,000 (NASCOP, 2009).

Consistent with the comparatively higher HIV prevalence among women, the woman is more likely to be the HIV-positive partner in serodiscordant couples than the man. In 2008–2009, the male was HIV-positive and the woman HIV-negative in 2.5% of couples, while the converse was true in 3.2% of couples (Kenya Bureau of National Statistics, 2010). In 2.8% of couples, both partners were HIV-infected in 2008–2009 (Kenya Bureau of National Statistics, 2010).

Alcohol use

Alcohol intake before or during sexual intercourse may contribute to risky sexual behaviour. Adults participating in the 2003 Kenya Demographic and Health Survey were 65% more likely to be HIV-positive if they consumed alcohol in the previous months as those who did not (Montana et al., 2007). In 2008–2009, 4.5% of females and 1.2% of males reported having had sex in the last 12 months while drunk or with a partner who was intoxicated (Kenya Bureau of National Statistics, 2010). In a 36-month study of agricultural workers in rural Kenya, study participants who consumed alcohol during sexual intercourse were 2.4 times more likely to become infected with HIV (Shaffer et al., 2010).

Biological co-factors

While HIV transmission results from a defined set of specific behaviours, certain physical or biological attributes or conditions may increase the likelihood that a particular episode of risky behaviour will lead to HIV infection.

Circumcision

Uncircumcised men are 4.6 times more likely to be living with HIV than circumcised males (Kenya National Bureau of Statistics, 2010). Most men in Kenya – 84%, according to the 2003 Kenya Demographic and Health Survey – are circumcised (Central Bureau of Statistics, 2004). However, circumcision rates vary between provinces. Especially notable is Nyanza Province, where only 48% of males are circumcised (Central Bureau of Statistics, 2004). Not coincidentally, Nyanza has country's highest HIV prevalence and HIV incidence.

Sexually transmitted infections

Untreated sexually transmitted infections (STIs) increase up to 10-fold the risks of HIV transmission and acquisition (WHO, 2007). Rates of STIs in Kenya have fallen in recent years, with particularly notable declines among sex workers (Gelmon et al., 2007). However, the prevalence and incidence of STIs remain high. Moreover, historical analyses indicate that STI epidemics are often cyclical, with periodic declines frequently followed by rising incidence as young people become sexually active (Grassley et al., 2005), suggesting that recent improvements in STI rates may not necessarily be sustained over time.

In 2007, 41.7% of adult women and men (ages 15–64) in Kenya were infected with herpes simplex virus type 2 (HSV-2) (NASCOP, 2009). The highest prevalence of HSV-2 was in Nyanza Province (57.3% among women and 37.7% among men), the region of the country with most severe HIV epidemic (NASCOP, 2009). Kenyan studies have consisted correlated HIV infection with HSV-2 infection (Shaffer et al., 2010; Amornkul et al., 2009).

Acute HIV infection

The likelihood that an HIV-infected person will transmit the virus to another is directly related to the infected individual's viral load (Quinn et al., 2000). Usually within weeks of initial exposure to HIV, the infected individual experiences a dramatic surge of viral replication, which continues until the body's immune system mounts a response that temporarily lowers the viral load (Piatak et al., 1993).

Due to such high virus levels, individuals with a new case of HIV infection are unusually infectious (Pilcher et al., 2004). In a cohort study in Rakai, Uganda, researchers concluded that acute infection was responsible for 89% of transmission events seen over 20 months (Pinkerton, 2008).

It is often difficult to identify cases of acute HIV infection. Symptoms that typically accompany acute HIV infection – such as fatigue, swollen lymph nodes, and night sweats – are also common symptoms for a host of other health problems. In some high-income settings, sophisticated genetic tests are used to identify cases of acute infection, but these tests are not routinely used for this purpose in low-income countries.

Key populations

Although HIV affects broad swathes of the general population in Kenya, some groups are more heavily burdened than others.

Fully comprehending the HIV-related risks and vulnerabilities of many key populations is challenging. For many key populations – such as sex workers, men who have sex with men, and people who inject drugs – there is no clear understanding of the size and distribution of these groups. Moreover, as these groups are socially marginalized and subject to criminal penalties for engaging in the behaviours that define them for epidemiological purposes, it has often been difficult to conduct relevant studies to quantify HIV prevalence or identify key factors associated with increased risk of infection.

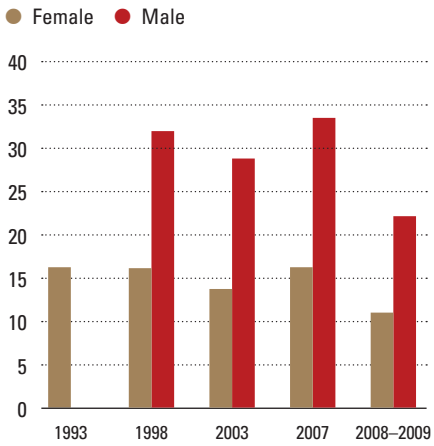
Young people

With 43% of the country's population under age 15 (World Bank, 2010), it is clear that the future of HIV in Kenya will in large measure be determined by success in preventing new infections among the millions of young people who will become sexually active in the next few years. Although fewer young people are becoming infected in Kenya than at earlier stages of the epidemic (UNAIDS, 2010), HIV represents a continuing threat to young people in Kenya. Among 20–24-year-olds, more than 1 in 25 (4.2%) are already infected when they enter young adulthood (Kenya National Bureau of Statistics, 2010).

Risks are especially severe for girls and young women. Among 15–19-year-olds, women are nearly four times more likely to be infected than males (2.7% to 0.7%). In addition to being more physiologically vulnerable to sexual transmission than males, young women in Kenya (ages 15–24) are less likely than males their own age to have accurate and comprehensive knowledge of HIV (47.5% vs. 54.9%) (Kenya National Bureau of Statistics, 2010).

Figure

Percentage (%) of young people (15–24) who report having had sex before age 15, by sex, 1994–2009

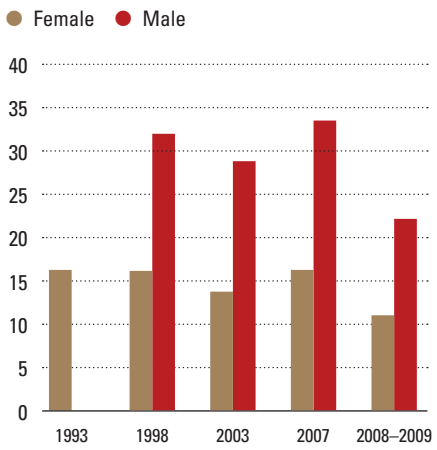


Early sexual debut is strongly correlated with increased risk of HIV infection for women in Kenya but not for men. Women who reported in 2008–2009 that they were less than 16 when they had their first sexual intercourse were more than twice as likely to be HIV-positive as women who began having sex at a later age (Kenya National Bureau of Statistics, 2010). By contrast, men who first had sex after age 20 were more than twice as likely to be HIV-positive as men who had earlier sexual debut (Kenya National Bureau of Statistics, 2010). Nationally, roughly half of all 15–49-year-olds (48% of women and 55% of men) reported becoming sexually active before age 18 (Kenya National Bureau of Statistics, 2010). One in nine women (11%) and more than one in five men (22%) surveyed in 2008–2009 said they had sex before age 15. Young women in Nyanza Province are especially prone to early sexual debut, with an average age of first intercourse of 16.5 years, compared to 20.3 years for women in Nairobi (Kenya National Bureau of Statistics, 2010).

The percentage of Kenyans who become sexually active at an early age has declined over the course of the epidemic. While 16.3% of Kenyan women reported first having sex before age 15 in 1993, only 11% interviewed in 2008–2009 said they had sex before

Figure

Percentage (%) of sexually experienced young people (15–24) who report using a condom the first time they had sex, by sex, 2003–2009



15. The percentage of men who reported becoming sexually active before age 15 fell from 32.5% in 1998 to 22% in 2008–2009. Surveys documented similar reductions for both women and men who said they first had sexual intercourse between ages 15–19. Condom use is rare during young people's first sexual episode. In 2008–2009, 25.5% of Kenyan women (ages 20–54) and 28.4% of Kenyan men said they used a condom the first time they had sex (Kenya National Bureau of Statistics, 2010). However, these figures represent a notable increase over rates of condom use at first sex reported in 2003 (11.9% for women and 14.0% for men) (Central Bureau of National Statistics, 2004). Surveys have consistently found that young men are more likely than young women to use a condom the first time they have sex (NASCOP, 2009).

Among young men in Kisumu, only 7% said they always used a condom, with 19% reporting that they never used one (Westercamp et al., 2008). As with their adult counterparts, young people are more likely to use condoms when they purchase or sell sex than during sexual intercourse with a regular partner (Westercamp et al., 2008).

Among sexually experienced male high school students in Nariboi, consistent condom users typically initiated sexual activity at an older age, reported more positive peer attitudes about safe sex, and had higher condom self-efficacy (Kabiru, Orpinas, 2009). For female upper primary school students in Nyanza, increased condom use was associated with individual confidence in one's ability to remain abstinent (Maticka-Tyndale, Tenkorang, 2010).

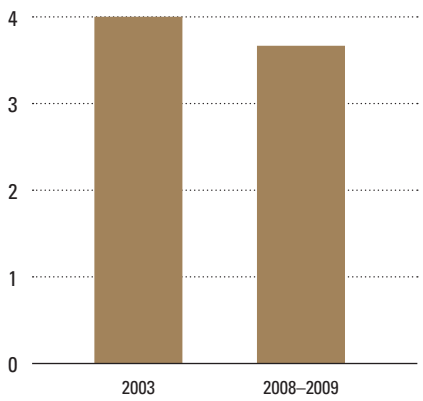
Sex poses considerable perils for many girls and young women. Twelve percent of Kenyan women report that their first episode of sexual intercourse was forced against their will (Kenya National Bureau of Statistics, 2010). Among females who become sexually active before age 15, 22.2% report that their first sexual intercourse was coerced (Kenya National Bureau of Statistics, 2010).

Inter-generational relationships – especially those involving younger women and older men – have long been considered an important factor in the disproportionate risk of infection encountered by girls and young women. In Kisumu, 13.9% of 15–21-year-old women surveyed reported having had sex with a man who was 10 or more years older (Hewett et al., 2004). There is some evidence that the prevalence of intergenerational partnerships may be on the decline, as the proportion of young women ages 15–24 reporting sex with a partner more than 10 years older fell from 4.0% in 2003 to 3.7% in 2008–2009.

Financial considerations are a primary reason young women engage in relationships with older men (Longfield et al., 2004). In the

Figure

Percentage (%) of young women (15–24) who have had sex with a partner 10 or more years older in prior 12 months



North-East Province, more than half of young people surveyed in 2008 said they had engaged in transactional sex to obtain cell phones, clothing, or other items of value (Pathfinder International, 2009).

Nearly 1.1 million primary-school-age children – 563,000 males and 524,000 females – are not in school (World Bank, 2010). According to surveys, out-of-school youth have lower HIV-related knowledge levels than other young people (Kenya Ministry of Health, 2005). Out-of-school youth also report high levels of sexual behaviour. In the Coast Province, 67% of out-of-school 15–19-year-olds have had sex, compared to 21% of in-school youth (Tegang et al., 2007).

Women and HIV

Many Kenyan women become infected despite engaging in very low levels of risk behaviour. In 2008–2009, women who had not had intercourse in the previous 12 months had higher HIV prevalence (15.8%) than women who had high-risk sex without a condom (13.4%). Likewise, women who report using a condom the last time they had sexual intercourse are more than four times more likely to be HIV-infected than women who say they did not use a condom (26.5% versus 15.8%) (Kenya National Bureau of Statistics, 2010).

Women's HIV risks are compounded by an acute unmet need for family planning and other sexual and reproductive health services, which potentially limits their access to health information, condoms, and support in negotiating safe sex. Although contraceptive use among married women has risen from 7% in 1978 to 39% in 2003 (Central Bureau of Statistics, 2004), 25% of married women (ages 15–49) had an unmet need for contraception in 2003–2008 (World Bank, 2010). Limited access to family planning services also contributes to unplanned or unwanted pregnancy, which in turn increases the number of cases of mother-to-child HIV transmission.

Women are more physiologically vulnerable than men to HIV infection during penile-vaginal intercourse. Women's greater physiological susceptibility to HIV infection is compounded by a series of social, economic and legal disadvantages that expose women and girls to potentially dangerous situations or reduce their ability to take actions to reduce their risk of infection. These social vulnerabilities are explored in greater depth below, in the discussion of social determinants of risk and vulnerability.

An important result of women's unequal social status is their frequent inability to negotiate safer sex with their husbands or sex partners. Although the majority of both men and women say they believe that women have the right to refuse sex or insist on condom use when there is reason to believe they risk contracting an infectious disease from their regular partner, more than one in five men and nearly one in four women did not agree that a woman has the right to refuse to have sex with her husband if the husband is having sex with other women (NASCOP, 2009). A couple's consciousness of HIV-related risks appears to be correlated with more favourable assessments of women's right to refuse sex or insist on condom use; according to the 2007 Kenya AIDS Indicator Study, men and women who have been tested are more likely than untested individuals to recognize a woman's right to insist on safer sex with her husband (NASCOP, 2009).

Sex workers

As a population whose job involves sex with multiple partners, sex workers (SWs) are highly vulnerable to HIV. Among SWs on the trans-Africa highway from Mombasa to Kampala, the annual number of sex acts per SW was found to be 634, with an average of 129 different partners (Morris, Ferguson, 2006). In addition to the clear risks to workers, sex work also places clients at risk of becoming infected (see Shaffer et al., 2010).

HIV prevalence among SWs has notably declined over time, with the per-act rate of HIV acquisition among Nairobi SWs falling more than four-fold between 1985 and 2005 (Kimani et al., 2008). Although the relative share of new HIV infections among SWs and their clients has decreased, SWs in Kenya continue to experience an extremely high burden of HIV. In 2011, 29.3% of all SWs nationwide were estimated to be living with HIV. A survey in 2005-2006 of 820 SWs in Mombasa found that 35.2% were infected with HIV (Luchters et al., 2010). An estimated 3,200-4,148 new HIV infections occur each year among SWs and their clients along the trans-Africa highway from Mombasa to Kampala (Morris, Ferguson, 2006). Nearly 1% of SWs surveyed in Nairobi had active

SEXUAL TRANSMISSION AND THE RISK TO NEWBORNS

Women's disproportionate risk and vulnerability to HIV contributes to Kenya's considerable burden of HIV transmission to newborns. As Chapter 1 explained, more than 20,000 newborns contract HIV each year during pregnancy or delivery, or as a result of breastfeeding. Children born to HIV-infected mothers in Kenya stand a greater than one-in-four chance of contracting HIV infection. These risks are explored in greater detail in the subsequent chapter, which examines Kenya's energetic efforts to implement measures to reduce the risk of mother-to-child transmission.

syphilis in 2011, potentially increasing their risk of HIV acquisition as well as the odds of onward transmission to clients.

Although definitive data are not available, it is estimated that 10,000 women labour as sex workers in Kenya (Gelmon et al., 2009). The SW population include bar workers, women who solicit sex in bars, home-based sex workers, and women who participate episodically in sex work when money is badly needed (Fraser et al., 2008). (An uncertain number of men are also sex workers, an issue discussed in greater detail in the discussion below on men who have sex with men.)

Efforts to quantify the SW populations are complicated. Numerous sexual encounters that might not qualify as "sex work" may nevertheless involve some transactional component (Fraser et al., 2008). According to researchers commissioned by the World Bank to study correlates of transactional sex in Western Kenya, "[C]ommercial sex work might be thought of as one extreme along a continuum of sexual relationships that feature a transactional component, with either 'dating' or monogamous marriage at the other extreme" (Robinson, Yeh, 2009). Adopting this definition, the World Bank team identified 1,205 formal and informal sex workers in the western town of Busia, representing approximately 12.5% of Busia women ages 15–49 (Robinson, Yeh, 2009). In the town of Garissa in North-East Province, 22% of men and 35% of women surveyed in 2008 said they had engaged in some form of transactional sex (Pathfinder International, 2009).

Economic hardship not only encourages entry into sex work, but may also increase the risks faced by SWs. The above-noted World Bank study in Western Kenya found that women involved in formal or informal sex work were roughly 20% more likely to engage in unprotected sex when a family member was ill, presumably in order to secure the premium available for risky sex in order to cover additional expenses (Robinson, Yeh, 2009). While sex work may begin as a part-time enterprise, it typically evolves over time into full-time employment, with a corresponding increase in the number of sex partners (Luchters et al., 2008).

Evidence points towards near-universal awareness of HIV among SWs (Kenya Ministry of Health, 2005). According to a national survey in 2011, 87% of SWs report using a condom with their most recent client. Sex workers frequently exhibit distinctly different behavioural patterns for their regular partners than they do for clients, with condom use notably less frequent with regular partners (Ngugi et al., 2007; Ferguson, Morris, 2007; Voeten et al., 2006).

Alcohol use is common among SWs and is strongly associated with increased sexual risk behaviour (Tegang et al., 2007; Kenya Ministry of Health, 2005; Yadav et al., 2005). A survey of 147 self-identified SWs in Meru found that both anal intercourse and dry sex were often practiced, with condoms used less frequently in such instances in comparison with penile-vaginal intercourse (Schwandt et al., 2006).

Sex work is highly stigmatized in Kenya. Laws prohibit the sale of sex, although clients are not penalised for purchasing sex (IPPF et al., 2008). As one indication of their social marginalization, SWs are often victims of violence. Among SWs surveyed in Coast Province in 2007, two-thirds said they had experienced at least one form of sexual violence, half had been forced to have sex without a condom, and nearly 60% had been beaten or verbally abused as a result of their line of work (Tegang et al., 2007).

Evidence is somewhat more plentiful regarding SWs themselves than with respect to their clients, who represent a key epidemiologic bridge to other groups. Nearly one in six Kenyan men (15%) surveyed in 2003 said they had ever had sex with a SW (Hong, 2008), although only 2.9% of Kenyan men reported have had paid sex in the prior 12 months (Central Bureau of Statistics, 2004). Clients of SWs appear to come from all walks of life, spanning the socioeconomic spectrum (Ferguson et al., 2006). Men with multiple partners and who reported being away from home five or more times in the past year were more likely than other men to have sex with a SW (Hong, 2008).

Men who have sex with men

It is estimated that 18.2% of Kenyan men who have sex with other men (MSM) were living with HIV in 2010. The risk of infection increases with age, with HIV prevalence among MSM age 25 and over roughly double that reported among MSM under age 25 (24.5% vs. 12.2%).

COMBATING STIGMA TO PROMOTE HIV PREVENTION FOR SWS

Taking into account the harmful effects of stigma on efforts to prevent HIV infection among FSWs, numerous initiatives in Kenya have prioritized anti-stigma strategies. For example, Solidarity with Women in Distress (SOLWODI), an organisation that has worked with SWs since the 1990s, funds anti-stigma campaigns, organises support groups for SWs, and mobilizes SWs to undertake peer outreach.

In Naivasha, where proximity to the Trans-Africa Highway lures many young women into sex work, Life Bloom Services International prioritizes stigma reduction in its programmes to promote HIV prevention and create alternative income sources. Life Bloom has trained more than 200 FSW peer educators, trained more than 60 peer counsellors, formed support groups, delivered educational sessions, provides entrepreneurial skills-building interventions, and sponsors income-generating options (e.g., sewing, catering).

Studies undertaken in recent years have documented extremely high HIV-related risks among MSM in Kenya. In Kilifi, 38% of MSM tested HIV-positive (Sanders et al., 2006). Another study in Mombasa found HIV prevalence of 43% among men who had sex exclusively with other men, with lower prevalence (12.3%) among men who had sex with both men and women (Sanders et al., 2007). In 2008, HIV prevalence among MSM was estimated at 23% in Mombasa and 25% in Nairobi (NACC, Population Council, 2009).

Monitoring of genetic strains of HIV indicates that the epidemic among MSM in Mombasa is of local origin, with evidence of extensive transmission among a close social network of men (Tovanabutra et al., 2010). Surveys among MSM sex workers in Mombasa reveal that 80% of their male clients are Kenyans (NACC, Population Council, 2009).

The population of MSM in Kenya reflects considerable socioeconomic diversity. A 2003–2004 survey of 500 MSM in Nairobi included men with no occupation (15%), students (21%), sex workers (14%), small-scale earners (16%), professional or steady income earners (15%), and an assortment of other professions (19%) (Onyango-Ouma et al., 2005).

MSM in Kenya also reflect a range of sexual and gender identities (NACC, Population Council, 2009). However, recent surveys point towards the nascent emergence of a distinct MSM group identity in Kenya (Sharma et al., 2008). Lack of social support appears to exacerbate internalized homophobia and create psychological stress among many MSM (Sharma et al., 2009).

Within the broader MSM population, male sex workers constitute an especially vulnerable group. In Mombasa, nearly three-quarters (74%) of MSM said they paid for sex in the previous three months (Sanders et al., 2007). According to a survey of 425 male sex workers in Mombasa, 35% were unaware that HIV could be transmitted through anal intercourse and only 21.2% knew that a water-based lubricant should be used with latex condoms (Geibel et al., 2008).

Many Kenyan MSM also have sex with women (Onyango-Ouma et al., 2005). Multiple sex partners are common among MSM, with nearly half (47%) of Nairobi MSM reporting having had two or more sex partners in the prior month (Onyango-Ouma et al., 2005). While some studies report high awareness of HIV among MSM (Onyango-Ouma et al., 2005), other studies suggest lower awareness; for example, 35% of Mombasa MSM were not aware that HIV could be transmitted during anal intercourse (NACC, Population Council, 2009). MSM are notably more likely than other males in Kenya to have STI symptoms (Onyango-Ouma et al., 2005), with many MSM delaying seeking treatment for an STI due to fears of embarrassment or stigmatization (Sharma et al., 2008). In a survey of MSM in Nairobi in 2010, 0.7% had active syphilis, potentially increasing the risks of HIV acquisition and transmission.

MSM use condoms more frequently than other Kenyan males, but still at sub-optimal levels. Nationally, 54.9% of MSM surveyed in 2010 reported using a condom the last time they had anal intercourse with a male partner. A study of MSM in Nairobi found that men who are younger and poorer are less able to negotiate condom use than MSM with higher socioeconomic status (Sharma et al., 2008). Use of oil-based lubricants with condoms is common among MSM, increasing the risks of condom failure (Onyango-Ouma et al., 2005).

Sodomy is criminalized in Kenya, with imprisonment of up to 14 years for those convicted. MSM confront significant social disapproval that sometimes manifests in physical or sexual violence. In some instances, religious leaders contribute to the stigmatization of MSM (NACC, Population Council, 2009). According to a survey of Nairobi MSM, 33% reported experiencing public humiliation or other discriminatory acts within the last year (Onyango-Ouma et al., 2005). Studies of MSM in other African countries indicate that many MSM (43% among men surveyed in Senegal) have experienced at least one instance of rape (NACC, Population Council, 2009).

People who inject drugs

As an especially efficient route of HIV transmission, injecting drug use has resulted in the rapid spread of HIV within social networks in countries throughout the world (UNAIDS, 2009). This pattern is visible in Kenya, with multiple studies finding extremely high HIV prevalence among communities of drug users. People who inject have among the highest HIV

prevalence reported for any population – 18.3%, according to a 2011 survey. Female drug injectors were nearly three times more likely to be HIV-infected than their male counterparts (44.5% vs. 16.0%).

In 2005, it was estimated that 31,987 people in Kenya were injecting drugs (Kissling et al., 2005). The emergence of high HIV prevalence in this population has been abetted by a notable rise in the use of heroin in Kenya (Beckerleg et al., 2005). Although use of drugs other than heroin is far more common, heroin is the drug most closely associated with HIV transmission (UNODC, 2009). Once confined to coastal areas and primarily inhaled, heroin eventually spread in availability to other parts of the country, with changes in the heroin supply encouraging frequent injecting (Beckerleg et al., 2005).

Although needles and syringes are theoretically available for purchase at pharmacies, some pharmacy staff refuse to sell injecting equipment to people they suspect of using drugs (Beckerleg et al., 2005). Sharing of injecting equipment is common among drug users in Kenya, although evidence suggests that awareness is low regarding the risks associated with injecting (Beckerleg et al., 2005).

In addition to experiencing among the greatest HIV-related burden of any population, people who inject drugs also serve as a potential epidemiological bridge to other populations. Fewer than one in four (24.7%) injecting drug users surveyed in 2011 reported using a condom the last time they had sex.

Prisoners

Evidence is limited regarding HIV prevalence in the prison population in Kenya or HIV-related risks in prison settings. In 2005–2007, a UN-sponsored voluntary counselling and testing initiative in the Mombasa prison found that that 120 of 2300 male prisoners (or 5.2%) and 20 of 150 women (or 13.3%) were HIV-positive, although all were believed to have been infected prior to arrival at the facility (Franzen, 2008). Kenya's modes-of-transmission study estimated that 10% of male prisoners were living with HIV (Gelmond et al., 2009). According to the modes-of-transmission study, prison inmates have the country's second highest rate of HIV transmission (Gelmond et al., 2009).

In mid-2009, 46,6662 people were residing in prisons in Kenya (King's College London, 2010). The 2009 prison population represented more than double the official prison capacity of 20,892 (King's College London, 2010).

The sex-segregated environments in prisons, combined with bans on conjugal visits, may encourage sexual activity between men (Fraser et al., 2008). Prisoners of both sexes are potentially vulnerable to sexual assault, violence, the spread of tuberculosis and other infectious diseases, and poor nutrition.

Globally, incarcerated populations exhibit notably higher levels of HIV infection than non-incarcerated individuals (Dolan et al., 2007). In neighbouring Uganda, HIV prevalence in the prison population is nearly twice as high as national prevalence in the adult population (UNODC, 2009). For the Great Lakes region as a whole, an estimated 5.6% of the prison population is living with HIV (Fraser et al., 2008).

Migrant workers

Mobility is not itself a risk factor for HIV. However, mobility may place individuals in situations that increase their vulnerability to HIV, disrupting familial bonds, encouraging the abuse of alcohol or other substances, and facilitating a culture of risk-taking.

For example, long-distance truck drivers in Kenya experience elevated risk of HIV infection (Fraser et al., 2008). It is estimated that 18% of long-distance truck drivers in the Great Lakes region are HIV-infected (Fraser et al., 2008).

One reason why certain mobile professions have a heightened risk of HIV infection is their increased propensity to purchase sex. A study of long-distance truck drivers at the Kenya-Uganda border found that more than half of the workers' sexual acts over a 12-month period were with a FSW (Morris, Ferguson, 2007). In Coast Province, one in three truck drivers and one in five mini-van drivers said they had a paying sexual partner (Tegang et al., 2007).

Fisherfolk represent another mobile population with elevated risk of HIV infection (Kissling et al., 2005). Research earlier this decade among fishing communities around Lake Victoria indicated that 30% or more

HIV AND OTHER POTENTIALLY VULNERABLE GROUPS

Considerable attention has focused on possible HIV-related risks experienced by other populations, although evidence of heightened vulnerability is less clear than for FSWs, MSM and people who inject drugs.

Refugees and internally displaced persons
Kenya is host to more than 340,000 refugees, with people fleeing the conflict in Somalia representing the largest share (UNHCR, 2010). Kenya also experienced considerably internal population displacement in the aftermath of the December 2007 presidential election.

A multi-country review of available evidence found little evidence of an increase in HIV transmission risk among populations affected by conflict (Spiegel et al., 2007). The World Bank estimates that HIV prevalence among refugees and internally displaced persons in the Great Lakes region is 1.65% – a level of infection considerably lower than national HIV prevalence in Kenya (Fraser et al., 2008).

Uniformed services
Information is somewhat scarce regarding HIV prevalence in military and paramilitary outfits in Kenya. An estimated 29,120 people were serving in military and paramilitary units in the country in 2007 (Fraser et al., 2008).

Limited surveys at an earlier stage of the epidemic in sub-Saharan Africa suggested that uniformed personnel typically had higher HIV prevalence than their civilian counterparts (Ritzenthaler, 2005). Whether this remains true is unclear (Fraser et al., 2008; De Waal, 2005). Although information specific to Kenya remains limited, available evidence suggests that HIV prevalence is declining in national militaries in the broader Great Lakes region (Fraser et al., 2008).

of fisherfolk were infected with HIV, a level of infection higher than those documented among fishing communities in other countries (Kissling et al., 2005). More recently, a World Bank research project estimated that 24.7% of fisherfolk in the broader Great Lakes region were living with HIV (Fraser et al., 2008). Characteristics of fishing communities that increase their vulnerability to HIV include the migratory nature of fishing work, the social marginalization of fisherfolk, high rates of STIs, the ready availability of commercial sex, and widespread alcohol use (Fraser et al., 2008; Kissling et al., 2005).

According to the Fisheries Department, an estimated 798,000 people are directly or indirectly supported by the industry, taking into account fishermen, their dependents, and people involved in related support services (Gelmond et al., 2009). Kenya's modes-of-transmission study concluded that fishing communities may account for 25% of all new HIV infections in Nyanza Province, the area of the country with the highest HIV burden.

Social determinants of risk and vulnerability

Social conditions heavily influence the degree of vulnerability experienced by individuals and groups. In particular, women's disproportionate vulnerability to HIV is intrinsically linked with the many social, legal, economic, cultural and educational opportunities experienced by women and girls.

Gender inequality

Nearly every country worldwide struggles with the legacy of unequal gender norms, and Kenya is no exception. However, there are some encouraging trends. For example, the ratio of girls to boys in primary and secondary schools in 2008 was 96:100, which was notably higher than the regional average for sub-Saharan Africa (88:100) (World Bank, 2010). Other indicators of gender equality also show some progress, although advances have sometimes been rather meagre. The number of female parliamentarians in Kenya rose from 1% in 1990 to 10% in 2009 (World Bank, 2010). With respect to legal frameworks, Kenya has ratified the Convention on the Elimination of All Forms of Discrimination Against Women, but has not approved the Convention on Consent Marriage, Minimum Age of Marriage and Registration of Marriages (IPPF et al., 2008). Using a scale of 1–6 (low to high), the World Bank gave Kenya an average rating (3.0) on gender policies (World Bank, 2010).

Despite some laudable gains, the country's women and girls continue to experience inequities that reduce their opportunities and intensify their vulnerability to HIV infection. For example, one in five Kenyan women (20.6%) have experienced sexual violence (Kenya National Bureau of Statistics, 2010). Disturbingly, this rate represents an increase over the 15.9% of Kenyan women who reported having ever been victimized by domestic violence in 2003 (Central Bureau of Statistics, 2004). When all forms of violence are taken into account, 41.2% of Kenyan women ages 15–49 report having been victimized by intimate partner violence. The vast majority of victims do not report violent incidents to the police or seek legal assistance (Tegang et al., 2007). A study commissioned by the World Bank concluded that sexual violence could represent the single greatest

contributing factor to new HIV infections in Kenya (Fraser et al., 2008).

Traditional cultural practices often reflect and reinforce gender inequality and women's disempowerment. For example, wife inheritance remains a common inheritance in some parts of Kenya (Fraser et al., 2008). In addition, genital cutting remains common throughout most of the country, although the percentage of women who said they were circumcised fell from 38% in 1998 to 27% in 2008–2009 (Kenya National Bureau of Statistics, 2010), suggesting that the practice may be diminishing over time (Central Bureau of Statistics, 2004).

HIV-related stigma and discrimination

The stigma associated with HIV has long undermined HIV prevention and treatment efforts (UNAIDS, 2008). HIV-related stigma inhibits open discussion of the epidemic, and fear of discrimination or disapproval may also deter individuals from seeking the services they need. In some instances, individuals may actually avoid taking steps to protect against HIV transmission out of fear that they may be considered potentially infectious or thought to belong to a marginalized group that has been heavily affected by the epidemic.

Stigmatizing attitudes among health care workers can be especially dangerous, given their potential deterrent effect on utilization of essential health services. A national survey of health care workers in 2005 found that 15% of physicians believed health workers had the right to reduce care to people living with HIV (NASCOP, 2006).

Negative attitudes regarding people living with HIV may be abating somewhat over time. From 2003 to 2008–2009, increases were reported in the percentage of both women and men who expressed willingness to care for a relative with HIV, a willingness to buy food from an HIV-infected vendor, and a belief that HIV-positive teachers should be allowed to continue to teach.

However, stigmatizing attitudes persist. Nearly half of all Kenyan women surveyed in 2008–2009 said they would want to keep a family member's HIV infection secret (Kenya National Bureau of Statistics, 2010). One-third of individuals surveyed in North-East Province and in the Eastleigh neighbourhood of Nairobi said it was reasonable to refuse to buy goods from a person living with HIV, and one in four respondents said it was appropriate to refuse to rent a room to someone who is HIV-positive (Pathfinder International, 2009).

Although laws are in place to protect against HIV-related discrimination, few people living with HIV perceive that they are able to access the formal justice system (Kalla, Cohen, 2007). Impediments to enforcement of legal rights include physical inaccessibility of the judicial system in many parts of the country, as well as the high costs and extensive delays associated with litigation (Kalla, Cohen, 2007). According to non-governmental informants who participated in completing the 2010 National Composite Policy Index, the country currently lacks a mechanism to record, document and address instances of discrimination experienced by people living with HIV, most-at-risk populations, or other vulnerable groups.

HIV transmission during health care delivery

An estimated 2.5% of new HIV infections among adults in Kenya in 2006 occurred in health care facilities (Gelmon et al., 2009). Although the percentage of infections associated with health care delivery seems encouragingly small at first glance, it translates into more than 1,900 new infections each year. Unlike other forms of transmission, where prevention efforts require individuals to adopt often-difficult changes to intimate behaviours, transmission in health care settings could be entirely eliminated through implementation of sound institutional policies and practices.

There are three primary forms of transmission associated with the delivery of health services. First, re-use of injecting equipment for immunization programmes is a ready means of spreading blood borne pathogens. In a study of young men (ages 18–24) in Kisumu, men who received a medical injection in the last six months were nearly three times more likely to be HIV-positive (Mattson et al., 2007).

Second, HIV may be transmitted between patient and provider if health care delivery involves a blood exposure as a result of a needlestick, surgical injury, or blood splatter.

According to a national survey of health care workers in 2005, almost one in five workers, including 24% of physicians, reported having experienced at least once incident in the prior 12 months that may have exposed them to HIV (NASCOP, 2005). Among health workers reporting a potential HIV exposure, half said they had experienced multiple exposures (NASCOP, 2005).

Third, receipt of an HIV-infected blood transfusion is an especially efficient means of acquiring HIV. With the implementation of standard screening methods for donated blood, described in Chapter Four, it is believe that transfusion-associated HIV transmission is now quite rare (NASCOP, 2009).

■ ■ ■ *In summary, the vast majority of new HIV infections in Kenya result from sexual exposure. However, patterns of sexual transmission appear to have changed somewhat over time, with a larger share of recent incident infections among older adults and among men who have sex with men. The percentage of new infections resulting from sex work has fallen somewhat since the epidemic's early years, although sex workers and their clients remain highly vulnerable to HIV. Various biomedical factors – including male circumcision status, prevalent sexually transmitted infections, and the viral load of people living with HIV – influence the probability that any single episode of risky sexual behaviour will result in actual transmission of the virus. The large reservoir of sexually transmitted HIV infections has led to a substantial number of infants who become newly infected each year. In addition to infections that are caused directly or indirectly from sexual transmission, a smaller, yet still considerable, number of new infections derive from transmission during injecting drug use and the delivery of health care services that do not adhere to recommended infection control procedures.*

The documented behavioural risks confronted by millions of Kenyans are compounded by other social factors that increase individual vulnerability. These factors include gender inequality, HIV-related stigma and discrimination, and the social marginalization of various groups. ■ ■ ■

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Chapter Four

HIV testing and counselling: A cornerstone of Kenya's approach to HIV programming

Key messages

STRENGTHENING AND ACCELERATING INTERNATIONAL HIV/AIDS

TESTING UPTAKE

Kenya has made notable strides in promoting and delivering HIV testing and counselling, generating progress towards the national goal of 80% awareness of HIV status. In 2010, more than 5.7 million people in Kenya were tested for HIV.

INNOVATIVE APPROACHES TO TESTING

Testing approaches have diversified from the traditional stand-alone voluntary counselling and testing and facility-based services to include more innovative community approaches.

TASK SHIFTING

Incorporation of non-health workers to provide testing and counselling has dramatically altered testing approaches and helped increase testing access and utilization.

PROVIDER-INITIATED TESTING AND COUNSELLING

Nearly two-thirds of health facilities in Kenya, including more than 78% of public sector facilities, provide HIV counselling and testing services. Provider-initiated testing and counselling in health facilities has contributed to accelerated testing uptake and linkage of people who test HIV-positive to care and treatment services. Use of this approach in community settings has increased the number of first-time testers.

NEED FOR IMPROVED SERVICE LINKAGE

Only 56% of newly diagnosed individuals in 2009 were effectively linked to care and treatment services.

Testing and counselling for HIV is the entry point to HIV prevention, treatment, care and support. As a result, KNASP III identifies HIV testing and counselling as a cornerstone of Kenya's efforts to address HIV.

When HIV was declared a national disaster in 1999, only three voluntary counselling and testing sites were operating in Kenya. By the end of 2010, more than 1,000 voluntary counselling and testing sites and 4,438 health facilities offered HIV testing and counselling services. In 2011, 65% of all health facilities, including more than 78% of public sector facilities, offered HIV counselling and testing services. HIV testing and counselling services are offered free of charge at all public health facilities.

Progress in expanding testing access and encouraging testing utilization continues. From 2008 to 2010, the number of people between ages 15–49 who received an HIV test in the prior 12 months increased nearly seven-fold – from 860,445 to 5,738,282 – while the number of health facilities offering testing services nearly doubled (from 2,329 to 4,939). Among adults ages 15-49 in 2008–2009, 23% of all males and 29% of all females reported receiving an HIV test in the previous 12 months and knowing their results.

Women are significantly more likely to have been tested than men, perhaps as a result of the emphasis on HIV testing in antenatal settings. While nearly three-quarters of adult women (73.5%) have ever been tested, only 58.6% of men have ever received an HIV test (Kenya National Bureau of Statistics, 2010). Although widowed women face especially high odds of having HIV, they are less likely than widowed men to have been tested, with barely one in four (27.8%) indicating that they have ever received their HIV test results (NASCOP, 2009).

Young adults are also significantly more likely than older Kenyans to have ever been tested (NASCOP, 2009). The percentage of adults who say they have ever received their HIV test results declines with age, with the lowest shares reported for individuals age 40 and older (NASCOP, 2009). Given the significant percentage of older Kenyans who are living with HIV, the failure of testing services to reach older adults is an important shortcoming of national efforts.

Key populations at higher risk are more likely to be tested than the general population. In 2011, 60.4% of sex workers reported having been tested for HIV within the prior 12 months and knowing their results. A similar figure was reported for HIV testing among people who inject drugs. However, testing rates were considerably lower for men who have sex with men (MSM), with slightly more than one-third (35.5%) reporting being tested and learning their results in the previous year.

Overall, testing gains are improving the medical prospects of people who test HIV-positive. In a major treatment programme in Nyanza Province, the percentage of patients who enter care at an earlier, pre-AIDS stage of infection more than doubled between 2003 and 2008 (Iuliano et al., 2010). Earlier entry to care averts preventable deterioration of the immune system and facilitates clinical monitoring and timely initiation of therapy, contributing to more favourable health results.

Expanding approaches to HIV testing

From an early concentration on a limited number of stand-alone voluntary counselling and testing sites, Kenya has expanded the scope of its testing promotion efforts to encompass more innovative approaches. Traditional voluntary counselling and testing sites have long offered a critical venue for people to learn their HIV status, but over time utilization of these facilities declined. Among individuals surveyed in 2007, 10.9% of ever-tested women and 18.0% of men surveyed said they obtained testing services at a voluntary counselling and testing centre (NASCOP, 2009).

This new approach was formalized revised guidelines launched in 2008. Under these guidelines, services in traditional voluntary counselling and testing centres were supplemented by provider-initiated testing and counselling in health care settings and by new community-based testing services. These multiple approaches to HIV testing and counselling are supported by a growing array of innovative mobilization strategies.

Provider-initiated counselling and testing in health facilities

As early efforts to bring antiretroviral

treatment to scale were frustrated in part by low knowledge of HIV status, it became clear that more pro-active approaches were needed to encourage people to be tested. In particular, observers noted that countless millions of individuals at risk of infection attended health settings each year, without being offered testing and counselling for HIV.

In 2006, WHO released guidelines recommending that health providers recommend an HIV test to all of their patients. After Kenya adopted this approach, the number of people tested in health facilities began to soar. According to a NASCOP inventory of health facilities, the number of HIV tests administered in a health facility rose by 65% in 2010 alone.

Health facilities account for the bulk of HIV testing in Kenya, including testing in antenatal settings and in association with the delivery of voluntary medical male circumcision. Among women who have ever been tested, almost 80% received testing services in a public or private health facility (NASCOP, 2009). Similarly, two out of three men (67.4%) who have ever been tested obtained such services in a health facility (NASCOP, 2009). Provider-initiated testing and counselling resulted in the largest single share of newly diagnosed individuals in 2009 (39%), followed by voluntary counselling and testing facilities (32%), programmes to prevent mother-to-child transmission (17%) and TB care settings (11%) (NASCOP, 2010).

Provider-initiated testing and counselling has resulted in important changes in HIV testing practices, with many health workers becoming actively engaged for the first time in the promotion of HIV testing. In 2009, about 1.7 million individuals in health care settings were offered provider-initiated testing, with 91% accepting (NASCOP, 2010). The number of outpatients reached through provider-initiated testing and counselling nearly tripled between 2008 and 2009 (NASCOP, 2010). Individuals tested in in-patient settings had the highest HIV prevalence in 2009 (16.5%), followed by partners of antenatal clients (11.5%) (NASCOP, 2010).

Beyond facility-based approaches

Reflecting the high priority placed on HIV testing, Kenya has expanded beyond health facilities to adopt various community-based approaches to promote knowledge of HIV status. Approaches adopted by Kenya include the delivery of testing services in homes and in the workplace, as well as mobile testing services.

In 2007, 83.5% of Kenyans surveyed said they would be willing to be tested for HIV in their home (NASCOP, 2009). Home-based testing and counselling initiatives focus on couples and families in high-density, high-prevalence settings, including those who perceive themselves to be at low risk.

A growing number of workplaces are offering HIV testing services. Annual testing of corporate leaders in Kenya has helped support workplace testing initiatives. According to NASCOP monitoring data, one programme tested 19 CEOs and 603 workers in a single day.

Increasingly, testing services are being offered by non-health workers who are certified by NASCOP following curriculum-based training. These community-centred approaches use innovative outreach and service delivery methods, such as camel-back testing and "moonlight" testing services. One such innovative "moonlight" programme at truck stops provided HIV testing and counselling services to nearly 8,900 young men and female sex workers over an eight-month period (WHO et al., 2009). Another project in Kiritiri reached more than 400 people with HIV testing services on only two weekend nights (Kiarie, 2009).

Testing campaigns

While building a robust and expanding national infrastructure for testing and counselling, Kenya has also invested in intensive campaigns to draw attention to the importance of knowing one's HIV status and to reach large numbers of people with testing services. Since 2008, Kenya has undertaken "rapid results initiatives" targeting specific populations for focused efforts to increase testing services.

These campaigns have proven highly successful, with results improving over time. The one-week campaign in 2008 delivered HIV testing to 700,000 people, while 1.2 million people were tested over a three-week period in 2009. In 2010, two campaigns, one lasting one month and the other three weeks, reached 2.6 million people with testing services.

SEIZING OPPORTUNITIES TO INCREASE KNOWLEDGE OF HIV STATUS

In 2010, the World Cup took place for the first time in Africa. Kenya seized the opportunity presented by this historic event to promote and deliver HIV testing during the month-long tournament. In particular, given the popularity of football among many men, linking HIV testing to the World Cup offered an opportunity to reach men, who are less likely than women to be tested. With services delivered in settings where many men watched football matches, the campaign reached 1.5 million people (including 870,000 men) over a 33-day period.

Table

HIV testing target per region

Testing targets	National	Nairobi	Central	Coast	North Eastern	Eastern	Nyanza	Rift Valley	Western
Total population 15–64 years, 2010 projections[a]	21,740,965	2,295,247	2,819,124	1,956,935	726,336	3,262,493	3,014,671	5,319,119	2,347,036
Testing coverage (%) (KAIS 2007)	34	56.1	45.2	40	7	26.2	34.8	30.7	30.7
Testing gap (%)	46	23.9	34.8	40	73	54.8	45.2	49.3	49.3
Testing gap (no.)	10,000,844	548,564	981,055	782,774	561,457	1,755,221	1,362,631	2,622,326	1,157,089
Testing requirement including 30% repeat testers by 2011	13,001,098	658,276	1,268,348	939,328	637,749	2,106,265	1,635,158	3,146,791	1,388,506

a Central Bureau of Statistics national population projections

In addition to national campaigns, local communities have also undertaken intensive efforts to promote testing. An intensive, week-long integrated multi-disease prevention initiative in Lurambi in western Kenya established more than 30 centres to deliver diverse health services, reaching more than 45,000 people with HIV testing and counselling (Lugada et al., 2010).

Challenges and gaps

Despite important gains in promoting knowledge of HIV status, only 48% of Kenyans know their status (Kenya National Bureau of Statistics, 2010). In 2007, only 16% of all adults living with HIV knew they were infected (NASCOP, 2009). Significantly, 28% of adults who were unaware of their HIV infection in 2007 mistakenly believed themselves to HIV-negative (NASCOP, 2009). The personal belief that one is not at risk for HIV is the single most important reason non-testers give for having failed to be tested (NASCOP, 2009).

In an effort to tackle these gaps, Kenya has created the Accelerating Universal Access roadmap. This roadmap sets targets for each region and for each testing strategy, with the aim of accelerating progress towards the national target of 80% knowledge of HIV status.

To be effective, these efforts will need to address persistent challenges and gaps in Kenya's efforts to promote HIV testing. This includes greater success in reaching populations that have yet to effectively access testing services, such as men. Couples also represent another priority population for testing services, as 44% of people living with HIV were in a serodiscordant relationship in 2007 (NASCOP, 2009). In addition, enhanced efforts are needed to reach people who have never been tested, as most individuals currently accessing HIV testing and counselling services have been previously tested.

Various logistical and administrative challenges need to be overcome. Stock-outs of test kits are common, resulting in interruption of services. The growing array of partners engaged in the promotion and delivery of testing services is not always well coordinated. In addition, the expansion of human resources and physical infrastructure in health settings has not kept pace with the introduction of provider-initiated counselling and testing. Technologies that provide more rapid test results are also needed to meet the growing demand for HIV testing and counselling services.

To realise its purpose as a gateway to prevention, treatment, care and support, HIV testing and counselling efforts must include reliable mechanisms to link individuals to needed services. However, available evidence suggests considerable shortcomings with linkage and referral, including the lack of routine tracking mechanisms. In 2009, only 56% of people who were newly diagnosed were enrolled in care (NASCOP, 2010).

■ ■ ■ In the fight against HIV, knowledge is power. By providing individuals with knowledge of their own HIV status, HIV testing and counselling plays a critical role in Kenya's HIV response. Kenya has made considerable strides towards its goal of achieving 80% knowledge of HIV status, pursuing a widening array of innovative approaches to promote and deliver testing and counselling services. Yet considerable gaps remain, underscoring the need for intensification of efforts to increase testing uptake and link those who test HIV-positive to needed treatment, care and support. ■ ■ ■

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Chapter Five

Preventing new HIV infections: Notable gains, continuing challenges

Key messages

AN EVIDENCE-BASED APPROACH

KNASP III emphasizes the importance of basing HIV prevention efforts on the best available evidence. Kenya has hosted a number of cutting-edge research trials on effective prevention interventions, including but not limited to breakthrough trials on male circumcision, use of antiretroviral therapy for HIV prevention, and pre-exposure prophlyaxis.

DECLINING ALLOCATION FOR HIV PREVENTION

Although KNASP III aims to improve the focus and impact of HIV prevention efforts, the prevention share of HIV-related spending in Kenya has fallen below 25% and is projected to decline even further between 2009 and 2013.

PREVENTING MOTHER-TO-CHILD TRANSMISSION

Kenya is a global leader in scaling up services to prevent mother-to-child transmission, with 69% of HIV-infected pregnant women receiving antiretroviral prophylaxis in 2011. The percentage of infants born to HIV-infected women who become infected is 14.9%, a sharp reduction over the previous estimate of 27% and a testament to national success in bringing prevention services to scale in antenatal settings.

VOLUNTARY MEDICAL MALE CIRCUMCISION

Kenya is leading global efforts to scale up voluntary adult male circumcision for HIV prevention. Over a two-year period between 2008 and 2010, more than 200,000 men have been circumcised.

EXPANDING PREVENTION TOOLKIT

The past year has witnessed dramatic strides in prevention research. Studies in Kenya demonstrate powerful prevention benefits from early antiretroviral treatment and pre-exposure antiretroviral prophylaxis. Studies in other countries also indicate that vaginal microbicides may significantly reduce the odds of sexual HIV transmission to women.

IMPORTANT PREVENTION DEFICITS

Although adults in stable heterosexual relationships account for the largest share of new HIV infections, few HIV prevention programmes have targeted them. Other programmatic deficits that KNASP III seeks to address include the historic shortage of prevention services for youth, older generations, serodiscordant couples and interventions to prevent gender based violence.

KEY POPULATIONS

Historically, minimal resources have been provided for focused prevention programmes for sex workers, men who have sex with men, and people who inject drugs. However, KNASP III calls for the strengthening of prevention initiatives for these and other key populations.

STRENGTHENING AND ACCELERATING GAINS AGAINST NATIONAL AIDS

Kenya has radically reconfigured its approach to HIV prevention, prioritising and reallocating resources based on emerging evidence of epidemiological patterns. Especially influential was the 2009 publication of Kenya's first modes-of-transmission analysis (see Chapter 1), which provided new insights into geographic hotspots and underserved populations at high risk of HIV infection (Gelmond et al., 2009). The 2009 study also identified several programmatic gaps that Kenya has taken energetic steps to address, including the urgent need for enhanced primary prevention services for people living with HIV. The study also highlighted persisting programmatic gaps, including interventions targeting serodiscordant couples, gender-based violence, and young people.

Mathematical modelling indicates that bringing proven prevention strategies to scale would avert the majority of new HIV infections (Stover et al., 2006). Effective HIV prevention involves an evidence-informed combination of behavioural, biomedical and social/structural interventions that reduce both immediate HIV-related risks and the more deep-seated sources of vulnerability (UNAIDS, 2007). Strategically focused on the populations and geographic settings in which elevated levels of incident infections are occurring, a well-designed prevention programme consists of both proven programmatic interventions and supportive public policies (UNAIDS, 2007). Recent analyses indicate that a strategic focus on proven high-impact, high-value prevention strategies would not only prevent substantial numbers of new infections but would also avert considerable future HIV-related costs (Schwartlander et al., 2011).

Kenya's approach to HIV prevention

Kenya represents one of Africa's success stories when it comes to HIV prevention. Kenyans have made important changes in their sexual behaviours, initiating sexual activity at a later age and reducing the average number of sex partners. Even as the national population continues to increase, the annual number of new HIV infections is now less than one-quarter the number recorded at the epidemic's peak.

Kenya has pursued a multi-pronged approach to preventing new HIV infections, aiming to combine biomedical, behavioural and structural approaches to achieve synergistic effect and maximize impact. The country's HIV prevention efforts reflect an express commitment to rights-based approaches and evidence-informed action (NACC, 2009a).

HIV RESEARCH IN KENYA

Since the epidemic's early years, Kenya has hosted a wide range of HIV-related research projects. These efforts have contributed to some of the most important scientific advances in the epidemic's history, including documentation of the effectiveness of focused behavioural interventions for key populations and demonstration of the efficacy of adult male circumcision in preventing sexual transmission of HIV.

Some of the most promising HIV-related research in the world takes place in Kenya. The country hosted recent breakthrough trials on voluntary medical male circumcision, antiretroviral treatment for HIV prevention among serodiscordant couples, and pre-exposure prophylaxis among heterosexual couples. Research in Kenya was pivotal in illuminating the disproportionate risks of HIV infection among MSM and people who inject drugs. As of December 2010, Kenya was home to at least 18 trials on various operational aspects of voluntary medical male circumcision. Kenya continues to host research efforts for the development of vaginal microbicides and an HIV vaccine.

HIV research in Kenya is overseen by the Kenya HIV and AIDS Research Coordination Committee (KARSCOM), coordinating the efforts of research institutions, development partners, and medical centres (NACC, 2010). KARSCOM mobilizes resources for HIV-related research and disseminates important research findings to stakeholders throughout the country.

National laws and regulations are in place to ensure adherence to international ethical standards in the conduct of clinical research. Civil society representatives and people living with HIV participate on ethics committees of research organisations such as the Kenya AIDS Vaccine Initiative, the Kenya Medical Research Institute, and the National Research Ethics Committee.

PRIVATE SECTOR ENGAGEMENT IN HIV PREVENTION

Most HIV prevention services in Kenya are delivered by public sector agencies, community organisations, faith-based groups, or international NGOs. However, a number of private workplaces have also stepped forward to contribute to the national effort to prevent new HIV infections. According to a recent analysis conducted by the Futures Group, workplace prevention programmes constitute one of the most cost-effective of all HIV prevention strategies in high-prevalence countries such as Kenya.

One example is the Kenya Electric Generating Company (KenGen). Over a three and a half week period in March 2009, 973 individuals accessed company-sponsored HIV testing and counselling services, including 462 KenGen employees, yielding 11 new HIV diagnoses (Kimetu et al., 2009). More than 1,300 attended HIV sensitization sessions delivered in 17 company stations. Condom distribution to employees included 14.750 male and 400 female condoms. To inform development and monitoring of future prevention efforts, KenGen collected baseline behavioural data from employees.

A recent national survey of public sector employers found that two out of three (66%) have HIV workplace policies in place (NACC, 2010b). However, less than two-thirds of these policies (63%) have been fully approved, most have not been posted in the workplace, and roughly one in three policies (34%) have not been budgeted. Most public sector workplaces (71%) have peer educators.

With sexual transmission accounting for the vast majority of new infections, changing sexual behaviours has long been a central focus of HIV prevention efforts. Behaviour change initiatives – such as *"jitambue", "Zip it or use a condom", "Kata shauri tulinde kizazi" and "mpango wa kando reloaded"* – have been complemented by investments in HIV testing and counselling, treatment of sexually transmitted infections, and actions to ensure the safety of the nation's blood supply. Kenya has also been a global leader in scaling up services to prevent mother-to-child transmission of HIV.

For much of the epidemic, Kenya's HIV prevention efforts concentrated on broad-based efforts to reach the general public. In addition to longstanding strategies to promote condom use, delayed sexual debut, and reduction in the number of partners, Kenya in recent years has prioritised the scaling up of voluntary male circumcision, targeting programmatic efforts in the areas of the country with high HIV prevalence and comparatively low prevalence of circumcision.

Kenya has also taken a number of essential policy actions to support risk reduction and expand the reach and impact of prevention efforts. Kenya prohibits both HIV-related discrimination and mandatory testing, and the country has endorsed international instruments and enacted national laws to promote gender equality and empower women and girls.

Yet notable gaps remain in the country's approach to HIV prevention (NACC., 2008). While total spending on HIV prevention efforts has increased over the last decade (NACC, 2010a), prevention's relative share of the overall HIV response has fallen, with prevention efforts accounting for less than one-quarter of all HIV-related expenditures in 2007–2008 (NACC, 2009) (see Chapter Eight on "Financing the HIV Response").

To correct these gaps and shortcomings, Kenya has taken steps to revise and reinvigorate its HIV prevention effort. The country has taken steps in recent years to elevate the profile of HIV prevention efforts. A high-level National Prevention Taskforce has been established, which has effectively institutionalized annual summit meetings to advance the country's prevention agenda.

The newest strategy plan, KNASP III, complements longstanding general population initiatives with a recognition that more tailored approaches are required to address the specific needs and circumstances of key populations and HIV in emergency situations. Strategic priorities for Kenya include intensified HIV prevention for couples, young people, as well as achieving saturation prevention coverage for SWs, MSM, people who inject drugs, and prison populations (NACC, 2009a). KNASP III also emphasizes risk reduction programming for people living with HIV (NACC, 2009a).

KNASP III stresses cost-effectiveness as one criterion for the allocation of prevention resources. According to a cost-effectiveness analysis commissioned by NACC, voluntary, medically assisted adult male circumcision for men in rural Nyanza ages 25–49 represents the most economically favourable of all HIV prevention interventions, costing an estimated KSh 16,800 (or US$ 225) per HIV infection averted (NACC, 2009a). Other strategies with strong evidence of cost-effectiveness include geographically targeted prevention programmes for SWs and their clients, harm reduction interventions for people who inject drugs, focused programmes for MSM, risk reduction interventions for truck drivers, and targeted prevention initiatives in fishing communities and prisons (NACC, 2009a).

Although KNASP III reflects a thorough, evidence-informed effort to respond to emerging prevention priorities, it is not expected to alter the funding balance between treatment and prevention services. As a result of relatively higher costs associated with continued scaling-up of antiretroviral treatment programmes and to increased investments in programmes to mitigate the epidemic's impact among children, it is projected that prevention programmes will account for 19.5% of HIV-related spending under the four-year life of KNASP III (NACC, 2009a), a share of HIV resources that is actually lower than current spending rates.

Biomedical HIV prevention interventions

Biomedical strategies aim to the reduce the physiological likelihood that any single act

of unprotected sexual intercourse will result in HIV transmission.

Antiretroviral therapy for HIV prevention

An HIV-infected person's viral load significantly affects the likelihood that an episode of unprotected sex will result in HIV transmission (Attia et al., 2009; Quinn et al., 2000). One modelling exercise conducted by a team of WHO scientists concluded that universal voluntary HIV testing and immediate initiation of antiretroviral therapy in individuals who test HIV-positive, regardless of the patient's immunologic stage, could sharply reduce HIV incidence at a population level and accelerate the transition towards ultimate elimination of HIV (Granich et al., 2009).

In 2011, researchers reported the results of a breakthrough study that definitively demonstrated the prevention benefits of antiretroviral therapy. The study enrolled 1,763 serodiscordant couples in Kenya and eight other countries. Among couples in which the HIV-infected partner received early antiretroviral therapy, the risk of HIV transmission was 96% lower than among couples in which the infected partner was started on therapy only when his or her immune system exhibited signs of severe HIV-related damage (Cohen et al., 2011).

These findings have had a profound effect on the response to HIV in Kenya. According to leading experts, the fact that HIV treatment is also effective prevention means that the tools now exist to ultimately defeat HIV/AIDS and end the epidemic (Fauci, 2011). According to modelling commissioned in 2012 by the Government of Kenya, the number of new infections that treatment scale-up has averted nearly matches the number of AIDS-related deaths that have been directly prevented (see figure below).

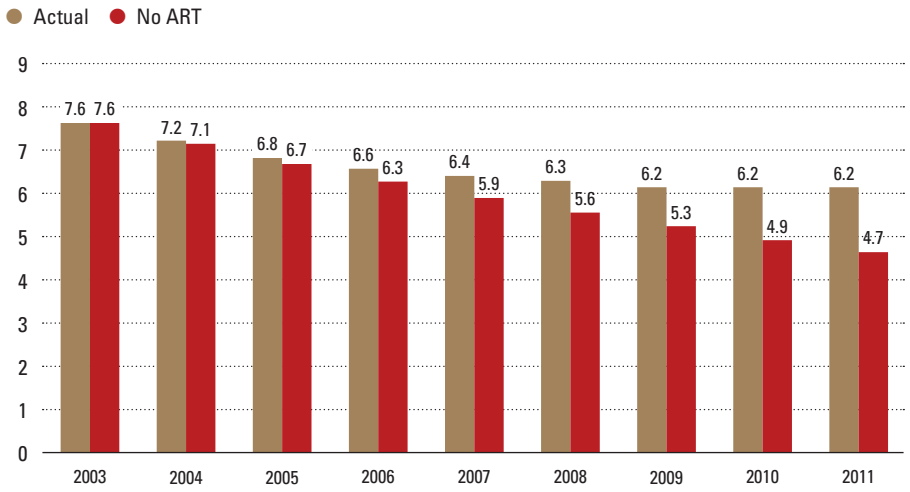
Numerous questions remain regarding strategies to use HIV treatment scale-up to support HIV prevention goals, including the optimal time to initiate therapy, ideal targeting approaches for prevention and treatment, the long-term impact on drug resistance of earlier initiation of therapy, implications regarding funding allocations, and other priorities. Nevertheless, it is clear that treatment scale-up will play a critical role in HIV prevention efforts. It is equally clear that the traditional programmatic dichotomy between prevention and treatment is obsolete and that greater integration of the entire continuum of HIV-related services is imperative. Kenya's progress in expanding access to treatment services is addressed in the next chapter.

Towards elimination of mother-to-child transmission

Kenya is a global leader in efforts to meet these prevention service targets for pregnant women and their newborns, achieving amont the highest coverage for essential services to prevent mother-to-child transmission.

Figure

Survival effect of antiretroviral therapy on HIV prevalence



Services to prevent mother-to-child transmission are offered free of charge in antenatal settings (NACC, 2010). Most (63%) health facilities nationwide offer services to prevent mother-to-child transmission, with the number of service settings increasing from roughly 2,000 in 2007 to 4,397 in 2011.

Effective prevention of mother-to-child transmission involves a package of interventions, including primary HIV prevention for all women and adolescent girls, family planning and reproductive health services for HIV-positive women, provider-initiated testing and counselling in antenatal settings, timely administration of a prophylactic course of antiretrovirals to mother and neonate, interventions to reduce the risk of transmission associated with breastfeeding and care and support for the mother, child and partner. In July 2010, the Kenya Ministry of Public Health and Sanitation and the Ministry of Medical Services jointly issued new guidelines advising earlier initiation of antiretroviral therapy for the mother's health and longer duration of prophylactic antiretrovirals for HIV-positive women who do not immediately require the drugs for their own health. WHO estimates that implementation of the new protocol will lower the average rate of vertical transmission from 35% in breastfeeding populations in the absence of intervention to 5%, and from 25% in non-breastfeeding populations to 2% (WHO, 2010).

At the 2001 Special Session of the United Nations General Assembly on HIV/AIDS, Kenya and other countries pledged to reach at least 80% of pregnant women with HIV prevention services by 2010. More recently, the UN General Assembly called for the virtual elimination of mother-to-child HIV transmission by 2015. Consistent with these international aims, Kenya has embarked on a five-year plan to eliminate mother-to-child HIV transmission (i.e., reducing the rate of transmission below 5%).

Primary HIV prevention for women including adolescents

With women and girls confronting disproportionate HIV risk and vulnerability, Kenya implements a wide array of prevention programming specifically focused on the needs of women and girls. Integration of HIV prevention counselling in service delivery settings frequented by women (e.g., maternal and child health services, STI clinics) has been demonstrated to offer an effective strategy to promote risk reduction. Kenya is currently implementing an information management system for gender-based violence, as well as capacity-building initiatives to equip partners with the means to contribute to efforts to prevent gender-based violence and to serve the victims of such violence.

Prevention of unintended pregnancies among HIV-positive clients

As a package of services designed to be integrated into pre-existing service settings, prevention of mother-to-child transmission offers an ideal opportunity to enhance the synergistic impact of complementary health interventions. According to a study in 14 high-prevalence countries, integration of family planning services into programmes to prevent mother-to-child transmission would double the health impact of providing HIV prevention services alone (Population Reference Bureau, 2009).

Efforts to protect newborns from becoming infected are undermined by the inability of many HIV-positive women to access family planning services, which help enable women to control their reproductive lives and avoid unwanted pregnancy. While nationally 26% of reproductive-age women have an unmet need for family planning (Kenya National Bureau of Statistics, 2010), 60% of HIV-infected women lack meaningful access to family planning services they need (NASCOP, 2009). Unmet need for family planning services is highest among HIV-infected women living in rural areas (NASCOP, 2009).

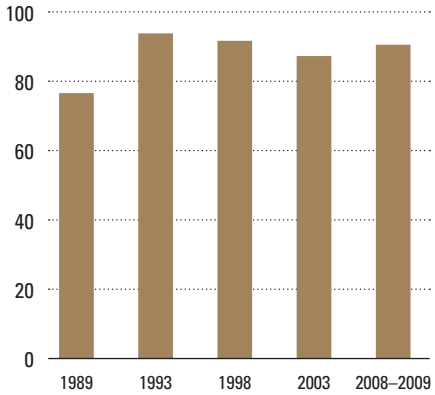
Recent surveys by NASCOP of HIV-positive mothers emphasize the need to strengthen prevention of unintended pregnancy. Among more than 13,000 HIV-positive women enrolled in services to prevent mother-to-child transmission, more than one in three did not intend to become pregnant at the time she conceived. More than one in five HIV-positive mothers (21.6%) reported an inability to access family planning services.

HIV testing in antenatal settings

Kenya's efforts to prevent mother-to-child transmission benefit from the country's impressive utilization rates for antenatal services. The overwhelming majority of pregnant women in Kenya (93% in 2008–2009) receive some antenatal care (Kenya

Figure

Percentage (%) of live births receiving antenatal care from a trained professional



National Bureau of Statistics, 2010), compared to 53% for sub-Saharan Africa as a whole (World Bank, 2010). Nearly half (47%) of pregnant women receive four or more antenatal visits as recommended (Kenya National Bureau of Statistics, 2010). In 2010 alone, there were more than 1,000,000 new antenatal visits nationwide (NASCOP, 2011). As a result of near-universal utilization of antenatal care, Kenya health providers have the opportunity to reach nearly every pregnant woman with HIV prevention services, including education, counselling and the offer an HIV test.

Among antenatal attendees, the percentage who are offered an HIV test and agree to be tested has steadily risen, as the offer of an HIV test to pregnant women has become routine practice (NASCOP, 2009). In 2010, 87% of HIV-positive women received HIV counselling and testing services. In 2011, 100% of pregnant women with unknown serostatus were tested and received their results, with 5.3% of pregnant women testing HIV-positive. According to service utilization statistics released in 2011 by NASCOP, the HIV transmission rate from mother to child was considerably higher among women who received no antenatal care (11.4%) than among those who accessed antenatal services (7.5%).

Antiretroviral prophylaxis

In 2011, 69.2% of HIV-positive pregnant women obtained antiretroviral prophylaxis. Of the 60,174 pregnant women who received antiretroviral prophylaxis in 2011, only 4.2% received single-dose nevirapine, illustrating Kenya's success in rapidly implemented WHO recommendations that call for antenatal settings to transition to more effective prophylactic regimens.

Available evidence points to the need to address various patterns that prevent services to prevent mother-to-child transmission from being optimally effective. For example, awareness of the benefits of prevention services remains sub-optimal. In 2008–2009, more than 30% of Kenyans surveyed were not aware that administration of antiretrovirals during pregnancy could reduce the risk that a newborn would be with HIV infection (Kenya National Bureau of Statistics, 2010).

There is evidence that mode of the delivery influences the odds of transmission to newborns. Among more than 13,000 HIV-positive mothers in Kenya, the transmission rate was considerably higher for vaginal births (7.9%) than for children born by Caesarean section (5.6%).

Preventing HIV transmission as a result of breastfeeding

Reviewing available data, Kenyan health authorities determined in 2010 that the best approach to prevent postnatal transmission is to combine breastfeeding with appropriate use of antiretroviral therapy. The revised national infant feeding guidelines call for all HIV-positive mothers to receive information regarding available infant feeding options, including their risks and benefits. All HIV-positive mothers who choose to breastfeed are to be encouraged and supported to exclusively breastfeed for the first six months and to continue breastfeeding thereafter along with complementary foods.

Under Kenya's latest guidelines, infants of HIV-positive mothers who breastfeed should be provided with extended infant antiretroviral prophylaxis. In 2011, antiretroviral prophylaxis was administered in 65% of cases of HIV-exposed infants (either to the mother or infant) to prevent HIV transmission during the breastfeeding period.

Kenyan women on average breastfeed their infants for 22 months (Kenya National Bureau of Statistics, 2010), underscoring the potential for transmission in the absence of appropriate intervention. Nationally, only 32% of Kenyan children under six months are

exclusively breastfed (Kenya National Bureau of Statistics, 2010).

In 2011, NASCOP reported that 73% of HIV-positive mothers said they received counselling on infant feeding in accordance with national guidelines. Among children born to HIV-positive mothers who received early infant diagnosis services, 77% of children whose feeding could be classified in 2011 were receiving exclusive breastfeeding. Transmission rates are substantially higher among women who provide mixed feeding to their newborns (12.7%) compared to those who exclusively breastfeed (6.3%) or avoid breastfeeding altogether (5.3%).

Kenya has taken steps to increase access to replacement feeding to enable more mothers to avoid breastfeeding. These initiatives are described in Chapter Five in the discussion of HIV-related nutritional care and support.

Care and support

The comprehensive package for prevention of mother-to-child transmission emphasizes prompt attention to the care and support needs of HIV-positive mothers, their newborn infants, and their male partners.

Kenya has significantly increased access to early infant diagnostic services in order to facilitate timely initiation of treatment for infected infants. The number of early infant diagnostic sites has increased from 434 in 2007 to 1,500 in 2010, with the total number of HIV-exposed children reached by such diagnostic services rising from 24,615 to 55,604 during the same period.

Increased priority has been placed on providing effective treatment services to HIV-positive women. In 2010, 73% of HIV-positive pregnant women reported receiving CD4 testing, with 77% receiving cotrimoxazole prophylaxis.

Services to prevention of mother-to-child transmission also offer a critical opportunity to engage male partners in HIV services. Here, strengthened efforts are needed. In 2011, the male partners of 4.4% of pregnant women attending antenatal care were tested for HIV.

Impact of scaled-up prevention services and next steps

Kenya's successful efforts to expand access to services to prevent mother-to-child transmission are saving lives. While 31.2% of children in Western Kenya whose mother received no prevention intervention either became infected or died in the first 18 months after birth, only 11.8% of the children whose mother benefited from prevention services did so (Nyandiko et al., 2010). Nationally, it is estimated that scaling-up of prevention services in antenatal settings had averted

USING PEER SUPPORT TO EMPOWER WOMEN WHILE PREVENTING MOTHER-TO-CHILD TRANSMISSION

Although prevention of mother-to-child transmission is often depicted as a straightforward biomedical intervention, its success actually depends on extensive behaviour change within communities. Women need to be empowered to exercise their sexual and reproductive options, seek necessary services, adhere to prophylactic and therapeutic regimens, and advocate for their own health and the well being of their newborn. The active engagement of male partners also contributes to the success of prevention services.

The *mothers2mothers* (m2m) programme mobilizes mothers living with HIV (mentor mothers) to educate and support HIV-positive pregnant women, new mothers and their partners in health facilities that deliver prevention services. Mentor mothers serve as professional, paid members of the care team, providing individual and group support and having a daily presence in the clinic to educate and support patients and their loved ones.

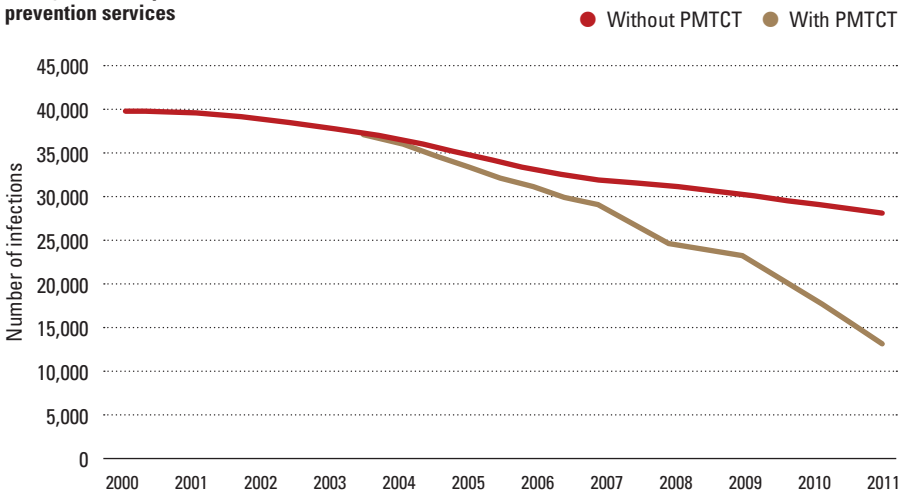
A study by the Population Council found that m2m promoted excellent programmatic outcomes. Nearly all (95%) of HIV-positive mothers received antiretroviral prophylaxis, 79% received CD4 test results, 89% chose exclusive feeding for their infant, 70% used contraception, and 97% disclosed their HIV status to their partner. Active follow-up by m2m also reduced loss to follow-up.

In addition, programme participants reported better psychosocial well being as a result of the support received from mentor mothers. Pregnant women felt better able to care for themselves and their babies and to live positively with HIV, while postpartum women reported feeling less isolated and overwhelmed.

The country is moving towards a country-specific model of peer support (mentor mothers) utilizing the existing peer/mothers clubs.

Figure

New infections in children averted through scaled-up prevention services



46,000 new infections in children as of December 2011.

Recent mathematical modelling undertaken on behalf of the Government of Kenya suggests that intensification of HIV prevention services would advance the country towards ultimate elimination of mother-to-child transmission by 2015. Given the continual increase in the annual number of births arising from Kenya's high rate of population growth, modelling work finds that maintaining current coverage levels for the various components of prevention of mother-to-child transmission would actually result in a 20–25% *increase* in the annual number of new HIV infections among neonates. By contrast, if the above-noted package of prevention services were rapidly brought to scale, the annual number of children infected with HIV would fall by 83% between 2009 and 2015. In 2015, a comprehensive scaling-up of HIV prevention services would result in approximately 5,400 new infections among children, compared to 28,500 incident infections if current coverage levels are maintained. Intensification of HIV prevention services would lower the transmission rate per birth to an HIV-infected mother from 27% in 2009 to 8% in 2015.

Continuing challenges

While Kenya has recorded considerable success in bringing services to prevent mother-to-child transmission to scale, these efforts have nevertheless encountered various challenges. For example, although most pregnant women receive some form of antenatal care, most births in Kenya (58% in 2003–2008) are not attended by skilled health staff (Kenya National Bureau of Statistics, 2008). In 2010, more than one in four health facilities (26%) did not offer antenatal services, suggesting that many women may have to travel considerable distances to obtain needed care. Male involvement in antenatal care remains weak, and additional efforts are needed to ensure that women remain engaged in services. As a result of long turnaround times for early infant diagnostic test results, many HIV-infected children fall through the cracks and fail to receive the services they need.

KNASP III aims to address impediments to the effectiveness of services to prevent mother-to-child transmission. In particular, KNASP III calls for steps to identify and address barriers to service access, uptake and effectiveness. In addition, KNASP III prioritizes the use of prevention services in antenatal settings to involve male partners and to promote HIV testing and counselling for couples (NACC, 2009a).

Voluntary medical male circumcision

Clinical trials in Kenya and other African settings indicate that adult male circumcision reduces the risk of female-to-male sexual HIV transmission by 60% (Auvert et al., 2005; Bailey et al., 2007; Gray et al., 2007).

Table

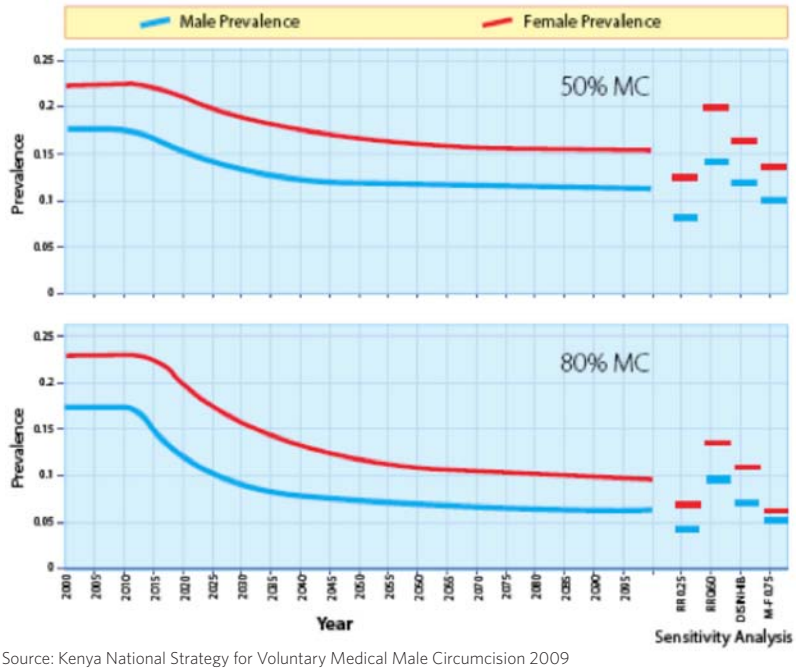
Circumcision targets for eligible men aged 15–49 years from 2009–2013

Circumcision targets	2009–2010	2010–2011	2011–2012	2012–2013	4 Year total
Nyanza	76,500	100,000	125,000	125,000	76,500
Rift Valley	28,500	40,000	60,000	60,000	188,500
Nairobi	19,500	30,000	40,000	40,000	129,500
Western	12,000	15,000	15,000	15,000	57,000
Others	13,500	15,000	15,000	15,000	58,500
Total	150,000	200,000	255,000	150,000	**860,000**

Source: Kenya National Strategy for Voluntary Medical Male Circumcision 2009

Figure

Estimated drop in HIV prevalence in Nyanza Province with 50% and 80% MC uptake



Source: Kenya National Strategy for Voluntary Medical Male Circumcision 2009

In response to these research findings, the Government of Kenya has developed a national strategy to scale up voluntary medical male circumcision through a phased approach, with the initial phase (three to five years) aiming to increase circumcision prevalence among males ages 15–49 from 85% to 94% by 2013. Between 2009 and 2013, Kenya aims to deliver the comprehensive package of voluntary male circumcision services to 860,000 boys and men (NASCOP, 2010a).

Voluntary circumcision represents a potential breakthrough strategy in Kenya's AIDS response, offering a high-impact, cost-effective approach that generates lasting benefits. Over a 30-day period in 2009, Kenya performed 36,000 voluntary male circumcisions, at a cost of only US$ 1.4 million. As services are scaled up, the cost per voluntary medical male circumcision declines, further increasing the cost-effectiveness of the intervention over time (NASCOP, 2010a). Unlike condoms, partner reduction and other strategies, which require sexually active individuals to take steps to reduce HIV risks each time they have sex, voluntary male circumcision confers lifelong partial protection. Delivery of voluntary medical male circumcision services also offers an opportunity to deliver and reinforce sexual risk reduction messages, screen and treat individuals for STIs, provide free condoms as well as offer other male sexual and reproductive health services (NASCOP, 2010a).

The ministries of health have led efforts to implement voluntary medical male circumcision services, with national and provincial task forces as well as district steering committees, in place to support scale-up (NASCOP, 2010a; WHO, UNAIDS, 2010). A national guidance document and national strategic plan have been developed, informed by situation analyses in Nyanza, Teso, Turkana and Nairobi provinces (WHO, UNAIDS, 2010). As of December 2010, 1,300 health care workers (including surgeons and their assistants, counsellors and infection prevention officers) had been trained to provide comprehensive medical male circumcision services, a quality improvement team had been established, a communications strategy and harmonized communications materials were developed, and a framework for monitoring and evaluation was put in place (WHO, UNAIDS, 2010). KNASP III prioritizes continued scaling-up of voluntary, medically assisted adult and adolescent male circumcision (NACC, 2009a).

From November 2008 to December 2010, 230,000 circumcisions had been performed, largely in Nyanza Province. In a brief period of time, Kenya has reached more than 60% of previously uncircumcised adult males in Nyanza with voluntary medical male circumcision. To date, most men who have obtained circumcision services have been relatively young – typically under the age of 25 – highlighting the need to improve engagement of older men who are sexually active. Experience indicates that local outreach, use

RAPID RESULTS INITIATIVE FOR VOLUNTARY MEDICAL MALE CIRCUMCISION

By October 2009, 50,526 men and boys in Nyanza had been circumcised and had received related HIV prevention services. Although this was a significant achievement, the Government and partners determined that the programme was not on pace to meet demand for voluntary medical male circumcision.

After meeting with implementing partners, the GOK came up with a bold plan: to mobilise all available resources to circumcise 30,000 men and boys ages 15 to 49 over 30 working days. This Rapid Results Initiative (RRI) drew on the experience of campaigns that had jump-started immunisation and HIV counseling and testing in Kenya. The dates – 9 November to 20 December – were chosen to take advantage of the upcoming school holidays, when many teens and young men would be on holiday. A multi-partner provincial coordinating committee was established to oversee the initiative, with coordinating committees also established in each district.

During the RRI, large numbers of trained health ministry staff were enlisted to provide voluntary medical male circumcision services for the first time. Trained health care providers who were on leave joined the effort, and some additional providers were hired and trained.

Efforts to promote voluntary medical male circumcision for HIV prevention were also accelerated, with social mobilisation involving a wide range of allies to raise community awareness of the benefits of male circumcision. Outreach events were held at public gatherings, and satisfied clients served as advocates for male circumcision in their communities and on radio.

The RRI produced striking results. In 30 days, more than 36,000 men and boys sought and received voluntary medical male circumcision. The rate of complications from circumcisions performed during the RRI was low – under 2% – most of them extremely mild, such as bleeding or minor infections.

The RRI demonstrated the feasibility of rapid uptake of safe and voluntary medical male circumcision. With a stable flow of clients, the cost per circumcision performed (about US$ 39) was less than half the unit cost of services prior to the RRI (US$ 86). The RRI also resulted in ancillary health benefits, with 38% of clients receiving HIV testing for the first time.

The RRI also highlighted certain challenges that are now being taken into account in the planning of continued service scale-up. Forty-five percent of RRI clients were younger than 15 years; although delivery of circumcision services to these young men is likely to result in lifelong health benefits, it is unlikely to have an immediate impact on the HIV epidemic, as most young men in this age range are not sexually active. In addition, the percentage of RRI clients returning for follow-up was only 23%, and only 39% of clients accepted HIV testing – rates that are much lower than those achieved during routine service delivery when client volume is considerably lower. As a result of these patterns, it has been recommended that operations research be undertaken to identify ways to improve follow-up, increase acceptive of HIV counselling and testing, and encourage older males to seek voluntary medical male circumcision services.

of mobile services, and task-shifting and task-sharing (whereby nurses or other lower-tier health workers undertaken certain functions associated with performance of circumcisions) significantly accelerates uptake. In particular, training nurses to perform circumcisions has proven vital in a health system facing chronic shortages of clinical and medical officers.

Scale-up of male circumcision began in Nyanza Province, where circumcision rates are substantially lower than the national average. By mid-2010, Nairobi Province had begun performing male circumcisions, and preparatory efforts were underway in Western Province. Funding from the World Bank was secured to support a pilot project to reach 5,000 men in the Teso area (WHO, UNAIDS, 2010). More than 150 health facilities nationwide were offering medical male circumcision services in 2010, with most located in areas with lower-than-average prevalence of circumcision.

The push to take male circumcision services to scale has engaged affected communities at each step in the process. Consultations to inform the development of a national circumcision strategy involved faith-based groups, community leaders, women's and youth groups, and other stakeholders (NASCOP, 2010a; WHO et al., 2009). In particular, Kenyan health officials have taken special care to engage community leaders and ensure that the service is promoted in a culturally sensitive manner, building recognition of, and support for, the national approach to voluntary medical male circumcision (NASCOP, 2010a).

To improve the effectiveness and efficiency of Kenya's efforts to meet national targets for voluntary medical male circumcision, research is being conducted to address real challenges of providing access to safe, high-quality services in low-resource settings.

Table

Research on male circumcision for HIV prevention in Kenya

Sexually transmitted infections
HIV and STI incidence: Cohort study
Follow-up of randomized controlled trial
Service delivery
Assessment of male circumcision services at outreach health care facilities
Systematic monitoring of male circumcision scale-up in Kenya (SYMMACS)
Human resources
Responding to the human resource capacity development and training needs
Private sector health providers assessment
Assessment of non-physician clinicians performing male circumcision
Monitoring
A monitoring and evaluation study to assess the implementation of male circumcision as an HIV prevention strategy
Home-based study to assess the implementation of male circumcision as an HIV prevention strategy
Healing
A study of post-surgical wound healing
Behavioural research
A prospective study of behavioural risk compensation related to male circumcision as an HIV prevention method
Impact of male circumcision on sexual risk behaviours
Communications
Communicating partial protection of male circumcision
Text messaging to improve adherence of postoperative clinic appointments and reduce early resumption of sexual intercourse
Costing
Estimating the costs, cash flow analysis, and impact of male circumcision in Kenya and Zimbabwe
Infant male circumcision
Evaluation of safe voluntary infant medical male circumcision in selected facilities in Nyanza Province
Devices
The Shang Ring: A novel male circumcision device for HIV prevention
The Shang Ring: Evaluation of healing at three time intervals and potential for spontaneous detachments
Comparison of the Shang Ring with conventional surgical methods
Safety and acceptability study on the Ali'sKlamp

WHETHER TO RECEIVE "THE CUT": A COUPLE'S DECISION

Although he was convinced of the health benefits of male circumcision, Dickson Omanje knew a decision this important ought to be discussed with his wife, Florence. As a result of their discussions of the topic, the couple received HIV testing and counselling together at Kisumu District Hospital for the first time in their 13-year marriage. After her initial enthusiasm about the circumcision procedure, Florence began having second thoughts. She pondered her husband's true intentions, wondering if he planned to have sex outside the marriage. After thinking it over and discussing it with her husband, Florence concluded that the health benefits of male circumcision outweighed her fears. "An unfaithful man is an unfaithful man, whether circumcised or not!" she noted. Besides, she trusted her husband to remain faithful – a trust that was only underscored by her husband's decision to consult her before having the procedure. During the six-week recovery period, during which recipients of the procedure are advised to abstain from sex in order to allow the wounds to heal, Florence was supportive of her husband.

Based on their experience, the Omanjes advise other couples to talk to each other about male circumcision. Women have an important role to play in the process, and open discussion of the issue helps build trust and can provide an entry point for other HIV prevention services (Male Circumcision Consortium, 2010).

As of December 2010, at least 18 studies were being conducted on various aspects of service delivery. They include a study of long-term impact on male circumcision, assessment of new male circumcision devices, and operations research to identify way to improve the quality and effectiveness of service delivery (NASCOP, 2010a).

Post-exposure antiretroviral prophylaxis

Evidence suggests that administration of a 28-day course of antiretroviral therapy immediately following sexual exposure reduces the likelihood of transmission (CDC, 2005). Kenya has emphasized delivery of post-exposure prophylaxis following cases of sexual assault or gender-based violence, working with partners to establish centres of excellence for management of gender-based violence in select hospitals, with plans to bring these to scale nationally.

In 2009, 110,834 clients received post-exposure prophylaxis (NASCOP, 2010). The lack of access to post-exposure antiretroviral prophylaxis for rape victims requires urgent attention, as does the scaling-up of response centres for gender-based violence and accurate and comprehensive documentation of such cases (Gelmon et al., 2009).

Emerging biomedical prevention options

In 2010, evidence regarding potentially powerful new prevention tools emerged, suggesting that additional options may soon be available in Kenya to lower the odds of HIV transmission as a result of sexual intercourse.

Vaginal microbicides

Women have long lacked effective prevention methods that they themselves can initiate and control. The global search for safe and effective vaginal microbicides is intended to close this critical gap in the continuum of biomedical prevention tools.

Microbicides are topical agents designed to reduce the risk of sexual transmission. Most microbicide candidates are intended for vaginal application, although research efforts are also underway to develop microbicides for rectal application.

In 2010, for the first time ever, a trial found that a vaginal microbicide significantly reduced the risk of HIV transmission. Conducted by the Centre for the AIDS Program of Research in South Africa (CAPRISA), the study involving 889 uninfected women in KwaZulu Natal province found that use of a vaginal gel containing the antiretroviral agent tenofovir reduced the risk of HIV infection by roughly 39% (Karim et al., 2010). Among trial participants who carefully adhered to the preventive regimen, which required use of the microbicide 12 hours before and 12 hours after sex, the reduction in the risk of acquiring HIV was 54% (Karim et al., 2010).

Contrary research findings were reported in 2011 from another major international trial, the VOICE study. Conducted in Uganda, South Africa and Zimbabwe, VOICE halted the trial arm that was testing an antiretroviral-based microbicide gel after study results found that the product was not effective in preventing sexual HIV transmission to women. The study is continuing in order to evaluate oral administration of antiretroviral prophylaxis.

Work continues to develop a safe and effective vaginal microbicide to protect women from sexual HIV transmission. According to AVAC, an international research advocacy group, 30 trials were ongoing or planned in early 2011 on various microbicide candidates.

Pre-exposure antiretroviral prophylaxis

In July 2011, principal investigators of a study in Kenya and Uganda reported that a daily tablet containing the antiretrovirals tenofovir and emtricitabine reduces the odds of HIV transmission among serodiscordant couples by 73% (University of Washington, 2011). The risk of transmission was reduced by 62% among couples in which the HIV-infected partner took a daily tablet containing tenofovir alone. Due to the striking efficacy results, the randomized, double-blinded trial was ended early, and participants who had received a placebo were offered pre-exposure prophylaxis.

These study findings differed from an earlier trial in Kenya and three other African countries (known as FEM-PrEP), which failed to find a prevention benefit from pre-exposure prophylaxis. It has been hypothesized that the different results may be explained by variations in participants' adherence to the daily prophylactic regimen. In the most recent trial, adherence was extremely high, with more than 97% of dispensed doses taken daily.

Control of sexually transmitted infections

The Ministries of Health oversee the delivery of services to diagnose, prevent and treat STIs. Formal guidelines for managing STIs are used to train service providers in public sector facilities, and health ministries provide drugs to manage common STIs.

Evidence suggests that Kenya has made gains in expanding access to STI services According to the 2010 Kenya Service Provision Assessment, 94% of health facilities surveyed offered STI services. In 2009 alone, health facilities in Kenya provided more than 175,000 consultations for STI care, with males accounting for 70% of all STI visits (NASCOP, 2010).

Available evidence points to the need to improve STI service delivery. In a study involving long-distance transport workers at the Kenya-Uganda border, those who used public sector clinics for treatment of an STI waited three times as long as workers who used a private clinic (Morris, Ferguson, 2007). Disturbingly, only 28.9% of transport workers diagnosed with an STI completed their medication course as prescribed (Morris, Ferguson, 2007).

Surveys have identified herpes simplex virus (HSV) infection as an independent risk factor for HIV acquisition (NASCOP, 2009). Despite the clear links between HIV and HSV, no specific programs have been created for the prevention and treatment of HSV in Kenya.

Prevention of HIV in health care settings

Health care settings account for 2.5% of all new HIV infections in Kenya, or about 3,000 annually (Gelmon et al., 2009). Transmission efficiency is even higher for certain other blood borne pathogens, such as hepatitis B virus. To carry forward the goal of KNASP III to eliminate medical HIV transmission, Kenya pursues a multi-pronged strategy to increase blood safety, ensure effective infection prevention and control and health settings, and provide timely access to post-exposure prophylaxis.

Blood safety

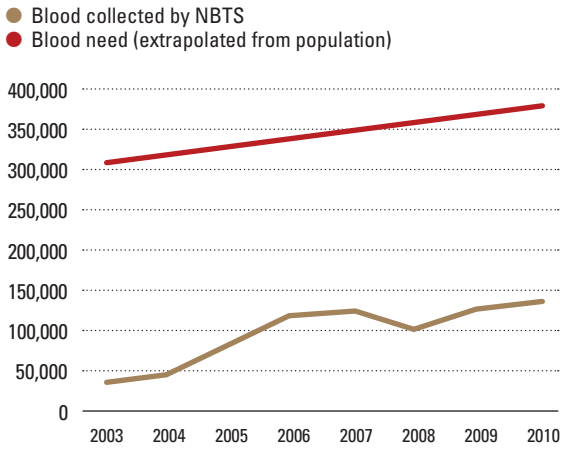
Transfusion of contaminated blood is the most efficient means of transmitting HIV, with infection occurring more than 90% of the time when patients receive HIV-infected blood. Since 2007, Kenya's National Blood Transfusion Service (NBTS) has administered a coordinated network of six regional blood transfusion centres that ensure that all donated blood units are routinely screened for HIV, hepatitis B and C and syphilis (NACC, 2010). In 2009, NBTS supplies reached over 80% of the hospitals.

In addition to routine screening, Kenya has also implemented an array of policies and practices to minimize the risk of transfusion-related transmission, including reliance on voluntary, non-remunerated donors; quality testing and processing of blood at regional centres; and establishment of hospital transfusion committees to ensure appropriate clinical ruse of donated blood and blood products. These policies and practices further buttress the safety of Kenya's blood supply. For example, HIV prevalence among voluntary blood donors (1.3%) is considerably lower than national prevalence.

Although the annual number of blood units collected has roughly tripled since 2003, NBTS still struggles to meet the country's needs for blood. For instance, against a demand of 380,000 units of blood in 2010, only 135,000 units were collected. This deficit necessitated the use of replacement donors. NBTS is working to expand the pool of repeat donors to help close the gap in the supply of available blood units.

Figure

Blood demand and annual blood collection



Infection prevention and control

In 2005, a national survey of health care workers in Kenya found that 25% lacked an adequate supply of gloves and sharps disposal containers, and only one-third of health care workers said written infection control guidelines were in place at their facility (NASCOP, 2006). In recent years, there has been a considerable improvement in workers' access to needed supplies. In 2010, 98% of health facilities surveyed made clean latex gloves available for workers, and 97% provided a sharps box for disposal of used injecting equipment.

Medical procedures that may lead to occupational exposure to HIV include blood drawing, unsafe injections, medical waste disposal, and invasive medical procedures. Adherence to standard precautions – which consider every patient to be potentially infectious and call for routine use of equipment and practices to avoid possible exposure – is known to prevent transmission of HIV during the delivery of health services.

To institutionalize adherence to standard precautions, Kenya has since 2006 developed, disseminated and implemented various policy and guidelines for infection prevention and control, safe injections and medical waste disposal. These policies confer responsibilities at all levels of health care including the health care facilities and on individual health care providers. Under these policies, health care institutions have the responsibility to ensure that staff are properly trained in proper infection prevention and control and are appropriately monitored to ensure their compliance. As of December 2010, more than 30,000 health care workers had been trained on injection safety and medical waste management, and 60 incinerators in health facilities had been renovated.

Focused steps have been taken to address the risk of blood exposure during particular medical procedures. For example, occupational injuries commonly occur when blood is drawn from a patient. After a baseline rapid assessment in 2009 revealed considerable safety gaps in phlebotomy and blood drawing procedures, NASCOP collaborated with the U.S. Centres for Disease Control and Prevention to improve phlebotomy practices. Through this partnership, devices to support 1 million blood draws were procured, 529 health workers were trained, and a sharps injury

and post-exposure prophylaxis surveillance system was rolled out. Twenty facilities are being targeted in 2011 for intensive technical support to improve the safety of phlebotomy and blood drawing, with 1,000 health workers to be trained.

Occupational post-exposure prophylaxis

In Kenya, the potential for workplace accidents that may expose workers to HIV-infected blood and other body fluids is increasing. Several factors are contributing to the increased risk of occupational HIV exposure. First, more people are living with HIV infection. At the same time, increased availability of antiretroviral medicines is bringing more people with HIV into contact with health care services. With people living with HIV now surviving longer as a result of improved treatment access, utilization of health services by HIV-infected patients is likely to remain at a high level in future years.

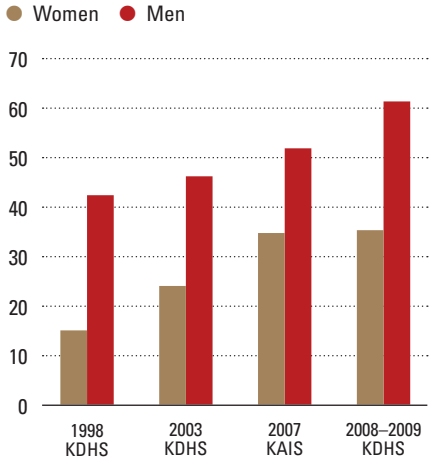
When a blood exposure occurs despite standard precautions, national guidelines call for the swift administration of a time-limited regimen of antiretroviral prophylaxis, known as PEP (for post-exposure prophylaxis). Availability of PEP is spotty in health facilities throughout Kenya, although PEP is routinely available in clinical sites supported by PEPFAR (Gelmon et al., 2009). As of 2010, only 25% of health facilities made PEP available, well short of the 80% national target for 2013. KNASP III established an interim target of 40% PEP coverage for 2009–2010. Among all health care workers who were knowledgeable about PEP and worked in a facility with PEP supplies, only 46% who experienced a potential HIV exposure reported seeking PEP (NASCOP, 2005). Primary reasons cited by health care workers for not taking PEP were a lack of sufficient information (40%) and fear of the process (28%) (NASCOP, 2005).

Behavioural interventions

While biomedical interventions reduce the likelihood that any instance of risk behaviour will result in transmission, behavioural interventions seek to encourage people to avoid risky behaviour in the first place. Desired outcomes for behavioural interventions in Kenya include sexual abstinence for young people, delayed sexual debut, consistent condom use, fidelity within marriages, increased involvement of people living with HIV in the national response, and avoidance of unsafe injecting behaviours among people who use drugs.

Figure

Condom use during most recent high-risk sex by sex, 1998–2009



These many initiatives appear to have had an impact. Comparison of national surveys undertaken over the last decade demonstrates a notable drop in average number of sex partners, as well as more modest increases in condom use and age of sexual debut (NACC, 2010).

Behaviour change communications strategies include initiatives intended for the general population, as well as focused interventions for key subpopulations. Broad-based HIV awareness campaigns have helped equip the Kenyan population with extensive knowledge about HIV (Frölich, Vazquez-Alvarez, 2008). Under KNASP III, Kenya aims to mount eight mass media campaigns annually.

Behaviour change interventions are primarily delivered by the more than 16,000 organisations that sponsor HIV-related programmes in Kenya (Gelmon et al., 2009). Recent reviews have identified gaps in the continuum of behavioural ingterventions. For example, few prevention programmes specifically focus on adults over age 25 (Gelmon et al., 2009), even though the country's modes-of-transmission study

HIV TESTING AND HIV PREVENTION

It is believed that HIV testing plays a role in HIV prevention, although available information has made it challenging to discern the optimal role of testing in national prevention efforts. Large-scale studies of HIV testing initiatives in low- and middle-income countries have reached conflicting findings regarding their impact on HIV transmission. One study in Zimbabwe actually found that individuals who tested HIV-negative appeared to increase their risk behaviours after receipt of their test results (Sherr et al., 2007).

With growing evidence suggesting that antiretroviral therapy may help prevent new infections by lowering community viral load, it is clear that timely diagnosis of HIV infection is critical to capture the potential prevention benefits of HIV treatment. Kenya's efforts to promote knowledge of HIV status are addressed at length in Chapter Six ("Treatment and care for people living with HIV").

found that older adults in stable relationships account for the largest single share of new HIV infections.

The reach of behaviour change programmes varies by setting and population. While the average person in Nairobi Province experienced 5.4 HIV-related outreach contacts in 2008, the contact rate in North Eastern Province was only 0.3 per year and only barely higher (0.4) in Eastern and Coast provinces (Gelmon et al., 2009).

Integrating HIV prevention counselling into mainstream health services offers one potentially valuable strategy for reaching sexually active individuals at potential risk of HIV infection. In collaboration with the Ministry of Health, the FRONTIERS project found that integration of HIV counselling and testing resulted in marked improvements in the quality of counselling for both HIV and family planning (Liambila et al., 2008). These study results prompted the Ministry of Health to begin integrating HIV counselling and testing into family planning services nationwide.

Condom promotion

Condom provision accounts for 5.7% of all HIV prevention spending in Kenya (Gelmon et al., 2009). The annual number of condoms distributed in Kenya increased by one-third from 2007 to 2009, with 15 million condoms distributed monthly (NACC, 2010). In 2009–2010, Kenya aims to distribute 275 million male condoms. Kenya has invested heavily in social marketing initiatives to increase utilization of male and female condoms (IPPF et al., 2008). While facilitating access for the general public, Kenya's condom promotion efforts also include information, education and communication strategies targeting key populations (IPPF et al., 2008).

Notwithstanding these efforts, the supply of free male condoms is consistently inadequate in most provinces (Gelmon et al., 2009). On average, the number of free condoms per person in 2008 amounted to less than one (0.71) over a 12-month period (Gelmon et al., 2009). Moreover, available data indicate enormous variations in condom availability, ranging from negligible coverage in Eastern Province (0.17 condoms per person per year) to higher but still inadequate availability in Western Province (1.65). In the high-burden provinces of Coast, Nairobi and Rift Valley, average condom availability is less than one condom per person per year.

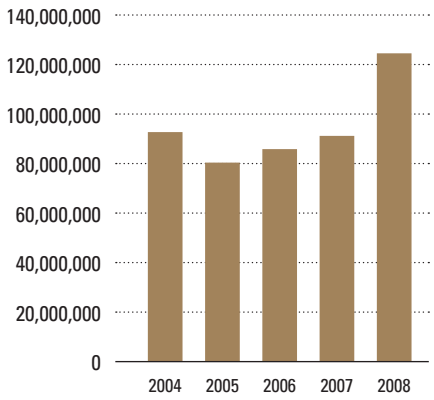
Although studies have repeatedly demonstrated the effectiveness of condoms in preventing transmission of HIV and others STIs, misconceptions remain, potentially undermining the impact of condom promotion efforts. In a national 2005 survey of health care workers, presumably among the most informed of all segments of the population, more than one in five workers said male condoms were not effective in preventing HIV (NASCOP, 2005). Scepticism about the female condom was even more widespread, with more than one in three health care workers questioning the effectiveness of the female condom in preventing HIV infection (NASCOP, 2005).

Female condoms have not been available in the past through the public sector, although individuals have been able to purchase these products (Gelmon et al., 2009). In 2006, only 18,000 female condoms were distributed in all of Kenya (Gelmon et al., 2009). KNASP III, however, calls for the scaling up of female condom programming, including the distribution of 3.8 million female condoms in 2009–2010.

A recent study by several non-governmental organizations concluded that it was both feasible and acceptable to ensure a consistent, affordable supply of female condoms in family planning and reproductive health clinics, voluntary counselling and testing centres, and private workplaces (Population Council, Liverpool VCT, 2009). The NGO study

Figure

Uptake of male condoms in Kenya



emphasized the importance of consistent condom supply and availability of appropriate behaviour change communication materials to support use of the female condom. Sustainable procurement and supply management systems have served as an important impediment to scale-up of female condoms. For example, a study of KenGen's HIV efforts found that company-sponsored promotion of female condoms has been hindered by difficulties in obtaining adequate supplies (Kimetu et al., 2009).

HIV prevention for key populations

Although HIV is generalised in Kenya, the epidemic has disproportionately affected certain populations. In addition to programmes that target the general population, Kenya has implemented focused programmes for groups in particular need of intensive prevention services.

Prevention services for people living with HIV

Behaviour change programmes for people living with HIV reduce the likelihood that an individual will engage in behaviours that expose others to the virus (Crepaz et al., 2006). However, as of 2009, resources dedicated to "positive prevention" programmes in Kenya were minimal (Gelmon et al., 2009).

Kenya has recently taken steps to strengthen positive prevention services. Guidelines for prevention services for people living with HIV have been developed and disseminated, and training initiatives have been launched to build the competence of health workers to educate and counsel HIV-positive individuals (NACC, 2010). These steps are in line with KNASP III, which expressly called for increased attention to the HIV prevention needs of people living with HIV (NACC, 2009a).

In 2009, international technical experts, researchers, and representatives of organizations and networks of people living with HIV gathered in Tunisia for a global consultation to chart future directions for HIV prevention programming for people living with HIV (UNAIDS, GNP+, 2009). Participants determined that a singular focus on sexual risk reduction was inadequate, but rather that HIV prevention programming for people living with HIV should be linked with improved treatment access, human rights protections, and the mobilization and empowerment of HIV-positive people. The new approach has been labelled "Positive Health, Dignity and Prevention," and UNAIDS has joined with civil society partners to undertake a global campaign to encourage national programmes, donors and other stakeholders to adopt this approach (UNAIDS, 2010).

Promoting safer sexual behaviours among young people

National policy mandates HIV education in primary schools, and the Government has developed a National HIV Communication Strategy for Youth to guide HIV-related prevention, treatment, and impact mitigation efforts for young people (NACC, 2010). However, an independent analysis of Kenya's HIV prevention portfolio found that youth-focused services are in short supply (Gelmon et al., 2009). As of 2006–2007, prevention programmes focused on young people accounted for less than 5% of all prevention spending in Kenya (Gelmon et al., 2009). To increase the engagement of young people in HIV prevention efforts, NACC has held regional consultations with youth networks and supported the launch of networks in all regions (NACC, 2010b).

HIV prevention programming can help reduce young people's risk of HIV infection. For example, a survey of female upper primary school students in Nyanza found that exposure to HIV prevention programming in community festivals was associated with increased odds of condom use (Maticka-Tyndale, Tenkorang, 2010). However, the early age of sexual debut and infrequent condom use among young people, documented in periodic national surveys, underscore the reality that many young people in Kenya lack meaningful access to effective prevention services. Data are not available on the percentage of schools that routinely provide life skills-based HIV education, nor is the extent of prevention coverage for out-of-school youth documented.

An emphasis on remaining abstinent has been a central feature of many youth-focused HIV prevention programmes in Kenya (Gelmon et al., 2009). No study has been undertaken to gauge the impact of abstinence-focused programming in reducing young people's risk of HIV infection in Kenya (Gelmon et al., 2009),

although a review of studies of abstinence-only programmes in high-income countries did not find them to be effective (Underhill et al., 2007). However, a more recent study of an abstinence-only programme for young people in the U.S. found that youth exposed to the intervention were more likely than recipients of comprehensive sexual risk reduction intervention to delay initiation of sex; the abstinence-only programme did not affect condom use among young people who became sexually active (Jermott et al., 2010).

Under Kenyan law, people under age 18 are generally required to obtain parental or partner consent before receiving an HIV test or other sexual and reproductive health services. The law grants exceptions for married or pregnant youth and permits counsellors to use their discretion in serving young people between 15 and 18. In all cases, young people under age 14 are allowed to receive only counselling in the absence of parental consent (IPPF et al., 2008).

Kenya has recently taken steps to address HIV-related risks associated with high rates of reported sexual assault and coercion experienced by children and other young people. In particular, KNASP III calls for efforts to ensure that children and other young people have access to antiretroviral post-exposure prophylaxis and other post-assault services (NACC, 2009a).

HIV prevention for serodiscordant couples

As Chapter Two described, at least one partner is HIV-infected within 1 in every 10 Kenyan couples.

While studies have sometimes yielded equivocal findings regarding the prevention benefits of HIV testing, one use of testing has a clear, well-documented role to play in preventing HIV transmission. Studies have consistently demonstrated that testing and counselling couples together sharply reduces the likelihood of HIV transmission within a serodiscordant partnership (Allen et al., 1992).

Kenya actively promotes couples testing. In 2004–2005, a mass media campaign encouraged couples to get tested together (Marum et al., 2006). To date, however, many couples in Kenya have not successfully accessed couples-oriented prevention services. For example, although a majority of workers at Kenya Electricity Generating Company told researchers in March 2009 that they knew their own HIV status, few reported that they had been tested along with their sexual partners (Kimetu et al., 2009).

Following the 2009 modes-of-transmission study, which highlighted high transmission rates within stable relationships, Kenya has strengthened prevention services focused on HIV testing and counselling for couples (NACC, 2010). In 2009, 51,723 couples received voluntary testing and counselling, nearly double the number tested in 2008 (26,354) (NASCOP, 2010). In addition to increasing investments in couples-based HIV testing, KNASP III also endorses intensive counselling and support groups to identify serodiscordant couples and support sexual risk reduction.

Sex workers

In Kenya, as in many other countries, programmatic experience with SWs vividly illustrates the potential benefits of focused HIV prevention interventions. In a two-year prevention trial involving SWs in Nairobi, periodic provision of prevention counselling, distribution of free condoms, and timely treatment of symptomatic STIs resulted in significant, sustained increases in condom use among home-based SWs (Yadav et al., 2005). According to a study involving SWs in Mombasa, introduction of the female condom in a community of SWs was associated with a significant increase in consistent condom use with all sex partners (Thomsen et al., 2006).

The active engagement of SWs in the planning and delivery of HIV prevention services is critical to programmatic success (UNAIDS, 2008). In Mombasa, SWs who received peer interventions were 3.6 times more likely to use condoms with their clients than their counterparts who did not receive the intervention (Luchters et al., 2008).
Condom promotion efforts focused on sex work venues also appear to play a key role in reducing the vulnerability of FSWs to HIV. A study of 403 Kenyan FSWs and 175 Ugandan FSWs working along the Trans Africa Highway from Mombasa to Kampala found consistently greater risk reduction among Kenyan women (Morris et al., 2009). Kenyan FSWs were found to be 2.5 times more likely to use condoms than their Ugandan counterparts. The key differential,

SEX WORKERS AS PEER EDUCATORS

The Strengthening STD/HIV Control Project (SHCP) is an innovative project that mobilizes SWs to work as peer educators. A collaboration between the University of Nairobi and the University of Manitoba (Canada), SHCP trains SWs on safer sex negotiation, STI/HIV education and counselling, and promotion of consistent condom use. Through peer interventions, SWs learn the critical importance of safer sex, skills related to condom use, and the importance of avoiding all sex during menses. Peers work with SWs to increase their motivation and skills to reject potential clients who refuse to use a condom. Social workers and health care personnel based at local primary care facilities complement peer outreach, with participating SWs obtaining STI and other health services, as well as health counselling.

researchers concluded, appeared to be the availability of condoms, as bars and lodges in Kenya were significantly more likely to make condoms available than comparable businesses in Uganda.

As studies in Kenya have found that most FSWs enter sex work due to economic hardship, creation of economic alternatives to sex work is a potentially useful HIV prevention strategy. Integration of micro-enterprise services in an HIV intervention for Kenyan FSWs was associated with an 18.5% increase in consistent condom use with regular partners, as well as maintenance of more than 90% condom use with casual partners (Omondi Odek et al., 2009). After two years, two out of three participating FSWs reported having an operational business, with nearly half having left sex work.

Men who have sex with men

Focused HIV prevention services reduce the risk of HIV transmission among MSM. In Mombasa, the International Centre for Reproductive Health (ICRH) implemented a prevention programme for MSM that includes a drop-in centre, peer education, distribution of condoms and water-based lubricant, and provider training and sensitization. Through mid-2008, ICRH had distributed more than 2 million condoms and 12,000 packages of water-based lubricant to MSM. An evaluation of the programme by Population Council found that MSM exposed to the programme had increased knowledge of HIV transmission risks and ways to prevent infection (NACC, Population Council, 2009).

Involvement of MSM in the planning and implementation of prevention programmes increases the reach and impact of such efforts. The ICRH programme in Mombasa had by mid-2008 trained 40 MSM as peer educators, in turn reaching more than 1,900 MSM with peer outreach education (NACC, Population Council, 2009). Involvement of MSM in programme design and implementation helps ensure that programmes will address contextual issues that affect the sexual behaviours, health and well-being of MSM, such as STIs, access to health care, and the risk of violence (NACC, Population Council, 2009).

The Kenya Medical Research Institute (KEMRI) has effectively deployed MSM sex workers as outreach agents. KEMRI counsellors have created a forum for MSM to share and discuss their experiences, such as harassment by authorities; bashing, hostility, sexual harassment, and violence; disownment by families; and homelessness. Like Liverpool VCT and OUT, KEMRI has also established support groups for MSM.

People who inject drugs

To reduce the risk of HIV transmission associated with injecting drug use, a comprehensive, evidence-based approach is needed. Key strategies to prevent people from becoming dependent on drugs in the first place include life-skills education in schools, family skills training, a specific programmatic focus on the juvenile justice system, and workplace drug prevention initiatives (UNODC, 2009). Another key prevention strategy is ready access to drug dependence treatment and rehabilitation services, including the provision of evidence-based treatment services in prison settings (UNDOC, 2009). UNODC has recommend that Kenya achieve at least 60% coverage in 2010 for HIV prevention and treatment programmes for people who inject drugs, people in prison settings, and actual or potential victims of human trafficking (UNODC, 2009).

HIV prevention programmes for people who use drugs have been minimal in Kenya throughout much of the epidemic. In 2006–2008, no needle or syringe exchange programme or opioid substitution therapy site was operational in Kenya (WHO et al., 2009).

The shortage of prevention initiatives to address transmission among drug users represents a missed opportunity. Substantial HIV incidence among drug-using populations not only affects the health of drug users themselves, but also contributes to substantial onward transmission to sexual partners, further exacerbating local epidemics. A recent modelling exercise by leading experts found that a 60% reduction in unmet need for opioid substitution, needle exchange and antiretroviral treatment would reduce HIV prevalence in Nairobi by 30% between 2010 and 2015 (Strathdee et al., 2010). Repealing laws prohibiting opioid substitution and scaling up such treatment programmes alone could prevent one in seven (14%) new HIV infections projected to occur in Nairobi over the same five-year period (Strathdee et al., 2010).

In the absence of a strong policy response to promote HIV prevention among drug users, scattered programmes have attempted to deliver essential prevention services for this population. The Academy for Educational Development (AED), a U.S.-based NGO, has worked with eight community organisations in five urban areas to develop locally tailored programmes to reduce HIV transmission among people who inject drugs. Seven of the eight organisations supported by AED have implemented community-based HIV prevention programmes, while the eighth has focused on training in addiction and HIV. Each of the community organisations created outreach programmes that engage individuals at risk in discussions regarding HIV risk reduction, with a focus on both sexual and drug-related transmission. Consistent with the theory of harm reduction, which advises that clients should be engaged on their own terms, these outreach efforts prioritize community settings where individuals in need of services are likely to be found, including drug dens, formal and informal drinking establishments, and local gathering places.

In concert with partners, Kenya is taking steps to launch a meaningful effort to prevent new infections among people who inject drugs. UN partners have joined with the Ministry of Health, NACC, National Agency for the Campaign Against Drug Abuse Authority, Kenya Prison Service, and civil society organizations in an effort to expand HIV prevention services for people who inject drugs (UNODC, 2009).

Prisoners

Published information is limited on the extent or impact of prevention services in Kenyan prisons. The U.S. PEPFAR programme has collaborated with the Kenya Prisons Service to provide HIV prevention information to inmates, staff and surrounding communities (PEPFAR, 2008), but the reach of such efforts is unclear.

In 2007, the Government of Kenya commissioned a study on rape in prisons (Fraser et al., 2008). Plans are also underway to launch an East African network on HIV in prison settings, with representation from health and prison authorities of the Government of Kenya, as well as civil society (UNODC, 2009).

Migrant workers (including long-distance truck drivers)

Focused behavioural interventions have been shown to contribute to reductions in risky sexual behaviours and incident STIs among transport workers (Jackson et al., 1997). The elevated risk of HIV infection faced by truckers and other workers in the transport sector has resulted in notable programmatic responses. For example, the Safe T-Stop Programme focuses on transport corridors in Kenya and Tanzania, delivering HIV prevention and treatment interventions for truckers and communities frequented by truckers (Fraser et al, 2008). The Kenyan Railway Workers' Union supports HIV-related peer counselling in the workplace (Fraser et al., 2008).

Various structural interventions designed to improve working conditions for drivers have also been tried. One joint initiative involving several transport unions in Kenya, Tanzania and Uganda seeks to reduce delays associated with border crossings (Fraser et al., 2008). A recreation centre established at the border with Uganda also aims to provide truckers with healthy alternatives to risky behaviours (Fraser et al., 2008).

Fishing communities

Relatively few prevention services have been implemented for fishing communities, in which frequent migration for work serves to intensify HIV-related vulnerability (Gelmon et al., 2009). KNASP III prioritizes the development and implementation of focused prevention programmes in fishing communities (NACC, 2009a).

Refugees and internally displaced people

Kenya participates as a founding member in the Great Lakes Initiative on HIV/AIDS (GLIA), which seeks to address regional aspects of HIV associated with mobility, conflict and displacement (Fraser et al., 2008). Participating countries include Burundi, Democratic Republic of Congo, Kenya, Rwanda, Tanzania and Uganda.

Structural interventions

Structural interventions aim to alter the social, economic, legal or physical conditions

that may give rise to HIV transmission (Sumartojo, 2000). In light of the clear social dimensions of HIV risk and vulnerability, remarkably little evidence exists on effective structural interventions for HIV prevention (Rao Gupta et al., 2008).

Interventions to promote gender equality and empower women and girls

Interventions to empower women and promote gender equality have a potentially important role to play in reducing vulnerability to HIV. In 2001, NACC established a Technical Subcommittee on Gender and HIV/AIDS, which catalyzed concerted efforts to integrate gender approaches across the national strategic AIDS plan. Kenya has ratified the Vienna Declaration on Human Rights, the Convention on the Elimination of All Forms of Discrimination Against Women, the Nairobi Forward Looking Strategies for the Advancement of Women, and other international and regional commitments to gender equality. Created by an act of Parliament in 2003, the National Commission on Gender and Development is charged to monitor governmental implementation of its commitments to women's rights.

Emerging evidence suggests that focused efforts to increase women's earning power and reduce their economic dependence on men may also decrease their vulnerability to HIV acquisition. In studies undertaken in Malawi and Tanzania, conditional cash transfers for young women were associated with reduced incidence of HIV infection (World Bank, 2010a).

The decline in female genital cutting over the last 10–15 years coincides with energetic efforts to reduce the frequency of the practice. NGOs, such as Maendeleo ya Wanawake Organisation, have long advocated for programmatic and policy efforts to eliminate female genital cutting, including the creation of new rite-of-passage ceremonies that do not involve genital cutting. In 1999, the Ministry of Health launched the National Plan of Action for the Elimination of Female Genital Mutilation, receiving support from the German government the following year to implement the plan. The 2001 Children's Act specifically designates girls who are likely to be victimized by circumcision as children in need of special care and protection, authorizing the courts to take action against perpetrators. With donor support, Kenya is implementing programmes to eliminate female genital cutting in four districts and among the Somali community in Dadaab Refugee camp, typically using coordinators from the specific ethnic group targeted by the intervention. These initiatives have helped break the taboo that has long surrounded discussions of female genital cutting, educated girls and young women on alternatives to genital mutilation, mobilized community leaders to oppose the practice, and established community discussion forums.

Interventions to reduce stigma, discrimination and social marginalization

Diverse efforts have been undertaken in Kenya to alleviate the social factors that increase HIV vulnerability, impede service utilization, and exacerbate the epidemic's toll on individuals and communities. According to non-governmental informants who participated in completion of the National Composite Policy Index, civil society organisations are responsible for the vast majority of anti-stigma initiatives in Kenya (NACC, 2010). KNASP III emphasizes capacity-building measures to strengthen the ability of civil society to contribute to stigma reduction and to protect and promote the human rights of people living with, or vulnerable to, HIV (NACC, 2009a).

Political leaders in Kenya have also played a role in stigma reduction. Enactment of national anti-discrimination protections, placement of NACC in the office of the President, and increases in public funding for HIV services have all undoubtedly served to increase social acceptance of people living with HIV and to emphasize values of tolerance, compassion and social inclusion. The formal 2010 national report on the National Composite Policy Index assigned a rating of 8 out of 10 for political support for HIV programmes – an increase over ratings given in previous years (NACC, 2009a).

However, important policy gaps remain. As noted above, existing laws and policies do not protect such key populations as FSWs, MSM and people who inject drugs from discrimination. To address some of the weaknesses in national efforts to address

the social determinants of HIV risk and vulnerability, KNASP III calls for a policy and legal review of the country's HIV act, implementation of stigma reduction initiatives in the workplace, and steps to ensure enforcement of existing anti-discrimination protections, such as enhanced legal services for people living with HIV, pro bono legal services, and training for paralegals to facilitate effective legal action to address HIV-related human rights violations (NACC, 2009a).

Conditional cash transfers

In 2010, studies sponsored by the World Bank found that providing cash payments to young people conditioned on certain behaviours (such as remaining in school or avoiding unsafe sex) reduced their risk of becoming infected. In one study, girls who received regular cash payments to remain in school were 60% less likely to become infected than girls who received no payment, and recipients were 75% less likely to become infected with herpes simplex virus type 2 (Baird et al., 2012). A separate study found that a program that made cash payments to young men and women to avoid unsafe sex resulted in a 25% drop in new diagnoses of sexually transmitted infections among recipients of the payments (De Walque, 2010).

The findings from these relatively small studies should be regarded as preliminary and need to confirmed. However, the studies strongly suggest that structural interventions that reduce young people's vulnerability have an important role to play in HIV prevention.

■ ■ ■ *In short, Kenya is in the vanguard of global efforts to bring state-of-the-art prevention strategies to scale. In particular, Kenya has among the highest coverage of any low- and middle-income country for services to prevent mother-to-child transmission. The country is also pioneering the scale-up of voluntary medical male circumcision, having performed more than 200,000 circumcisions over the last two years. And Kenya has taken energetic steps in recent years to increase knowledge of HIV serostatus, implement prevention programmes for people living with HIV, and increase programming for key populations most at risk.*

Yet important aspects of Kenya's HIV prevention response remain unfulfilled. Condom use remains sub-optimal; far too many Kenyans engage in unprotected sex with multiple sex partners; and total national investments in HIV prevention efforts continue to lag. Kenya's most recent national strategy aims to correct many of these historic weaknesses, but rigorous follow-through and sustained national commitment will be required to meet national targets in the fight against AIDS. ■ ■ ■

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Chapter Six

Treatment and care for people living with HIV: The challenge of sustaining recent gains

Key messages

ANTIRETROVIRAL COVERAGE

As of December 2011, antiretroviral treatment coverage in Kenya amounted to 72%, reflecting extraordinary progress in bring life-preserving therapy to people living with HIV. Antiretroviral scale-up has averted 270,000 deaths in Kenya.

TREATMENT ACCESS FOR CHILDREN

Antiretroviral treatment coverage is much lower for children than for adults. In 2011, 83.1% of treatment-eligible people over age 15 received antiretroviral treatment, compared to 31.1% of 65% of children.

PATIENT RETENTION

Rates of patient retention in HIV treatment programmes appear to be improving. While in 2009 34% of patients on antiretroviral therapy were no longer enrolled in care after two years, the two-year loss to follow-up had fallen by 24.6% in 2011.

LINKAGE TO CARE

In 2009, only 56% of newly diagnosed individuals in 2009 were effectively linked to care and treatment services.

HIV/TB CO-INFECTION

Kenya has achieved national targets for TB control. Both the number of new TB cases and the share of TB cases that involve HIV co-infection are on the decline. In 2011, 65% of estimated HIV-positive incident TB cases received treatment for both HIV and TB.

PREVENTING OPPORTUNISTIC INFECTIONS

Most individuals with diagnosed HIV infection – 74% in 2008 – were receiving cotrimoxazole for prevention of common HIV-related opportunistic infections. However, only 54% of HIV-positive pregnant women and only 26% of infants born to HIV-positive women received cotrimoxazole in 2009.

NUTRITIONAL SUPPORT

Fewer than 40,000 people living with HIV received food and nutritional support in 2009.

IMPACT OF IMPROVED TREATMENT ACCESS

As of December 2011, antiretroviral therapy had averted 270,000 deaths in Kenya.

STRENGTHENING HIV AND AIDS INTEGRATION AGENDAS

URGENCY OF ASSESSING

Over the last several years, the HIV landscape in Kenya has been transformed by the rapid expansion of access to life-preserving antiretroviral therapy. The scaling-up of treatment programmes throughout Kenya has reduced HIV-related morbidity and mortality, prevented vulnerable households from falling deeper into poverty, rejuvenated entire communities, helped alleviate the stigma long associated with HIV infection, supported national efforts to improve maternal and child health, and contributed to gains in Kenya's fight against tuberculosis. These achievements are nothing short of historic.

Kenya's most recent national HIV strategy – KNASP III – emphasizes the country's long-term commitment to HIV treatment access. During the four-year (2009–2013) period covered by KNASP III, it is projected that treatment and care will account for 57.9% of all HIV-related spending (NACC, 2009).

In this ongoing national undertaking to achieve universal treatment access, important challenges remain. With the number of people who will need antiretroviral treatment in the future outweighing those who are currently medically eligible, it is clear that sustaining treatment access will demand unflagging national commitment for decades to come. Uncertainties regarding future international funding for continued treatment scale-up, as well as the inevitable growth over time in demand for costly second-line antiretroviral regimens, merely underscore the many challenges that await AIDS stakeholders in the coming years.

Approach to HIV treatment and care

Consistent with international recommendations, Kenya has adopted a public health approach to HIV treatment scale-up. National guidelines specify standardized first-line regimens, mandate routine patient monitoring, offer guidance on how and when to change regimens, and identify evidence-based approaches to clinical practice, including management of common treatment-related toxicities and drug interactions. These guidelines have also formed the basis for extensive clinical training and capacity-building initiatives to ensure that diverse cadres of health care workers have the needed competence to play their respective roles in the administration of HIV treatment and care.

Table

Number of facilities in Kenya providing antiretroviral treatment

Province	Total number of health facilities	ART-adult	ART-pediatrics	EID
Nairobi	437	103	100	101
Central	1374	115	109	233
Coast	785	124	116	287
Eastern	1286	136	122	470
North Eastern	268	25	24	36
Nyanza	866	338	354	626
Rift Valley	1933	257	209	402
Western	473	73	71	185
Total	7,422	1,171	1,105	2,340

A national network of Comprehensive Care Clinics facilitates the ready access of people living with HIV to treatment, care and support services (IPPF et al., 2008). Roughly one in six health facilities (16%) were providing antiretroviral therapy in 2010. The number of facilities administering antiretroviral therapy increased from 731 in 2008 to 1,171 by early 2011 for adults and 1,105 for paediatric. As of December 2011, 1,405 facilities (including 1,242 public sector facilities) offered antiretroviral therapy.

In 2009, 213,521 HIV-positive patients were newly enrolled in HIV care, representing roughly one-third of cumulative enrolment (621,813) (NASCOP, 2010). The number of newly enrolled females in 2009 (140,639) was roughly twice the number of new male enrolees (72,882) (NASCOP, 2010). In 2009, 52% (111,744) of newly enrolled patients were started on antiretroviral therapy in 2009 (NASCOP, 2010).

Kenya has exempted people living with HIV from the usual cost-sharing requirements for antiretroviral therapy and treatment for tuberculosis. However, patients may remain liable for certain costs associated with nutritional support, laboratory investigations and treatment of opportunistic infections.

The Government of Kenya has long recognized the value of engaging families

and communities in treatment efforts. In 2002, the National AIDS/STD Control Programme in the Ministry of Health issued guidelines to aid families and community workers in undertaking home-based care for people living with HIV (NASCOP, 2002). KNASP III calls for initiatives to strengthen home and community-based care services (NACC, 2009).

Antiretroviral therapy

Since the detection of first AIDS case in mid 80s, Kenya primarily provided symptomatic treatment and palliative care and later slowly introduced mono and dual therapy especially in the private sector. In the mid-1990s, the emergence of a new class of antiretroviral compounds ushered in the era of highly active antiretroviral therapy.

Antiretroviral therapy was first introduced through the private sector in the late 1990s but only became widely available through the private sector beginning in 2003–2004. Declines in the price of antiretroviral drugs, abetted in part by generic competition, have enabled the country to progressively increase coverage of antiretroviral treatment.

Initiation of antiretroviral therapy

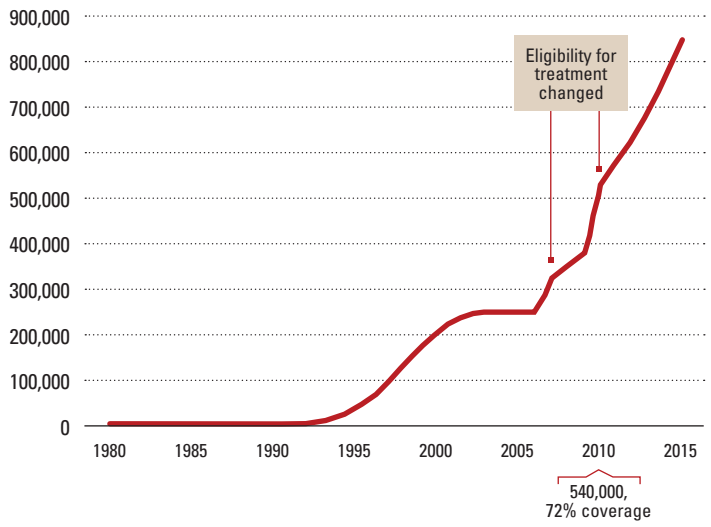
Consistent with changes in international practice, as set forth in updated WHO recommendations, Kenya recommends the early initiation of antiretroviral therapy. Prior to 2007, Kenya provided for initiation of therapy when a patient's CD4 count fell below 200. In 2007, as evidence began to suggest that earlier initiation of therapy was advisable, Kenya began using a CD4 threshold of 250 for starting therapy. As of June 2010, Kenya began calling for antiretroviral treatment to begin once a patient's CD4 count reached or fell below 350. Kenya requires definitive evidence of a positive HIV test result before antiretroviral therapy may be prescribed, although national guidelines permit clinicians to presume a diagnosis of HIV in symptomatic children when virologic confirmation is not possible. These changes have significantly increased the number of adults who are eligible for treatment, with further increases anticipated in the coming years.

Kenya's recommendations for starting treatment in HIV-infected children have also evolved to reflect expanded knowledge of state-of-the-art approaches. Drawing on emerging evidence of optimal approaches to the management of HIV infection in children, Kenya recommended, beginning in 2009, that all HIV-positive children under 18 months be started on antiretroviral therapy.

The changes in eligibility requirements for antiretroviral therapy have significantly increased the number of children in need of therapy. In 2011, more than 150,000 children in Kenya were eligible for antiretroviral therapy. As a result of scaled-up services to prevent mother-to-child transmission, it is anticipated that the number of children in need of therapy will decline in future years.

Figure

Adults in need of antiretroviral therapy in Kenya



Tables

Number of children in need of antiretroviral therapy

Adult ART initiation recommendations based on CD4

Before 2007	< 200
2007–June 2010	< 250
July 2010	Less than 350

Children ART initiation recommendations based on CD4

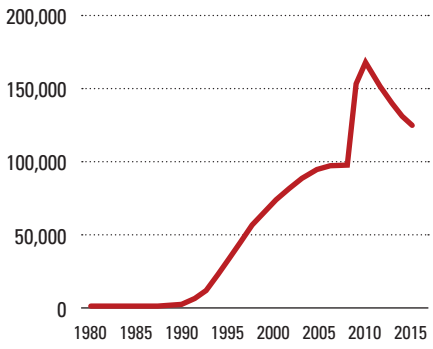
Before 2009	< 12 months: CD4% < 25 or Cd4 count 1500	12–59 months: CD4% < 25% or Cd4 750	> 5 years: CD4% < 20% or Cd4 350
2009	< 18 months		

Current recommendation on when to start ART in children

	< 18 months	18–59 months	5–12 years
CD4%	All	< 25	< 20
CD count	All	< 1000	< 500
WHO stage	All	3 and 4	3 and 4

Figure

Number of children in need of antiretroviral therapy



Table

Patients on antiretroviral therapy in Kenya are on first-line regimens as of December 31, 2009 and December 31, 2010

	Adults	Children	Total on ART
Percentage (%)	91.6%	8.4%	100%
Number at Dec 2009	315,558	28,751	344,309
Number at Dec 2010	396,525	36,096	432,621

Table

Clients on major first-line adult ART regimens as of end December 2009

First-line regimen	Number of adults following regimen	Proportion of adults following regimen (%)
1. D4T/ 3TC/NVP	168,977	55.4%
2. AZT/3TC/NVP	52,292	17.1%
3. D4T/3TC/EFV	37,492	12.3%
4. AZT/3TC/EFV	27,985	9.2%
5. TDF/3TC/NVP	10,992	3.6%
6. TDF/3TC/EFV	7,549	2.5%
Total	305,287	100%

Table

Clients on major second-line adult ART regimens as of end December 2009

Second-line regimen	Number of adults following regimen	Proportion of adults following regimen (%)
1. AZT / 3TC/ LPV/r	3,043	29.6%
2. TDF/3TC/LPV/r	2,049	19.9%
3. ABC + ddI + LPV/r	1,185	11.5%
4. TDF/ABC/LPV/r	1,019	9.9%
5. AZT + ddI + LPV/r	474	4.6%
6. ABC/3TC/NVP	960	9.3%
7. d4T/ 3TC/LPV/r	682	6.6%
8. ABC/3TC/EFV	330	3.2%
9. TDF/AZT/LPV/r	240	2.3%
10. ABC/3TC/LPV/r	135	1.3%
11. Other regimens	153	1.5%
Total	10,271	100%

Antiretroviral regimens

Most HIV patients in Kenya are receiving first-line antiretroviral regimens. Over time, it is anticipated that the need for second-line regimens will increase.

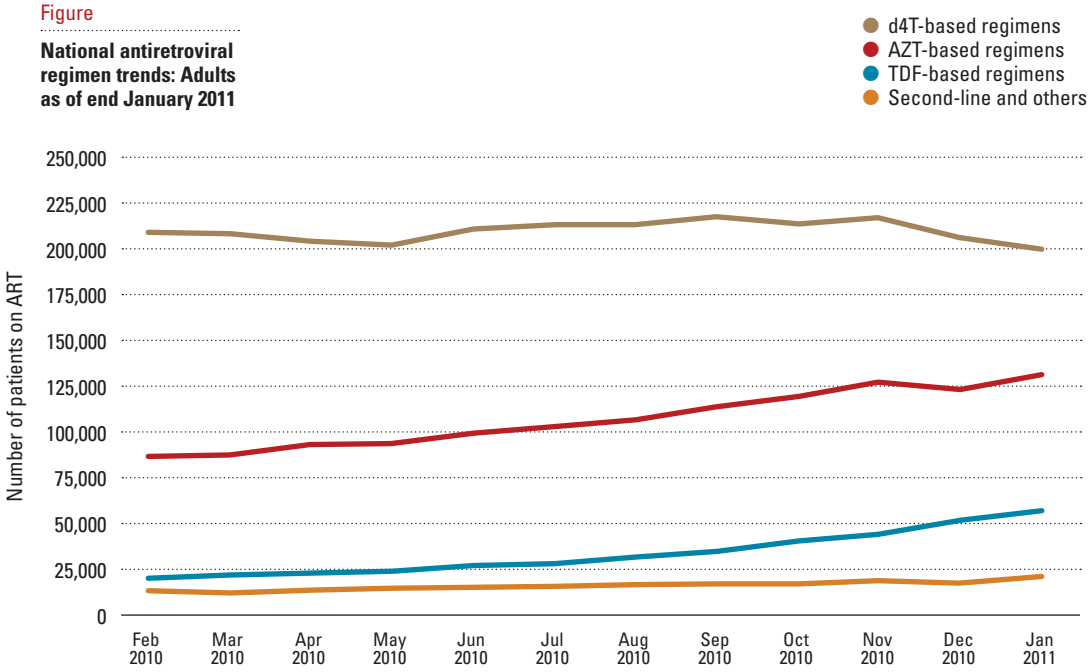
A U.S.-sponsored analysis of more than 14,000 HIV-infected patients enrolled at 18 clinics across western Kenya found that a relatively modest proportion of patients who initiate antiretroviral therapy (less than 10%) changed regimens within two years (Braitstein et al., 2010). Toxicity associated with prescribed therapy was the most commonly cited reason for a change in regimens, with regimens far more likely to be changed in the first year after treatment initiation (Braitstein et al., 2010). Patients who were older, had to travel at least one hour to attend the clinic, or had a lower CD4 count upon initial presentation were more likely than other patients to change regimens (Braitstein et al., 2010).

Kenya has taken steps to ensure use of optimal, longer-lasting regimens with fewer side effects. Antiretroviral therapy involves the use of three or more antiretroviral drugs. With well over a decade of international practice with various antiretroviral regimens, it has become apparent that certain first-line regimens are likely to be more potent and have longer duration of effectiveness than some others. In addition, while the tolerance for individual antiretroviral agents may vary from patient to patient, it has become clear that certain regimens are associated with higher incidence of toxicities.

The nucleoside analogue reverse transcriptase inhibitor d4T (stavudine) has long been a mainstay of antiretroviral regimens. In 2009, a majority of individuals on antiretroviral therapy in Kenya were receiving regimens that contained d4T. Citing d4T's well-documented toxicity, Kenya in 2010 revised its national guidelines to discourage the use of d4T. (See table summarizing recommended antiretroviral regimens.) Following adoption of the updated treatment guidelines in 2010, use of d4T in Kenya began to decline, with the percentage of individuals receiving d4T-containing regimens dropping from 68% in 2009 to 54% in 2010 (WHO et al., 2011).

Figure

National antiretroviral regimen trends: Adults as of end January 2011



Table

Adult and adolescent ART guidance

When to start HAART	Stage 1 and 2 if CD4 < 350/ml (all adults and adolescents irrespective of pregnancy	
	WHO State 2 and 4 regardless of CD4 counts (all adults and adolescents irrespective of pregnancy	
	Start all TB HIV co-infected patiens on ART regardless of CD4 count	
What to start HAART	First-line ART	Seond line ART
	AZT+3TC+NVP/EFV	TDF+3TC+LPV/r
	TDF+3TC+NVP/EFV	AZT/D4T[a]+3TC+LPV/r
TB/HIV co-infected patients	First-line ART	Seond line ART
	AZT+3TC+EFV	TDF+3TC+ABC
	TDF+3TC+EFV	AZT/D4T[a]+3TC+ABV

a D4T use in second-line should only be used if no other options are available or AZT cannot be tolerated

Table

Clients on major firsr line paediatric ART regimens as of end December 2009

First-line regimen	Number of children following regimen	Proportion of children following regimen (%)
1. AZT + 3TC + NVP	9,847	36.1%
2. d4T + 3TC + NVP	7,524	27.6%
3. AZT + 3TC + EFV	3,823	14.0%
4. ABC/3TC/NVP	2,555	9.4%
5. d4T + 3TC + EFV	2,388	8.8%
6. ABC/3TC/EFV	1,152	4.2%
Total first-line	27,289	100%

Table

Clients on major second-line paediatric ART regimens as of end December 2009

Second-line regimen	Number of children following regimen	Proportion of children following regimen (%)
1. AZT+3TC+LPV/r*	344*	23.5%
2. ABC+3TC+LPV/r*	293*	20.1%
3. ABC+ddI+LPV/r	241	16.5%
4. ABC+3TC+AZT	223	15.2%
5. D4T+3TC+LPV/r	163*	11.2%
6. ABC+AZT+LPV/r	47	3.2%
7. AZT+ddI+LPV/r	24	1.6%
8. Other regimens	127	8.7%
Total second-line	1,462	100%

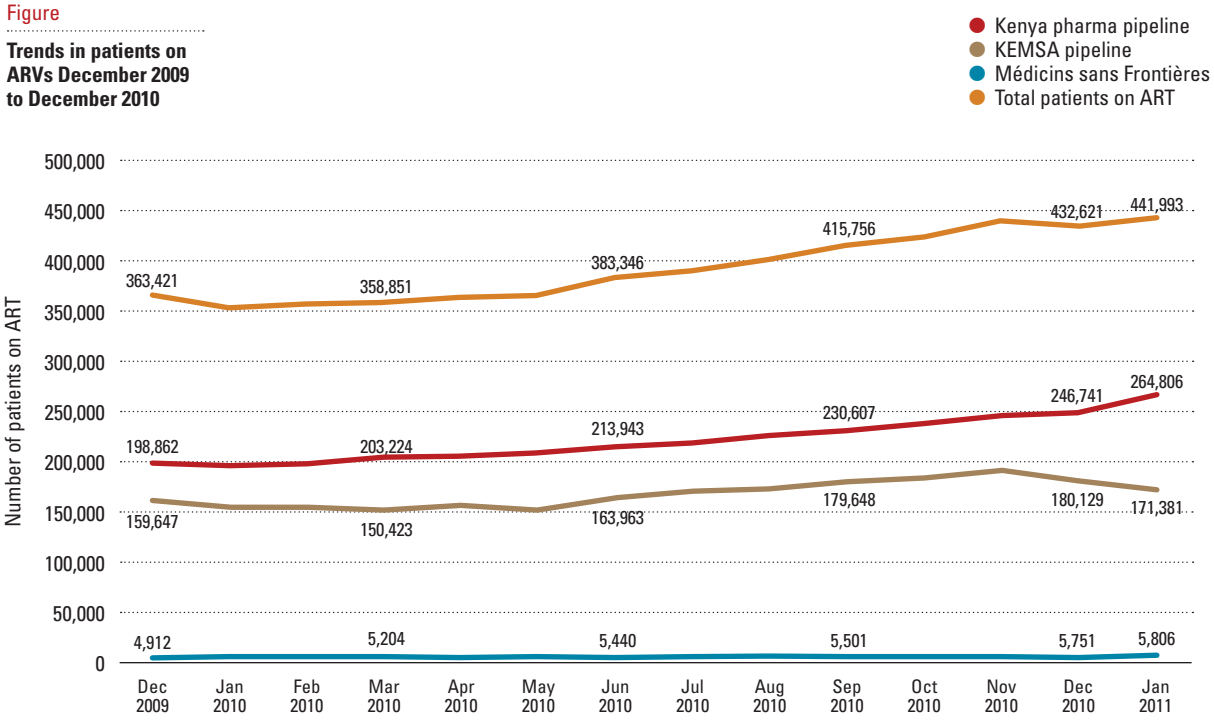
Antiretroviral coverage for adults

Access to antiretroviral therapy has progressively increased since Kenya launched its treatment scale-up effort in 2004. The number of adults in Kenya receiving antiretroviral treatment in 2009 rose to 308,059, a 34% increase over 2008 (NACC, 2010). The increased reach of treatment services in 2009 followed a comparable 37% increase in the number of people receiving antiretroviral therapy between 2007 and 2008 (WHO et al., 2009). The number of adults on HIV treatment in 2009 was nearly double the total number receiving antiretrovirals in 2007, when 172,000 patients were receiving the drugs (NACC, 2010).

The number of adult patients on antiretroviral therapy in 2010 represented 72% of the estimated number of people who were medically eligible at the time to receive the drugs. Coverage in 2010 exceeded the 2013 target of 71%. Nyanza and Rift Valley provinces accounted for roughly half of all patients started on antiretroviral therapy in 2009 (NASCOP, 2010).

Figure

Trends in patients on ARVs December 2009 to December 2010



Source: NASCOP Kenya anti-retroviral drugs (ARVs) stock situation, February 2011

While it is possible to track the total number of people receiving antiretroviral therapy over time, one cannot compare coverage levels reported in prior years with current coverage. This is because revised treatment guidelines have substantially increased the treatment denominator by expanding the number of people who are eligible to receive antiretroviral therapy. NASCOP, using the Spectrum model, estimates that the revision to the treatment guidelines increased the number of treatment-eligible individuals in Kenya by 44% – from 430,000 under the prior guidelines to 620,000 under the 2010 revision.

Although definitive treatment coverage data are not available for every key population in Kenya, there is evidence that some groups experience difficulties in accessing HIV treatment services due to the effects of stigma and limited availability of focused services. Many MSM in Nairobi report difficulty in locating a provider who is trained to address their unique needs (Onyango-Ouma et al., 2005). In addition, many MSM avoid seeking out of fear that they will be reported to legal authorities (Onyango-Ouma et al., 2005).

Young people living with HIV also experience potential access challenges due to the inability of some providers to address the unique needs of young patients. In late 2009, NACC estimated that only 12% of public health facilities offered youth-friendly services (NACC, 2009).

Antiretroviral coverage for children

Timely treatment access for children living with HIV is an urgent necessity. In the absence of treatment, up to half of infants who contract HIV infection will die before age two (Marston et al., 2005; Newell et al., 2004).

Antiretroviral treatment scale-up has been slower in the paediatric population than among adults. In 2011, less than one in three (31.1%) children who needed antiretrovirals were receiving the medications. More than one in four health facilities surveyed in 2010 (26%) lacked capacity to monitor childhood growth, indicating that many health care settings are unprepared to deliver comprehensive paediatric treatment and care.

Kenya has achieved gains towards ensuring timely HIV diagnosis in children. Accurately diagnosing HIV in children is more difficult than in adults, and children's access to treatment has long been limited by the fact that standard antiretroviral regimens were originally designed for use in adults. However, international efforts have largely overcome these early impediments to paediatric treatment scale-up. Use of dried-blood spots for centralized virologic testing has proven feasible in resource-limited settings, and the sustained efforts of UNITAID, the Clinton Foundation, and other international actors have generated affordable paediatric antiretroviral formulations (UNAIDS, 2008). In 2009, 1,322 facilities nationwide offered early infant diagnosis using dried-blood spot, a notable increase over 866 in 2008 (NASCOP, 2010). In 2009, the percentage of HIV-exposed children tested for HIV rose from 37.8% to 61% (NACC, 2010). However, challenges persist, as most children born to HIV-positive mothers do not receive timely virological monitoring, with 38.9% of HIV-exposed children benefiting from such testing within two months of birth in 2011.

While excellent medical outcomes are feasible for children on antiretroviral therapy (see UNAIDS, 2008), children nevertheless experience considerable mortality risks in the early stages of paediatric antiretroviral scale-up. Among children placed on antiretroviral therapy in Nairobi's Kenyatta National Hospital between 2004 and 2008, roughly one in seven (13.4%) died, with a median time to death of 35 days following initiation of therapy (Wamalwa et al., 2010). The Nairobi study found that low baseline hemoglobin was an independent risk factor for death in HIV-infected children.

Factors influencing pace of antiretroviral scale-up

Kenya has taken steps to facilitate improved access to antiretroviral treatment, including the removal of user fees on antiretrovirals in all public health facilities. With the support from various development partners, Kenya has also removed user fees on HIV-related laboratory services and clinical documentation in some health facilities. However, user fees on various components of comprehensive care and treatment continue to impede efforts to accelerate scale-up in many parts of Kenya (Wamai, 2009). Services are also becoming more patient-friendly as a result of increased involvement of people living with HIV and other key groups.

However, HIV care and treatment services remain inadequately decentralized, slowing efforts to expand antiretroviral access to those who are medically eligible. One of the significant barriers to decentralization of HIV care and treatment services is related to human resources shortages at dispensary and health centre level as well as lack of clear policy on task shifting. User fees for laboratory investigations and other elements of HIV care and treatments services remains a significant barrier to access. Stigma remains high, facilitating self-exclusion of some clients from accessing services.

As explained in Chapter Eight, Kenya's health system has made considerable strides toward improving the management of antiretroviral drugs and other health stocks in recent years. Kenya health authorities undertake evidence-based forecasting to quantify antiretroviral drug needs and to ensure an adequate, seamless supply (NASCOP, 2010). The existence of at least three parallel procurement and supply management systems in Kenya hinders efforts to plan for a continuous supply of drugs and other health commodities. According to national authorities, donors and suppliers frequently quote varying prices for the same commodity (NACC, 2009). Recent information is not available on the frequency and severity of drug stock-outs in Kenya. However, stock-outs and imminent stock-outs of HIV medicines and other technologies have been reported, prompting national partners to incorporate efforts to strengthen commodity management in Kenya's latest national HIV strategic plan (NACC, 2009). Persistent inequities in the distribution of health facilities and human resources for health result in significant health coverage inequalities between geographical locations and income strata.

Treatment adherence

For HIV treatment to succeed, patients must take their medicines as prescribed. Missing doses or taking "drug holidays" permits the virus to rebound and to develop resistance to prescribed drugs. Sub-optimal adherence is believed to be the primary cause of treatment failure in people living with HIV (Panel on Antiretroviral Guidelines, 2008).

Antiretroviral adherence rates in sub-Saharan Africa are comparable to, and sometimes superior to, those recorded in clinics in high-income countries (Mills et al., 2006). Nevertheless, some patients confront significant barriers to treatment adherence. In particular, patients living in acute poverty or on the street, in transit, affected by conflict or internal displacement, or struggling with chemical dependence may require focused support in order to achieve optimal adherence.

National guidelines require clinicians to undertake a psychosocial assessment of all patients to determine their ability to adhere to antiretroviral therapy. Applicable guidelines also direct clinicians to counsel their patients on treatment adherence and to monitor patient adherence. Where evidence of non-adherence exists, clinicians are recommended to engage patients in discussions regarding ways to improve treatment adherence.

Information is somewhat limited regarding antiretroviral adherence rates in Kenya, with monitoring efforts generally focused on the prevalence of drug resistance as a proxy measure for adherence. In a study involving patients attending the Coast Province General Hospital in Mombasa, 85.6% of patients who had been on antiretroviral therapy more than six months had a viral load below 50 copies (Steegen et al., 2009). Of the 14 patients with reverse transcriptase mutations, nine had high-level resistance against at least two of the drugs in the regimen. Although the study revealed a high rate of treatment success in this setting, researchers expressed concern regarding the considerable share of patients who developed multi-drug resistance (Steegen et al., 2009).

The degree to which antiretroviral treatment settings in Kenya formally incorporate focused interventions to support patient adherence is unclear. What is clear, however, is that some clinical settings are pursuing innovative strategies to provide patients the support they need to adhere to treatment regimens. A recent study found that use of SMS texting services resulted in treatment adherence rates above 90% at treatment sites in Kenya (Pop-Eleches et al., 2011). The U.S. PEPFAR initiative has trained and mobilized community health workers to support medication adherence (PEPFAR, 2008). Some antiretroviral clinical settings in Kenya now have regular psychosocial support groups to support the ability of patients to adhere to prescribed treatment regimens, while others have integrated

INCREASING TREATMENT LITERACY IN NAIROBI

Post-test clubs aim to address the anxieties and uncertainties of people who test HIV-positive, educate individuals and communities on treatment issues, facilitate linkage and care, and support treatment adherence. Post-test clubs are associations of HIV-positive volunteers who support one another and share information and experiences. Today, more than 100 post-test clubs exist in Nairobi, operated by numerous grassroots organizations and networks, such as the Kenya Organisation of People Living with AIDS and the Kenya Organisation of Young People Living with AIDS. Many of these post-test clubs have organized themselves into networks. Under the umbrella of these post-test clubs, Belgian chapter of the NGO Médicins sans Frontières (MSF) has trained dozens of so-called "expert patients" who facilitate treatment literacy trainings, sensitize local communities to the needs of people living with HIV, and train other trainers. The active engagement of people living with HIV in improving their own health and well-being is a central objective of post-test clubs (MSF Belgium, 2008).

FOLLOW-UP INTERVENTIONS TO PROMOTE CONTINUITY OF CARE

Family AIDS Care and Education Services, or Faces, has undertaken intensive follow-up to help patients who have fallen out of treatment re-enter clinical care (Tuller, 2010). A joint initiative of the Kenya Medical Research Institute and the University of California, San Francisco, Faces found that it was losing around 30% of its antiretroviral patients. In response, programme staff have begun travelling to patients' neighbourhoods and villages to reconnect them to care. Because patients experience a wide variety of obstacles to care, programme staff are required to devise innovative solutions to address the factors that impede ongoing utilization of services (Tuller, 2010).

HIV-positive peer workers into clinical care teams. Engagement of the patient's family has also proved to be a useful strategy to promote patient retention and treatment adherence.

A recent study involving HIV-positive women in Kenya and Zambia found that patients who were late for a clinic appointment were 10 times more likely than punctual patients to have sub-optimal treatment adherence (Blacher et al., 2010). Based on these study findings, one possible strategy to support treatment adherence might be to focus intensive adherence support services on patients who are chronically tardy for appointments.

Patient retention

Nearly one in four (24.5%) of patients who started antiretroviral therapy remained in care 12 months later in 2011. This represents a degree over improvement over the drop-out rate reported in 2010 (27%) (NASCOP, 2010). Three years after treatment initiation, 61.3% who initiated antiretroviral therapy remain enrolled in care (NASCOP, 2010). Among paediatric patients with HIV, substantial loss to follow-up (an estimated 24% of patients in 2008) has been reported.

According to data compiled by AIDS Relief, a PEPFAR-financed consortium that works in 29 treatment facilities and more than 100 satellite service sites throughout Kenya, the percentage of patients who remain enrolled in treatment programmes one year after starting antiretroviral therapy has actually declined over time, from 88.1% in 2004 to 80.5% in 2007 and 76.7% in 2008 (AIDSRelief, 2010). Among adult patients treated by this consortium, retention rates were significantly higher among women than for men, with little difference observed between retention for women and paediatric patients (AIDSRelief, 2010).

Improving rates of patient retention represents a critical priority for the national AIDS response. Strategies employed by different clinical sites to keep patients engaged in care include programmes linking patients to treatment "buddies", active and timely follow-up after missed appointments, psychosocial support services, and provision of food supplements to food-insecure patients.

The impact of antiretroviral treatment scale-up in Kenya

Since Kenya began scaling up antiretroviral treatment services, increased availability of therapy has averted 270 deaths in Kenya. Antiretroviral treatment also results in considerable non-clinical benefits, including patients' improved perception of health, emotional well-being, and labour productivity (Beard et al., 2008).

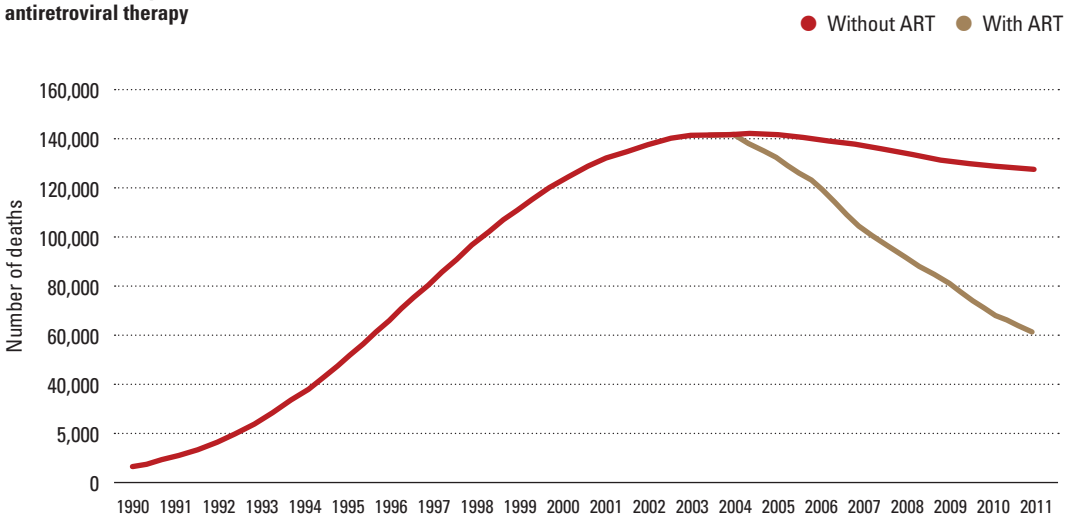
Individual cohorts of patients provide useful information regarding the health benefits of antiretroviral scale-up. According to data compiled by one national treatment consortium supported by PEPFAR, the probability that an individual will survive and remain engaged in care is 83% 12 months after treatment initiation, 77% at two years, 72% at three years, 69% at four years, and 67% after five years or more (AIDSRelief, 2010). In light of the fact that national guidelines until very recently provided for initiation of therapy only in the latter stages of infection, the impressive five-year survival rates for patients enrolled in this treatment programme provide vivid evidence of the remarkable health dividends resulting from investments by Kenya and international partners in treatment scale-up.

However, findings from this treatment programme also demonstrate that considerable morbidity and mortality continues to occur among patients receiving HIV treatment and care. Particularly notable is the high probability of mortality (17%) within the first year after therapy is initiated. Among those patients enrolled in this treatment programme who died within 12 months of starting treatment, most (67.8%) died within the first three months of therapy (AIDSRelief, 2010). Survival odds were lower for patients who began therapy at an extremely advanced stage of HIV disease (with a CD4 count below 50) than among those who started treatment with CD4 counts of 51-350 (AIDSRelief, 2010).

A study involving workers at a tea plantation in Kericho District indicates that antiretroviral therapy significantly enhances worker productivity and reduces absenteeism Larson et al., 2008). In a separate study of HIV-positive workers in Kosirai Division, average productivity and the number of hours worked each week rose by 16.7% and

Figure

AIDS-related deaths averted by antiretroviral therapy



6.9 hours, respectively, within nine months of initiating therapy (Thirumurthy et al., 2005).

Available evidence also documents treatment benefits for HIV-affected households. In the Kosirai study, the amount of time in which boys ages 8-12 worked outside the home declined by 22.7% if an adult in the household had been on antiretroviral treatment at least 100 days (Thirumurthy et al., 2005). In a separate analysis in Kosirai District, adult treatment initiation was associated with a 21% increase in the number of hours a child living in the same household attended school (Graff Zivin et al., 2007).

Timely treatment and care for people with HIV-TB co-infection

HIV has been the driving force behind a nearly three-fold rise in Kenya TB burden in the last 10 years. Despite being both curable and preventable, TB remains the leading cause of death of people living with HIV in Kenya.

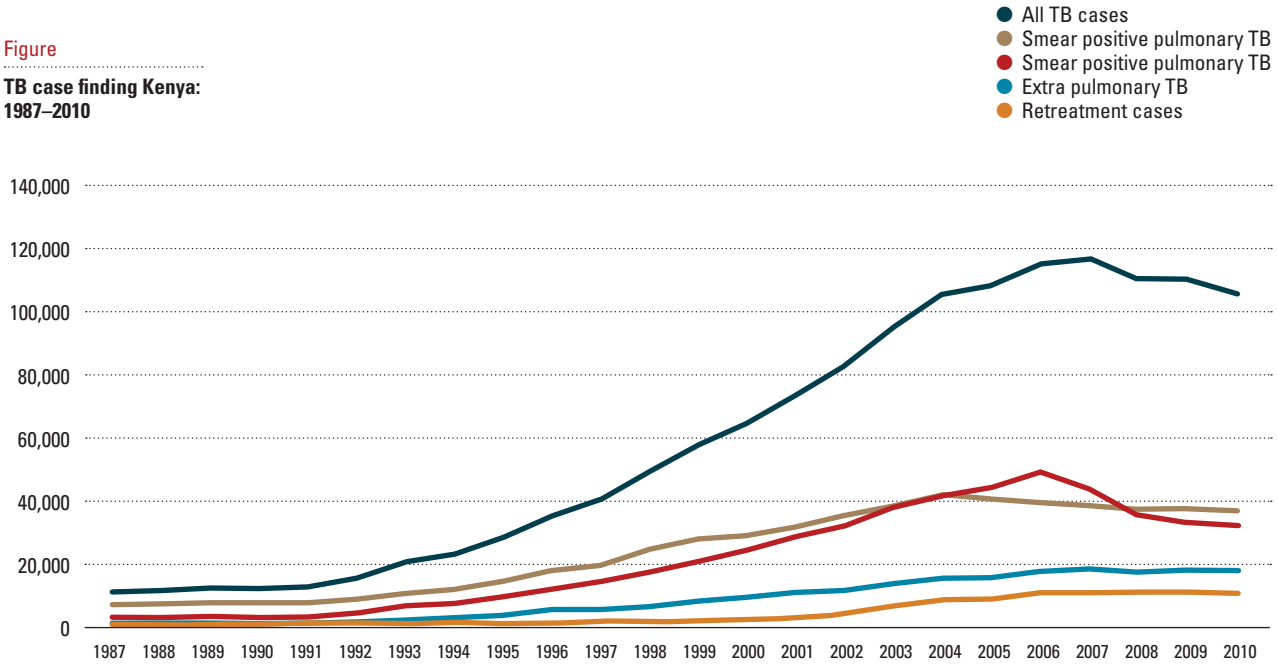
In 2010, Kenya reported 105,781 new cases of TB (NASCOP, 2011), which represented a decline in the number of newly reported TB cased from 116,723 in 2007. Kenya was the first country in sub-Saharan Africa to reach global targets for TB case detection (80% of new cases in 2007) and treatment success (85% of cases in 2006) (WHO, 2009).

Kenya has taken recommended steps to improve HIV/TB collaboration. The country has successfully implemented activities that strengthen mechanisms of collaboration between the national TB and HIV programs by establishing HIV/TB steering committees at all levels to provide leadership in implementing the 12 collaborative activities. National TB/HIV guidelines were developed that outline respective roles and responsibilities in HIV and TB programmes as well as implementation strategies. Specific TB and HIV coordinators have been established at provincial and district levels to expedite implementation. In 2011, 65.4% of HIV-positive individuals with newly diagnosed TB received treatment for both HIV and TB.

In 2005, the national TB Program began implementing ongoing national HIV serosurveillance for registered TB patients, with the programme fully implemented as of the first quarter of 2006. The National TB Program has performed admirably in diagnosing HIV-TB co-infection, with the percentage of TB patients tested for HIV rising from 83% in 2008 to 95% in 2009, surpassing Kenya's national target for 2013 of 90% testing among TB patients. HIV testing is routinely offered to TB patients and TB/HIV data is collected from all regions and transmitted to the national level.

Figure

TB case finding Kenya: 1987–2010



Source: 2010 DLTLD Annual Data Report

HIV prevalence among TB patients is on the decline. In 2010, 41% of the notified TB cases were HIV infected.

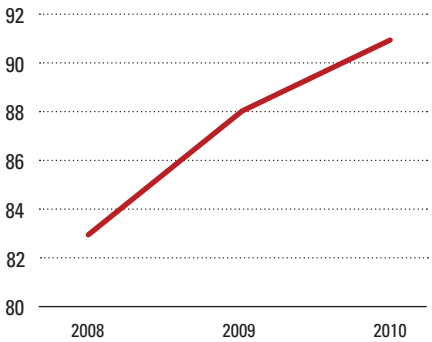
To effectively reduce the burden of TB among people living with HIV, WHO recommends a multi-pronged approach known as the "Three I's" (WHO, 2008). Components of this approach include intensified case finding, Isoniazid preventive therapy and proper infection control to prevent the spread of TB to individuals who are vulnerable to the disease.

Kenya has taken steps to implement the Three I's nationwide. Kenya has developed a national tool for intensified case-finding, which is now in use in a majority of clinical settings. In particular, Kenya has integrated TB screening in HIV prevention, care and treatment settings.

Isoniazid preventive therapy has been implemented in congregate settings such as prisons, military and children homes; among targeted groups, such as health care workers and children exposed to TB; selected health programs with adequate infrastructure; and controlled research programs. Protocols are currently being developed to support introduction of isoniazid preventive therapy in general health settings.

Figure

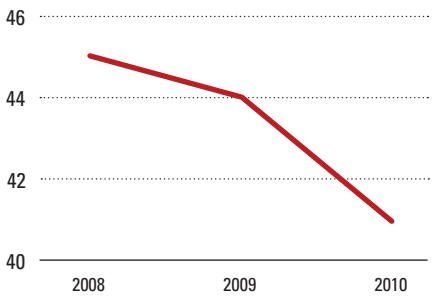
Trends in HIV testing rates among TB patients between 2008



Source: 2010 DLTLD Annual Data Report

Figure

Trends in HIV positivity rates among TB patients between 2008–2010



Source: 2010 DLTLD Annual Data Report

Kenya has developed and operationalised guidelines for infection control. TB infection risk assessments have been conducted in both private and public health facilities, resulting in facility-specific recommendations to strengthen infection control. Capacity-building programmes are building support for infection control in health settings, and Kenya has also procured and distributed respirators to centres that are managing patients with multidrug-resistant TB.

Antiretroviral therapy significantly reduces the risk of death in patients co-infected with HIV and TB (Monasuthi et al., 2006). The proportion of co-infected patients receiving antiretroviral therapy increased from 16% in 2006 to 47% in 2010.

Acknowledging the continuing gaps in national efforts to address HIV-TB co-infection, KNASP III endorses steps to increase the reach and effectiveness of services for co-infected patients (NACC, 2009). In particular KNASP III calls for strengthened linkages between TB and HIV service systems, improved diagnosis of co-infection, and patient counselling to minimize the risk of onward TB transmission (NACC, 2009).

Interventions for co-morbidities and other HIV-related opportunistic infections

Illness and death associated with HIV result not from the underlying viral infection but from various opportunistic illnesses that do not normally affect individuals with functioning immune systems. Interventions exist to prevent and/or treat the most common HIV-related opportunistic illnesses, and Kenya has taken steps to ensure their ready availability in the clinical management of HIV disease.

Cotrimoxazole, which helps prevent various HIV-related infections, remains under-utilized. In 2007, only 12.1% of HIV-infected adults were receiving cotrimoxazole, primarily due to lack of HIV diagnosis (Kenya Bureau of National Statistics, 2010). In antenatal settings, only 54% of HIV-positive mothers and only 26% of their newborns received cotrimoxazole (NASCOP, 2010).

Evidence indicates that HIV infection increases the risk of abnormal cervical cytology in women. A study of 820 female sex workers in Mombasa found that HIV-infected sex workers were almost four times more likely to have high-risk human papillomavirus (HPV), elevated HPV viral load, and a greater number of precancerous lesions (Luchters et al., 2010). These patterns underscore the need for timely cervical screening and follow-up as components of comprehensive HIV care for women living with HIV.

Medical management of individual cases of HIV infection must take into account the high prevalence of certain co-morbidities that, although unrelated to HIV infection, may complicate treatment and care and potentially worsen medical outcomes. For example, HIV-infected people who inject drugs in Kenya also have high prevalence of hepatitis B and hepatitis C, viruses that are transmitted in the same manner as HIV (Fraser et al., 2008). People living with HIV in Kenya are also significantly more likely than uninfected individuals to have syphilis.

Comprehensive package of care for people living with HIV

Like patients with other health conditions, people living with HIV often have multiple medical needs. For example, many HIV-positive patients are co-infected with conditions that are transmissible by the same routes as HIV, such as hepatitis and sexually transmitted infections. In addition, as HIV-infected individuals live longer on antiretroviral therapy, they are increasingly likely to experience conditions commonly associated with aging.

For many patients, HIV itself increases the severity and range of health service needs. For example, HIV-related immune suppression makes individuals vulnerable to infections that uninfected people are usually able to tolerate. In this regard, it is noteworthy that more than half of all people living with HIV reside in a household that treats its main source of drinking water (NASCOP, 2009). National guidelines on basic care for people living with HIV provide guidance on the prevention of diarrhoeal diseases, malaria

and sexually transmitted infections among HIV infected persons and their families (NASCOP, 2010).

Nutritional support

Since 2003, Kenya has identified nutritional services as an integratal component of HIV treatment and care. National guidelines provide that each patient living with HIV should receive a nutritional assessment, as well as counseling, education and support on food and nutrition issues. Beginning in 2005, NASCOP enhanced its investment in technical staffing on nutrition services, with 150 nutritional specialists hired in 2005-2006. Kenya has developed formal guidance and a standard curriculum on nutrition and HIV, created extensive communications and training materials to support effective nutritional programming in HIV service settings, and collaborated with diverse development partners to capacity in diverse settings to integrate nutrition programming.

Based on available data, Kenya estimates that 15% of people living with HIV in care are moderately malnourished, with an estimated 4% suffering from severe malnutrition. Since 2007, 141 district and sub-district hospitals and 261 satellite sites have participated in a food-by-prescription programme supported by the U.S. government in collaboration with the Ministry of Health. From 2007 through March 2011, the programme served 176,268 malnourished and vulnerable people living with HIV (46% adult men and women, 11% pregnant and lactating mothers, 43% children as per march 2011. Programme officials report that food-by-prescription appears to increase treatment adherence, reduce the incidence of opportunistic infections, and improve quality of life for participating individuals.

National officials estimate that 70% of pregnant and lactating women suffer from anemia. This pattern suggests that all HIV-positive pregnant or lactating women should receive supplementation with iron, folate and additional nutritional support. Kenya has initiated a comprehensive infant feeding programme in Central Province, reaching more than 2,000 infants as of mid-2011. For children born to mothers who deliver at a health facility, the programme ensures access to a national infant feeding card, antiretroviral medicines, early infant diagnostic services, infant formula, and a water kit to ensure that mothers have the means to perform safe replacement feeding. Participating mothers also have access to support groups that address such issues as disclosure of HIV status. The programme has achieved impressive results to date, with 90% of participating children testing HIV-negative at nine months. Mortality among participating infants is under 1%.

A separate programme, supported through Round 7 of the Global Fund, affords access to replacement feeding for more than 3,000 infants in 13 different hospitals. As a result of additional support through Round 10 of the Global Fund, the programme is now expanding supplementary and therapeutic feeding services to 50 new facilities. Other infant programmes are also operating in Kenya, including an AMPATH initaitive that has provided replacement feeding for 2,000 children and a family ration programme reaching 78,000 beneficiaries in three provinces. NASCOP has supported increased awareness of the importance of nutritional support in the context of HIV infection through annual advocacy forums.

Although these various initiatives have effectively expanded access to essential food and nutrition services for people living with HIV, efforts to address HIV-related nutritional needs confront considerable challenges. First and foremost, Kenya continues to struggle with an acute shortage of staff who are trained in the provision of nutritional services. Most health facilities lack basic equipment, such as baby scales, stadiometers, bathroom scales, height boards, and wheels for measuring body-mass index, which causes many malnourished patients to go unnoticed, leading to preventable complications later on. Inadequate funding for procurement of supplemental and therapeutic foods for HIV-vulnerable patients, compounded by the high taxation of nutritional commodities, limits access to essential nutritional services. In a country where most mothers breast feed, substantial dangers exist that infants will be exposed to multi-class drug resistance. To date, nutrition indicators have also not been integrated within basic data collection and reporting forms of the Ministries of Health. These deficits underscore the need for strengthened nutrition services, increased resource allocations for food and nutrition in the context of HIV, and enhanced advocacy to elevate nutrition on the development agenda and to ensure that legal, tax and adherence

issues are effectively addressed through sound policy responses.

Psychosocial services

People living with HIV often encounter an array of psychosocial issues that may affect their ability to adhere to treatment, remain engaged in care, or experience a good quality of life. Such issues include fear associated to HIV status disclosure, stigma & discrimination; depression or other mental health problems; social isolation, dependence on alcohol or other substances, and limited access to the basics of life, such as food, clothing and shelter. Women, who shoulder the lion's share of caregiving responsibilities, may especially experience difficulties in balancing management of HIV disease with other demands.

Management of these and other psychosocial priorities constitutes an essential component of holistic treatment and care for people living with HIV. Psychosocial support and counselling are made available in the country's network of Patient Support Centres (IPPF et al., 2008), although information is not available on the coverage, quality and impact of such services. PLHIV support groups also provide a forum for individual and group therapy to alleviate effects of the psychosocial issues as well as identify practical solutions. Various treatment guidelines advise that providers should periodically conduct psychosocial assessments of their patients.

Palliative care

Many people living with HIV, especially those in the later stages of the disease, experience chronic pain and discomfort, underscoring the need for HIV service providers to have the capacity to administer appropriate pain relief. Virtually all health facilities in Kenya – 97% in 2004 – offer patients basic management for pain, defined as access to paracetamol, aspirin or ibuprofin (Muga et al., 2004).

For people suffering from chronic diseases such as HIV, especially those in the last stages of life, morphine is the recommended agent for relief of severe pain (Human Rights Watch, 2009). Access to morphine is significantly more restricted than access to basic pain relief. Per capita consumption of morphine in sub-Saharan Africa is less than one-thirteenth of the global mean (Pain & Policy Studies Group, 2009). Kenya has the fifth highest utilization rate for morphine in sub-Saharan Africa, although mean per capita use (0.6058 mg) is only marginally higher than the regional mean (0.4539 mg) (Pain & Policy Studies Group, 2009). There is an urgent need to put policies in place that incorporate morphine into HIV-related pain management within the comprehensive care centres and at the home and community level.

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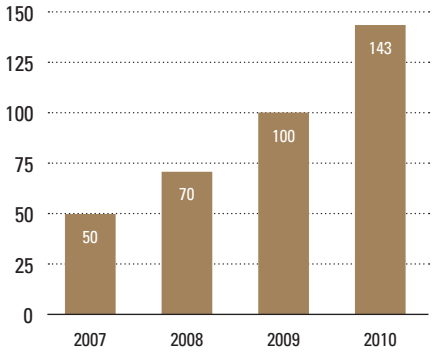
Laboratory support for treatment and care

Over the past five years, Kenya has undertaken consistent efforts to develop high-quality laboratory services to support HIV prevention, care and treatment programs. Under the 2006-2010 Kenyan National AIDS Strategic Plan (KNASP II), on-site medical diagnostic laboratories were placed in two health referral facilities, eight provincial facilities, over 200 district-level or sub-district hospitals, 710 health centres, and 3,000 dispensaries. KNASP III, launched in 2009, further acknowledged laboratories as an essential part of the country's healthcare plan to support HIV/AIDS prevention, treatment, and care programs and proposed to increase the percentage of health facilities with the capacity to perform clinical laboratory tests for HIV patients.

Figure

Number of laboratories in Kenya with capacity to offer comprehensive monitoring of antiretroviral therapy



Through these consecutive strategic plans, Kenya has pursued an ongoing approach that emphasizes strengthening of laboratory quality systems and putting in place a tiered network model that links lower-tier with higher-tier laboratories to expand access to needed diagnostic and monitoring services. This approach strengthens the capacity of health systems to manage not only HIV, but also other diseases associated with high morbidity and mortality in resource-limited settings, particularly tuberculosis and malaria. In addition, the country is working with diverse stakeholders to develop laboratory services in close proximity to clinical services, minimizing the need for sample transportation and, more importantly, simplifying travel and other logistics for patients.

Currently, the country has a network of 143 public health laboratories offering comprehensive HIV laboratory monitoring services – a nearly three-fold increase since 2007. These 143 sites allow for specimen referral from nearly 600 other laboratories. Over 600 laboratory personnel have been trained in various aspects of laboratory testing and monitoring of antiretroviral therapy. Early infant diagnostic laboratory services have been established at six referral sites, and molecular diagnostic testing for HIV viral load and resistance monitoring has been created at three referral sites. Kenya has taken steps to improve diagnostic monitoring for leading HIV-related opportunistic infections, including cryptococcal meningitis and tuberculosis. In the case of tuberculosis, for example, two hospital laboratories have been established to conduct TB culture and drug susceptibility testing.

■■■ *Kenya's tremendous strides in expanding access to high-quality HIV care and treatment are saving lives, strengthening national productivity, and improving the quality of life for people living with HIV. However, the country confronts considerable challenges in its quest to build on these gains in order to achieve universal access.*

To continue progress in expanding HIV care and treatment, several critical steps are needed. Kenya must mobilize sufficient resources and strengthen the capacity to health system to meet treatment challenges. Additional steps are required to support accelerated scaling-up, including further decentralization, removal of all relevant user frees and other financial barriers to treatment access, and ensuring that treatment services are socially and culturally acceptable to those who need them. To minimize the emergence of treatment failure and drug resistance and ensure the sustainability of treatment gains, further investments are also needed to optimize the quality of treatment and care services. ■■■

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Chapter Seven

Support for children and households affected by HIV: A growing priority in Kenya's national response

Key messages

ORPHANS

An estimated 1.1 million children under age 18 in Kenya have lost one or both parents to AIDS. The number of children orphaned by AIDS is on the decline, helping drive an overall reduction in the number of orphans in Kenya.

ACCESS TO FREE ASSISTANCE

In 2007, 21.7% of all households caring for children orphaned or made vulnerable by AIDS received some sort of free assistance – an improvement over the 14% rate reported for 2005. Were this rate of increase in the provision of free assistance to continue, Kenya can be expected to meet its 2013 target to reach at least 40% of such households with some form of free assistance.

FINANCIAL ALLOCATIONS FOR CHILDREN-FOCUSED PROGRAMMES

Kenya's current strategic AIDS plan calls for the scaling up of programmes to address the needs of children orphaned or made vulnerable by AIDS, with the proportion of the national AIDS budget devoted to such initiatives projected to grow from 3% in 2007–2008 to 8.4% over the four-year period of 2009–2010 through 2012–2013.

HEALTH AND EDUCATIONAL OUTCOMES

Although public sector investments in programmes to care for children orphaned or made vulnerable by AIDS have been relatively modest to date, orphans in Kenya score comparably with non-orphans on basic educational and health indicators. This better-than-expected result is likely due to the innovation and leadership of familial and community networks, as well as the implementation of children-focused programming by civil society groups and government through the cash transfer programme and the school busary programme

CASH TRANSFERS TO REDUCE VULNERABILITY

Kenya has rapidly expanded cash transfers to vulnerable households, with the number of households receiving cash assistance rising from 7,500 in 2006–2007 to 85,891 households by December 2010.

STRENGTHENING COORDINATION AND ACCELERATING ACTIONS AGAINST HIV/AIDS

URGENCY OF ASSESSING

Roughly 2.5 million children in Kenya are orphans. Nearly that half of these children have become orphaned as a result of HIV (NACC, 2010).

There is considerable good news to report regarding the epidemic's impact on children. As expanded treatment access results in few AIDS-related deaths among adults, it is projected that the number of children orphaned by AIDS will substantially fall by 2015. Indeed, the drop in children orphaned as a result of the epidemic is likely to be so sharp that it will help drive an overall decline in the number of orphans nationwide in the next several years.

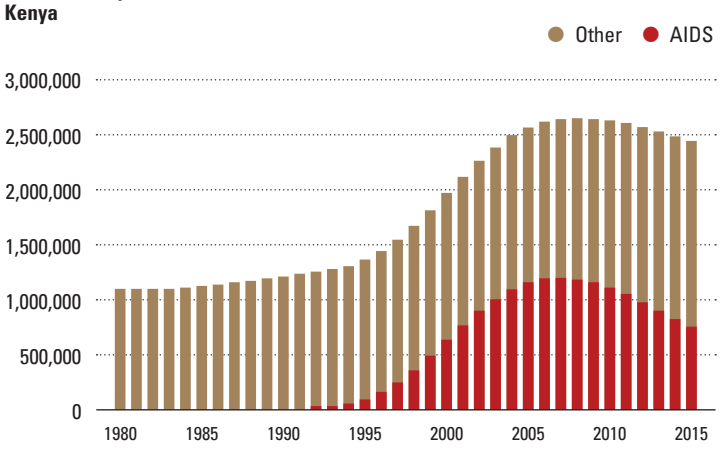
Historically, the vast majority of households caring for children orphaned or made vulnerable by AIDS have received no free assistance of any kind. In 2007, only 21.4% of such homes obtained support to address the needs of children (NACC, 2010). This represents progress over the 14% figure reported for 2005 in Kenya's official report to UNAIDS on indicators to monitor progress in implementing the Declaration of Commitment on HIV/AIDS. Were the pace of increase between 2005 and 2007 to be sustained in future years, Kenya would be on course to meet its 2013 target to assist at least 40% of affected households, although increases in financial outlays and improvements in programme performance will continue to be needed to achieve this result.

Focused support for children orphaned or made vulnerable by AIDS have accounted for a only a modest share of HIV spending in the past; in 2007–2008, such programmes represented less than 3% of all HIV expenditures (NACC, 2009). However, Kenya's most recent national HIV strategy – KNASP III – calls for major new investments in programmes to mitigate the epidemic's impact on children orphaned or made vulnerable by AIDS. Under the four-year period covered by KNASP III, it is projected that focused programmes for orphans and other vulnerable children will account for 8.4% of all HIV-related spending (NACC, 2009a).

With limited public sector support in the past for initiatives to mitigate the epidemic's impact on children, development partners and civil society groups have often worked to close gaps in households' access to needed assistance. In 2009, the U.S. Government's PEPFAR initiative provided various forms of assistance, such as health services, food and nutrition, protection, shelter, education and vocational training, psychosocial support, to 596,616 orphans and vulnerable children as well as initiatives to strengthen the economic viability of households caring for these (NACC, 2010) .

Figure

Number of orphans in Kenya



Civil society groups, including many faith-based organisations, have worked to provide care for AIDS-affected children and support for their caregivers. Programmes supported by civil society organisations include schools to ensure educational access for orphans and other vulnerable children, business training for guardians and caregivers, support for community care networks, and initiatives to prevent child abandonment. In agricultural and fishing communities heavily affected by HIV in the western part of the country, junior farmer field and life schools have been established for children orphaned or made vulnerable by HIV (Fraser et al., 2008).

Better than expected outcomes

In many African countries, early fears that children orphaned by AIDS would experience severe educational deficits have fortunately not come to pass. In Kenya, orphans ages 10–14 have the same rate of school attendance as non-orphans (NACC, 2010).

Nutritional support is especially critical for vulnerable children. Nationally, 35% of

AIDING GRANDMOTHERS TO CARE FOR ORPHANS AND OTHER VULNERABLE CHILDREN

Women who have been left to care for children orphaned by AIDS launched the Stara School in 2000 in the Kibera slum of Nairobi, as the epidemic's impact on children was becoming apparent. Supported by various donors, including the World Food Programme, ChildLife International, and Feed the Children, the school houses and feeds more than 500 children, 70% of them orphans. Local grandmothers take turns cleaning the school, and their orphaned grandchildren receive education and hot meals through the programme. "My main aim is to stay around long enough to make sure the kids can get an education and find jobs," one HIV-positive grandmother told a journalist (Moody, 2007).

Kenyan children under age five experience moderate or severe stunting (Kenya National Bureau of Statistics, 2010). Here, too, evidence suggests that familial and community networks and the limited programmes that currently exist may be helping mitigate potential health vulnerabilities for children orphaned or made vulnerable by AIDS. A study comparing orphans under age 6 with non-orphans in western Kenya found little difference in health status between orphans and non-orphans, as measured by prevalence of illness, haemoglobin levels, and height for age (Lindblade et al., 2003).

Intensified national action to address children's needs

Despite these encouraging signs, the growing population of children orphaned or made vulnerable by AIDS merits a more vigorous national response. Recently, the Government Kenya has taken steps to enhance national capacity to address the needs of HIV-affected children and the households caring for them. The OVC National Steering Committee was established in 2004, including representatives from relevant national ministries and departments, NACC, interagency organisations, NGOs, development partners, faith-based organisations, civil society and the private sector.

In 2005, Kenya developed a draft national policy and action plan for orphans and vulnerable children. While the draft policy was not endorsed by the cabinet, issues of concerns for orphans and vulnerable children were incorperated in the National Policy for Children that was endorsed by the cabinet in 2010. Several recommendations of the Plan of Action have been implemented, including expanding cash transfers to households with vulnerable children, developing quality standards for children's services, defining a child protection system, and steps to strengthening family-based care for vulnerable children (as a much-preferred alternative to institutional care).

Kenya has rapidly expanded cash transfers to households caring for orphans and vulnerable children, with the number of households receiving cash assistance rising from 7,500 in 2006–2007 to 85,891 households by December 2010, covering an estimated 300,619 children. The number of districts in which the cash transfer programme operates increased from 30 in 2007 to 47 districts as of December 2010. Government allocations to the cash transfer programme have grown from 48 million Kenyan shillings in 2005–2006 to 833 million in 2010–2011.

To enhance the programme's efficiency and impact, the country has developed a geographic and household targeting system, using community-validated proxy measures to identify high-need households (UN-Kenya, 2009). In 2011, Kenya aims to reach more than 100,000 households with cash assistance, which is projected to increase the access of nearly 350,000 orphans and vulnerable children to essential nutrition, education, health care and other services.

External sources provide more than US$ 30 million in assistance for the country's cash transfer programme (NACC, 2010). In addition, UN partners have aided the government in improving its management information system and processes for monitoring and evaluation of programmes to address the needs of children orphaned or made vulnerable by AIDS (UN-Kenya, 2009).

■ ■ ■ *Although many of worst fears about the epidemic's impact on children have fortunately not come to pass, the plight of children orphaned or made vulnerable by AIDS demands urgent national attention. Kenya has taken steps to address the needs of AIDS-affected children, prioritizing services for AIDS-affected households in the country's newest national AIDS strategy and rapidly expanding cash transfers to vulnerable families. However, with only about one in five households caring for vulnerable children currently receiving any form of free support, the climb to achieve national goals to mitigate the epidemic's impact on children will be steep.* ■ ■ ■

SUPPORTING AFFECTED COMMUNITIES TO MITIGATE THE EPIDEMIC'S IMPACT

The Swedish Cooperative Centre has incorporated initiatives to help AIDS-affected households in its Kenya agroforestry programme. A SCC-supported group, Women of Hope, visit households with ill members and provide goats, poultry and other nutritional supports to prevent AIDS-affected households from experiencing hunger and poverty. The programme also aids households in planting fruits and vegetables, which not only sustain household members but also can be sold in local markets.

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Chapter Eight

Financing the HIV response in Kenya

Key messages

STRENGTHENING LOCAL AND INTERNATIONAL ACCELERATED ACTIONS AGAINST AIDS

PERSISTING RESOURCE GAP

HIV spending rose seven-fold between 2000–2001 and 2009–2010. However, future funding for the AIDS response is increasingly uncertain as a result of changing donor priorities and continuing global financial and economic troubles. As Kenya works towards universal access to HIV prevention, treatment, care and support, the gap between available resources and actual needs is projected to increase in the coming years.

DEPENDENCE ON INTERNATIONAL DONORS

Although HIV spending by the Government of Kenya more nearly doubled between 2006–2007 and 2008–2009, the country's HIV response remains heavily dependent on external donors, who account for more than 80% of all AIDS spending.

OUT-OF-POCKET COSTS

Although national policy exempts people living with HIV from certain cost-sharing mandates for health services, HIV infection nevertheless results in considerable expenses for affected households. Out-of-pocket outlays account for more than one-fifth of all HIV expenditures in Kenya.

DIMINISHING SHARE FOR HIV PREVENTION

As investments in treatment scale-up have increased, the proportion of the national HIV portfolio allocated to prevention efforts has declined over time. The prevention share of HIV spending fell below 25% in 2007–2008 and is projected to fall below 20% under the country's current national HIV strategy for 2009–2013.

UNDERSCORING THE URGENCY OF ASSESSING

Since 1999, investments in the fight against HIV in Kenya have dramatically increased. HIV spending in Kenya reached Ksh 53.15 billion (US$ 687.3 million) in 2008–2009, an 18% increase over the previous year. From 2000–2001 to 2008–2009, annual AIDS expenditures rose roughly seven-fold (NACC, 2010).

Roughly 45% of HIV spending flowed through public sector channels, 24% to NGOs or community-based organisations, 24% to faith-based channels, and 7% through bilateral or multilateral organisations (NACC, 2009). These diverse recipients of HIV funding have demonstrated an impressive ability to absorb substantial new resources; the spending rate for AIDS funds from all sources was 98% in 2006–2007 and 96% in 2007–2008 (NACC, 2009).

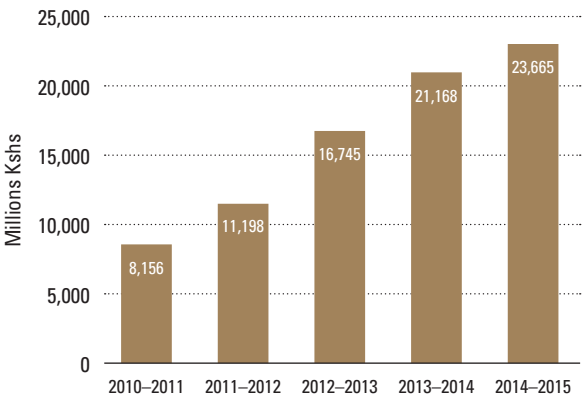
The Government of Kenya has also demonstrated its commitment through substantial domestic budget outlays for AIDS. From the 2006–2007 to the 2008–2009 budget years, GOK spending on AIDS nearly doubled – from Ksh 4.1 billion to Ksh 7.6 billion (NACC, 2010). In 2007–2008, AIDS-related spending accounted for 74% of total GOK expenditures on health (NACC, 2009). GOK has committed to allocate $US 34 million annually in domestic funds to HIV programmes during 2009–2013.

Although national policy exempts people living with HIV from prevailing cost-sharing requirements for certain health services, such as antiretroviral therapy or treatment, HIV infection is nevertheless associated with considerable out-of-pocket expenses. Available data suggest that on average, household out-of-pocket spending accounts for more than one-fifth of annual AIDS expenditures in Kenya. The out-of-pocket share of all AIDS spending was 26.3% in 2001–2001 and 22.5% in 2005–2006 (Government of Kenya, 2009).

While outpatient care was the primary service purchased with out-of-pocket spending in 2001–2002, household spending on HIV services in 2005–2006 was evenly divided between outpatient and inpatient care. From 2001–2002 to 2005–2006, the share of household out-of-pocket spending devoted to HIV inpatient care rose from 15% to 50% (Government of Kenya, 2009).

Figure

Projected funding gap for HIV care and treatment



Achieving Kenya's strategic aims for HIV will demand even greater outlays in future years. Under KNASP III, funding requirements for the AIDS response will rise from US$ 675 million in 2009–2010 to US$ 1.05 billion in 2012–2013 (NACC, 2009a).

The escalating funding needs associated with Kenya's drive to achieve universal access suggest the possibility of a looming financing crisis for the AIDS response. With external HIV financing projected to remain stable in the coming years, it was originally projected that Kenya's HIV funding gap would grow from US$ 261 million in 2009–2010 to US$ 569 million in 2012–2013 unless major progress was made in mobilizing new resources (NACC, 2009a). With recent revisions in guidelines that expand eligibility and duration for antiretroviral therapy and prophylaxis for mother-to-child transmission, it is now estimated that the financing gap for these two service components alone reaches US$ 882 million in 2009–2013 (Health Systems 20/20 Project, 2010). As service needs will rise as programmes are brought to scale, Kenya's HIV funding gap is projected to grow over time (Health Systems 20/20 Project, 2010).

Sources of funding

Kenya has benefited from the generosity of numerous international donors. Official development assistance to Kenya rose from

US$ 509 million in 2000 to US$ 1.36 million in 2008 (World Bank, 2010). Development aid accounted for 20.9% of national government expenditures in 2008 (World Bank, 2010).

In the case of Kenya's HIV response, the prominence of international donors is especially noteworthy. The international donor community accounts for more than 80% of all HIV spending in Kenya, with bilateral donors alone contributing 55% of all HIV expenditures in 2007–2008 (NACC, 2009). Bilateral donor support for HIV programmes nearly doubled from 2006–2007 to 2008–2009, rising from Ksh 20.26 billion to Ksh 39.96 billion (NACC, 2010).

The U.S. government's PEPFAR programme is the single largest HIV initiative in Kenya. In addition to serving as a cornerstone of Kenya's efforts to bring antiretroviral treatment to scale, PEPFAR also supports HIV prevention programming, blood safety interventions, assistance for children orphaned or made vulnerable by the epidemic, and capacity-building interventions.

The Global Fund to Fight AIDS, Tuberculosis and Malaria – established in 2001 following the Special Session of the UN General Assembly on HIV/AIDS – has served as a critical source of resources for the HIV response in Kenya. To date, Kenya has been approved for 10 grants, including five HIV-specific grants, one focusing on TB, and two addressing the intersection of HIV and TB (Global Fund, 2010). However, malaria programmes have attracted more funding from the Global Fund than either HIV or TB, accounting for roughly half of the US$ 332,488,087 in approved grants (Global Fund, 2010). As of mid-2010, Global Fund support was supporting antiretroviral therapy for more than 343,000 people in Kenya and had resulted in the detection and treatment of more than 98,000 smear-positive TB cases (Global Fund, 2010).

In 2008, the Total War against HIV and AIDS (TOWA) was launched with US$ 80 million four-year loan from the World Bank. Numerous other donors and development partners aid in Kenya's response to HIV. For example, the U.K. Department for International Development finances HIV prevention programming, including community mobilization efforts, and the Governments of Germany and Japan also contribute to the HIV response. The Clinton Foundation has supported paediatric HIV treatment programmes, while the U.K., the U.S., UN partners and other international players provide HIV-related technical support and capacity-building assistance.

Table

Estimated Financial Contributions for HIV Programmes in Kenya 2009–2010

Source	US$ Million
U.S. Government	510.0
United Nations System	9.0
Global Fund to Fight AIDS, Tuberculosis and Malaria	32.5
U.K. Government	5.0
Clinton Foundation	11.7
Government of Germany	4.5
Government of Japan	2.6
GOK	34.0
World Bank Credit (Total War on AIDS)	20.0
Total	629.3

Funding allocation

Kenya's strategic HIV plan provides that treatment and care will account for 57.9% of HIV spending in 2009–2013 (NACC, 2009a). Other allocations include 19.5% for prevention, 13.8% for programme management, 8.4% for programmes focusing on orphans and vulnerable children, 0.2% for human resources, and 0.1% for activities related to ensuring an enabling environment (NACC, 2009a). Compared to spending patterns documented prior to the launch of the new strategic plan, these allocations represent reductions in allocated shares for treatment and care and for prevention, with increased allocations provided for programme management and programming for orphans and vulnerable children (NACC, 2009a).

In recent years, relative support for prevention services has declined as a proportion of the larger HIV portfolio. Although total funding for HIV prevention efforts has increased over the last decade, more than doubling from 2006–2007 to 2008–2009 (NACC, 2010), the prevention share of overall HIV spending in Kenya fell below 25% as of 2007–2008 (NACC, 2009). A further decline in the prevention share is mandated under KNASP III.

IMPLEMENTING A NEW APPROACH TO HIV INVESTMENTS IN KENYA

In 2011, UNAIDS joined with partners to propose a new framework for financial investments in the HIV response. In lieu of current approaches, which aims to achieve universal access to a broad array of interventions for HIV prevention, treatment, care and support, the new investment framework calls for more focused investments on strategies that are especially cost-effective and are likely to have the most substantial long-term impact.[1]

The investment framework calls for focused investment on six basic programmatic activities – ❶ Treatment, care and support for people living with HIV; ❷ Focused interventions for key populations at higher risk (especially SWs, MSM, and people who inject drugs); ❸ Behaviour change programmes; ❹ Condom promotion and distribution; ❺ Voluntary medical male circumcision in Kenya and other priority countries; and ❻ Prevention of new HIV infections in children. These basic programme activities should be accompanied by investment in strategies to create a supportive environment to maximize the effectiveness of these activities and investment in synergies with other health and development sectors related to HIV.

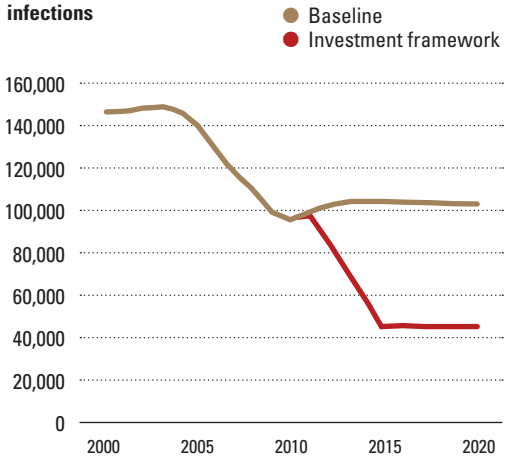
To ascertain the potential impact of this investment approach on the future of Kenya's epidemic, NASCOP and NACC collaborated with Futures Institute to undertake a data-driven modeling exercise. Specifically, this exercise compared the projected impact of the investment framework with the likely course of the epidemic based on the current situation and the historical pattern of HIV in Kenya.

Implementation of the new investment framework would result in dramatic favourable changes in Kenya's epidemic. In particular, the number of new infections during the current decade (2010-2010) would be 43% lower with the more strategic and focused approach called for in the investment framework, as compared to current trends.

1 Schwartlander B et al. (2011) Towards an improved investment approach for an effective response to HIV/AIDS. *Lancet* 377:2031-2041.

Figure

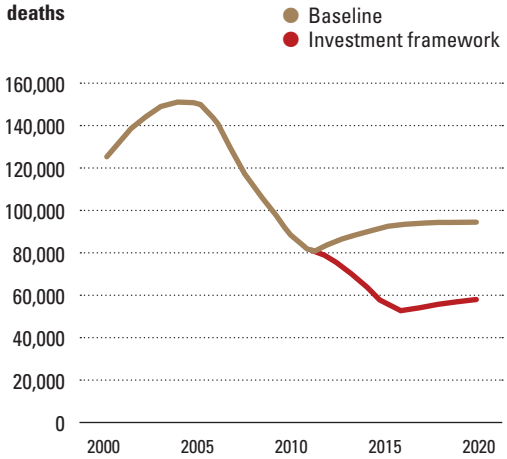
Number of new HIV infections



Note: The investment framework would also result in a substantial reduction in HIV-related mortality, averting 30% more AIDS deaths than current approaches.

Figure

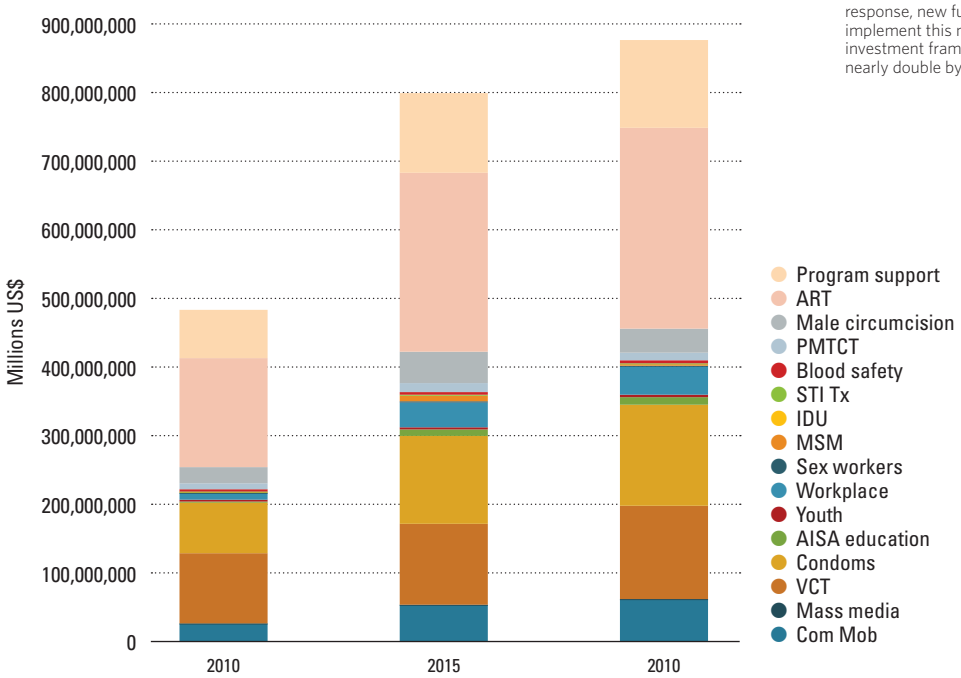
Number of AIDS deaths



Note: While UNAIDS projects that the investment framework would notably lower the future costs of the HIV response, new funding will be needed in the short term to implement this more strategic approach. To implement the investment framework in Kenya, HIV funding would need to nearly double by 2020 in comparison to spending in 2010.

Figure

Resources needed for investiment framework



The changing composition of the HIV spending picture in Kenya stems primarily from the rapid growth in funding for antiretroviral treatment scale-up. In 2006–2007, outlays for treatment programmes were nearly twice as great as for HIV prevention (which also includes HIV counselling and testing, which is as much a treatment intervention as a prevention service). During that two-year period, treatment expenditures rose by 140%, compared to a 30% increase for HIV prevention programmes (Gelmon et al., 2009).

Under KNASP III, HIV testing and counselling will account for 19.5% of total HIV prevention spending (NACC, 2009a), which represents an allocation that is roughly half of the prevention share devoted to testing and counselling in earlier years (38.9% in 2006–2007) (Gelmon et al., 2009). While Kenya has traditionally devoted few resources to prevention programming for most-at-risk populations, KNASP III calls for a new approach, allocating US$ 32 million towards programmes focused on sex workers, men who have sex with men, and people who inject drugs in 2009–2013 (NACC, 2009a).

Not surprisingly, costs associated with antiretroviral therapy account for the large majority (66%) of spending for care and treatment under the 2009–2013 strategic HIV plan. Other allocations within care and treatment under KNASP III include 18.5% for nutritional support, 8.9% for treatments for opportunistic infections, 17.4% for home-based care (including palliative care), and 1.3% for psychological treatment and support (NACC, 2009a).

The primary beneficiaries of HIV spending are people living with HIV, which would be expected given the rapid growth in funding for antiretroviral treatment in recent years. In 2007–2008, 60% of all HIV spending specifically benefited people living with HIV (NACC, 2009).

Sustainability

While funding trends for HIV efforts in recent years have been encouraging, the outlook for future HIV financing is uncertain. Unless new resources for AIDS are mobilized, the gap between available funds and actual needs will grow, imperilling the sustainability of recent gains.

While the contributions of the international community have enabled Kenya to undertake initiatives that are saving lives and improving the quality of life for hundreds of thousands of people, the heavy reliance on external support inevitably raises concerns about the long-term sustainability of the country's HIV response. In particular, the fact that programmes are largely underwritten by external actors renders the country's HIV response potentially vulnerable to the changing priorities of high-income countries.

Already, a modest shift in donor priorities from disease-specific programmes to broader sectoral support for health systems is resulting in funding shortfalls for HIV treatment programmes, forcing some clinical sites in East Africa to cap access to antiretroviral treatment or to place treatment-eligible patients on waiting lists (McNeil, 2010). In 2009, for the first time in a decade, international funding for HIV programmes in low- and middle-income countries did not increase over the previous year (Henry J. Kaiser Family Foundation, UNAIDS, 2010).

Global financial conditions are already having an effect on Kenya's HIV response. The Clinton HIV/AIDS Initiative has announced plans to discontinue support for paediatric treatment and for second-line antiretrovirals in 2010. PEPFAR – which, along with the Global Fund, has been the primary funder for HIV treatment scale-up – has capped the number of antiretroviral patients it will support over the next two years at 190,000. The international NGO MSF is in the process of phasing out its treatment programmes, transferring its facilities and patients to the public sector.

Given the uncertain global economic climate, the GOK has taken steps to ensure that sufficient finances are available to support KNASP III. In particular, Kenya is currently working on a resource mobilization strategy that will prioritize new domestic financing to complement external support (NACC, 2010).

A task force convened to study possible measures to ensure the sustainability of Kenya's HIV response notes that further decentralisation of antiretroviral treatment programmes could help close the country's

HIV funding gap. As lower-level facilities tend to have lower operating costs (e.g., labour, overhead) than higher-level facilities, even modest success in decentralising HIV treatment is projected to reduce funding needs by US$ 257 million over five years (Health Systems 20/20 Project, 2010).

Other cost-saving measures are also being considered. The sustainability task force noted that earmarking the surplus from the National Hospital Insurance Fund to support antiretroviral therapy for its members could generate US$ 122 million for HIV care and treatment programmes (Health Systems 20/20 Project, 2010). In addition, a modest surtax of $2.50 for each domestic and international airline ticket, along with a $0.05 levy on each ton of air freight, would produce an additional US$ 160 million for the HIV response, without altering demand for travel or affecting trade (Health Systems 20/20 Project, 2010). Other possible measures to generate needed resources for HIV programmes include innovative social insurance schemes.

An especially visionary proposal is the creation of a national HIV trust fund to provide ongoing, renewable financing for HIV programmes. Possible funding sources for a trust fund might include GOK, private corporations, international development partners and private philanthropists, supplemented by remittances from Kenyans living overseas and possible incremental levies on utilization of mobile phone technologies.

■ ■ ■ *Since Kenya began intensifying its HIV response in the first decade of the 21st Century, it has demonstrated considerable resourcefulness in mobilising the resources required to support a strong and effective HIV response. This success has translated into countless saved lives – in HIV infections averted, in reductions in AIDS deaths, and in improved health and well being of children affected by the epidemic. Even greater energy andcreativity will be required to attract the financing that will be needed to sustain and build on recent successes to achieve Kenya's strategic goals for HIV.* ■ ■ ■

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Chapter Nine

Strengthening Kenya's health system: A key to sustaining Kenya's HIV response

Key messages

HEALTH SYSTEMS STRENGTHENING AND THE AIDS RESPONSE

The future success and sustainability of Kenya's AIDS response depends on a sound, durable and flexible health system.

GOVERNANCE

Although health systems depend on sound governance and national leadership, standardized assessments of the quality of governance in Kenya have yielded mixed results. While strides have been made in joint planning and results-based management, evaluations have identified deficits with respect to adherence to the rule of law, harmonization and mutual accountability.

HEALTH FINANCING

Per capita health financing in Kenya is below both the regional average and the level deemed minimally adequate by the World Health Organization. Kenya has not made good on its pledge to allocate 15% of government expenditures to health, with the proportion of government spending for health declining since 2002.

HEALTH SERVICE DELIVERY

Major improvements have been made in the quality and distribution of health services in Kenya since 2004. Basic health indicators yield a mixed picture, with some (such as HIV prevalence, TB rates, and child mortality) improving while others (such as maternal mortality) have remained stable or worsened.

HEALTH WORKFORCE

Kenya is woefully short of the health personnel needed to address the medical needs of a rapidly growing population of 39 million people. Only 0.1 physicians are available for every 1,000 people in Kenya, compared to 7.9 in the Euro zone.

PHARMACEUTICALS MANAGEMENT

Although a national plan is in place for the purchase and supply management of health commodities, harmonization of such efforts in the AIDS context is challenged by the existence of parallel systems for health products purchased by the Government of Kenya, the Global Fund, and PEPFAR.

HEALTH INFORMATION

Although the Government of Kenya has exhibited a commitment to the use of strategic information to inform health policies and programmatic initiatives, these efforts suffer from inadequate systems for data collection and management, insufficient analytic capacity, and fragmented systems that inhibit the effective use of relevant data. In 2009, Kenya took steps to address these shortcomings by launching a five-year strategic plan for health information systems.

A strong health system is a cornerstone of an effective national effort to address AIDS. People living with diagnosed HIV are nearly nine times more likely to require hospitalisation than adults overall (NASCOP, 2009). HIV-diagnosed individuals are also more than three times more likely than Kenyans overall to use an outpatient health facility (NASCOP, 2009). Without a durable, flexible health system, many people living with HIV may not obtain the life-preserving services they need. In order to improve AIDS services over time and to address other priority health issues, Kenya will need to strengthen its health system at the same time that it works to ensure universal access to HIV prevention, treatment, care and support.

Kenya's National Health Sector Strategic Plan (NHSSP) identifies equitable access to health services, improving the quality of health services, and increasing health financing as key strategic priorities. Kenya has embraced the Rapid Results Approach, using an intensified, 90-day programme to address specific weaknesses in public service provision and to forge new, more effective, sustainable strategies to enhance performance. Although important gains have been made in strengthening key elements of Kenya's health system, the country is not currently on track to achieve identified targets for child mortality, maternal health, and HIV and other infectious diseases.

The health system consists of all organisations, people and actions whose primary intent is to promote, restore or maintain health. Health systems encompass both efforts to influence the determinants of health as well as more direct health-promoting activities. WHO has identified six key "building blocks" for strong national health systems (WHO, 2008): governance and leadership; health financing; health service delivery; health workforce; pharmaceutical management (including medical products, vaccines and technologies); and health information systems (WHO, 2008).

This chapter summarizes the current status of these key system elements, major challenges with respect to each, and national initiatives to improve Kenya's health system. The chapter both highlights the inter-relationship between Kenya's HIV response and the broader health system, as well as ways in which Kenya's HIV response differs from other health issues.

Governance and leadership

The quality of governance in a country inevitably affects the soundness of its health system. Governance can be broadly defined as the traditions and institutions by which authority in a country is exercised, encompassing processes by which governments are selected, monitored and replaced; governmental capacity to formulate and implement sound policies; and the respect of non-governmental actors for the institutions that govern their economic and social interactions.

Sound governance rationalizes governmental involvement, empowers non-state actors, and creates synergies between governmental and non-governmental players. Corruption is perhaps the most obvious sign of poor governance, but other criteria for assessing the effectiveness of health governance include accountability, transparency, incentives for responsive performance, and the degree of engagement of citizens in health affairs (Health Systems 20/20, 2008).

Governance of Kenya's HIV response departs in certain respects from governance of the broader health system. As described in Chapter Two, a special coordinating body, NACC, has been established to oversee the country's response to HIV, including efforts to coordinate diverse ministries and agencies and numerous external and domestic partners.

For the health sector generally, recent national assessments reveal mixed results on key governance indicators. The annual operational review of progress in implementing the national health strategy in 2008–2009 found positive trends with respect to joint planning, monitoring, financing and coordination. However, an evaluation of compliance with the Code of Conduct for Kenya Health SWAp partners found no discernible progress towards country ownership of the health agenda. While noting improvements with respect to results-based management, the same evaluation found deteriorating conditions for harmonization and mutual accountability.

The mixed findings of these health-focused evaluations mirror Kenya's results on broader

governance indicators. While the World Bank determined that Kenya's record had improved with regard to voice and accountability, government effectiveness, and control of corruption, negative results were identified with respect to political stability, regulatory quality, and rule of law (Kenya Institute for Public Policy Research and Analysis, 2009).

Leadership on health offers a similarly mixed picture. The Government of Kenya's development of a national strategic plan for the health sector acknowledges the high priority accorded the health sector. Likewise, implementation of joint performance monitoring and annual reviews demonstrates a seriousness of purpose on the part of the Government to strengthen the health system. Kenya has made concrete progress in TB control, prevention and treatment of HIV, and reducing childhood mortality. Yet on the opposite side of the ledger, recent reductions in the public sector health workforce and national failure to follow through on the Abuja Declaration's health funding commitments (each of which is discussed below) undermine national resolve to bolster the country's health system.

A notable area of strength in the health sector is the GOK's swiftness in developing and implementing recommendations to guide clinical practice and inform provider training. This element of leadership is amply demonstrated by the AIDS response, with the GOK taking steps to rapidly implement emerging best practices with respect to antiretroviral therapy for adults and adolescents, paediatric HIV treatment and care, prevention of mother-to-child transmission, and scale-up of adult male circumcision for HIV prevention.

Health financing

Health financing not only involves the mobilization, accumulation and allocation of funding to address the national population's health needs, but also the system of incentives that affect health care access and quality (WHO, 2000). Effective approaches to health financing generate sufficient revenue to cover the population's health needs; pools risk, thereby minimizing the vulnerability of individual health consumers; implements incentives that promote access and favourable medical outcomes; and allocates resources in an optimally efficient, effective, and equitable manner (WHO, 2000).

The financing of Kenya's HIV response is described in Chapter Eight. Whereas a relatively small percentage of Kenya's overall health expenditure derives from external sources – 14.6% in 2006, according to WHO – the country's HIV response is heavily dependent on international partners. In particular, HIV financing in Kenya benefits from international programmes that are specifically focused on HIV and other infectious diseases, such as the U.S. PEPFAR programme or the Global Fund to Fight AIDS, Tuberculosis and Malaria.

Annual health spending on health services of any kind in Kenya is US$ 33 – less than half the average for sub-Saharan Africa (World Bank, 2010). The current level of per capital health spending in Kenya is below the minimally adequate target for total health expenditures identified by the World Health Organization for 2004 (Health Systems 20/20, 2008). While the African region spends 6.4% of gross domestic product on health, Kenya devotes 4.7% of its national wealth to health services (World Bank, 2010). The public sector accounts for 42% of health spending (World Bank, 2010).

In 2001, at a special summit meeting of the African Union, Kenya and other African countries pledged to allocate at least 15% of their annual budgets for health. Like most other African countries, Kenya has fallen far short of this target. Researchers estimated that the Ministries of Health accounted for 6.4% of total expenditures of the national government in 2007–2008 (Kenya Institute for Public Policy Research and Analysis, 2009). Indeed, the health share of GOK expenditure has actually fallen since the Abuja Declaration, from 8.33% in 2002–2003 to 6.4% in 2007–2008. Although the health share of national spending has fallen, raw health outlays by the Government of Kenya have increased nearly four-fold since 2000.

The composition of health financing in the public sector has undergone significant changes in recent years. From 2002–2003 to 2007–2008, the percentage of total Ministry of Health expenditures devoted to curative interventions dropped from 50.8% to 39.3%. At the same time, relative allocations for

preventive services and health promotion activities nearly quadrupled, from 5.3% in 2002–2003 to 21.0% in 2007–2008. Funding for rural health initiatives also consumed a growing share of the budget during this period, rising from 10.6% to 15.3%.

Notwithstanding the prominence of public sector services, a notable share of health expenditures are paid out of pocket by patients and households. Kenya requires patients to share the costs of most health services, although exceptions have been made for high-priority conditions such as HIV and tuberculosis (Kenya Institute for Public Policy Research and Analysis, 2009). In 2002, households covered the majority (51.1%) of their health care costs (Kenya Institute for Public Policy Research and Analysis, 2009). The proportion of health costs covered out of pocket in Kenya is higher than for sub-Saharan Africa as a whole (41%).

While maintaining the cost sharing policy, the GOK has revised its approach to user fees in an effort to enhance equity and access. Under what has come to known as the "10/20 policy," patients are charged only for registration and services at Ksh 10 and Ksh 20 in dispensaries and health centres, respectively.

Health service delivery

The availability of extensive international assistance has enabled Kenya to build an extensive national HIV service infrastructure that extends across diverse provinces and districts. For health services generally, the distribution of services is significantly more uneven. Recent analyses of health service utilization trends indicate that service coverage is higher in urban, more affluent, and more literate communities. According to preliminary results from the still-unpublished 2010 Kenya Service Provision Assessment, hospitals (82%) and health centres (77%) are most likely to provide the full array of core medical services (e.g., child health, STI services, family planning, antenatal care, child immunization, and growth monitoring), with clinics the least likely (20%).

In 2007–2008, the public sector accounted for 45% of all HIV services, with faith-based organizations contributing 24% (NACC, 2009). Surveys in recent years have documented a sharp increase in the role of the private sector in the delivery of health services. Between 1999 and 2006, the percentage of actual health facilities controlled by the government declined from 52% to 41% (Kenya Institute for Public Policy Research and Analysis, 2009). In 2009, private actors (excluding faith-based organizations and NGOs) operated 110 hospitals, 56 health centres, 185 dispensaries, 143 maternity and nursing homes, and 1,772 clinics.

The civil unrest in the aftermath of the December 2007 election posed significant challenges for health service delivery, as reflected in a worsening of many health service indicators in the 2007–2008 period. The division of the Ministry of Health into two ministries was associated with administrative complexities that further challenged the delivery of basic health services.

Due to infrastructure deficiencies, health care workers in Kenya have often required to work under conditions that hinder their ability to provide optimal care for their patients, although there is evidence of marked improvements in working conditions in recent years. According to the Kenya Service Provision Assessment, only about half of all health centres and clinics in Kenya had electricity in 2004, and barely one in five health centres had clean water supplies. By the time of a similar assessment in 2010, 87% of health facilities had access to running water, and 85% had soap on hand.

According to recent surveys, over half of all Kenyans perceive their health status to be better than it was a year earlier. Roughly half of Kenyans believe that the performance of the health sector has improved of late, and more than three out of four Kenyans surveyed report satisfaction with the health services they have received. Consumer satisfaction is higher for facilities operated by the Ministry of Public Health and Sanitation than in those under the Ministry of Medical Services.

Surveys of health care consumers have identified a desire for improvements in the cleanliness of health facilities and in the prompt management of emergency cases. Other issues highlighted in survey responses included waiting times, costs of services, the availability and communication of values and practices in health facilities, confidentiality, and the attitudes of health workers towards clients.

Ultimately, the real test of the health system's ability to deliver effective health services is its performance on core health indicators. As noted in Chapter One, trends on basic health indicators are mixed. Under-five mortality has declined, but little improvement has been seen for maternal mortality. As a result of AIDS and other infectious diseases, life expectancy in Kenya is much lower than it was in the early 1980s, although the infusion of significant new resources for health services over the last decade has been accompanied by improvement in national life expectancy since 2002.

Health workforce

Adequate numbers of all cadres of health care professionals, as well as their equitable distribution throughout the country, are essential to an effective health system. Recognizing the centrality of human resources to a sound HIV response, Kenya has taken steps to increase the number of providers trained in the delivery of HIV services and to maximize existing human resources.

In the early stages of antiretroviral scale-up, surveys identified important training deficits. In 2005, for example, a national survey of health care workers found that while 80% said they had cared for people with HIV, only 33% had been trained in AIDS patient management and only 39% felt they were up to the job (NASCOP, 2006). Similarly, nearly half of doctors and nurses reported in 2005 that they were adequately prepared to determine if antiretroviral therapy was appropriate or to provide adherence counselling (NASCOP, 2006). With a total of eight national HIV guidelines have been issued as of 2005, the typical health care worker was found to have read only four (NASCOP, 2006).

Since 2005, Kenya has invested considerable resources in training health workers in the delivery of HIV services and in translating the range of national HIV-related guidance into routine clinical practice. These training initiatives have been supported by the Ministry of Health and by the country's many development partners, including the U.S. PEPFAR programme, WHO and UNAIDS.

While these training initiatives have helped increase the health system's capacity to respond to HIV, Kenya's HIV-related efforts confront broader systemic shortages of key personnel. As of 2008, Kenya was home to 6,623 physicians, 974 dentists, 2,880 pharmacists, 1,815 pharmaceutical technologists, 14,073 nursing officers, 31,917 enrolled nurses, and 5,035 clinical officers. The supply of health care workers in Kenya is woefully short of what is needed to address the myriad health needs of a rapidly growing population of 39 million. While there are 7.9 physicians for every 1,000 people in the Euro zone, the comparable number for Kenya is only 0.1 (World Bank, 2010). Kenya has less than one-quarter the number of hospital beds per capita as the Euro zone (World Bank, 2010). Moreover, population-based availability of health resources actually declined between 1999 and 2006 (Kenya Institute for Public Policy Research and Analysis, 2009). Although employment in the health sector rose by 7.8% from 2003 to 2006, significant reductions in the number of public sector health employees have occurred more recently.

One of the reasons why so few health professionals are available to serve patients in Kenya is that trained professionals frequently leave the country for more remunerative employment in wealthier countries. According to one estimate, 20 medical doctors choose to leave Kenya each month (Kenya Institute for Public Policy Research and Analysis, 2009). The effects of this so-called "brain drain" are magnified by government freezes on employment, typically imposed at the demand of Kenya's international creditors (Kenya Institute for Public Policy Research and Analysis, 2009).

A majority of health workers (63.1%) report being satisfied with their work environment. Concerns expressed by the more than one-third of health workers who are not satisfied include spotty availability of essential tools for health service delivery (e.g., equipment, medical supplies, and adequate working space), limited possibilities for promotion or training, inadequate remuneration and benefits, and insufficient recognition of individual performance.

Health services in Kenya are largely provided by women, although there are notable gender disparities among different cadres of

STRENGTHENING COMMUNITY CAPACITY IN RURAL KENYA

Through its participation in the Millennium Villages Project (MVP), the rural village of Dertu has benefited from training and other capacity-building assistance to train community health workers to contribute in health delivery and promotion efforts. Dertu is home to 850 households, 500 of whom are migratory. In August 2009, five community health workers in Dertu received an eight-day training, developed by the Earth Institute of Columbia University and the MVP team in Dertu. In addition to HIV-related issues, the training addressed antenatal and maternal care, newborn care, family planning, and management of other infectious diseases. The training included practical sessions in nearby Garissa Provincial Hospital, where they worked with a clinician to learn how to monitor child growth (Oluoch, 2009).

health care workers. Men comprise 82% of physicians, 70% of laboratory staff, and 65% of clinical offers (NASCOP, 2006). By contrast, women account for 75% of nurses, 63% of HIV counsellors, and 59% of social workers (NASCOP, 2006). Nurses make up 44% of the health care workforce (NASCOP, 2006).

Kenya has taken steps to strengthen human resources for health, such as shifting certain service-related tasks to less costly cadres. For example, in the case of administration of antiretroviral therapy, some treatment programmes have deployed community workers to provide follow-up services. The country's current national strategic AIDS plan calls for use of task-shifting and other efforts to extend human resource capacity.

With the support of international donors and technical partners, Kenya has made extensive investments in training programmes and other initiatives to build human resource capacity for AIDS and other health issues. Over a 12-month period in 2007–2008, for example, PEPFAR supported the training or re-training of health workers, using Ministry of Health guidelines (PEPFAR, 2008).

Researchers who conducted Kenya's National AIDS Spending Assessment for 2006–2007 and 2007–2008 expressed particular concern regarding the small allocation of AIDS-related expenditures for human resources. In 2007–2008, initiatives to build and preserve human resources accounted for a mere 1.4% of AIDS spending (NACC, 2009).

Pharmaceuticals management

Sound health systems depend on the ready availability and appropriate use of safe, effective, high-quality health commodities. Kenya health authorities undertake evidence-based forecasting to quantify antiretroviral drug needs and to ensure an adequate, seamless supply (NASCOP, 2010). Recent information is not available on the frequency and severity of drug stock-outs in Kenya. However, stock-outs and imminent stock-outs of HIV medicines and other technologies have been reported, prompting national partners to incorporate efforts to strengthen commodity management in Kenya's latest national HIV strategic plan (NACC, 2009).

In the case of HIV, effective management of commodities suffers from the existence of three separate systems for procurement and supply management. In addition to Kenya's own national system, PEPFAR and the Global Fund operate their own commodity procurement and management mechanisms.

Recent evaluations have noted improvements in Kenya's national approach to procurement and supply management of medical products. These advances are the result of reforms at the national levels, as well as the valuable assistance of international partners, such as PEPFAR and UN technical agencies. A national plan is in place, along with a national committee, to coordinate procurement and supply management for AIDS commodities. However, harmonization of commodity procurement and supply management is challenged by the existence of three parallel systems for medical products procured by the GOK, the Global Fund, and PEPFAR.

Each hospital in Kenya now receives drugs each month, while dispensaries and health centres receive an enhanced drug kit every three months. For rural health facilities, drug kits have been expanded to include key non-pharmaceutical items such as dressings, gloves and gauzes.

However, substantial work remains to be done to ensure ready, continuous access to essential health commodities. Among health facility patients for whom one or more drugs were prescribed, only two-thirds received the relevant medicines. According to surveys, drug shortages were the primary reason why patients sometimes failed to receive prescribed drugs.

Health information systems

Reliable, timely information on trends in the health status of the population, health services, health care financing, and human resources for health are critical to the ability of policy-makers to assess health system performance and forge appropriate policies and programmes. A system grounded in evidence requires robust mechanisms and systems to collect needed health information, analytic capacity to identify key trends and patterns, and the willingness and ability

to use data to inform the development, implementation and revision of health policies.

Kenya's AIDS response vividly illustrates the country's commitment to data-driven planning and policy development. An ever-broadening array of strategic information – including national household surveys, assessments of the capacity and functioning of health service systems, periodic measurements of service coverage, and the first-ever assessment of incident HIV infections by mode of transmission – has provided national stakeholders with a wealth of relevant data for service planning, prioritization, resource allocation, and policy development.

The country's AIDS response also exhibits a commitment to use available data to inform health policies and practices. For example, Kenya's latest strategic AIDS plan expressly responds to evidence of important prevention programming deficits by allocating increased resources for HIV prevention and by specifically focusing on enhanced programming for key, underserved populations.

Nevertheless, Kenya's health information system displays certain deficits, as well. For example, service delivery data are of variable quality with respect to completeness and accuracy. A substantial number of providers, especially those outside the public sector, do not routinely report information to health authorities. Information is also more plentiful on service coverage than on service quality. These and other systemic weaknesses stem from a number of flaws in the country's approach to health information, including inadequate funding and infrastructure for monitoring and evaluation, poor institutional capacity to collect and analyze data in the context of an increasingly decentralized health system, a chronic shortage of experienced personnel (exacerbated by a poor mix of needed skills), inadequate implementation of health policies, lack of standardized data collection and reporting tools, and fragmented systems for collecting, reporting and analyzing strategic information.

In 2009, Kenya took two important steps to strengthen the quality, comprehensiveness and meaningfulness of health information – developing a formal policy statement for health information (Ministry of Medical Services, Ministry of Public Health and Sanitation 2009), and articulating a strategic plan for health information systems (Ministry of Medical Services, Ministry of Public Health and Sanitation, 2009a). These two documents chart a roadmap for addressing identified weaknesses in health information and for undertaking a long-term plan to build a sound system for health information. Key objectives identified in the strategic plan for health information includes improving data management, enhancing health information capacity within the health system, strengthening the use of health information, and improving monitoring feedback, reporting, supervising and data audits (Ministry of Medical Services, Ministry of Public Health and Sanitation, 2009a).

■■■ *In summary, Kenya has embarked on a major national initiative to prepare its health system for ongoing and future challenges. However, the challenges the country must address to achieve this vision are enormous, including an acute shortage of health workers, insufficient national investments in health infrastructure, skewed distribution of essential health resources, and weaknesses in national governance. While daunting, these challenges must be effectively met, as a strong, flexible, evidence-based health system is essential not only to the future success of the AIDS response but to critical progress towards Vision 2030.* ■■■

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Chapter Ten

Looking to the future: Scenarios for Kenya's AIDS response

Key messages

THE STAKES INVOLVED

Decisions made in the near future will in large measure determine whether Kenya achieves long-term success in the fight against AIDS.

THE LONG-TERM IMPACT OF UNIVERSAL ACCESS

Successfully continuing Kenya's push towards universal access would by 2030 reduce the annual number of new infections by 57%, lower the projected number of AIDS deaths by 41%, and reduce HIV prevalence by more than 60%.

FOCUSING ON COST-EFFECTIVE STRATEGIES

Were sufficient funds unavailable to rapidly achieve universal access, the second-best option would be to focus in short term on especially cost-effective approaches and to take somewhat longer to achieve universal access. This approach would results in 34% fewer AIDS deaths in 2030, compared to 2005, and 45% fewer new infections.

THE COSTS OF A STAGNATING RESPONSE

Were AIDS funding to remain flat in the coming years, the annual number of new HIV infections would likely increase over the next 20 years.

THE DEVASTATING CONSEQUENCES OF SCALING BACK

Were AIDS funding to decline, the rate of new HIV infections and AIDS deaths in 2030 would be substantially higher than they are today.

THE NEED TO INTENSIFY HIV PREVENTION

Treatment scale-up alone will not result in long-term success against AIDS. Unless the commitment to treatment scale-up is matched with a comparable commitment to bring HIV prevention to scale, hundreds of thousands of preventable HIV infections will occur over the next two decades. Rapid scale-up of new prevention tools that are likely to emerge in coming years could play a critical role in reducing the epidemic's long-term burden.

STRENGTHENING KENYA'S NATIONAL HIV/AIDS ACCELERATED SCALING UP

URGENCY OF ASSESSING

As the previous chapters explained, Kenya has established a strong, if still incomplete, foundation for an effective long-term response to its national AIDS epidemic. Drawing on an impressive body of strategic information, Kenya has forged a broadly participatory national effort that seeks to address the primary drivers of the epidemic and to ensure continued progress towards universal access to HIV prevention, treatment, care and support.

Much about the future of AIDS in Kenya is clear. For example, it is evident that the epidemic will remain a major national challenge for years to come. Kenya's ability to achieve its national vision of becoming globally competitive over the next generation will depend, in large measure, on its ability to effectively address HIV and other health priorities.

But there is also much about the epidemic's future that remains uncertain. As it has since it first appeared, Kenya's national epidemic will continue to evolve, generating both new challenges and new opportunities for effective intervention. New AIDS-fighting tools are likely to emerge in the coming years, and the continued scaling-up of antiretroviral treatment will bolster national efforts to slow the rate of new HIV infections. Yet these very same tools could also complicate prevention efforts, inviting increased risk behaviour by making the disease appear less threatening.

Perhaps above all, there is considerable uncertainty regarding the future availability of financial resources to fight AIDS. The epidemic has produced unparalleled international solidarity and an unprecedented infusion of new financing for health, but the sustainability of these initiatives is in question.

In an effort to clarify the national stakes involved in future choices concerning Kenya's HIV response, NACC commissioned the Futures Institute to conduct mathematical modelling of various scenarios for Kenya's epidemic through 2030. These models were based on available data regarding key HIV-related prevention and treatment interventions, as well as on epidemiological trends in Kenya and 22 other high-burden countries. By testing various assumptions, these models allow stakeholders to anticipate future directions in the epidemic, identify the factors that will determine the success of the country's AIDS response, and inform discussions on future directions.

The mathematical models examined three categories of AIDS interventions. The first are general population interventions, including mass media campaigns, community mobilization, condom promotion, prevention programmes for in-school youth, prevention programmes for out-of-school youth, and workplace prevention programmes. The second are interventions for most-at-risk populations, including prevention programmes for sex workers and their clients, prevention programmes for MSM, and different interventions for people who inject drugs (i.e., outreach, needle and syringe exchange, and drug substitution therapy). The third category examined by the health modellers include medical services, such as prevention and treatment of STIs, prevention of mother-to-child transmission, voluntary medical male circumcision, and antiretroviral therapy.

The Futures Institute specifically looked at the following possible scenarios for Kenya's epidemic.

Scenario 1

A continuation of current trends

Scenario 1 assumes that current epidemiological trends will continue and that prevailing expectations that resource availability will flatten in the near future will come to pass. Under this scenario, AIDS funding in Kenya in 2015 will remain at roughly the same level as in 2008–2009 – or US$ 679 million. Based on these assumptions, it would be expected that service coverage would continue to increase over time but would fall short of universal access due to long-term funding shortfalls.

Scenario 2

A renewed response towards Universal Access

Scenario 2 anticipates renewed determination is found to progress rapidly towards universal access. This scenario assumes that current uncertainties regarding the future of the global AIDS response are overcome and

that major new resources are mobilized to increase service access.

Specifically, Scenario 2 assumes rapid progress towards the following coverage levels for the modelled interventions below.

Intervention	Target coverage (%)
General population	
Mass media	80
Community mobilization	70
Counselling and testing	14
Condoms	80
In-school youth	50
Out-of-school youth	50
Most-at-risk populations	
Sex workers and clients	60
MSM	60
Outreach for drug users	60
Needle and syringe exchange	40
Drug substitution therapy	20
Medical services	
STI management	100
Prevention of mother-to-child transmission	80
Male circumcision	60
Antiretroviral therapy	80

Achieving this scenario will require substantial new funding. To achieve universal access, an estimated US$ 1.17 million will be required in 2015, or 73% more than was spent in 2008–2009.

Scenario 3

Treatment-only approach to Universal Access

A third scenario assumes that AIDS resources are overwhelmingly directed toward antiretroviral treatment. Unlike this scenario, universal treatment access would be achieved, but prevention support would remain constant at current levels.

Scenario 4

A slower scaling-up emphasizing cost-effective strategies

A fourth scenario assumes continued efforts to bring comprehensive services to scale, but at a much slower pace. Instead of working to rapidly expand the broad array of AIDS services, Scenario 4 provides for much greater short-term emphasis on strategies that have the greatest cost-effectiveness. Based on available evidence, the most cost-effective strategies in generalized epidemics such as Kenya would be (in order of priority) condom promotion, antiretroviral treatment, sex worker outreach programmes, mass media, male circumcision, school-based AIDS education, and workplace prevention programmes.

Like Scenario 2, the efficient scale-up scenario will also require major new resources, although resource demands will somewhat less substantial than would be required for universal access. Under Scenario 3, funding in 2015 would need to be 50% higher than in 2008–2009.

Scenario 5

Optimal use of new prevention technologies

Scenario 5 expressly examines the impact that potential new technologies might have on the future of Kenya's epidemic. Scenario 5(a) examines the impact over the next 20 years of a combination of pre-exposure prophylaxis and vaginal microbicides. Scenario 5(b) adds to this mix of possible new technologies a preventive HIV vaccine that would begin to be introduced around 2020.

Scenario 6

A retrenchment in the HIV response

Finally, this exercise examines the long-term implications of a scaling-back of the HIV response. Scenario 6(a) models the effects of a 20% reduction in anticipated HIV spending. Scenario 6(b) examines a starker scenario, modelling the long-term results that would obtain with a 50% cut in anticipated spending.

What the modelling tells us

This modelling exercise indicates that decisions made over the next several years will have major long-term implications on future health and well being in Kenya. Here are some of the conclusions that result from the modelling data:

- *Achieving universal access would place Kenya on the road to ultimate victory in the AIDS response.* Ensuring universal access by 2015 would deliver dramatic

health and economic dividends. Under Scenario 2, the annual number of new HIV infections in 2030 would be 57% lower than in 2005, and the projected number of AIDS deaths in 2030 would be 41% lower. By 2030, national HIV prevalence would have declined to 2.9%, compared to 7.3% in 2005.

- *In the event that sufficient resources are not available to ensure universal access in 2015, achieving saturation coverage for especially cost-effective strategies represents the second-best option.* By adopting a slower scaling-up towards universal access and focusing resources in the short term on achieving saturation coverage of the most cost-effective approaches, Kenya could reduce the number of new HIV infections in 2030 by 45% in comparison with 2005. This approach (Scenario 3) would also in 34% fewer deaths in 2030 than in 2005 and overall national HIV prevalence of 3.4%.

- *Achieving national AIDS goals will require additional resources.* Although it is possible to achieve meaningful progress by focusing resources on especially cost-effective strategies, the country's AIDS response will require additional financing if it is to be successful. Even the cost-effective scenario (Scenario 3) would require 50% greater funding in 2015 than was spent in 2008–2009.

- *Were current funding levels kept steady through 2015, Kenya would make virtually no progress in reducing the number of new HIV infections and AIDS deaths.* With stable funding, the number of new HIV infections in 2030 (156,415) would actually be greater than the number in 2005 (153,258) or in 2010 (126,918). Due to the high rates of AIDS deaths and continuing population increase, HIV prevalence would decline somewhat under the steady funding scenario – to 4.8% in 2030 – but prevalence would be notably higher than under either Scenario 2 (universal access – 2.9%) or Scenario 3 (slower, efficient scale-up – 3.4%).

- *Robust support for HIV prevention is essential to long-term success of Kenya's AIDS response.* Although antiretroviral scale-up will have major prevention benefits, it cannot carry the burden of stemming the spread of HIV on its own. An approach that ensures universal treatment access but holds prevention funding stable would result in 12% fewer HIV infections in 2030, compared to the projected 57% decline for a national effort that achieves universal access for both HIV prevention and treatment. Likewise, the number of AIDS deaths in Kenya in 2030 would be more than 30,000 greater in the treatment-only scenario than with an approach that combines robust prevention and treatment access.

- *New prevention tools could greatly magnify the long-term benefits of the HIV response.* Were ongoing clinical trials to demonstrate the efficacy of pre-exposure antiretroviral prophylaxis (PrEP) and one or more microbicide products, swift introduction and scale-up of these new tools could greatly enhance HIV prevention efforts. Availability of such tools by 2015 would result in a 70% reduction in the number of new HIV infections by 2030 (in comparison to 2005) – a notable improvement over the 57% reduction anticipated as a result of universal access to existing prevention and treatment strategies. Availability of a preventive vaccine by 2020 would result in an 80% reduction in national HIV incidence by 2030. Under the most promising scenario (5(b)), national HIV prevalence in Kenya would decline to 2.1% by 2030, compared to current prevalence of approximately 7%. These findings underscore the critical importance of continued investments in HIV prevention research, including the numerous trials for candidate microbicides and research towards experimental vaccines currently underway in Kenya. These projections also highlight the urgent need for national preparedness to put new tools to use as soon as they become available.

- *Scaling back the AIDS response in Kenya would have devastating long-term consequences.* Failing to follow through on Kenya's historic commitment to a robust HIV response would undermine national development efforts, deepen poverty, and worsen health outcomes. Were projected funding for HIV programmes to fall by 20% between now and 2015, the annual number of new infections in 2030 would likely be 34% higher than in 2005 and the number of AIDS deaths would be more than 18% greater. An even more

severe reduction of 50% in AIDS funding would have direr consequences; under Scenario 6(b), national HIV incidence would be 59% higher in 2030 and annual AIDS mortality would rise by 36%. Under either funding reduction scenarios, the national AIDS burden would essentially be unchanged in 2030, with national prevalence of 6.0% projected with a 20% reduction and 6.7% with a 50% reduction.

Chapter Eleven

Where the evidence leads: Priority recommendations for ensuring long-term success in the AIDS response

This most comprehensive survey of data pertaining to Kenya's AIDS response underscores the urgency of this preeminent health challenge and the critical need for continued national vigilance and leadership. Modelling exercises summarized in the previous chapter demonstrate that long-term success against AIDS is achievable. But the modelling also highlights and clarifies the stakes in the decisions Kenya will make in the coming years, with the future health and well being of millions hanging in the balance.

The evidence summarized in the preceding chapters lead to the following recommendations on action steps to ensure long-term success in the AIDS fight:

- *AIDS must remain a preeminent national priority.* High-level political leadership must be sustained and matched by a broad-based mobilization of people from all walks of life. Elected politicians, community representatives and opinion leaders must speak often and openly about the AIDS challenge, encouraging energetic national ownership of the response by all of Kenyan society. Achievement of universal access to HIV prevention, treatment, care and support should remain the cornerstone of Kenya's response. National leaders need to continually remind Kenyans that progress in the fight against AIDS is essential to future national advancement and well being.

- *Kenya should take steps to enhance the strategic focus of the response.* In 2011, UNAIDS unveiled a proposed paradigm shift in the response to HIV, launching an Investment Framework calling for orientation of funding and national efforts towards key programmatic activities that offer the greatest value for money and have the greatest potential to reduce the epidemic's burden in future years (Schwartlander et al., 2011).

Achieving this reallocation of resources will require political courage, better data on comparative impact and cost among diverse interventions, and enhanced use of strategic information to focus programmes most effectively.

- *Intensified efforts are needed to enhance coordination, harmonization and alignment of the national response.* All actors involved in the AIDS response must adhere to the Three Ones principles of a sound AIDS effort. Expanded efforts are required to ensure proper reporting and adherence to national standards among all partners. Over time, parallel systems for commodity procurement and supply management should either be merged or carefully harmonized. International partners should increase their coordination with each other and with the Government of Kenya to support Kenya's national AIDS strategy.

- *Support should be expanded for grassroots community action and capacity development.* Building on the strong partnership that has been forged between civil society and the Government of Kenya, the national government and international donors should redouble efforts to enhance the access of civil society organisations to financial support for capacity-building and community-driven action on AIDS. Recent efforts towards decentralization of the response should be accelerated, with the aim of empowering districts, municipalities and local networks to participate in the development, implementation and monitoring of evidence-based initiatives to respond to the epidemic.

- *A high-profile, multi-pronged strategy should be implemented to ensure sufficient financial resources to address the long-term challenge posed by AIDS.* The Government of Kenya should follow through on commitments in KNASP III to intensify efforts to mobilize substantially greater domestic resources for the AIDS response from both public and private sectors. At the same time, Kenya should join with other international partners at global and regional levels to advocate for sustained and sufficient global support for the fight against AIDS in low- and middle-income countries. In allocating finite AIDS resources, greater focus is required in directing scarce resources towards strategies that offer the greatest impact and the best return on investment.

- *All partners engaged in the AIDS response in Kenya should intensify efforts to enhance the efficiency of AIDS programmes and the quality of AIDS services.* Previous efforts to bring AIDS services to those who have lacked access should be matched by an equally strong commitment to maximize the results of AIDS resources. Standards for service efficiency and quality should be developed and rigorously enforced. Not only will this optimize long-term results, but it will also strengthen Kenya's ability to obtain additional international support for AIDS programmes by demonstrating that such investments represent good value for money spent.

- *Kenya should re-commit to achievement of the 2013 targets in KNASP III.* The modelling exercise undertaken on Kenya's behalf demonstrates that long-term success depends in large measure on actions taken in the next several years, underscoring the urgency of meeting performance targets identified through 2013. For the minority of indicators for which baselines and data sources have not been identified, intensified action is needed to ensure that an agreed, reliable means exist for the monitoring of each of the KNASP III indicators. Especially urgent focus is required with respect to indicators for which Kenya does not currently appear to be on track to achieve 2013 targets.

- *Kenya should elevate the priority accorded efforts to prevent new HIV infections.* As the previous chapter's modelling results demonstrated, a response that fails to prioritize HIV prevention will fail to bring the epidemic under control. The long-term decline in the proportion of prevention spending in Kenya's AIDS portfolio must be reversed. To address some of the documented weaknesses in the country's prevention efforts, Kenya should strengthen prevention programmes for people living with HIV, intensify efforts to address the prevention needs of most-at-risk populations, develop and implement prioritized prevention approaches for serodiscordant couples, and strengthen efforts to encourage consistent condom

use and fewer sexual partners. Building on recent success among younger men, national stakeholders should redouble efforts to reach older men with voluntary male circumcision services. In concert with diverse stakeholders, the Government of Kenya should begin now to prepare for accelerated implementation of new prevention tools that are likely to become available in the coming years.

- *Strategies to reduce HIV risk must be supported by energetic, courageous efforts to address the social determinants of vulnerability.* Kenya must undertake an all-out effort to empower women and girls, to move rapidly towards full gender equality, and to invest in multiple national initiatives to change harmful gender norms. Legislative and policy frameworks pertaining to sex workers, men who have sex with men, and people who inject drugs should be expeditiously reviewed and brought into line with a rights-based approach. The national HIV law should be reviewed and, where necessary, amended to ensure that Kenya's AIDS response is grounded in sound evidence and human rights.

- *Kenya should accelerate scaling up of comprehensive HIV treatment, care and support.* The number of facilities capable of administering antiretroviral treatment should be expanded, new cadres of health care workers should be trained in HIV treatment and effectively deployed, and good practices should be implemented to enhance treatment adherence and patient retention. Particular efforts should focus on closing the access gaps for HIV-infected children and on ensuring access to comprehensive preventive and treatment services for tuberculosis and other opportunistic infections. The country should also take steps to ensure that no person living with HIV suffers pain needlessly by expanding access to internationally recommended palliative agents. In collaboration with international partners and civil society stakeholders, the Government of Kenya should continue its expansion of cash transfer programmes and other forms of assistance for households caring for children orphaned or made vulnerable by the epidemic.

- *At the same time that AIDS programmes are brought to scale, dramatically stronger efforts are needed to strengthen the country's health system.* Recognizing that a healthy population is required for future national advancement and development, Kenya should rapidly ramp up to meet its pledge to allocate at least 15% of national expenditure for health. Major new investments in educational programmes for diverse cadres of health workers should be complemented by initiatives to improve remuneration, working conditions, and other factors that contribute to worker drop-out and brain drain. Building on recent advances, Kenya should ensure that health policy and services are informed by sound, timely, comprehensive health information.

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Annex

Kenya monitoring and evaluation indicators

Indicator	2007 Baseline	2011 Results	2013 Target
Percentage of adults infected with HIV	15–49 = 7.4%	15–49 = 6.2%*	15–49 = 6.8%

*The 2009 estimate is derived from the UNAIDS Spectrum model. While notably lower than the 2007 figure from the Kenya AIDS Indicator Study, the difference is not statistically significant, given the overlap of confidence intervals. The figures suggest that HIV prevalence in Kenya has stabilized, in line with the target prevalence for 2013.

Indicator	2007 Baseline	2011 Results	2013 Target
Annual number of new infections (adults and children)	166,000	104,137	83,000

Indicator	2007 Baseline	2009 Results	2013 Target
Percentage of young people (15–24) who are HIV-infected	F = 5.6% M = 1.4%	F = 2.5–6.4% M = 0.7–1.5%	F = 3% M = 1%

Indicator	2007 Baseline	2011 Results	2013 Target
Percentage of infants born to HIV-infected mothers who are infected	27%	15%	8%

Indicator	2007 Baseline	2011 Results	2013 Target
Annual number of deaths attributable to HIV (adult)	99,000	49,126	61,000

Indicator	2009 Results	2013 Target
Percentage of ministries with HIV budget lines	95%	100%

Indicator	2009 Results	2013 Target
Percentage of constituencies with a functional AIDS coordinating committee	100%	100%

Indicator	2007 Baseline	2009 Results	2013 Target
Percentage of adults (15–49) who have had sexual intercourse with more than one partner in the last 12 months	F = 1.7% M = 11.9%	F = 1% M = 9%	F = 1% M = 5%

Indicator	2007 Baseline	2009 Results	2013 Target
Percentage of adults (15–49) who had more than one sexual partner in the last 12 months who report the use of a condom during last intercourse	51.8%	61.5%	F = 50% M = 60%

Indicator	2007 Baseline	2009 Results	2013 Target
Percentage of young women and men who have had sexual intercourse before age 15	F = 20.0% M = 22.4%	F = 11.0% M = 22.2%	F = 10% M = 10%

Indicator	2008 Baseline	2011 Results	2013 Target
Percentage of HIV-positive pregnant women who receive antiretroviral medicines to reduce the risk of mother-to-child transmission	68.8%	69%	80%

Indicator	2008 Baseline	2010 Results	2013 Target
Percentage of donated blood units screened for HIV in a quality assured manner	100%	100%	100%

Indicator	2007 Baseline	2011 Results	2013 Target
Percentage of adults and children with advanced HIV infection receiving ARVs	40.5%	72%	71%

Indicator	2007 Baseline	2009 Results	2013 Target
Percentage of men and women (15–49) who received an HIV test in the last 12 months and who know the results	F = 21% M = 13.5%	F = 29.3% M = 22.8%	F = 25% M = 20%

Indicator	2008 Baseline	2011 Results	2013 Target
Percentage of HIV/TB co-infected clients who are receiving ARVs	31%	65%	80%

Indicator	2008 Baseline	2009 Results	2013 Target
Percentage of TB patients who were offered and receive HIV test results	83%	95%	90%

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