

GETTING TO ZERO: HIV IN EASTERN & SOUTHERN AFRICA



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Joint United Nations Programme on HIV/AIDS (UNAIDS)

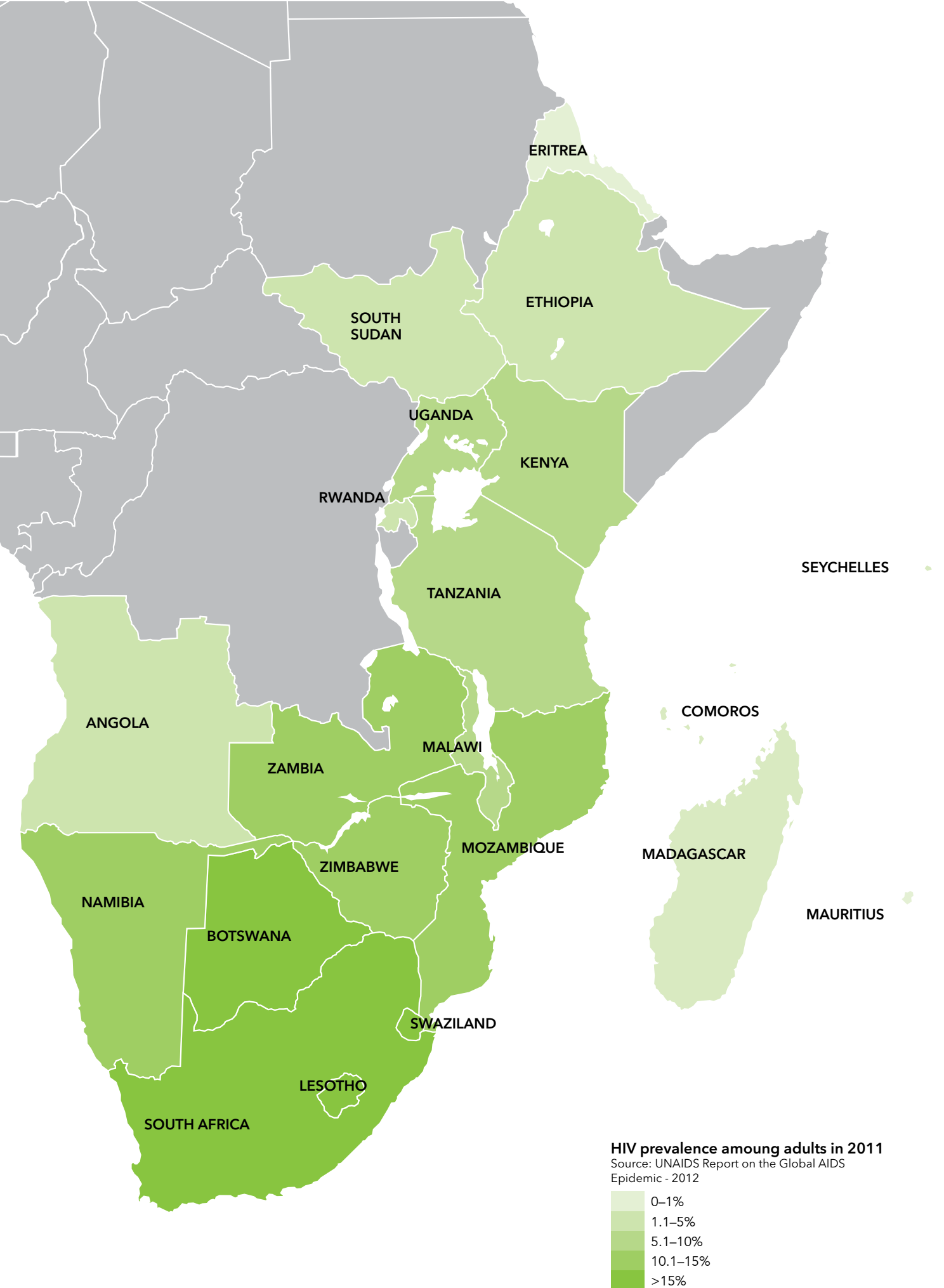
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Getting to zero: HIV in eastern and southern Africa

2013 REPORT ON THE
HIV EPIDEMIC IN EASTERN
AND SOUTHERN AFRICA



6.3 million

Number of people living with HIV receiving antiretroviral therapy in eastern and southern Africa in 2012

72%

Coverage of services to eliminate new HIV infections among children in eastern and southern Africa in 2011 [64-80%]

17.1 million

Number of people living with HIV in eastern and southern Africa in 2011 [16.3-17.9 million]

1.2 million

Number of new HIV infections in eastern and southern Africa in 2011 [1.1-1.3 million]

800 000

Number of AIDS-related deaths in eastern and southern Africa in 2011 [730 000-890 000]

30%

Reduction in new HIV infections between 2001 and 2011 in eastern and southern Africa

50%

Reduction in new child infections between 2001 and 2011 in eastern and southern Africa

38%

Reduction in AIDS-related deaths between 2005 and 2011 in eastern and southern Africa

FOREWORD

During the past 10 years, the AIDS response has been extraordinary, nowhere more so than in eastern and southern Africa. The countries in this region are using the latest tools available to save people's lives, halt HIV transmission and achieve the dream of ending the AIDS epidemic.

Ten years ago, the magnitude of the epidemic supported the dire predictions being made for this region, the epicenter of the AIDS crisis. But in only a few years, some of the most heavily-affected countries in the region have made extraordinary progress. The rate of new HIV infections has been reduced by more than 30% overall, and by more than 50% in seven countries in the region. Since 2005, the number of people receiving life-saving antiretroviral therapy (ART) has increased tenfold—from 625 000 to more than 6 million at the end of 2012. Botswana, Namibia, Rwanda, Swaziland and Zambia reached universal access to HIV treatment (80% coverage of people eligible for treatment) by the end of 2011. Kenya, Malawi, South Africa and Zimbabwe are on track to reach this goal. Through reduced infectivity and rapid treatment expansion, some countries have achieved a “tipping point”, where the number of people starting HIV treatment exceeded the number acquiring infections, laying the foundation for moving forward country-specific and economically sustainable responses.

The countries of eastern and southern African are making important progress towards achieving an AIDS-free generation. Between 2009 and 2012, the number of infants newly infected with HIV has fallen by more than half in Botswana, Ethiopia, Malawi, Namibia, South Africa and Zambia, and by more than one-third in Kenya, Mozambique, Swaziland, the United Republic of Tanzania and Zimbabwe. Malawi has been a pioneering country in offering lifelong ART to all pregnant women

infected with HIV (Option B+). If we continue to increase this momentum, we can reach our 2015 goal of eliminating new HIV infections among children and keeping their mothers alive.

This dramatic turn-around in the course of the AIDS epidemic has been the result of extraordinary political leadership and engagement from civil society. From the support of African heads of state for AIDS Watch Africa, to the advocacy of the Champions for an HIV-Free Generation, high-level political advocacy and accountability have been critical to the region's progress. The majority of countries in this region have embraced the African Union's Roadmap on shared responsibility and global solidarity for the AIDS, TB and Malaria response.

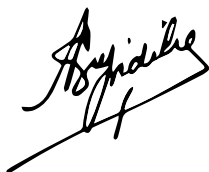
South Africa has been an outstanding model of this transformation – implementing a series of breakthrough policy decisions since 2009. In 2010, South Africa embarked on an unprecedented national campaign to provide free treatment to all eligible people living with HIV, coupled with a massive programme of testing and counseling for HIV and screening for TB. During the last financial year (2012-2013), more than 9 million people were tested for HIV. The country currently has the largest ART programme in the world, with more than 2.1 million people receiving ART. South Africa's domestic AIDS investments have increased to US\$ 1.9 billion per year, the second-largest national AIDS investment in the world.

Many other countries in the region have also adopted bold policies and programmes to increase investments in their national AIDS response. In Botswana, the government provides more than seventy percent of all HIV spending. Zimbabwe's three percent AIDS levy on all taxable income provides invaluable support for its national AIDS

programme. Kenya and Tanzania are considering similar innovative funding mechanisms.

Although this region is leading the global AIDS response in the right direction, there is still a lot to be done. In some countries, HIV incidence has been stagnating or even increasing (Lesotho, Uganda, United Republic of Tanzania), raising an alarm for the need to urgently step up prevention efforts. Less than one-quarter of children living with HIV in the region are currently receiving treatment. Inefficiencies and inequalities still limit service delivery. Lack of human rights-based responses continues to fuel HIV-related stigma and discrimination. Many people remain at risk and are vulnerable to HIV. In some countries, domestic investments are still inadequate and the challenge for several countries in this region is to further reduce dependency on external resources to treat their own citizens.

The eyes of the world are on this region. The pace at which eastern and southern Africa embraces and acts on new science, evidence and innovations will determine how quickly we will reach the vision of zero new infections, zero AIDS-related deaths and zero discrimination. It is time, through collective innovation, to consolidate the gains and pursue a bold regional approach to accelerate progress toward 2015 and beyond. In the words of Nelson Mandela, “when the water starts boiling it is foolish to turn off the heat”.



Michel Sidibé
UNAIDS Executive Director

ACRONYMS & ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
AIS	AIDS Indicator Survey
ART	antiretroviral therapy
ARV	antiretroviral
AU	African Union
AWA	AIDS Watch Africa
CHAI	Clinton Health Access Initiative
CPT	co-trimoxazole preventive therapy
DHS	Demographic and Health Survey
EAC	East African Community
eMTCT	eliminating mother-to-child transmission (of HIV)
ESA	Eastern and southern Africa
GDP	gross domestic product
HIV	human immunodeficiency virus
HLM	High Level Meeting
IPT	isoniazid preventive therapy
MDG	Millennium Development Goal
MSM	men who have sex with men
NASA	National AIDS Spending Assessment
ODA	overseas development assistance
PEPFAR	(US) President's Emergency Plan for AIDS Relief
PMTCT	prevention of mother-to-child transmission (of HIV)
PWID	people who inject drugs
PreP	pre-exposure prophylaxis
SADC	Southern African Development Community
TB	tuberculosis
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
UNFPA	United Nations Population Fund
US\$	US dollar
WHO	World Health Organization

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INTRODUCTION

The world is engaged in an epic quest to end one of the most destructive epidemics of modern times—AIDS. The outcome will be decided ultimately by the response in eastern and southern Africa, the region that remains the most affected by the AIDS epidemic.

Current efforts are guided by the commitments and targets set out in the 2011 *Political Declaration on HIV and AIDS: Intensifying Our Efforts to Eliminate HIV and AIDS*, which United Nations (UN) Member States adopted in New York in June 2011 during the UN General Assembly High Level Meeting on AIDS. Central to the 2011 Political Declaration were the ambitious objectives which Member States pledged to meet by 2015, as defined by the following 10 targets:

1. Reduce sexual transmission of HIV by 50% by 2015.
2. Reduce transmission of HIV among people who inject drugs by 50% by 2015.
3. Eliminate new infections among children by 2015 and substantially reduce AIDS-related maternal deaths.
4. Reach 15 million people living with HIV with lifesaving antiretroviral treatment by 2015.
5. Reduce tuberculosis deaths in people living with HIV by 50% by 2015.
6. Close the global AIDS resource gap by 2015 and reach annual global investment of US\$ 22–24 billion in low- and middle-income countries.
7. Eliminate gender inequalities and gender-based abuse and violence and increase the capacity of women and girls to protect themselves from HIV.
8. Eliminate stigma and discrimination against people living with and affected by HIV through promotion of laws and policies that ensure the full realization of all human rights and fundamental freedoms.
9. Eliminate HIV-related restrictions on entry, stay and residence.
10. Eliminate parallel systems for HIV-related services to strengthen integration of the AIDS response in global health and development efforts.

The UN High Level Meeting (HLM) was preceded by extensive regional and continental consultation that culminated in the African Common Position, which in turn helped define the 2011 Political Declaration outcomes. The high-level representation from eastern and southern Africa at the meeting was unprecedented: attending the gathering were 7 heads of state or of government or their deputies, 4 first ladies, 24 ministers (16 of them ministers of health), along with numerous parliamentarians and civil society representatives. Botswana co-chaired the negotiations for the *Political Declaration*, and South Africa was a member of the Security Council that passed *Resolution 1983* to encourage the inclusion of HIV prevention, treatment, care and support in its peacekeeping mandates. The HLM was therefore an expression of the regional aspiration to put an end to AIDS.

This report provides an overview of the HIV epidemics in eastern and southern Africa and of the region's response and progress towards meeting the 2011 Political Declaration targets, while identifying noteworthy achievements and challenges.

The report draws on the most recently available data from the Global AIDS Response Reporting System, national HIV estimation exercises, data gathered and generated by UNAIDS, its co-sponsors and national partners, and the many recent studies and surveys that have been conducted in the region. The report is extensively referenced to enable interested readers to investigate source materials further.

The first chapter reviews the current status and recent trends in the HIV epidemic and shows that new HIV infections (including infections among adults and children) and AIDS-related deaths (including among people infected with both HIV and TB) have dropped steeply in most of the region. The following 10 chapters are structured in accordance with the 10 Political Declaration targets. They show that the region on the whole has taken exemplary steps towards reaching those targets, but they also highlight important challenges that will have to be addressed if the current momentum is to be sustained.

The accomplishments in the region reflect the enormous efforts to scale up and improve HIV interventions, including the intensified efforts to eliminate new HIV infections among children by 2015 and reduce AIDS-related maternal deaths, and the ongoing campaigns to encourage and enable young people to protect themselves against HIV. Almost 6.3 million people living with HIV were receiving antiretroviral therapy (ART) in eastern and southern Africa at the end of 2012. The dramatic increase in provision of ART to people infected with HIV has reduced AIDS deaths, improved the quality of life and work prospects of those on treatment, and transformed the lives of affected families and communities. In addition, there is evidence that increased access to ART is contributing to a reduction in new HIV infections, especially in countries that have achieved high coverage. Average life expectancy is rising again in most countries in the region where it had been decreasing since the 1990s because of AIDS.

The mobilization of people living with HIV, their communities, and the top levels of political authority has been a driving force behind the achievements. Together these forces have galvanized extraordinary funding support—domestically and from abroad—that has enabled countries to expand their HIV responses to the point where an end to the AIDS epidemic is no longer an improbable prospect.

Invigorated leadership has been especially evident in South Africa, which has transformed its HIV response since 2009 with a series of breakthrough policy decisions. The government resolved to provide ART free of charge to at least 80% of people eligible for treatment (based on the 2010 WHO ART guidelines) by 2015, launched a massive HIV testing and counselling campaign along with a countrywide TB screening campaign, and increased its domestic funding to such an extent that more than 75% of the HIV response has been financed from domestic tax revenues since 2010 (1). In Zimbabwe, the national AIDS levy remains a unique approach for funding the HIV response, while in Malawi, the President has begun the process of promoting strengthened legislative protection of human rights.

Among the lessons learned is that strong leadership around the HIV response needs to be continuously cultivated and supported—a task that the *Champions for an HIV-Free Generation*, a collective of eminent Africans led by former President of Botswana, Festus Mogae, have been performing. This regional leadership initiative, committed to ending the AIDS epidemic, has made significant contributions in eastern and southern Africa. The country visits and dialogues of the Champions with sitting Heads of State, as well as leaders and communities active in the fight against AIDS, have spurred action, helped to resolve leadership deadlocks around contentious issues, and inspired increased domestic funding for the AIDS response.



The commitment to end AIDS is evident also at continental and regional levels. In July 2012, African Union (AU) Heads of State adopted the “Roadmap on shared responsibility and global solidarity for AIDS, TB and malaria in Africa” (2). Building on earlier commitments including the 2001 Abuja Declaration¹ and the 2010 Kampala Declaration², the Roadmap presents a set of practical and African-owned solutions that are structured around three strategic pillars: health governance, diversified financing, and access to medicines. The Roadmap is providing overarching guidance to countries as they strive to enhance sustainable responses to AIDS, TB and malaria. AIDS Watch Africa (AWA) was established at the Abuja 2001 Special Summit and revitalized in 2012 to stimulate African leaders into action and to mobilize the resources needed to address AIDS, TB and malaria in an effective, sustainable and accountable manner.

Regional bodies have been providing strong political and technical leadership. Their convening powers have enabled senior government officials to meet, review the latest evidence and plan appropriate strategies. Soon after the High Level Meeting in June 2011, for example, national AIDS authorities in the Southern African Development Community Member States resolved to update HIV treatment guidelines, place 4 million people on ART by 2015, strengthen the human rights response to AIDS, and reinforce the integration of HIV into the broader health sector (3).

In many respects, the response to HIV in eastern and southern Africa has spurred wider efforts to affirm people’s rights to health, dignity and life. These became distinctive struggles that put rights-based claims and entitlements centre-stage, and that sought to hold governments accountable for

¹ Abuja 2001: Considers AIDS an emergency on the continent, calls for a comprehensive strategy to mobilize all sectors of society and pledges at least 15% of public spending on health.

² Kampala 2010: Extends the Abuja call for universal access to 2015, calls for coordinated efforts to end mother-to-child transmission of HIV, and commits to accelerate efforts to improve the health of women and children.

their actions and inactions. The developments discussed in this report are a testament to those combined efforts.

The progress in eastern and southern Africa is commendable and encouraging. A few countries have already achieved some key national targets, and several others are on track to reach them by 2015. But substantial challenges and gaps remain, and additional and strengthened efforts are needed to overcome them.

Although political commitment to keep HIV on the agenda remains high overall in the region, the progress appears to be slowing down in some places. National ownership of the response is widely endorsed, but is not yet visible enough, and in many countries there is need for increased domestic funding to respond adequately to the HIV epidemic. Countries need to intensify their efforts to increase domestic investments and achieve greater efficiencies in the delivery of HIV services. However, external funding will remain the lifeline of several countries in the foreseeable future and international solidarity will therefore continue to be required.

It is vitally important to expand access to HIV services and ensure that as many people as possible benefit from them. But in addition to reaching the maximum number of people with those services, it is essential to ensure that the services are effective, sustainable and of high quality.

As some of these services, including HIV treatment, become part of the routine public health system and are decentralized more rapidly, they are increasingly exposed to systemic weaknesses. Poor patient tracking and monitoring and evaluation systems, incomplete drug and diagnostic intelligence (leading to repeated drug stock-outs), funding and staffing shortages, and overburdened health workers are concerns in many hospitals and clinics of the region.

At the same time, the rapid scale-up of HIV services is also “normalizing” those services, and often points to some of the chronic difficulties that plague public health systems in the region.

Despite the significant progress in expanding treatment, more than 11 million people living with HIV in the region were not receiving treatment in 2012. The 2013 WHO ART guidelines will have important implications for the region. It recommends earlier initiation of ART—at CD4 count ≤ 500 cells/ μ L—and immediate provision of ART for serodiscordant couples, pregnant women living with HIV, people with TB and HIV, people with HIV and hepatitis B, and all children living with HIV who are younger than five years (4). The UNAIDS Treatment 2015 initiative encourages countries to rapidly scale up ART access to maximize HIV treatment and prevention benefits. Ways have to be found to deliver treatment more efficiently and at lower cost. Part of the solution may involve collective investment in the local production of drugs and commodities to drive costs down, and to ensure harmonization of pharmaceutical regulations and standards.

The lack of adequate treatment programmes for children living with HIV is a serious concern. Paediatric ART coverage in the region showed little improvement between 2009 and 2012. Among the estimated 2.2 million children younger than 15 years living with HIV in 2011, only 425 000 were receiving treatment. Treatment coverage for children must improve as a matter of urgency. In addition, the region needs to scale up programmes to diagnose, treat, and provide care and support to children living with HIV who survived through childhood into their teens.

Most countries in the region are within reach of the goal of eliminating new HIV infections among children by 2015 and keeping their mothers alive. But for those countries that lag behind, now is the time to answer this moral imperative.

HIV needs to be integrated more extensively into other health areas. The interaction of the HIV and TB epidemics, especially, provides a unique opportunity for integrating systems for delivering services to infected and affected people.

The region needs extraordinary leadership and efforts to tackle the issues related to human rights, stigma and discrimination of people living with HIV. The people-centred character of the HIV response is a distinctive quality in this region and elsewhere. At a minimum, countries need to review and reform laws and policies that undermine a human rights-based response.

Specific actions are needed to tackle the vulnerability of women and girls in the region. This will require investments in effective interventions that empower women and girls, accelerated research in new technologies and devices that women can control, such as vaginal microbicides, and increased support for the transformation of traditional and cultural practices and prejudices that increase the vulnerability of women and girls.

The international community has made remarkable progress in its efforts to achieve the Millennium Development Goal (MDG) related to HIV/AIDS³ (5). Building on the efforts to achieve the MDGs, the post-2015 international development agenda should move forward the vision of zero new infections, zero discrimination and zero AIDS-related deaths, and it should reflect the role of an effective AIDS response as an essential pillar of future health and development efforts (6).

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³. MDG 6: to have halted by 2015 and begun to reverse the spread of HIV/AIDS; and to achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it.

THE STATE OF THE HIV EPIDEMIC IN EASTERN AND SOUTHERN AFRICA

The past decade has seen remarkable progress in efforts to respond to the HIV epidemics in eastern and southern Africa. In every country, HIV programmes have grown in scale, quality, effectiveness and impact. Positive results are being observed throughout the region: ⁴

- In 2011, the number of adults who became newly infected with HIV in eastern and southern Africa⁵ was at its lowest level since 1991.
- New HIV infections in children have been halved since 2001.
- AIDS claimed fewer lives in 2011 than in any year since 1998, and the number of TB deaths in people infected with HIV was at its lowest since 1998.
- A total of 6.3 million people in the region were receiving antiretroviral therapy (ART) at the end of 2012.
- In the countries hardest hit by the epidemic, average life expectancy is rising again (1).

These are the results of determined efforts over the last years to scale up prevention and treatment programmes in the region. The rapid scale-up of life-saving HIV treatment, in particular, ranks among the great public health and human rights achievements of our time.

New HIV infections among adults and children are declining

The total number of new HIV infections in eastern and southern Africa has declined substantially in recent years. There were an estimated 1.2 million [1.1 million–1.3 million] new infections in 2011—the lowest annual number since 1991, when the epidemic was still expanding rapidly, and about 30% lower than the estimated 1.7 million [1.6 million–1.9 million] new infections that occurred in 2001 (Figure 1). HIV incidence among adults living in the region decreased from 0.99% [0.93–1.05%] in 2001 to 0.56% [0.52–0.62%] in 2011.⁶

Rates of new HIV infections among adults declined significantly in several countries in the region between 2001 and 2011—by more than 50% in Botswana, Ethiopia, Malawi, Namibia, Rwanda, Zambia and Zimbabwe, and by between 25% and 49% in Kenya, Mozambique, South Africa and Swaziland.

The declining trends can be attributed to a combination of factors, including the natural course of the HIV epidemic, demonstrable changes in sexual behaviour (especially among young people in most countries in the region), much wider access to ART, and progress in preventing new HIV infections among children. Levels of reported condom use have been increasing in several eastern and southern African countries, while declines in the number of multiple sexual partners have also been reported in some countries (see Chapter 1).

⁴ The most recent country-level HIV data for the region, available at the time of publication, describe the situation at the end of 2011.

⁵ The 21 countries deemed part of eastern and southern Africa in this report are: Angola, Botswana, Comoros, Eritrea, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, South Sudan, Swaziland, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

⁶ There were insufficient data for Eritrea, South Sudan and the island countries of Madagascar, Mauritius, Seychelles and Comoros.

Figure 1
Number of new HIV infections in eastern and southern Africa, 1990–2011
 Source: UNAIDS

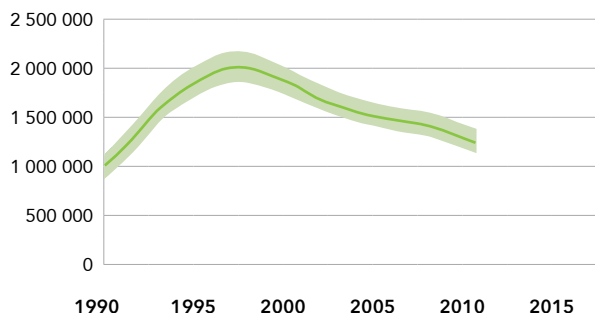


Table 1
Percentage change in HIV incidence among adults, eastern and southern Africa, 2001–2011

Stable/ Increase	Decline 5–25%	Decline 26–49%	Decline ≥ 50%
UR Tanzania Uganda	Angola Lesotho South Sudan	Kenya Mozambique South Africa Swaziland	Botswana Ethiopia Malawi Namibia Rwanda Zambia Zimbabwe

There has also been a steep decline in the number of new HIV infections among children younger than 15 years, which fell to an estimated 180 000 [160 000–220 000] in 2011, less than half the 370 000 [330 000–410 000] new infections estimated in 2001. Several countries have made important progress in preventing new infections among children in the past three years:⁷

- Between 2009 and 2012, the number of children newly infected with HIV fell by more than 50% in Botswana, Ethiopia, Malawi, Namibia, South Africa and Zambia; and by 30–49% in Kenya, Mozambique, Swaziland, United Republic of Tanzania and Zimbabwe.

This progress is largely due to improved efforts to eliminate new HIV infections among children

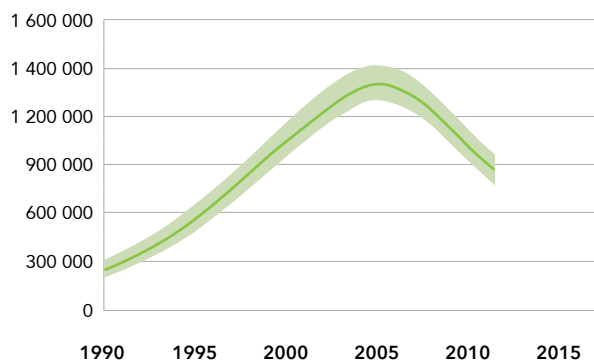
through the provision of antiretroviral (ARV) treatment or prophylaxis to infected mothers and their infants. In 2011, around 690 000 pregnant women living with HIV received the recommended drugs⁸ to prevent transmission to their babies—100 000 more than a year earlier. Coverage of services to eliminate mother-to-child transmission (eMTCT) in this region increased from 61% [55–67%] in 2010 to 72% [64–80%] in 2011. It is essential that this momentum be sustained in order to reach mothers who still do not have access to such services in the region (estimated at 270 000 in 2011).

AIDS-related deaths are declining

AIDS-related mortality has been declining rapidly since the dramatic increase in provision of ART in the mid-2000s. The 800 000 [730 000–890 000] lives claimed by AIDS in 2011 were 38% fewer than the 1.3 million [1.2 million–1.4 million] lives lost in 2005, when ART became more freely available in eastern and southern Africa (Figure 2).

AIDS-related mortality declined by more than 50% between 2005 and 2011 in several countries, including Botswana, Ethiopia, Kenya, Namibia, Rwanda, Zambia and Zimbabwe.

Figure 2
Number of AIDS-related deaths in eastern and southern Africa, 1990–2011
 Source: UNAIDS



⁷ The baseline year for the 2015 target of eliminating new HIV infections among children is 2009.

⁸ Excluding single-dose nevirapine, which the WHO no longer recommends.

As a result, fewer children are being orphaned because of AIDS. Despite the decline, a disconcertingly large number of children living in 2011—estimated at 10.5 million [9.8 million–11.2 million]—had lost one or both parents to AIDS, and needed care and support. The strain this causes for extended families, communities, and the children themselves is enormous.

More effective integration of HIV and TB diagnosis and treatment is contributing to the decline in AIDS-related mortality. The TB/HIV death toll in eastern and southern Africa has fallen by about 30% since 2004–6, when it peaked at an estimated 330 000 deaths per year. If this declining trend continues, the region is likely to reach the global target of reducing the number of TB-related deaths among people living with HIV by 50% by 2015.

Rapid increase in the number of people receiving ART

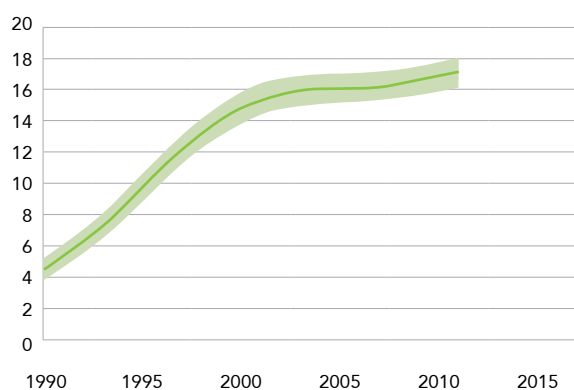
The number of people receiving life-saving ART in eastern and southern Africa has risen tenfold since 2005. A total of 6.3 million people were receiving ART in 2012, compared to 5.2 million people in 2011, and 625 000 in 2005. The region currently accounts for 65% of the 9.7 million people receiving ART globally. According to the 2010 WHO treatment eligibility criteria⁹, an estimated 64% [61–68%] of people who were eligible were receiving ART in the region in 2011, up from 16% [15–18%] in 2005 and 45% [43–48%] in 2009.

Botswana, Namibia, Rwanda, Swaziland and Zambia had achieved more than 80% coverage¹⁰ by the end of 2011, while Kenya, Malawi, South Africa and Zimbabwe had reached more than 60% of people eligible for treatment (2). Countries with coverage below 60% in 2011 include Angola, Comoros, Eritrea, Ethiopia, Lesotho, Madagascar, Mauritius, Mozambique, Uganda and the United Republic of Tanzania.

Of 17.1 million people living with HIV in 2011, 8.1 million met the 2010 WHO ART eligibility criteria. However, the revised 2013 WHO ART guidelines—to initiate ART at CD4 count ≤ 500 cells/ μ L and to offer ART to all serodiscordant couples, pregnant women living with HIV, people with TB and HIV, people with HIV and hepatitis B, and all children living with HIV who are younger than five years—will lead to a substantial increase in the number of people eligible for treatment (3).

As more people start and stay on ART, survival times of those infected with HIV are increasing, and the total number of people living with HIV is rising slowly as a result. The total number of people living with HIV in eastern and southern Africa rose from 15.4 million [14.6 million–16.3 million] in 2001 to 17.1 million [16.3 million–17.9 million] a decade later, even though the annual number of new HIV infections declined during this period (Figure 3).

Figure 3
Number of people living with HIV in eastern and southern Africa, 1990–2011
(in millions)
Source: UNAIDS



⁹ ART initiation at CD4 count ≤ 350 cells/ μ L.

¹⁰ Providing ART to at least 80% of patients in need according to the 2010 WHO treatment eligibility criteria.

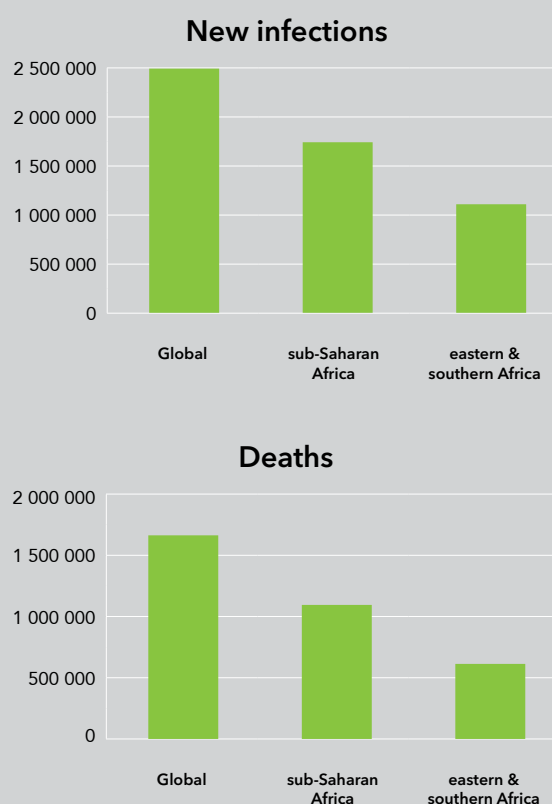
The HIV epidemic in eastern and southern Africa relative to the global epidemic

- Home to just over 5% of the global population, eastern and southern Africa accounted for close to 50% of all people living with HIV (17.1 million of the estimated global total of 34.0 million [31.4–35.9 million]) and 48% of the estimated 2.5 million [2.2–2.8 million] new HIV infections in 2011.
- Approximately 330 000 [280 000–290 000] children aged 0–14 years were newly infected with HIV globally in 2011; 180 000 (55%) of them were in the eastern and southern African region.
- Almost two thirds (65%) of the estimated 1.1 million worldwide TB cases among people living with HIV in 2011 were in eastern and southern Africa. Ethiopia, Kenya, Mozambique, South Africa, Uganda, United Republic of Tanzania, Zambia and Zimbabwe together account for approximately 59% of the global burden of HIV-positive TB cases (4).
- An estimated 800 000 of the 1.7 million AIDS-related deaths (47%) globally in 2011 occurred in eastern and southern Africa.¹
- The HIV epidemic disproportionately affects women in the region: approximately 58% (8.6 million) of the 14.9 million adults living with HIV in the region are women.

Figure 4

Number of new HIV infections and AIDS-related deaths in 2011—global, sub-Saharan Africa and eastern and southern Africa

Source: UNAIDS



The HIV epidemic among young people

HIV prevalence has been falling among both young women and men (aged 15–24 years), and was about 40% lower in 2011 than a decade earlier. However, the

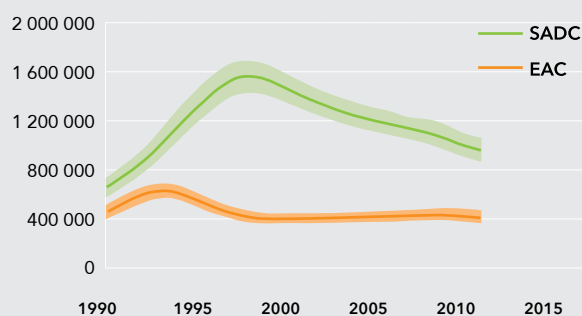
estimated number of new infections among young people was still high at 450 000 [370 000–550 000] in 2011. The vulnerability of young women aged 15–24 years remains of particular concern: the estimated HIV prevalence of 4.5% [3.8–5.6%] among women in that age group in 2011 was more than double the prevalence among their male peers.

The HIV epidemic in the Development Communities of eastern and southern Africa

The number of new HIV infections has declined substantially in the Southern African Development Community (SADC)¹¹—from 1.4 million in 2001 to 950 000 in 2011, a decline of 32%—but has remained stable at around 400 000 in the East African Community (EAC)¹² over the same period. The overall trend in the EAC is heavily influenced by trends in the United Republic of Tanzania (where HIV incidence has remained stable since 2001) and Uganda (where it has increased).

Figure 5
Number of new HIV infections in the SADC and EAC sub-regions, 1990–2011

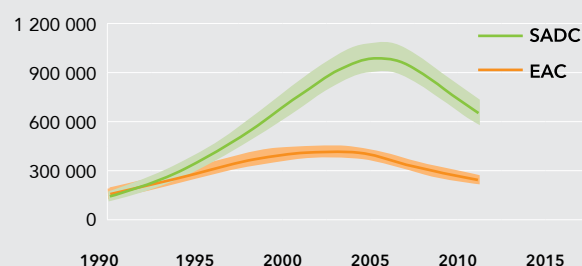
Source: UNAIDS



The number of new HIV infections among children also decreased substantially in both sub-regions. Among SADC Member States, the number of new infections declined from 270 000 [240 000–300 000] in 2005 to 140 000 [120 000–170 000] in 2011 (48% decline). In the EAC sub-region, new infections decreased from 100 000 [90 000–120 000] in 2005 to 59 000 [47 000–72 000] in 2011 (41% decline). eMTCT coverage of effective ARV regimens in 2011 was higher in SADC Member States (76% [68–85%]), than in EAC Member States (63% [55–71%]).

Figure 6
Number of AIDS-related deaths in the SADC and EAC sub-regions, 1990–2011

Source: UNAIDS



A larger proportion of people eligible for ART were receiving it in the SADC sub-region in 2011 (63% [60–70%]), compared with the EAC sub-region (57% [54–61%]). Declining HIV incidence and wider access to HIV treatment has resulted in fewer AIDS-related deaths in both sub-regions, most dramatically in the SADC countries (Figure 6).

¹¹ The 15 member states of SADC are: Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe. Note that the Democratic Republic of Congo is not deemed part of eastern and southern Africa in this report.

¹² The five member states of EAC are: Burundi, Kenya, Rwanda, Uganda and United Republic of Tanzania. Note that the United Republic of Tanzania belongs to both SADC and EAC, and that Burundi is not deemed part of the eastern and southern African region in this report.

In some countries in southern Africa (including Lesotho, Swaziland and South Africa), HIV prevalence among young women aged 15–24 years was still greater than 10%, highlighting the need for increased efforts that adequately address the epidemic in this population group.

The progress in the response to the epidemic in the region confirms that concerted and sustained action can change the course of the HIV epidemic. This progress is also fundamentally important to the overall goal of halting the global HIV epidemic in this region.

Progress to 2015

The countries in eastern and southern Africa have made important progress in responding to the HIV epidemic but will have to strengthen efforts in order to reach the targets set for 2015 in the *Political Declaration on HIV and AIDS* and to sustain that progress into the future. In some countries the progress has been slow and uneven. New resolve, and strengthened support focused particularly on high-impact interventions, are needed if the entire region is to reach the 2015 targets.

As HIV responses expand, the effectiveness, efficiency and sustained quality of services and technologies are increasingly becoming issues of concern. It is equally evident that many of the improvements needed to reach the international and national HIV targets are vital also for strengthening countries' health and social development systems overall.

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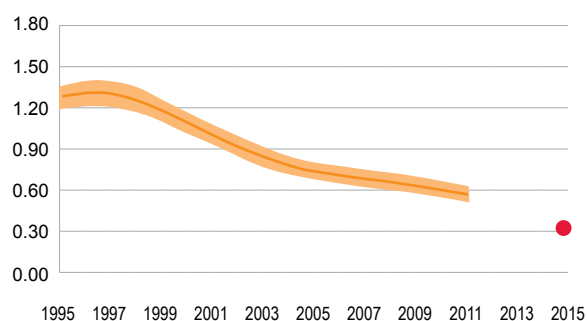
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2. UNAIDS. *Report on the global AIDS epidemic 2012*. Geneva: UNAIDS; 2012.
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1. SEXUAL TRANSMISSION

The majority of adults living with HIV in eastern and southern Africa acquired the virus during unprotected sex. Reducing the number of new adult HIV infections therefore demands reductions in the sexual transmission of HIV. While the rate of new infections has been falling in this region since the late 1990s, improved efforts and accelerated scale-up of high-impact HIV prevention interventions will be required to meet the 2011 Political Declaration target of further reducing sexual transmission of HIV by 50% between 2010 and 2015 (Figure 7).

Figure 7
Incidence of HIV infection among adults between 1995 and 2011, eastern and southern Africa, with projected target for 2015

Source: UNAIDS



The number of new HIV infections among adults in eastern and southern Africa fell from 1.7 million [1.6–1.9 million] in 2001 to 1.2 million [1.1–1.3 million] in 2011. Similarly, the incidence rate of HIV among adults aged 15–49 years declined from 0.99 [0.93–1.05] in 2001 to 0.56 [0.52–0.62] in 2011. During this period, HIV incidence among adults dropped by more than 50% in seven countries: Ethiopia (90% decline), Botswana (71% decline), Malawi (72% decline), Namibia (68% decline), Rwanda (53% decline), Zambia (58% decline) and Zimbabwe (50% decline). In four other countries—

Kenya, Mozambique, South Africa and Swaziland—incidence declined by 30–40%. In Angola, Lesotho and United Republic of Tanzania, the decline between 2001 and 2011 was less than 20%, while HIV incidence increased in Uganda during the past decade (Figure 8).

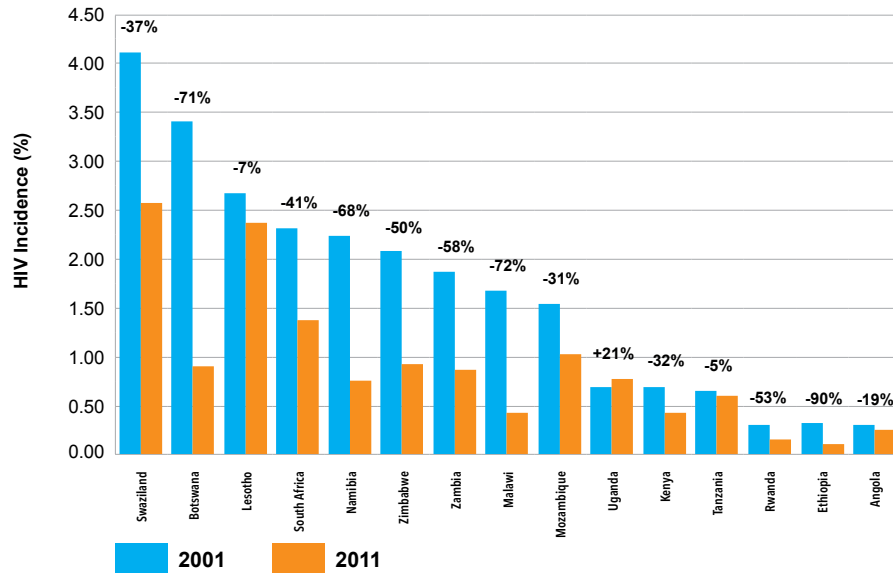
Planning and focusing the HIV response for maximum impact requires a solid understanding of how and where most HIV transmission occurs in a country. Studies in eastern and southern Africa have shown that most new HIV infections—between 60% and 95%—occur in the general heterosexual population and are due to unprotected sex in multiple partnerships or in stable discordant relationships (Figure 9) (1). In addition, infection levels among young women are high and contribute substantially to the number of new adult infections in the region.

The contribution of sex work and men who have sex with men to the HIV epidemics in the region is varied. While the sharing of contaminated drug injecting equipment is estimated to play a minor role in most countries in this region, it features more prominently in the epidemics of a few countries, most notably in Mauritius, where it is responsible for the majority of new HIV infections (Chapter 2). In Kenya, about one third of new infections in 2008 were estimated to have occurred among sex workers and their clients, men who have sex with men, and people who inject drugs. Key populations are estimated to contribute about one quarter of new HIV infections in South Africa, and between 7% and 11% of new infections in Swaziland, Uganda and Zambia (1). However, data on the sizes, HIV prevalence and related behaviours of key populations in the region are very limited, and estimates are surrounded with wide uncertainty bounds.

Figure 8

Percentage change in adult HIV incidence in eastern and southern Africa, 2001-2011

Source: UNAIDS



Factors associated with the decline in new HIV infections

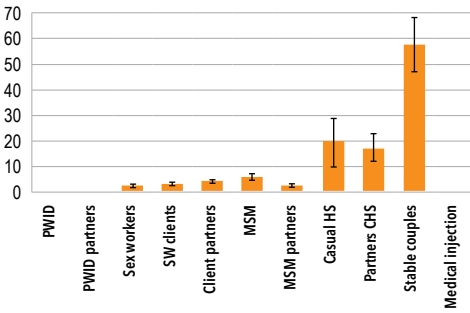
A combination of factors could have contributed to the decline in new HIV infections over the past decade. In some countries in eastern and southern Africa, behaviour change may have contributed to the downward trend in new infections as countries stepped up their prevention efforts—including age-appropriate sex education, community-based behavioural prevention, condom use programmes and prevention programmes among sex workers. In recent years, increased access to antiretroviral therapy (ART), resulting in the suppression of viral load among people infected with HIV, also contributed to the reduction in HIV incidence. Medical male circumcision programmes have not yet been delivered on a sufficient scale to cause national-level HIV incidence reductions, but in settings where it has been delivered on an appropriate scale, such as in Orange Farm in South Africa, it has been shown to have an impact on reducing population-level HIV incidence (2).

Data collected from repeat demographic and health surveys in the region show reduced risky behaviours in some countries, including a statistically significant reduction in the number of multiple sex partners among both men and women in Ethiopia, Kenya, Mozambique and Zambia, and among men in Malawi and Namibia and women in Lesotho (3). A significant increase was reported in condom use at the last high-risk sexual encounter among men and women in Lesotho, Malawi and Namibia, and among women in Mozambique, United Republic of Tanzania and Zambia. However, limited data are available on condom use in stable relationships.

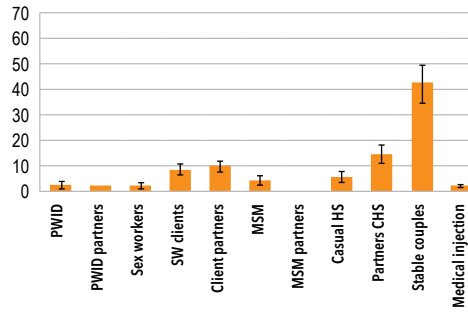
Further analysis is needed to determine the extent to which the changes in sexual behaviour are associated with the changes in HIV incidence (4). Furthermore, while formal behaviour change and condom-promotion programmes appear to be playing some part in the observed behaviour shifts in the region, linking behaviour-change programmes to specific HIV outcomes remains difficult.

Figure 9
Main modes of HIV transmission in selected countries, eastern and southern Africa. Percentage of new HIV infections explained by different risk populations
 Source: Country-specific modes of transmission studies (available www.unaidsrsta.org)

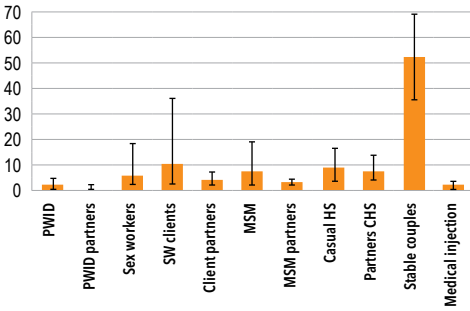
Lesotho



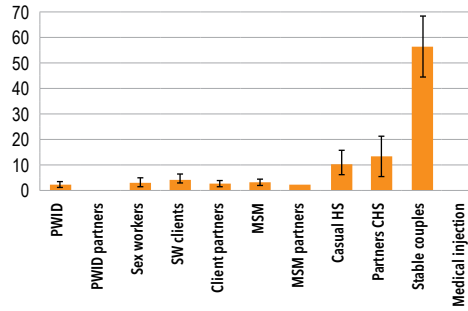
Mozambique



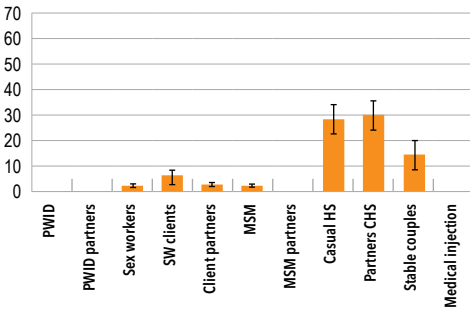
South Africa



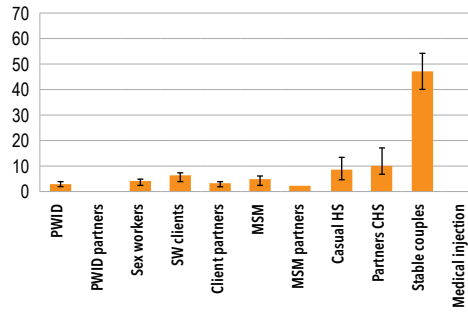
Swaziland



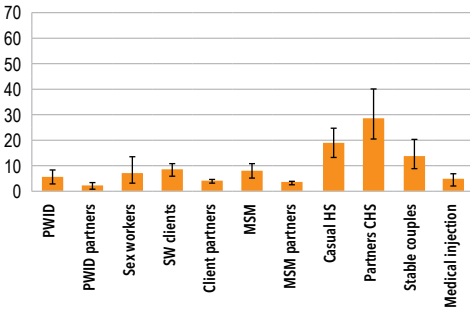
Zambia



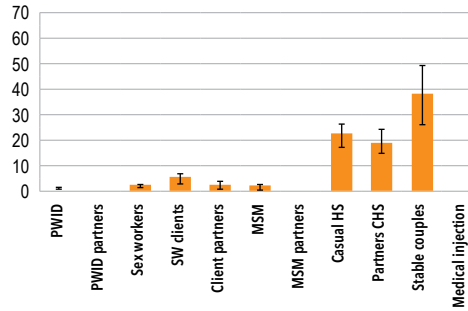
Zimbabwe



Kenya



Uganda



* Casual HS = casual heterosexual sex
 PWID = People who inject drugs
 MSM = Men who have sex with men

Transmission within couples

HIV transmission within couples is an important source of new adult HIV infections in the region, as shown in the “Know your Epidemic / Know your Response” studies that have been conducted in the region (Figure 9). However, many people who test HIV-positive are still reluctant to disclose their serostatus to their sexual partners. This is especially apparent among women, who are often more willing to disclose to family members than to their male partners, according to a recent study in South Africa’s KwaZulu-Natal province (8). Enabling couples to take HIV tests and receive counselling together can help overcome that reluctance, with substantial protective benefits. Studies in several countries in the region showed an increase in consistent condom use among couples where one partner had tested HIV-positive and the other partner was aware of that fact. For example, in one South African study, the proportion of couples that had unprotected sex fell from 71% to 8% after they became aware of their HIV status (9).

Consistent condom use remains one of the most effective ways to reduce the sexual transmission of HIV. However, both adequate supply and demand are needed to increase the level and consistency of condom use in a population. One study in Kenya, for example, found that condom use in the Kilifi district was low even when condoms were freely available (5). Low demand rather than barriers hindering access (such as affordability or distance to clinics and pharmacies) appeared to be the main reason for low condom use.

The increasing numbers of people receiving ART also contribute to the reduction in HIV incidence. Several modelling exercises indicate that HIV incidence in South Africa, for example, is 17% to 32% lower than it would have been in the absence of widely available ART (6). Modelling studies suggest that HIV incidence in Botswana, Namibia and Zimbabwe is 30% to 50% lower than it would have been in the absence of widespread access to treatment (7).

Understanding Zimbabwe’s declining HIV epidemic

Factors contributing to changes in epidemic trends can vary between and within countries. Careful analysis has suggested that behaviour change—including reductions in extramarital, commercial and casual sexual relations—played a major part in reversing Zimbabwe’s epidemic (10,11). Several surveys reported a decline in multiple sexual partners between 1998 and 2005, along with a drop in the number of men who said that they had paid for sex (12). There are many likely explanations for such behaviour changes.

A recent analysis attributed the behavioural changes in Zimbabwe to a social shift that stemmed to a large extent from people’s awareness of the rising tide of AIDS deaths from the mid-1990s onward. Prevention programmes—including mass media and church-, workplace- and community-based communication activities—contributed to increasing interpersonal communication about HIV (12). Socio-economic factors also contributed. Levels of education and

marriage are high in Zimbabwe, especially among urban men in whom behaviour change was most evident. Sixty percent of urban men aged 17–43 years were married in Zimbabwe in 2005 (compared to less than 20% in Namibia, Mozambique and Botswana) and 80% of them had some secondary education (compared with 50% in Malawi and about 60% in Botswana and Zambia) (13). It has been suggested that education contributed to the understanding and acceptance of messages about HIV transmission and prevention (14), as well as to HIV testing rates (15), while marriage made it easier to act on the “be faithful” messages of prevention campaigns. Other contributing factors include the near-collapse of the country’s economy in the early 2000s (16), that resulted in a reduction in disposable income that had enabled some men to pay for sex or pursue multiple sexual relationships, and that contributed to the large numbers of people that migrated to neighbouring countries in search of jobs and food (14).

The impact of “Treatment as Prevention”

Several research projects in this region contributed to the growing body of scientific evidence that treatment has a significant impact on HIV transmission, which led to the revision of the WHO ART guidelines in 2013 and the recommendation that treatment for people infected with HIV be initiated earlier (see Chapter 4) (17).

A recent longitudinal study from KwaZulu-Natal province in South Africa has confirmed what several mathematical models had suggested: early initiation of ART with good adherence can significantly reduce HIV transmission through the suppression of viral loads in people infected with HIV (6, 18). In the study, population-level HIV incidence declined with increased coverage of ART. Following a cohort of more than 16 500 individuals for a period of more than seven years, the study showed that the risk of infection in a community with high ART coverage (where 30–40% of all HIV-infected individuals were on treatment) was 38% less than in a community with low ART coverage (< 10% of all infected individuals on treatment) (18).

The study followed the groundbreaking results of the HPTN052 randomized controlled trial in 2011, involving more than 1 700 heterosexual couples, which showed that early initiation of ART reduced the rates of HIV transmission among sero-discordant couples by 96% (95% confidence interval: 73–99%) (19).

Modelling studies have indicated that the widespread use of ART as prevention could have a dramatic impact on the epidemics in eastern and southern Africa, and could reduce HIV incidence to low levels. Studies suggest that 80% coverage of HIV treatment by 2015 (applying the 2010 WHO ARV guidelines, which recommended ART for people with HIV and with CD4 < 350 cells/μL) could reduce new HIV infections by 30–50% over 5–10 years (20).

The impact of ART on HIV transmission would be most significant if treatment is provided earlier during the course of infection, if good adherence to treatment regimens is achieved, and if ART is combined with other prevention methods such as behaviour counselling, condoms and male circumcision. Although the upfront cost of early treatment initiation can be high, treatment as prevention can become cost-effective (even cost-saving) in the medium to long term. Some modelling studies suggest that substantial frontloaded investments in treatment scale-up could, in some settings, become cost-beneficial in as few as 4–12 years (21).

Reaching the full potential of “treatment as prevention” programmes will require operational research studies to inform countries how best to implement the intervention, including ways to increase testing rates and improve adherence and retention in care. Various “treatment as prevention” strategies are currently being pursued in different populations and are being evaluated to determine which strategies can achieve effective uptake and sustained delivery of the complete HIV testing, linkage, treatment and retention “cascade”. The strategies include approaches to increase demand for HIV testing and innovative ways to improve adherence (see Chapter 4).

Also being assessed is the possible daily use of ARVs in HIV-uninfected people who are at high risk of becoming infected, in order to block the acquisition of HIV infection—a method known as pre-exposure prophylaxis (PrEP). WHO’s current guidance on the use of this approach is cautious, however (22). For key populations, including sex workers and men who have sex with men, it advises that daily oral PrEP (specifically the combination of tenofovir and emtricitabine) may be considered, but in combination with the consistent use of condoms, as well as frequent HIV testing, counselling, and treatment of sexually transmitted infections. WHO cautions that strict adherence to HIV medications—a requirement for the successful

use of ARVs—may be difficult for many people at high risk of HIV. For that reason, it recommends that countries first ascertain how best to deliver PrEP to achieve the necessary adherence and maximum public health gains.

Slow progress in scaling up voluntary medical male circumcision

Randomized controlled clinical trials and large-scale population-level studies in the region have shown that male circumcision can reduce a man's risk of acquiring HIV infection through heterosexual intercourse by about 60%. A recent modelling exercise indicated that if 80% of men in 14 priority countries in eastern and southern Africa¹³ were circumcised by 2015, almost 3.4 million new HIV infections could be averted by 2025 (23). In those countries, 80% prevalence of male circumcision by 2015—the ambitious target that was set to achieve maximum impact—would translate into more than 20.8 million circumcisions.

In many of the priority countries, key programme elements have been put in place to roll out male circumcision, but the progress has been varied (Table 2). Kenya has made good progress, specifically in the Nyanza province, and by the end of 2011 it was almost halfway to reaching its target of 860 000 medical male circumcisions by 2015. Botswana, Malawi, Mozambique, Namibia, Rwanda, Zambia and Zimbabwe, however, had performed fewer than 10% of their targeted number of circumcisions by the end of 2011, while South Africa and the United Republic of Tanzania managed to provide this service to 10% of the target number. Apart from Kenya, only Swaziland and the Gambella province in Ethiopia had reached more than 20% coverage in 2011 (24).

The cumulative number of male circumcisions performed in the 14 priority countries has more than doubled each year since 2008, which is an encouraging trend. However, the 1.45 million medical male circumcisions performed in the region by the end of 2011 fell far short of the 20.86 million target set for 2015. Most of the progress has occurred in only four of the prioritized countries. Kenya, South Africa, United Republic of Tanzania and Zambia together accounted for 78% of medical male circumcisions performed between 2008 and 2011 (24).

Scaling up the male circumcision campaign requires overcoming human resource and financing constraints, devising more innovative service delivery models (including integrating the intervention into routine health services), and improving procurement and supply management systems. But limited demand is also an important barrier, and there are concerns in some places that the voluntary aspect of male circumcision is not always being heeded. For demand to increase, the ethical and cultural issues raised by this intervention must be addressed.

Encouraging lessons have been learnt. Highly focused and intensive campaigns have shown promise, including in the United Republic of Tanzania where a six-week medical male circumcision campaign in the Iringa region in 2010 exceeded its target by 62% and performed more than 10 000 circumcisions. The campaign was widely publicized, community mobilization was used to build demand, and the process was made quick and efficient (for example, by using task shifting and task sharing) (25). Strong government leadership and a documented implementation strategy appear to have been key factors in the rapid scale-up of voluntary medical male circumcision in Kenya's Nyanza province. Programme flexibility was also important, including the use of task shifting and short intensive service campaigns (26).

¹³ WHO and UNAIDS in 2011 identified the following priority countries: Botswana, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, United Republic of Tanzania, Uganda, Zambia and Zimbabwe.

Table 2

Status of voluntary medical male circumcision programmes in eastern and southern Africa by December 2011

Source: WHO. *Progress in scaling up voluntary medical male circumcision for HIV prevention in East and southern Africa* January–December 2011. Progress Report, 2012.

	Prevalence of HIV (2011) (%)	Male medical circumcision policy	Male medical circumcision strategic plan	Number of medical male circumcisions performed in 2008–2011*	Estimated number of male circumcisions needed for 80% coverage among males 15–49 years-old*	% target met
Botswana	23	yes	yes	26 000	345 000	7.5
Ethiopia (Gambella prov.)				11 000	40 000	27.5
Kenya**	6	yes	yes	391 000	860 000	45.5
Lesotho***	23	yes	no	not available	377 000	n/a
Malawi	10	yes	yes	15 000	2 102 000	0.7
Mozambique	11	no	no	37 000	1 059 000	3.5
Namibia	13	yes	no	8 000	330 000	2.5
Rwanda	3	yes	yes	27 000	1 746 000	1.5
South Africa	17	yes	yes	442 000	4 333 000	10.2
Swaziland	26	yes	yes	38 000	183 000	20.8
Tanzania	6	yes	yes	139 000	1 373 000	10.1
Uganda	7	yes	no	99 000	4 245 000	2.3
Zambia	13	yes	yes	167 000	1 949 000	8.6
Zimbabwe	15	yes	yes	51 000	1 913 000	2.6
Total				1 451 000	20 856 000	7.0

* Rounded numbers

** The estimate for Kenya is based on the national goal of 94% coverage for males aged 15–49 years.

*** 2011 data for Lesotho were not available

Note: The value for Zimbabwe refers to men aged 15–54 years; values for Tanzania and Kenya refer to men aged 15–49 years.

Male circumcision confers lifelong risk reduction for men, making it a highly cost-effective prevention method. At the population level it also has the potential indirectly to reduce HIV risk for women. However, male circumcision campaigns have to be supported by strong counselling and support services in order to maximize their impact.¹⁴

The role of migration

Migration is an important feature of the HIV epidemic in eastern and southern Africa and has been well documented. The pattern of oscillating (or circular) migration, in particular, contributed significantly to the early spread of HIV in southern Africa (27,28). A consequence of this type of migration is the separation of families for long periods of time, widened social and

sexual networks and an increase in unsafe sexual behaviour, crowded living conditions with limited facilities for migrant workers, and an increased risk for occupational diseases and sexually transmitted infections, including TB and HIV (29).

An additional complication in southern Africa is that migrant workers who become ill often have to return to families in rural areas, often without compensation, to be cared for with an increased burden on families and communities and with consequences for the allocation of health care resources (30).

Progress has been made in reducing the vulnerability and the impact of HIV on migrant populations through condom use promotion, treatment of HIV, TB and sexually transmitted infections, and behaviour change programmes. However, providing continued services and care to mobile populations remains difficult and ways need to be found to

¹⁴ For example, it is important that men who have undergone circumcision avoid resuming sexual activity before their wounds are fully healed. During that period, which lasts about six weeks, there is a heightened risk that the men may transmit HIV to their female partners. See Hewett PC, Hallett TB, Mensch BS, Dzekedze K, Zimba-Tembo S, Garnett GP, et al. Sex with stitches: assessing the resumption of sexual activity during the post-circumcision wound healing period. *AIDS*, 2012;26(6):749–56.



ensure that migrant workers have regular and sustainable access to services. North Star Alliance provides an interesting example of how this can be done: through their work with more than 60 partners, including the International Transport Workers Federation and UNAIDS, sustainable and high quality health services are provided to mobile populations such as truck drivers, sex workers and related communities. Through an electronic passport system, patients have access to any of the clinics within the network. North Star Alliance runs 29 clinics strategically placed along Africa's transport corridors and are currently reaching more than 225 000 people in 13 countries in southern and East Africa (31).

HIV among young people

In 2011, there were an estimated 2.7 million young people, aged 15–24 years, living with HIV in the eastern and southern African region—more than half of all HIV-positive young people globally (32).

An estimated 450 000 young people were newly infected in this region in 2011.

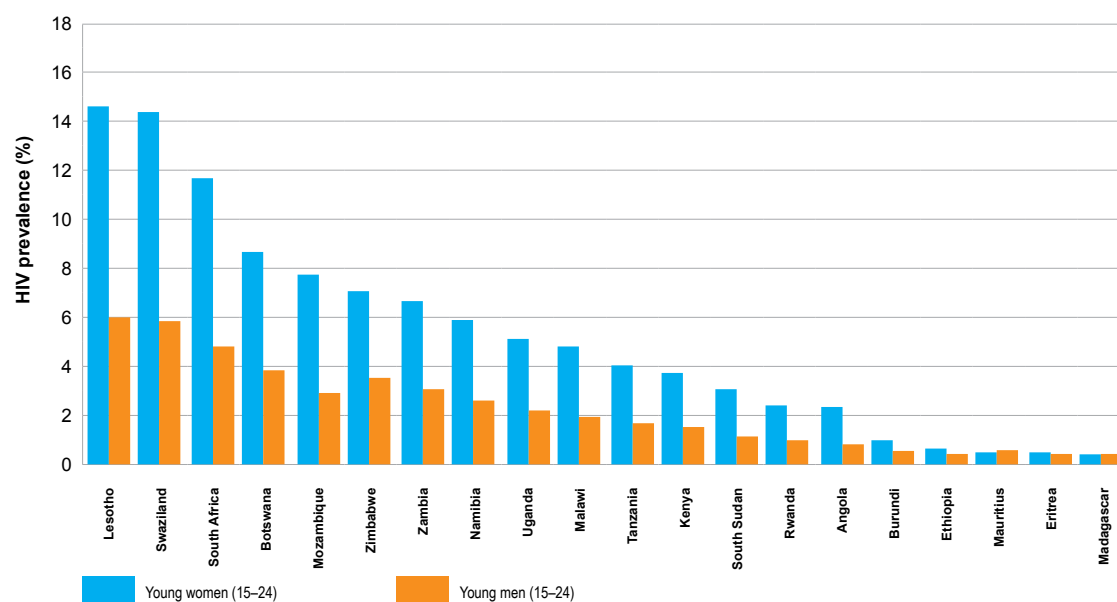
HIV prevalence trends among young men and women, which are also considered a reasonable proxy for incidence trends, showed a decline in almost all countries in the region between 2000 and 2011. Household surveys have shown statistically significant declines in HIV prevalence among young women and men in recent years in Botswana, Ethiopia, Malawi, South Africa, the United Republic of Tanzania and Zimbabwe. Among young pregnant women attending antenatal clinics, there were statistically significant declines in Botswana, Ethiopia, Kenya, Malawi, Namibia and Zimbabwe over the same period. The opposite trend has been observed in Uganda, which has experienced an increase in HIV prevalence in young women and men. HIV prevalence among young men has increased also in Zambia (4).

Even though HIV prevalence has been declining among young people in most of the region, knowledge of AIDS is still surprisingly low. On

Figure 10

Estimated HIV prevalence among young women and men (aged 15–24 years) in eastern and southern Africa, 2011

Source: UNAIDS



average in recent years, only about 41% of young men and 33% of young women demonstrated comprehensive knowledge of AIDS in national household surveys (13).

The percentages of young people living with HIV vary widely across the region, but the risk of becoming infected is disproportionately higher for young women than for young men in every country except in Madagascar and Mauritius (13). Among young women, estimated prevalence in 2011 was as high as 12–15% in Lesotho, South Africa and Swaziland (see Figure 10).

A number of factors are associated with the high infection risk among young women in the region, including physiological and social vulnerability, gender inequalities and inter-generational sex. In Lesotho and Swaziland, for instance, population-based survey data show that HIV prevalence is about 6% among adolescent girls aged 15 to 17 years. Thereafter, prevalence rises rapidly to about 30% among women aged 23 to 24 years in Lesotho, and to 40% among women of the same age in

Swaziland. Many of those young women appear to have been infected by men who are several years older and therefore more likely to be living with HIV. The power imbalances in those relationships (including stable relationships) can make it very difficult for young women to insist on condom use.

Life skills and peer education programmes have been shown to be effective in helping young people protect themselves from HIV, especially when they address gender relations. Several such programmes are operating in the region, including UNICEF's Sister2Sister initiative in Lesotho, Malawi, Namibia and United Republic of Tanzania, and Brothers for Life, which focuses on young men's ideas of masculinity. In South Africa, about 2 000 adolescents belong to Girls and Boys Education Movement clubs in schools, where they receive life skills and information on AIDS, gender-based violence, teenage pregnancy and other issues. In Kenya, a life skills curriculum for use in primary and secondary schools has been finalized and is now being implemented (32).

The role of key populations

In this region, the major mode of HIV transmission is unprotected heterosexual intercourse between people who are either married, in a stable partnership, or in a casual relationship. However, there is also evidence of transmission among certain key populations at higher risk of infection (notably sex workers and their clients, men who have sex with men, and people who inject drugs) in some of the region's epidemics. In addition, there is evidence that infection levels among prison populations are significantly higher compared to the general population. Although the overall sizes of these populations might be small, HIV incidence rates among them appear to be high due to the extent of risk behaviour and, in many instances, the lack of adequate prevention efforts. In Kenya and South Africa, for instance, these key populations¹⁵ were estimated to account for 33% and 26%, respectively, of new HIV infections, although those estimates are associated with wide levels of uncertainty (Figure 9) (1). HIV transmission among sex workers, their clients and the regular partners of clients are estimated to account for between 7% and 11% of new infections in Uganda, Swaziland and Zambia.

Sex work and injecting drug use are criminalized and stigmatized in most countries in the region, which can limit access to HIV prevention, treatment, and care services (see Chapters 2 and 8). Homophobic abuse and harassment is also widespread, and communities, the police and the courts in some countries censure sex between men (see Chapter 8).

Most countries in the region lack sufficient strategic information about the sizes and geographical distribution of these populations, their HIV prevalence and the related behavioural patterns. Alongside continued stigmatization and discrimination, data limitations undermine efforts to understand the contribution of these populations

to the overall epidemic in a country and to respond adequately to the epidemics in these populations. Some countries are starting to deal with this challenge. Ethiopia has developed estimates of the sizes of key populations in ten cities, which are being used to design HIV interventions among female sex workers and truck drivers. South Africa is conducting studies of key populations in three major cities, and Mozambique has done studies as part of its integrated biological and behaviour surveillance surveys. Several other countries in the region have also started or are planning to conduct studies to collect strategic information and to better understand the role of key populations in the HIV epidemic in the region (33).

HIV prevention among sex workers

Sex work in the region takes many forms. It may entail the exchange of sex for cash, goods or services, it may be street-, brothel- or home-based, and it may be regular or infrequent (34,35). Mostly it involves women selling sex to male clients, although male sex work has been documented in some countries in the region, including Kenya, South Africa and Rwanda.

Sex workers are exposed to high levels of stigma, abuse and violence, which reduce their ability to negotiate safe sex and use health services (36). While a reduction in HIV prevalence among sex workers has been observed in some countries, very high HIV prevalence among female sex workers is still being reported in countries with available data including Mauritius (32%), Rwanda (51%), Swaziland (70%) and Zimbabwe (50%) (37).

Most countries have implemented risk-reduction programmes for female sex workers. These are included in national strategic plans, and in some

¹⁵ The term "key populations" refers to those groups with a very specific mode and dynamics of HIV transmission, and for whom distinct service packages are required.

¹⁶ They include the African Sex Worker Alliance, Enda Sante, the Sisonke Sex Worker Movement, the Uganda Women's Organization Network for Human Rights Advocacy, the Bar Hostess Empowerment and Support Programme, and the Sex Workers' Education and Advocacy Taskforce.

places they also involve support for community networks that comprise sex workers, health service providers, law enforcers and other stakeholders. Sex worker-led efforts have proved successful in other regions (38,39), and similar initiatives are under way in eastern and southern Africa.¹⁶

The overall coverage of prevention programmes for sex workers in the region is difficult to determine due to the lack of reported data in 2011 and the absence of strategic information on sex worker population size and geographic distribution. But there is evidence that condoms are commonly used during sex work in most countries. The percentage of female sex workers who said that they had used a condom with their most recent client in 2011 exceeded 75% in Ethiopia (in 2009), Mauritius, Rwanda, Swaziland (in 2009) and Uganda, and it was at least 60% in Angola, Eritrea and Zimbabwe (37). However, levels of consistent condom use with all paying partners are likely to be lower and condom use with non-paying partners is likely to be even less frequent.

Along with more extensive and easier access to a comprehensive package of HIV services, including sexual and reproductive health services, the structural barriers that impede progress must be removed. It is vital to implement supportive policies, including ones that decriminalize sex work, and that sensitize policy makers, service providers, law enforcement agencies and communities to the harmful consequences of discrimination and exclusion (40).

HIV prevention among men who have sex with men

Although several countries in the region face social and legal barriers towards same-sex behavior, sex between men has been documented throughout the region, and HIV prevalence among men who have

sex with men is generally higher than among men in the general population (41,42). Surveys show wide variation in the levels of HIV infection in this key population: in South Africa, 10–50% prevalence among men who have sex with men (41,43,44); 11–25% in Kenya (41,45,46); 21% in Blantyre and Lilongwe, Malawi (42); 20% in Gaborone, Botswana (42); and 12% in United Republic of Tanzania (Zanzibar) (47). A study of HIV incidence among a small cohort of men who have sex with men found very high incidence of 6.8 per 100 person-years in Nairobi, Kenya (48), which is confirmed by the estimated high incidence rates among men who have sex with men in modes of transmission studies.

Studies show that the majority of men who have sex with men in the region also engage in heterosexual sex, often with wives or other long-term female partners. The HIV epidemic among men who have sex with men is therefore interlaced with the epidemic in the wider population (49,50). Modes of transmission studies indicate that HIV transmission among men who have sex with men could be contributing between 1% and 8% of all new HIV infections among adults in eastern and southern Africa (1).

Increasingly, the prevention needs of men who have sex with men are being referred to in national strategic plans, but specific HIV services for them remain limited. Many of the services that do exist are run by non-governmental organizations, and very few countries have sought external funding support to integrate similar services into their official HIV prevention strategies. A recent review of proposals submitted to the US President's Emergency Plan For AIDS Relief (PEPFAR) and the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (Global Fund) proposals found that about 40% of HIV proposals for men who have sex with men throughout sub-Saharan Africa came from only four countries: Kenya, Nigeria, South Africa, and United Republic of Tanzania (51).

An immediate challenge is to improve the estimates of population sizes of men who have sex with men and to collect more data on sexual behaviour, in order to promote and plan prevention, treatment, and care programmes. Stronger evidence of the quality and effectiveness of existing services in the region is also required (35). In general, data on condom use among men who have sex with men in the region are limited, but recent studies from selected areas in Kenya, Mauritius and Rwanda reported estimates of around 50–55% (52,37).

Social marginalization, stigma, punitive laws (see Chapter 8) and violence continue to hinder efforts to prevent and treat HIV among men who have sex with men in the region.¹⁷ Many governments and civil society organizations are resistant to providing HIV and other health interventions for men who have sex with men, and some sanction or promote outright discrimination, even persecution (53). Strong community involvement and social support are essential components in HIV responses among men who have sex with men. It is also important to integrate services for men who have sex with men with other existing health services (54). Currently, very few HIV and sexually transmitted infection screening programmes are tailored to the sexual healthcare needs of men who have sex with men (55). A current approach in other parts of the world is to offer a “menu” of prevention choices for men who have sex with men, including condoms and condom-compatible lubricants, increased HIV screening and counselling, treatment of sexually transmitted infections, early ART for men who test HIV-positive, and pre-exposure prophylaxis (56).

Conclusion

If the countries of eastern and southern Africa are to reach the 2011 Political Declaration target of reducing new HIV infections by 50% between 2010 and 2015, they need to improve and intensify current prevention programmes, as well as adapt or enhance the quality and effectiveness to ensure maximum impact of those programmes. Ways need to be found to increase demand for innovative programmes, such as voluntary medical male circumcision, and to take full advantage of new opportunities such as “treatment as prevention”. Interventions that help change social norms around sexuality and gender relations (see Chapter 7), and that reduce stigma and discrimination (see Chapter 8), remain critically important. Sustained political commitment and leadership—in tandem with the mobilization and meaningful involvement of communities—is vital for preserving and strengthening the progress being made against the HIV epidemic.

¹⁷ Financing support appears to have been a minor factor. A review of funding proposals to PEPFAR for 2007–2010 and for Rounds 1–10 of the Global Fund to Fight AIDS, Tuberculosis and Malaria for 40 sub-Saharan African countries (half of them in eastern and southern Africa) showed that fewer than one third of them proposed programmes serving men who have sex with men. See Ryan O, Macom J, Moses-Eisenstein M. Demand for programs for key populations in Africa from countries receiving international donor assistance, *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 2012;9(3):131–136.

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2. PEOPLE WHO INJECT DRUGS

Available data suggest that injecting drug use plays a minor role in the HIV epidemics in most eastern and southern African countries. However, the frequency of this behaviour in the region is reported to be on the increase, which reinforces the relevance of the 2011 Political Declaration target of reducing HIV transmission by half by 2015 among people who inject drugs in this region.

Injecting drug use is of particular concern in the Indian Ocean island countries. Research suggests that as many as 10 000 people inject drugs in Mauritius, while in the Seychelles approximately 2.3% of the adult population is believed to inject drugs (1). In Mauritius, injecting drug use is one of the main risk factors for HIV infection (2), and in 2011 it was estimated that 52% of people who inject drugs in that country were living with HIV (3). Elsewhere in eastern and southern Africa, modelling of the epidemic indicates that people who inject drugs could account for an estimated 3.8% [2.3–5.4%] of new adult HIV infections in Kenya, 2.1% [0.3–5.6%] in Mozambique and 1% [0–5%] in South Africa (4). Reliable estimates are lacking for most other countries in the region.

High HIV prevalence among people who inject drugs

Recent studies have indicated that injecting drugs is becoming a more common behaviour in several countries in the region, including Kenya, Madagascar, Mozambique, the Seychelles, South Africa and the United Republic of Tanzania. There are also reports that the practice is occurring in Angola, Zambia and Zimbabwe.

High HIV prevalence has been found among people who inject drugs: in a 2010 study in a poor district of Dar es Salaam (United Republic of Tanzania), HIV prevalence of 35% was found among 430 injecting drug users. Among the 73 female injecting drug users who participated in the study, many of whom also exchanged sex for money or favours, HIV prevalence was 67% (5). Studies in Kenya showed HIV prevalence of 18% among all people who inject drugs in Nairobi and Mombasa, with 45% prevalence among women who inject drugs (6). Other studies have found HIV prevalence of 16% among people who inject drugs in Unguja, Zanzibar (United Republic of Tanzania) (7), and prevalence of 7% and 5.8%, respectively, among people who inject drugs in Madagascar (8) and the Seychelles in 2011 (9).

When people who inject drugs also engage in high-risk sexual behaviour, it increases their risk of HIV infection as well as the risk of transmitting HIV to their partners. Despite relatively high HIV awareness, there is evidence of low condom use, multiple sexual partnerships and transactional sex among people who inject drugs (5). Many of the young women who inject drugs in Dar es Salaam, Tanzania, and who tested HIV-positive in a study, for example, said that they had traded sex for money to purchase drugs (10). In Mauritius, 3.4% of people who inject drugs said that they had partners who paid them for sex (1). Reported data from Kenya and Mauritius in 2011 indicated that fewer than one in three people who inject drugs had used a condom the last time they had sex (11,1).

Injecting drug use is criminalized and heavily stigmatized in all countries in the region, with state officials often refusing to recognize the public health consequences of injecting drug use. As a result, there is insufficient strategic information or evidence to assess the progress in eastern and southern African countries towards halving HIV transmission by 2015 among people who inject drugs.



Services for people who inject drugs are increasing

A few countries have taken concrete steps to provide HIV prevention and treatment services to people who inject drugs. For example, Mauritius has been operating both an official needle exchange and a methadone maintenance programme since 2006, while the United Republic of Tanzania was the first mainland sub-Saharan African country to launch a national methadone programme (funded by PEPFAR) to treat heroin addiction and related HIV infections (12). Madagascar is implementing a pilot programme for people who inject drugs that includes prevention, care and treatment services (13), and Kenya addressed this mode of transmission in its 2009/2010–2012/2013 national AIDS strategic plan (14). In the United Republic of Tanzania, some additional prevention

services are available on a limited scale, mainly via civil society organizations.

In 2011, more than three quarters (79%) of people who inject drugs in Mauritius reported using sterile injecting equipment the last time they injected, and it is estimated that approximately 75% of people who inject drugs were being reached with some form of harm reduction services. Yet the authorities in Mauritius reported distributing only 31 syringes per person who injected drugs in 2011 via its needle and syringe programme (11), and almost half of the people who inject drugs reported buying needles and syringes from private pharmacies.

Even where HIV prevention, treatment and care services are being provided for this population group, access tends to be difficult and erratic.

The combinations of poverty, social stigma and the criminalization of injecting drug use often marginalize this population—making it difficult for people to take advantage of the services that do exist, and to adhere to treatment. In a recent survey in Mauritius, for example, almost all people who inject drugs said that they had been arrested in the previous 12 months and almost three quarters said that they had been refused services at some point (1). Similarly, 81% of people who inject drugs in Kenya have reportedly been incarcerated. Fear of being reported to the police and other authorities by health workers hinders access of people who inject drugs to medical and drug treatment. A 2011 study in Kenya found that only 16% of people who inject drugs had ever been reached by outreach services that were intended to benefit them (6).

In general, efforts to scale up essential prevention measures for people who inject drugs, including the promotion of safer sex and availability of sterile drug injecting equipment, remain limited in most countries in eastern and southern Africa. A 2010 study (15) estimated that globally only two needle-syringes were distributed monthly per person who injects drugs; another study (16) estimated that people who inject drugs globally use sterile injecting equipment for a mere 5% of injections. In Kenya, about one third of their counterparts reported using a needle after somebody else had used it (17).

It is currently very difficult to gauge the extent to which people who inject drugs have access to HIV testing and counselling services and to ART. Only Kenya, Mauritius, the Seychelles and the United Republic of Tanzania appear to be making progress in diagnosing HIV in this key population. Country reports from Kenya and the Seychelles suggest that 60% and 89%, respectively, of people who inject drugs took an HIV test in 2011 and knew the results—much higher than the global median of 39% (11). In Mauritius in 2011, 73% of people who inject drugs said they had taken an HIV test and received their results (1).

Top-level political advocacy and commitment is lacking

High level political advocacy is needed to ensure that the growing importance of this mode of transmission is recognized in the region, and to generate greater political commitment for effective harm reduction packages that actually reach people who inject drugs.

The collection of reliable strategic information on the population size, HIV prevalence and related behaviours of people who inject drugs will support intervention efforts, and is vital for securing adequate funding and for designing appropriate service packages. There are increased efforts to estimate the numbers of people who inject drugs in countries in eastern and southern Africa, with support from national governments, the UN, the US Government and other partners. A number of countries in the region have started to conduct integrated biological and behavioral surveillance surveys among key populations, including people who inject drugs. Mauritius has conducted such surveys every two years since 2009, while Kenya and Madagascar recently published the findings of similar surveys (18,19).

Where appropriate, governments should address the needs of people who inject drugs in their national AIDS strategies, and they should commit the required resources to comprehensive, evidence-informed HIV programmes for this key population. They should intensify efforts to increase access to HIV testing, opioid substitution therapy, needle distribution and condom use. Continued advocacy is vital to overcome the policy and attitudinal barriers that prevent adequate prevention and treatment services from reaching people who need them.

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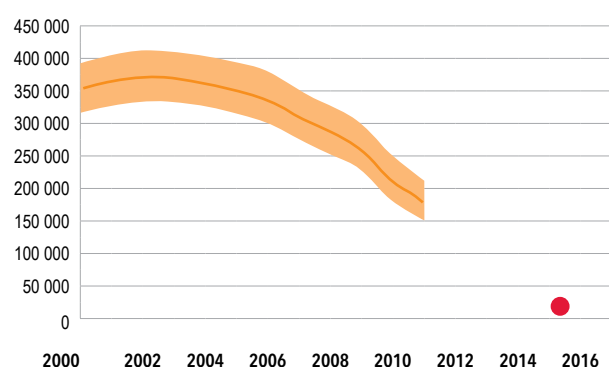
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3. ELIMINATE NEW HIV INFECTIONS AMONG CHILDREN AND KEEP THEIR MOTHERS ALIVE

Countries in eastern and southern Africa are making commendable progress towards eliminating the number of new HIV infections among children. Since 2001, the number of new child infections in the region declined from an estimated 370 000 [330 000–410 000] to 270 000 [230 000–300 000] in 2009 and to 180 000 [160 000–220 000] in 2011 (Figure 11).

In most of the Global Plan priority countries in eastern and southern Africa, the number of children newly infected with HIV declined between 2009 and 2012. In Botswana, Ethiopia, Malawi, Namibia, South Africa and Zambia, new infections among children are estimated to have fallen by more than 50% and it declined by 30–49% in Kenya, Mozambique, Swaziland, United Republic of Tanzania and Zimbabwe. In Angola and Lesotho, the decline between 2009 and 2012 was less than 30% (1).

Figure 11
Estimated number of children newly infected with HIV between 2000 and 2011 in eastern and southern Africa, with the 2015 elimination target
 Source: UNAIDS



The Global Plan towards the elimination of new HIV infections among children and keeping their mothers alive

The Global Plan towards the elimination of new infections among children and keeping their mothers alive (Global Plan) was launched in July 2011 at the United Nations General Assembly High Level Meeting on AIDS (2). The Global Plan includes two high-level targets: to reduce the number of children newly infected with HIV by 90% and to reduce the number of mothers dying from AIDS-related causes by 50%. It also calls for a > 50% reduction in under-five mortality due to HIV and for 100% coverage of ART among children infected with HIV. The Global Plan identified 22 priority countries (14 of which are in eastern and southern Africa), which together account for nearly 90% of pregnant women living with HIV. The 14 priority countries in eastern and southern Africa include Angola, Botswana, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

The Global Plan includes four “prongs” (Table 3), each of which entails key actions that are recommended to reduce the number of children acquiring HIV infection (2):

- Prevent HIV among women of reproductive age with services related to reproductive health, such as antenatal care, post-partum/natal care and other health and HIV service delivery points, including working with community structures.
- Provide appropriate counselling, support and contraceptives to women living with

Table 3

The four “prongs” in the Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive

Action 1 Target	Action 2 Target	Action 3 Target	Action 4 Target
Reduce HIV incidence among women and their partners by 50%.	Reduce to zero the unmet need for family planning among women (MDG goal).	Reduce mother-to-child transmission of HIV to 5%; 90% of mothers receive perinatal ART or prophylaxis; 90% of breastfeeding infant–mother pairs receive ART or prophylaxis.	Provide life-long ART to 90% of pregnant women in need of ART for their own health

HIV to meet their needs for family planning and spacing of births, and to optimize health outcomes for women and their children.

- Ensure HIV testing, counselling and access to ARV drugs for all pregnant women living with HIV to prevent infection being passed on to their babies during pregnancy, delivery and breastfeeding.
- Provide HIV care, treatment and support for women, children with HIV and their families.

The elimination goal is possible

Eliminating new HIV infections among children in the region is possible but to achieve this goal by 2015, as set out in the Global Plan, the overall momentum that has built up in the past decade will have to be increased, and efforts will have to be accelerated in countries that are lagging behind.

Reducing the rates of mother-to-child transmission (MTCT) in eastern and southern Africa is crucial for the overall goal of eliminating new HIV infections among children globally. An estimated 55% of the approximately 330 000 new child

infections globally in 2011 occurred in this region, as did a similar proportion (55%) of the 230 000 AIDS-related deaths among children.

Botswana was one of the first countries in the region to achieve a significant reduction in the MTCT rate, from 21% in 2003 to 4% in 2007 (3).¹⁸ Only Mauritius and Namibia also succeeded in reducing the MTCT rate to less than 10% by 2011, while MTCT rates were below 15% in four other countries (Kenya, South Africa, Swaziland and Zambia). In the rest of the region, MTCT rates were still high, varying between 16% and 35%. An evaluation of the effectiveness of the national eMTCT programme in South Africa showed that the rate of mother-to-child transmission of HIV at six weeks post partum fell from 3.5% in 2010 to 2.7% in 2011 but is substantially higher when measured across the entire breastfeeding period (4).¹⁹

Significant progress has been made in the provision of services and treatment to prevent HIV transmission from pregnant women living with HIV to their infants. These include scaling up HIV counselling and testing services for pregnant women, the provision of ARV drugs to mothers and their infants, coupled with infant feeding-based guidance and services that can prevent infants from acquiring HIV.

¹⁸. Such low transmission rates were achieved partly because many mothers were encouraged to replacement feed, rather than breastfeed their infants—an approach that can have other possible negative effects on infants’ health.

¹⁹. Without effective treatment, it is estimated that up to 30% of babies born to HIV-infected women would become infected with HIV during pregnancy or at delivery, and a further 5–20% would become infected through breastfeeding. Peripartum transmission (i.e. transmission occurring around delivery) depends on the maternal CD4 count, the antiretroviral drug regimen, and incident or prevalent maternal HIV infection, and can range from below 1% to 37%. Post-natal transmission (i.e. during the breastfeeding period) ranges from 0.16% to 1.57% per month of breastfeeding. In cases where the mother becomes infected with HIV during pregnancy or breastfeeding, the expected transmission probability is 28%. See Rollins N, Mahy M, Kuhn L, Creek T, Mofenson L. Estimates of peripartum and postnatal mother-to-child transmission probabilities of HIV for use in Spectrum and other population-based models. *Sex Transm Infect*, 2012;88:i44–51.

Reaching the overall Global Plan target by 2015 will require achieving at least 90–95% coverage in the priority countries of high-quality ARV regimens for infected mothers and their babies to prevent HIV transmission to the baby. Coverage of effective ARV prophylaxis to prevent mother-to-child transmission was 72% [64–80%] in eastern and southern Africa in 2011, up from 61% [55–67%] a year earlier. This meant that the number of pregnant women living with HIV who received the recommended ARV drugs²⁰ rose to 689 000 in 2011, about 100 000 more than a year earlier.

Coverage of effective regimens exceeded 80% in only 5 countries by 2011 (Botswana, Namibia, South Africa, Swaziland and Zambia) and ranged between 50% and 79% in a further 7 countries (Kenya, Lesotho, Malawi, Mozambique, Rwanda, United Republic of Tanzania and Zimbabwe). But coverage was low in Angola, Eritrea, Ethiopia, South Sudan and Uganda, where it ranged from almost non-existent to 45% in 2011 (Table 4).²¹

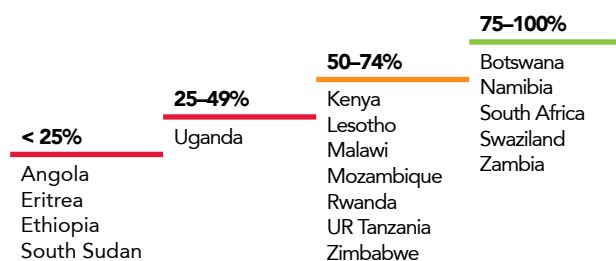
The number of new HIV infections among women aged 15–49 in the region declined by 27% between 2001 and 2011, from 753 000 to 552 000, and contributed to the reduction in the risk of vertical HIV transmission to children. However, between 2009 and 2012, the number of new infections among women remained stable in most of the priority countries (1). This trend is worrying and emphasizes the importance of reducing new infections among adults, through combination HIV prevention methods, in reaching the Global Plan targets.

Access to and uptake of family planning services by women living with HIV to plan their pregnancies better and to avoid unintended pregnancies is not

well documented. The limited information obtained from surveys conducted in Kenya, Lesotho, Malawi, Swaziland, Zambia and Zimbabwe indicates that the unmet need for family planning stayed roughly the same throughout the 2000s, although it tended to be lower for women living with HIV compared to women without HIV.²²

While the overall improvements are impressive, an estimated 273 000 HIV-infected mothers in the region were not receiving eMTCT services in 2011—a gap that must be bridged with urgency. In addition, several countries in the region were still reportedly providing some pregnant women with suboptimal single-dose nevirapine regimens for preventing children from acquiring HIV infection, rather than providing the WHO-recommended dual or triple therapy under Option B or Option B+.

Table 4
Percentage of women receiving effective ARV drugs to prevent HIV transmission to their babies, eastern and southern Africa, 2011



Improvements have to be made at each step of the way

Since eMTCT programmes involve a series of sequential steps, weaknesses at any stage in the process have a compounding effect. Consider,

²⁰ Excluding single-dose nevirapine, which the WHO no longer recommends.

²¹ ARV coverage for prophylaxis appears to be low also in the Indian Ocean island countries, but data are limited.

²² UNAIDS calculations based on data from demographic and health surveys.

New WHO guidelines for antiretroviral prophylaxis and antiretroviral therapy for women and children

At the end of June 2013, WHO published updated guidelines on the diagnosis of HIV, the care of people living with HIV and the use of antiretroviral drugs for treating and preventing new infections (5). The guidelines harmonize guidance and treatment regimens across populations and along the continuum of care, and provide guidance on how to improve service delivery using a public health approach.

All pregnant and breastfeeding women and children younger than five years old living with HIV should initiate antiretroviral therapy as lifelong treatment, irrespective of CD4 count or clinical stage.

Simplified approaches, including using a common regimen of tenofovir, lamivudine or emtricitabine and efavirenz as a fixed-dose combination tablet for women and older children living with HIV, should improve treatment uptake.

The use of single-dose nevirapine prophylaxis should be phased out and countries should use more effective antiretroviral regimens for women and children.

for example, three of the core steps for eMTCT: attending an antenatal care clinic, receiving HIV testing and counselling services, and receiving ARVs before and during birth. If coverage were 95% at each of these steps, it would result in 86% of HIV-positive pregnant women receiving ARVs at antenatal clinics; but if coverage were 80% at each step, it would lead to only 51% of HIV-positive pregnant women getting ARVs. A recent analysis of South Africa's eMTCT programme concluded that each step in the eMTCT process had to occur with at least 90% efficiency to achieve decisive and lasting reductions in HIV transmission rates (6).

In some countries, a major part of the challenge involves increasing the uptake of antenatal care services, or increasing the number of antenatal clinics that offer services for eliminating mother-to-child transmission of HIV. Fewer than half of the antenatal care facilities in Angola and Ethiopia, for example, provided eMTCT services in 2010 (7), and antenatal clinic access and attendance is known to be low in those countries.

Expanding HIV-testing services among pregnant women is a further, vital step in eliminating infections in newborns and protecting women's own health.

In eastern and southern Africa, it was estimated that about 60% of pregnant women received HIV testing and counselling in 2010 (7), but fewer than one in three pregnant women took an HIV test in Angola and Ethiopia. Consequently, large numbers of pregnant women still do not know that they might require medicines and services that can protect themselves and their babies against HIV. South Africa, on the other hand, shows that it is possible to rapidly scale up HIV testing for pregnant women. In 2005, slightly less than half of all pregnant women were routinely tested for HIV infection; by 2009, such testing was estimated to be almost universal (8). Coverage of HIV testing and counselling among pregnant women exceeded 90% also in Botswana, Zambia and Zimbabwe in 2010 (7).

The provision of ARV medicines to HIV infected women before and after delivery, and to mothers and their infants during the entire breastfeeding period is critically important and can reduce the mother-to-child transmission rates to 1–5% at 6 months of age (9,10,11). The proportions of mother–infant pairs receiving ARVs during breastfeeding increased at least fourfold in Kenya, Malawi, Namibia, South Africa, Uganda and Zimbabwe between 2009 and 2011, and at

least twofold in Swaziland and Zambia. In most countries, however, coverage at baseline (2009) had been low. Despite the subsequent increases, coverage in 2011 was still under 50% in the majority of countries in the region (12).

Most countries in the region are experiencing difficulties monitoring the use of ARV medicines during the breastfeeding period because of loss to follow-up. Improved linkages and integration between eMTCT and maternal and child health programmes could improve the follow-up of mothers and their babies.

More children infected with HIV should receive treatment as a matter of urgency

For children infected during their mothers' pregnancy or during birth, disease progression and death are usually rapid and, without early treatment, about 50% of children will die within the first year of life. Disease progression for those who become infected during breastfeeding is slower and, without treatment, about 50% of children will die within 2.5 years after infection (18,19,20). It is therefore essential that all children born to HIV-positive mothers are tested for HIV and, if found to be infected with HIV, are put on treatment as soon as possible.

There is also evidence that a significant proportion—possibly as many as one third—of children who are infected with HIV are “slow progressors”, with a median life expectancy of about 16 years (21). Infected children who survive into their teens have special health needs, yet are often overlooked by health providers. There is an urgent need to strengthen policies and programmes to provide early diagnosis, treatment and care to children and adolescents who are growing up with HIV.

Paediatric treatment coverage in eastern and southern Africa changed little between 2009 and

Breastfeeding and HIV transmission

Breastfeeding, which is crucial for infant survival in regions such as eastern and southern Africa, accounts for an estimated one third to one half of mother-to-child HIV transmission (13). This presents mothers living with HIV with a dilemma. While breastfeeding provides protection and is associated with decreased mortality and disease in the first year of life, compared to formula feeding, the risk of HIV transmission increases with the duration of breastfeeding. Studies in Botswana, Malawi and Uganda have shown that early weaning (at 4–6 months of age) to prevent HIV transmission can result in severe diarrhoea and death, acute malnutrition and/or stunted growth (14,15,16).

In settings where national authorities support breastfeeding and ARV interventions as the strategy that will most likely give infants born to HIV-infected mothers the greatest chance of HIV-free survival, WHO recommends that HIV-infected mothers should exclusively breastfeed their infants for the first 6 months, thereafter introduce appropriate complementary foods, and continue to breastfeed for 12 months (17,1).

2011, and coverage in the region (using the WHO 2010 eligibility criteria) was unacceptably low at 33% [30–37%] in 2011. Of the 2.2 million [2.0–2.4 million] children living with HIV in 2011, only 425 000 were receiving treatment. Only in four countries in the region—Botswana, Namibia, South Africa and Swaziland—coverage of ART among children infected with HIV and in need of treatment exceeded 50% in 2011. Less than one third of children living with HIV in need of ART were receiving it in Angola, Eritrea, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, South Sudan, Uganda, United Republic of Tanzania and Zambia (22).

According to the 2013 Progress Report on the Global Plan, the median ART coverage among eligible children in the 14 Global Plan priority



countries from this region was still below 40% in 2012 (1). The report also showed that early diagnosis and linkage to HIV treatment—which are key to keeping children alive and healthy—are low. Only four countries—Namibia, South Africa, Swaziland and Zambia—provided early infant diagnosis to more than 50% of children born to women living with HIV. In Angola and Malawi, coverage was less than 10%.

Treatment coverage of children living with HIV in the region has to be improved as a matter of urgency. Entry points for early infant diagnosis need to increase in number and in quality, and linkages to treatment must be improved. Integrating HIV testing into the services provided at immunization clinics could be considered as an option. For example, in Lilongwe, Malawi, the proportion of infants who received testing was seven times higher at an immunization clinic than at a government “under-five” clinic (23). There is

evidence that current HIV testing and counselling services for surviving older children with HIV are very poor, and they are usually diagnosed only after their health has badly deteriorated. These children are in desperate need of both ART and other care and support services (21).

New lessons are being learnt about ways to improve ART coverage among young children and keep them on treatment. A four-year review of over 200 clinical sites in Africa²³ concluded that early infant diagnosis, nutritional support, linkages with associations of people living with HIV and on-site eMTCT services were associated with high proportions of children under two years of age starting and remaining on ART. Attrition rates were low in programmes with strong home-based care components, where a healthcare worker in the home provided treatment, adherence counselling and psychological support (24).

²³ Including in Mozambique, South Africa, Tanzania and Zambia.

Efforts to halve maternal mortality must improve

Research has shown that the risk of mortality is about eight times higher among HIV-positive pregnant or post-partum women compared to their uninfected counterparts, and it is estimated that 24% of deaths in pregnant or post-partum women in sub-Saharan Africa are attributable to HIV (25).

HIV is one of the leading causes of maternal deaths in this region and the estimated proportion of maternal deaths attributed to HIV exceeded 20% in several countries, including Swaziland (67%), South Africa (60%), Namibia (59%), Botswana (56%), Lesotho (42%), Zimbabwe (39%), Zambia (31%), Malawi (29%), Mozambique (27%) and Kenya (20%) (25). Maternal mortality in southern Africa increased substantially in the 1990s as a result of HIV, but since 2005, when ART became more widely available, it has started to decline. The numbers of women dying from AIDS-related causes during or within 42 days of child delivery have declined by more than 30% between 2005 and 2010 in most of the priority countries in the region, including in Botswana, Ethiopia, Kenya, Namibia, Rwanda and Zimbabwe (26).

More progress is needed and reaching the target of halving maternal mortality among HIV-positive women requires early initiation of effective ART for pregnant women living with HIV. A study among 14 000 women in Zimbabwe, for example, found that 50–90% of deaths in HIV-positive women could have been averted with early initiation of ART (27). Similarly, studies in Malawi and Mozambique have shown that pregnant HIV-positive women who received triple ART before giving birth were 13 times less likely to die than their peers who received no treatment; premature births and stillbirths were also reduced (28).

Provision of ART significantly reduces the risk of developing active TB among pregnant women, which has been shown to be more than 10 times higher among pregnant women living with HIV than among their HIV-negative counterparts. In addition, TB is associated with a much higher risk of HIV transmission to the unborn child, and of maternal and infant mortality (29). TB screening, prevention and infection control should therefore be an integral component of the package of care for eMTCT.

More must be done to retain pregnant women on ART in care and to ensure good adherence to treatment. Some studies in South Africa (30) and Kenya (31,32) have found that HIV-positive pregnant women often do not enter long-term care and treatment, or do not adhere to ART. The reasons are not well understood, but may include distance to ART facilities, post-partum depression, physical and socio-economic difficulties, and problems related to pill burdens and ART dosages (32).

Elimination of HIV transmission to newborns and infants demands a series of effective interventions, from preventing HIV infection among women of reproductive age and enabling women to control their reproductive lives, to ensuring that both mothers and infants receive the necessary treatments to protect their health and lives. Most of the countries in eastern and southern Africa have made good progress in each of those areas, although much more needs to be done to ensure that children living with HIV receive treatment. If countries can sustain the recent momentum, and identify and scale up available services to those women and children who are currently not being reached, a large part of the region would be on track to reaching the 2011 Political Declaration target by 2015.

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4. HIV TREATMENT

The number of people receiving antiretroviral therapy (ART) in eastern and southern Africa increased from 625 000 in 2005 to approximately 6.3 million in 2012. The region accounts for about 84% of the estimated 7.5 million people who received ART in Africa and 65% of the estimated 9.7 million people who received ART globally in 2012. Reaching the 2011 Political Declaration target of 15 million people on ART by 2015 will therefore depend largely on progress in scaling up treatment in eastern and southern Africa.

Until the end of 2012, most countries in the region used the 2010 WHO treatment eligibility criteria, which recommended initiating ART at $CD4 \leq 350$ cells/ μ L. According to those criteria, about 64% [61–68%] of the estimated 8.1 million people who were eligible for ART in eastern and southern Africa in 2011 were receiving it. Botswana, Namibia, Rwanda, Swaziland, and Zambia achieved treatment coverage of at least 80% by the end of 2011, whereas coverage

levels in Kenya, Malawi, South Africa and Zimbabwe were between 60% and 80%. Coverage in 2011 was between 40% and 60% in Eritrea, Ethiopia, Lesotho, Mozambique, Uganda and the United Republic of Tanzania, and below 40% in Angola, Comoros, Madagascar, Mauritius and South Sudan (Figure 12).

South Africa added 450 000 people to its ART programme in 2012, while the United Republic of Tanzania and Zimbabwe added about 155 000 and 89 000 persons, respectively. South Africa has the largest ART programme in the world, with more than 2.1 million people on HIV treatment in 2012.²⁴

Despite the significant progress in the scale-up of ART in the region, another 2.9 million people (including 0.87 million children) who were eligible for ART in 2011 were not yet receiving it. In addition, the number of people eligible for treatment will increase substantially with the revised 2013 WHO ART guidelines (see Box). If the current

New WHO guidelines for the initiation of antiretroviral therapy among adults, adolescents and children.

The revised guidelines on the diagnosis of HIV, the care of people living with HIV and the use of antiretroviral drugs for treating and preventing new infections, published by WHO in June 2013, include the following recommendations (1):

Initiating ART in adults and adolescents

ART should be initiated in all individuals with HIV with $CD4$ count ≤ 500 cells/ μ L regardless of WHO clinical stage, as well as among all individuals with HIV and active TB disease, all individuals coinfecting with HIV and HBC with evidence of chronic liver disease, and

among partners with HIV in serodiscordant couples to reduce transmission to the uninfected partner.

Initiating ART in children

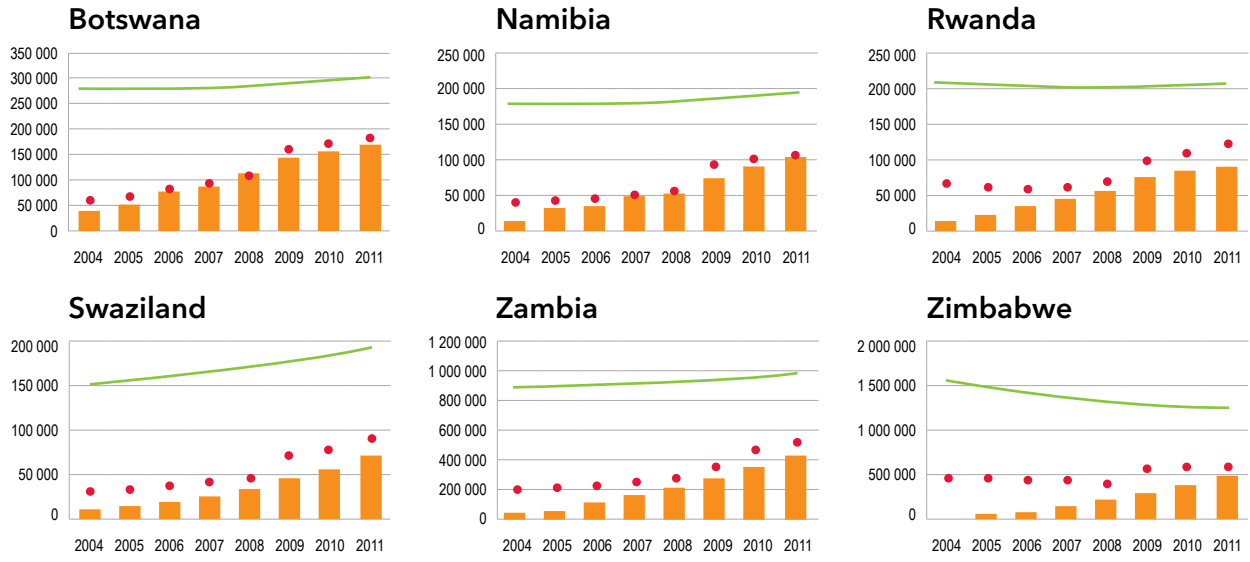
ART should be initiated in all children infected with HIV below the age of five years, regardless of WHO clinical stage or $CD4$ count, and in all children infected with HIV with severe or advanced symptomatic disease. ART should also be initiated in all children infected with HIV older than five years of age with a $CD4$ count ≤ 500 cells/ μ L, regardless of WHO clinical stage.

²⁴ In 2011, about 85% of patients received ART through the public sector, 10% in the private sector and half as many through community treatment programmes run by NGOs. See Johnson LF. Access to antiretroviral treatment in South Africa, 2004–2011. *The Southern African Journal of HIV Medicine*, 2012;13(1):22–27.

Figure 12

Treatment scale-up in countries in ESA. Bars represent the numbers of people receiving ART, red dots show number eligible for treatment according to WHO 2010 guidelines, and line shows number of people living with HIV
Source: UNAIDS

ART scale-up in countries with high coverage (> 75%)



ART scale-up in countries with medium level coverage (50-75%)

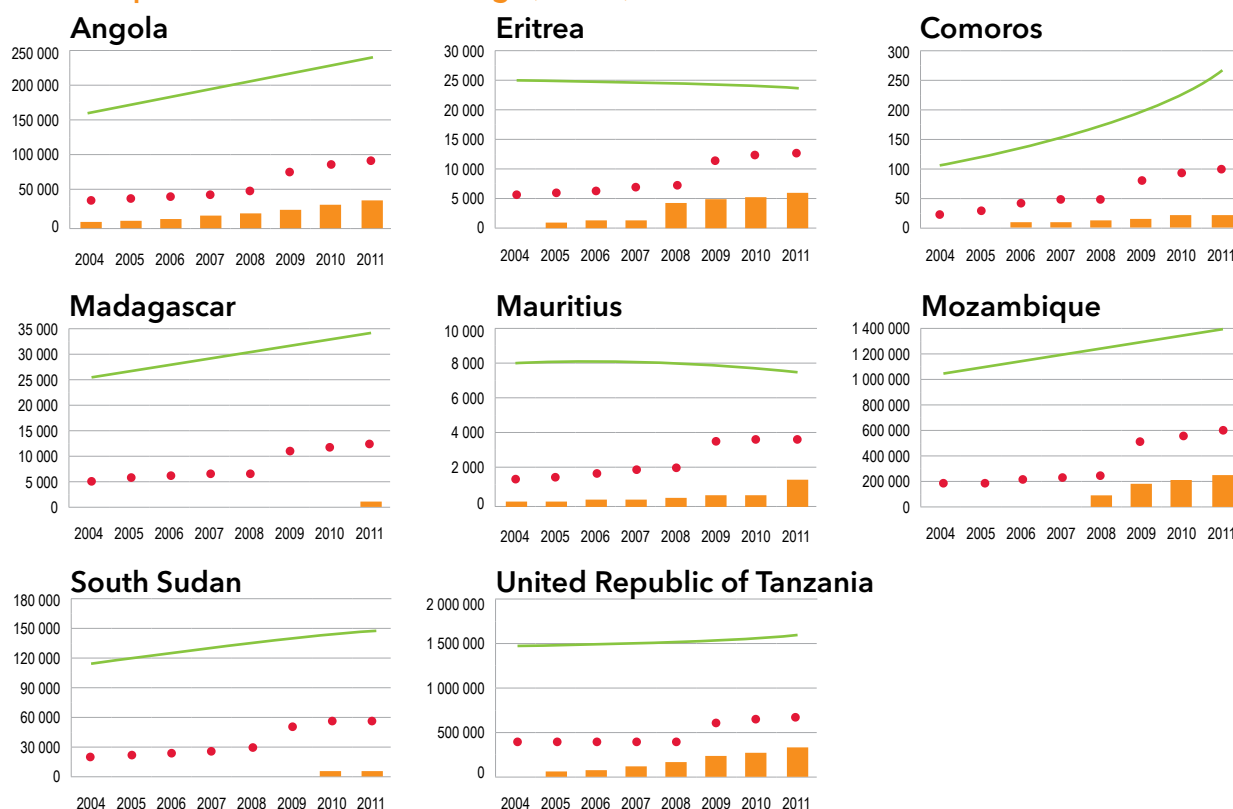


Figure 12

Treatment scale-up in countries in ESA. Bars represent the numbers of people receiving ART, red dots show number eligible for treatment according to WHO 2010 guidelines, and line shows number of people living with HIV (continued)

Source: UNAIDS

ART scale-up in countries with low coverage (< 50%)



rate of ART scale-up can be sustained over the next few years, countries should be able to reach the 2011 Political Declaration target by 2015—but it will require significant effort and sustained funding. Beyond 2015, strong political will and bold leadership will be needed to make early treatment available to all people infected with HIV, for their own benefit as well as to contribute to the reduction and eventual elimination of new HIV infections and AIDS deaths.

More children need HIV treatment

It is estimated that about 50% of children infected with HIV during pregnancy or birth will die within one year if they do not receive early HIV treatment. Treatment coverage among children aged 0–14 years living with HIV in eastern and southern Africa was still unacceptably low in 2011 (Figure 13). Among the 1.3 million children estimated to be eligible for ART (out of a total of 2.2 million children infected with HIV), only 425 000 were receiving ART in 2011—i.e. coverage of 33% [30–37%], according to the 2010 WHO treatment guidelines.²⁵ Coverage exceeded 50% only in Botswana (where it was 88%), Namibia (76%), South Africa (58%) and Swaziland

²⁵ The 2010 WHO eligibility criteria for children include: immediate ART upon diagnosis for infants and children < 2 years of age; ART for children ≥ 2 years and < 5 years with CD4 count < 750 cells/μL; and ART for children ≥ 5 years of age with CD4 count ≤ 350 cells/μL.

Men are less likely to initiate ART treatment than women

Disproportionately fewer adult men than women are receiving ART in the region (2).²⁶ Overall ART coverage in the region in 2011 was estimated at 58% [56–62%] for adult men and 78% [74–82%] for adult women (3). Studies from Kenya (4), Malawi (5), South Africa (6,7) and Zambia (8) have all shown higher levels of ART initiation, relative to ART need, for women compared to men.

HIV-testing rates are consistently lower among men than women and men tend to have lower CD4 cell counts when accessing treatment. There is also some evidence that adherence to HIV treatment is poorer for men than for women. In rural Uganda, more than twice as many women as men managed to maintain high viral load suppression after six months of treatment (9). As a result, AIDS-related mortality rates are often higher among men than women, as shown in several eastern and southern African countries, including Malawi (4), South Africa (10), United Republic of Tanzania (11) and Uganda (12).

There are several possible explanations for these trends, and these should be investigated further. While pregnant women attending antenatal care facilities are encouraged to be tested for HIV and to access treatment and care services, men tend to be less likely than women to seek health care before they become seriously ill and they therefore often start treatment once their health has deteriorated badly. Prevailing norms of masculinity could explain the health-seeking behaviours of men (13,14). In settings where men are more likely than women to be in waged employment, the opportunity costs of visiting treatment facilities for consultations and medicines may also discourage some men from starting or continuing on ART (15). In addition, the possibility has been raised that men's primary healthcare needs are being neglected in many public health systems (6).

²⁶ While the ratio of adult women to men among people living with HIV ranged between 1.2:1 and 1.6:1 in the region, the ratio of adult women to men among people receiving ART exceeded 1.6:1 in most of the studies examined in a 2007 systematic literature review. See Muula A, Ngulube T, Siziya S, Makupe C, Umar E, et al. Gender distribution of adult patients on highly active antiretroviral therapy (HAART) in Southern Africa: a systematic review. *BMC Public Health*, 2007;7: 63.

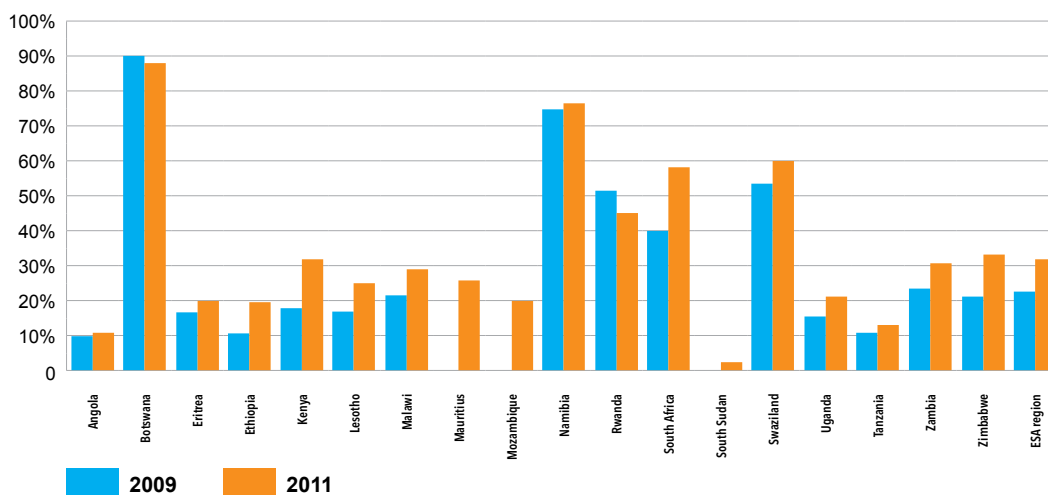
(60%). Coverage was 25% or lower in Angola, Eritrea, Ethiopia, Lesotho, Mozambique, South Sudan, Uganda and the United Republic of Tanzania. In most countries in this region treatment coverage for children increased only marginally between 2009 and 2011, and has been highlighted as a priority area to be responded to with urgency.

According to new data published in the 2013 progress report on the Global Plan towards the elimination of new HIV infections among children (16), the median level of ART coverage among eligible children in the 14 Global Plan priority countries from this region increased only marginally and was still below 40% in 2012.

Figure 13

Estimated coverage of ART in children, 0-14 years, eastern and southern Africa, 2009 and 2011

Source: UNAIDS



Treatment benefits are substantial

Millions of life-years have been gained across the world as a result of the treatment scale-up. Between 1995 and 2011, it is estimated that ART saved an estimated 9 million life-years in sub-Saharan Africa (17). In eastern and southern Africa, AIDS-related mortality has declined from its peak of 1.3 million [1.2–1.4 million] in 2005, when ART started to become more freely available in the region, to 800 000 [730 000–890 000] in 2011 (Figure 14). Declines in AIDS-related deaths have been most prominent in countries with large HIV epidemics and steep increases in ART provision, including:

- South Africa with 100 000 fewer AIDS-related deaths in 2011 than in 2005 (27% decline);
- Zimbabwe with almost 90 000 fewer deaths (60% decline);
- Kenya with 71 000 fewer deaths (54% decline); and
- Ethiopia with 48 000 fewer deaths (53% decline).

In Malawi, adult mortality within the general population fell by about 40% between 2005 and 2011

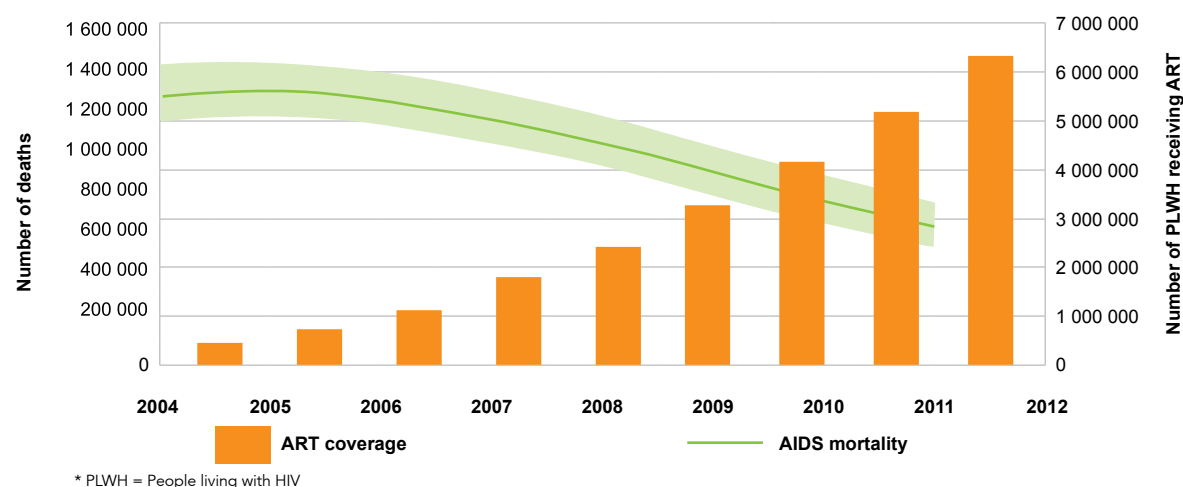
as ART access increased (18). In South Africa, life expectancy at birth was estimated to have increased from 57 years in 2010 to 60 years in 2012, mainly due to the expansion of ART and PMTCT programmes (19). A large study among 149 000 rural residents in KwaZulu-Natal province in South Africa showed an increase of 11.3 years in life expectancy between 2003 and 2011, from 49.2 years to 60.5 years (20). More recently, analysis of over 37 000 people on ART in South Africa has shown that the life expectancy of HIV-positive adults is about 80% of normal life expectancy if they initiate ART before their CD4 cell counts drop below 200 cells/ μ L (21).

In addition to saving lives and preventing new infections, ART has had an important impact on the quality of life of people infected with HIV and on affected families, as it helps relieve the huge care burdens on households.²⁷ Studies in South Africa have shown that employment prospects improve significantly for patients on ART (22). There is evidence that HIV patients on ART have better work performances than those who have not yet started treatment, because of improved physical health (23), and that food insecurity tends to decrease once people living with HIV start ART (24). Earlier

Figure 14

Decline in the total number of AIDS-related deaths in eastern and southern Africa alongside the increase in ART access, 2004–2012

Source: UNAIDS



²⁷. Analysis of a large data set in a rural part of KwaZulu-Natal province, South Africa, from 2001 to 2011. Employment recovery lagged several years behind the health gains, but the delay appears to be due to factors faced by the general population, i.e. very high background unemployment. The study also noted that initiating treatment earlier, prior to any job-threatening illness, could confer further protection against economic losses.

diagnosis and treatment, according to research findings from Uganda, results in quick economic benefits and improve the schooling prospects of children (especially for older children who had been providing substitute labour for sick adults) in households where someone is receiving ART (25).

Treatment as prevention

Among the most important scientific breakthroughs in recent years is the evidence that ART can also be used as a powerful method to prevent new HIV infections. Building on a decade of biological, observational and ecological evidence, a nine-country, randomized controlled trial in 2011 showed that early and effective treatment of an HIV-infected person can reduce the risk of transmitting the virus to an uninfected sexual partner by 96% (95% confidence interval: 73–99%) because of the suppression of viral load in the infected person (26). This study confirmed the results of modelling exercises showing that early initiation of ART and good adherence to treatment regimens could reduce new HIV infections to low levels in this region (27,28).

The preventive benefits of ART have also been illustrated in “real-life” situations and in population-based studies in the region. Analysis of data from a South African community, where about 17 000 people started ART between 2004 and 2011, showed that in communities with high treatment uptake (30–40% of all people on ART), individuals without HIV were almost 40% less likely to become infected compared to communities where ART coverage was low (< 10% of all infected individuals on ART) (29).

Using data from Kenya, the U.S. Centers for Disease Control and Prevention estimated that if treatment were provided to all HIV-infected persons with $CD4 \leq 500$ cells/ μ L, patients with active TB, and persons in serodiscordant relationships regardless of CD4 count, the number of people newly infected with HIV could be reduced by more than 30% by

2015 (30). Modelling studies also suggest that the number of new HIV infections in countries such as Botswana, Namibia and Zimbabwe is currently 30% to 50% lower than it would have been in the absence of universal access to treatment (31).

The scientific evidence of the clinical benefits of ART in preventing illness, deaths and new HIV and TB infections emphasizes the need to scale this intervention up to more people infected with HIV (32), and has led WHO to revise its treatment guidelines in 2013, with a focus on providing ART for both treatment and prevention (1). But in order to do so, countries have to overcome the implementation gaps and the operational, economic and political challenges they face. The region has made formidable progress in providing HIV treatment to greater numbers of people but if the treatment gap is to be closed, further improvements are needed in each of the steps that constitute the treatment cascade. These steps involve diagnosing HIV infection, linking people who take an HIV test to treatment and prevention services, enrolling and retaining people in pre-antiretroviral care, initiating ART, ensuring long-term adherence and achieving and maintaining viral load suppression.

The Treatment 2.0 initiative, supported by WHO and UNAIDS, called for innovations to improve the effectiveness and efficiency of treatment provision in five priority areas: optimizing HIV drugs and drug regimens; providing point-of-care and other simplified HIV diagnostics; reducing HIV treatment costs; adapting service delivery systems with the focus on decentralization and integration; and mobilizing communities (33).

HIV testing must be further expanded

Concerted HIV testing campaigns have been launched in some countries to encourage people to know their HIV status. In South Africa, close to 20 million HIV tests were conducted between April 2010 and end-2012, and more than 8 million

people were screened for TB (34). More than 2.1 million people were found to be HIV-positive, and 400 000 of them were started on ART. Other innovative approaches, including multi-disease prevention campaigns in Kenya and Uganda, have demonstrated the feasibility and potential impact of community-based HIV testing and counselling (35,36). In addition, a recent meta-analysis of 21 studies conducted in Uganda, Malawi, Kenya, South Africa and Zambia between 2000 and 2012 found that home-based testing was highly acceptable, with three quarters of the studies reporting testing uptake of at least 70% (37).

Testing rates and knowledge of HIV status have improved significantly in the region (38), but large numbers of people living with HIV still do not know that they have been infected. Data from national population-based surveys conducted between 2006 and 2011 show that the percentage of adult men and women who were tested for HIV and received their results in the last 12 months ranged from as low as 4% in Madagascar to over 60% in Botswana (Table 5).

HIV testing and counselling uptake depends on several factors. A recent systematic review of studies indicates that the predominant factors enabling uptake of HIV testing are deteriorating physical health and/or the death of a sexual partner or child (39). Other enabling factors include the elimination of fear of stigma or financial cost, availability of treatment and social network support. Barriers include the belief that one is at low risk of HIV infection, a perceived lack of confidentiality associated with testing, fear of HIV-related stigma, the anticipated psychological burden of living with HIV, access to testing facilities and the financial cost of having an HIV test done.

Testing rates tend to be higher among women than among men in eastern and southern Africa. In some countries, men and women with higher educational and wealth status tend to be more likely to take an HIV test, and adults in urban areas appear to be slightly more likely to take an HIV test, compared with their rural counterparts (40). Services must therefore be adapted to become attractive and accessible to all people who need them.

Table 5

Percentages of adult men and women who took an HIV test and received the results, and who ever took an HIV test, in selected eastern and southern African countries, 2006–2011

Sources: Various Demographic and Health Surveys and AIDS Indicator Surveys, 2006–2011.

Country and date of survey	Percentage of adult women ever tested for HIV	Percentage of adult men ever tested for HIV	Percentage of adult women who ever requested and took an HIV test, and received the results	Percentage of adult men who ever requested and took an HIV test, and received the results	Percentage of adult women who were tested for HIV and received the results in the last 12 months	Percentage of adult men who were tested for HIV and received the results in the last 12 months
Botswana (2008 AIS)	63.4	48.0			61.5	59.0
Ethiopia (2011 DHS)	38.8	40.2			20.0	19.9
Kenya (2008–2009 DHS)	58.4	41.8	29.9	35.7	29.3	22.3
Lesotho (2009 DHS)	68.6	40.6	36.5	33.5	42.0	24.7
Madagascar (2008–2009 DHS)	14.3	8.9	6.5	7.2	4.2	3.7
Malawi (2010 DHS)	73.1	52.2	36.4	34.6		30.9
Mozambique (2009 AIS)	34.4	18.5	14.4	15.4	15.6	8.5
Namibia (2006–2007 DHS)	54.8	34.3	34.8	26.8	28.6	17.6
Rwanda (2010 DHS)	77.2	72.1			38.6	36.6
South Africa (2008 HSRC)	56.7	43.0			28.7	19.8
Swaziland (2006–2007 DHS)	40.7	18.6	20.6	14.8	21.9	8.9
Tanzania (2011 DHS)	59.1	42.7			29.5	25.0
Uganda (2006 DHS)	29.4	23.1	14.3	18.5	12.0	10.2
Zambia (2007 DHS)	39.4	22.3	17.0	17.5	18.5	11.7
Zimbabwe (2010–2011 DHS)	59.7	38.6			33.6	20.4

Note: DHS = Demographic and Health Survey; AIS = AIDS Indicator Survey; HSRC = Human Sciences Research Council

Retention in care has to improve

Substantial rates of attrition appear to be occurring along the treatment cascade (41), with retention in care an issue of concern in most of the treatment programmes in the region—both among patients not yet eligible for treatment (41–44) and among people already receiving treatment (45).

People who test HIV-positive need to enroll and remain in care until they become eligible for treatment and start ART. A systematic review of studies done in Ethiopia, Kenya, Malawi, Mozambique, South Africa, United Republic of Tanzania and Uganda found that the median retention of patients before starting ART was only 29% (41).

Explanations for attrition are complex and tend to change as patients move along the treatment pathway. Among people who have been newly diagnosed with HIV, stigma, denial, poor referral systems or poor post-test counselling are important factors. People who are enrolled in care (pre-ART) tend to be lost to follow-up due to delays in receiving their CD4 results, a lack of CD4 testing, long distances to clinics and long waiting times at clinics. Weak health information systems result in patients being lost between service delivery points. Once people are deemed eligible for ART, their fears about possible side effects, a lack of confidence in the effectiveness of the treatment, and drug stock-outs appear to be the main causes of loss-to-follow-up (46). Some people also refuse to start ART when offered because they consider themselves too healthy to need treatment (47).

Gender differences in retention patterns have also been observed. In a study in South Africa's KwaZulu-Natal province, men were about 20% less likely to be retained in care, which points to a need for strategies to engage and retain men in HIV care, and to consider work-based care (48). In a study in the

United Republic of Tanzania, Uganda and Zambia, male patients in programmes without community dispensing of ARVs were 64% less likely to be retained in treatment programmes compared to women, and it appeared to be more difficult for men to collect their ARVs from clinics (49).

Possible ways to retain more people in care include point-of-care diagnostics, reducing clinic visits and travel, task shifting to nurse-led primary care facilities (see below), involving community and peer support groups (see below), integrating HIV treatment with other health services, and decentralizing HIV care (50).

As more countries are starting to use treatment as prevention and initiate ART as soon as people test HIV-positive (for example, among discordant couples), the need for CD4 counts to determine treatment eligibility will decrease.

Better treatment adherence requires more support

The success of treatment scale-up programmes depends not only on the numbers of people who start ART, but also on whether they initiate ART early enough, are retained in treatment programmes, and adhere to treatment regimens.

Several studies in the region have shown that high levels of adherence²⁸ can be achieved among people on ART (28). Treatment adherence in sub-Saharan Africa on average has matched or outstripped adherence rates in many industrialized countries. A review of 58 studies showed that average levels of “adequate” adherence (generally considered to be greater than 95%) were better in Africa than in North America (77% versus 55%) (45). However, assessment of adherence in available studies often relates to treatment initiation at late stages

²⁸ Adherence is defined as the correct use of ARVs at the right frequency of dosing.

of infection and further studies are needed to assess adherence patterns among people who start treatment early.

The reasons for poor treatment adherence in some settings include a high pill burden (although treatment regimens are becoming simpler), side effects (treatment regimens are also becoming less toxic), the large number of appointments that are often required, and the opportunity and transportation costs they involve (46). Factors such as drug stock-outs, clinic capacity and poor service quality may become more problematic unless systems are adapted to cope with the steep increases in demand as more people are starting ART.

Several innovations show promise. The use of treatment supporters, mobile-phone text messages, diary cards and food rations are potentially effective ways to improve adherence, according to a recent review of 26 studies in sub-Saharan Africa (51). In general, it appears that the closer treatment programmes are brought to communities, the better they perform.

Decentralization of care

Decentralizing HIV treatment and care services from a small number of hospitals and central facilities to clinics and primary healthcare facilities has been crucial for managing the rapid increase in ART coverage in eastern and southern Africa.

In Malawi, for example, the decentralization of ART to local health centres has been demonstrably successful. In Thyolo district, decentralization, along with task shifting and simplified care, increased ART initiation threefold and cut time to ART initiation fivefold between 2004 and 2009 (52). In another Malawian study, attrition 12 and 24 months after treatment initiation was lower in decentralized than in centralized health facilities, with no difference

in patients' immune-virological outcomes after one year (53). Studies in South Africa also showed that retention in care, mortality rates and loss-to-follow-up were similar or had improved among patients receiving ART at primary healthcare facilities, compared to their peers who accessed treatment at district and regional hospitals (54–56).

In several other countries with high burdens of HIV, ART is still available only in a minority of public sector facilities; in one recent survey, fewer than 30% of health facilities in Mozambique, United Republic of Tanzania and Zambia were offering ART to patients living with HIV (57). If countries are to sustain or increase the momentum of their treatment scale-ups, ART services will have to be broadened to the primary healthcare level.

Countries are increasingly combining decentralization with task shifting, which involves health workers carrying out tasks that traditionally are performed by staff with higher qualifications. The strategy has been associated with rapid scale-up in South Africa (56), Kenya, Mozambique and Swaziland (58). Evidence suggests that task shifting can save time, increase access to ART and is cost-effective. Studies in South Africa have shown that the quality of care generally matches that provided at hospital-based ART clinics when used with stable ART patients, and treatment costs are lower in some cases (55,58). At a Johannesburg primary health clinic using task shifting, for instance, treatment outcomes were as good as or better than those of similar patients who remained at a hospital-based ART clinic. The down-referral strategy costs 11% less than the hospital-based one (55). Task shifting seems to work best, however, when introduced gradually, and when it is accompanied by concerted training and support (59). Special care must be taken to avoid shifting the burden of the ART scale-up onto nurses and lower cadres of staff without providing them with adequate training, capacity, coordination and support.



Community involvement to support treatment programmes

As the number of people on treatment continues to grow, simplified models to deliver ART should be considered as a strategy to help relieve overburdened health systems (60), including models to provide chronic disease care outside of the formal health system, home-based care (61) and community-based management of treatment (62).

Studies from Uganda (61), Kenya (63) and Mozambique (62) have shown that out-of-clinic approaches to care provision and ART management for stable patients are feasible. Dispensing ARVs in communities, rather than only at clinics, appears to improve treatment adherence (especially among men), according to a study conducted in the United Republic of Tanzania, Uganda and Zambia (49). In South Africa, community-based adherence support has proved effective in reducing loss-to-follow-up (64), and patients attending adherence clubs (that meet every two months or so) have been found

to be more likely to be retained in care than their peers who stayed in mainstream clinic care (65). There has also been successful deployment of community health workers to provide adherence support to patients on ART, including counselling, pill counting, patient follow-up at home, running support groups, etc. (54). Some studies in South Africa show that patients who get support from community health workers tend to have better treatment outcomes than those who rely strictly on “formal” clinic services (66).

UNAIDS and partners encourage the full involvement of people living with HIV and affected communities in planning, implementing and evaluating high-quality HIV care and treatment programmes. Communities can also be involved in linking ART services with associations of people living with HIV, setting up referral systems for patients who experience side effects, providing support to “buddy systems”, or introducing community-assisted procedures to track people who are lost to follow-up. Treatment literacy and support

groups have become vital parts of treatment and care programmes, as have the networks of community health workers that support those programmes.

Retention of people in care has shown to be higher when community treatment models are used, compared with the “traditional” clinic-based models. In Tete province, Mozambique, people receiving ART created a community adherence support group to improve treatment access and retention, and to relieve congestion in local health services. Almost 98% of patients remained in care after one year (62).

Building better systems

Structural improvements, together with simple but innovative interventions, are needed to support and strengthen health systems. The supply and quality of health workers in public health systems has to improve, and new forms of regional collaboration and coordination in the training and distribution of health workers need to be devised. More accurate planning and more reliable supply chains are vital. Drug stock-outs are a recurring problem that discourages treatment uptake, weakens adherence and sabotages programme effectiveness. In the context of tighter external funding, reports of drug stock-outs and treatment “rationing” are of increasing concern in eastern and southern Africa (67).

With the growing numbers of treatment providers and people on ART it is increasingly important to have rigorous monitoring and evaluation systems in place to assess the impact of ART programmes on the HIV epidemic, and to provide early warnings of problems that may arise, including issues related to implementation of programmes, health systems, drug stock-outs, adherence, viral load suppression, drug resistance and affordability.

Sustainability is a challenge

Several factors contribute to the speed, extent, outcomes and sustainability of the ART programme scale-up in countries, including access to financial support (Chapter 6), the prices of ARV drugs and diagnostics, the reliability of drug supplies, patenting issues, and the effectiveness of procurement and logistical systems. While some of these factors operate beyond countries’ direct reach, a growing number of countries in the region are devising ways to overcome some of the obstacles, and to exploit new opportunities more fully.

Drug cost is a central issue. Over the past 15 years, activism and special arrangements brokered by international institutions have made access to ARVs and HIV-related diagnostics easier. Some patenting restrictions were relaxed, allowing generic production to thrive and competition between pharmaceutical companies to increase. Prices for several ARV drugs fell dramatically. But such gains are not necessarily self-sustaining. The latest WHO guidelines recommend replacing older drugs long-abandoned in high-income countries with more durable and less toxic alternatives, but because these newer drugs are more expensive, some countries have been reluctant to make the change. In addition, the prices of second- and third-line ARVs currently prevent their extensive use in most ART programmes in the region, despite the increasing need.

In the meantime, task-shifting and lower drug costs are allowing countries to deliver treatment to more people with the same level of resources. In Mozambique, enhanced programme monitoring helped reduce the costs of providing ART per person by 45% from 2009 to 2011 (68). By reforming its drug tender systems, South Africa has achieved multi-million dollar savings, which it is using to expand its treatment programmes. Overall, ARV drug costs fell by 53%, generating estimated savings of about ZAR 4.7 billion (US\$ 640 million) between 2011 and 2012 (3).

Achieving universal access may require higher upfront investments, but this is likely to be more than compensated for in the medium term by savings as morbidity and mortality rates fall, costs associated with hospitalizations and palliative care drop, and new infections are averted (see Chapter 6) (69).

Access to ARVs must be safeguarded

Improved efforts are needed to ensure that all countries have affordable and reliable access to high-quality ARVs and diagnostic tools. Further reducing the cost of antiretroviral therapy is essential, especially for the second- and third-line regimens that will increasingly be needed in the future. Full use of flexibilities permitted under international regulations—such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) administered by the World Trade Organization—will be very important.

Some of the public health safeguards that were extended to least-developed countries a decade ago under the Doha Declaration will soon expire. Those countries received a waiver under TRIPS that postponed the enforcement of certain pharmaceutical patents to January 2016. Beyond that date, the patenting situation of HIV-related medicines, particularly second- and third-line treatments as well as diagnostics, looks set to become considerably more complex, restrictive and inequitable. Provisions in free-trade agreements that potentially undermine access to affordable, life-saving medicines and health technologies must be avoided. Extending and strengthening the exemptions to the TRIPS Agreement beyond 2016 would facilitate building and consolidating local production.

The African Union's Roadmap for Shared Responsibility and Global Solidarity for AIDS, TB and Malaria in Africa, adopted in July 2012, is aimed

at helping countries on the African continent to diversify their HIV financing, enhance and sustain their access to essential medicines (including through local production), and strengthen health governance (70). All three elements are vital for further improving and sustaining treatment and care programmes in countries.

Common, regional medicines regulatory authorities can speed up the approval and availability of quality life-saving medicines, and boost quality assurance and pharmaco-vigilance. An estimated 70% of ARV drugs used in sub-Saharan Africa are produced by generic drug manufacturers that are located elsewhere in the world. A concerted effort is now under way to expand local production of essential drugs—including ARVs—and harmonize the regulatory elements of treatment and care provision in Africa (71). Kenya, South Africa, Uganda and Zimbabwe are already producing WHO pre-qualified ARVs, while Mozambique and the United Republic of Tanzania are soon expected to emulate those countries. In addition, Botswana, Ethiopia, Lesotho, Madagascar, Namibia and Zambia have some pharmaceutical manufacturing capacity, although it is not yet devoted to ARV production (70).

Eastern and southern Africa presents indisputable proof that treating HIV effectively and on a large scale is possible. The challenge now is to increase access to treatment and support sustained care for those on treatment, while at the same time ensuring that the package of care is continuously improved so that all patients can benefit (72).

Given the considerable scientific evidence supporting the use of early ART for treatment and prevention of HIV and TB (26,73), and the recent shift in WHO guidelines towards supporting earlier initiation of ART (1), the methods and systems used to deliver ART in a high-burden region such as eastern and southern Africa need to be improved and adequate systems need to be in place to carefully monitor the scale-up of ART and to evaluate its impact.

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5. TUBERCULOSIS AND HIV

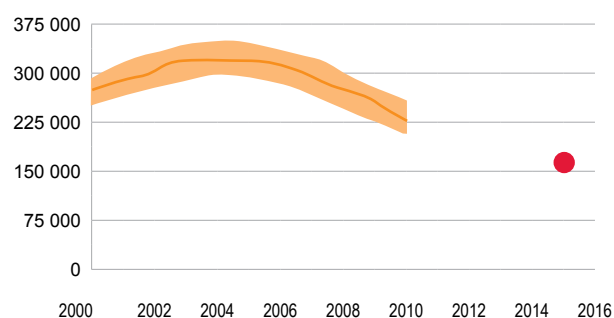
Tuberculosis (TB) is a leading killer of people living with HIV globally and is responsible for an estimated one in four AIDS-related deaths. At the same time, HIV increases the incidence of TB up to sevenfold in sub-Saharan Africa (1).²⁹ The combined impact of the two epidemics is particularly destructive in eastern and southern Africa, where more than 230 000 [220 000–260 000] people were estimated to have died from HIV-related TB in 2011. The region accounts for more than 50% of the global number of TB deaths among people living with HIV.

Many countries in the region have made good progress in reducing the number of TB deaths among people living with HIV. Integration and closer collaboration with HIV treatment programmes is helping to expand and strengthen both HIV and TB activities (Chapter 10). As a consequence, TB deaths among people living with HIV in eastern and southern Africa have decreased by about 30% since 2004–6, when it peaked at an estimated 330 000 deaths per year (Figure 15). If this declining trend continues, the region could reach the 2011 Political Declaration target of reducing the number of TB-related deaths among people living with HIV by 50% by 2015,³⁰ but this will require further progress in a number of areas.

By detecting HIV and TB and scaling up relatively straightforward and inexpensive interventions that are already available, several thousands of lives could be saved between now and 2015 (2). These interventions include the Three I's for HIV/TB—isoniazid preventive treatment (IPT), infection control for TB, and intensified case finding for TB—combined with early provision of ART. Close collaboration and integration with HIV services,

Figure 15
TB deaths among people living with HIV in eastern and southern Africa, 2000–2011, with 2015 target

Source: UNAIDS



testing TB patients for HIV, and ensuring that people with HIV-associated TB receive ART and co-trimoxazole prophylaxis are also essential.³¹

Detecting and treating HIV among people with TB

Provider-initiated HIV testing should be offered to everybody with TB and to people presenting with signs and symptoms of TB (3). Couples counselling and HIV testing of partners of people living with HIV should also be encouraged. Treatment of HIV prevents HIV and TB morbidity, mortality and further transmission, while detection of TB disease often provides an early entry point also for detecting and treating HIV.

Given the availability of effective preventive interventions such as ART for HIV and IPT for TB, each case of TB among people living with HIV can be viewed as a preventable event and a public health

²⁹ HIV-positive people are very susceptible to TB because HIV destroys the immune system cells that normally combat TB.

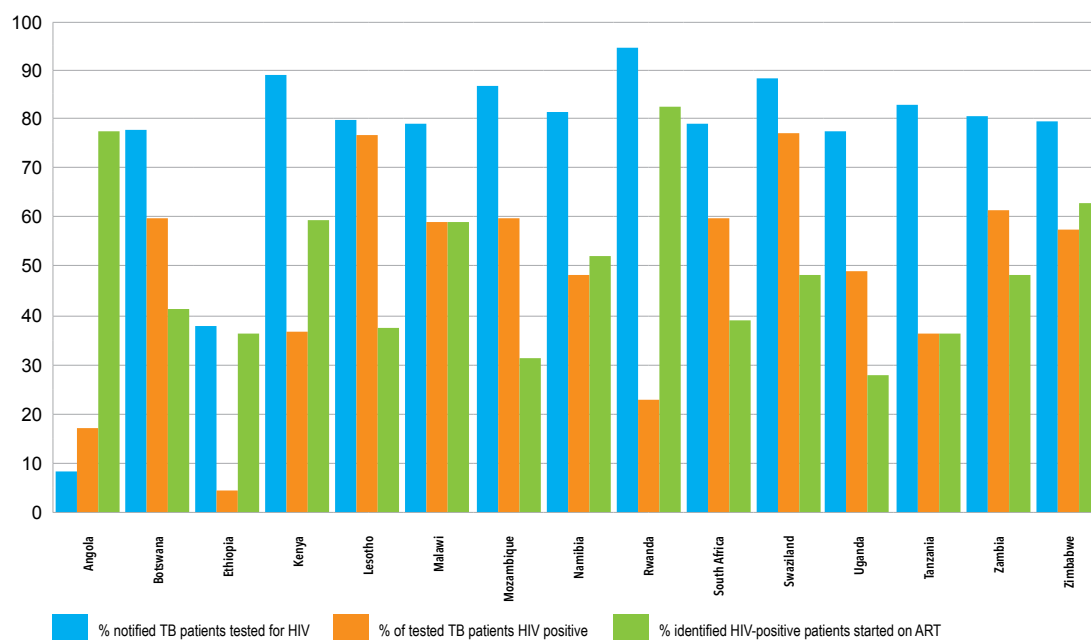
³⁰ The baseline year is 2004, which is the year in which deaths from HIV-associated TB were measured for the first time.

³¹ Current WHO policy guidance on collaborative TB/HIV activities, issued in 2012, includes earlier initiation of ART along with the Three I's for HIV/TB as a key intervention to prevent TB among people living with HIV. ART is recommended for all TB patients living with HIV, irrespective of CD4 cell counts.

Figure 16

HIV testing and treatment for TB patients living with HIV, 2011

Source: WHO. *Global Tuberculosis Report 2012*. Geneva. WHO 2012



failure. The priority is to place people living with HIV on IPT and ART before they develop TB. However, starting ART as soon as a person is diagnosed with TB is also vitally important to prevent TB morbidity and mortality, and to ensure that HIV is not transmitted to the person's sexual partner or children.

Coverage of HIV testing among TB patients has improved substantially in eastern and southern Africa (Figure 16). In most countries in the region, at least 80% of TB patients had received a documented HIV result in 2011. In Kenya, Rwanda and Swaziland, more than 90% of TB patients knew their HIV status. There is considerable room for improvement in countries such as Angola and Ethiopia, however, where fewer than half the people with notified TB were tested for HIV in 2011 (4).

The percentage of TB patients found to be HIV-positive ranged from 8% in Ethiopia to 77% in

Swaziland. More than 50% of TB patients were found to be HIV-positive in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Uganda, Zambia and Zimbabwe (4).

Co-trimoxazole preventive therapy (CPT) is a simple, inexpensive and highly effective intervention that has been shown to reduce TB mortality significantly among people living with HIV. It also improves the retention of people living with HIV throughout the continuum of HIV care. Expanding the availability and uptake of CPT is therefore vital to improve treatment outcomes further and to raise the survival rate of people living with HIV. Countries that achieved rates of enrolment on CPT higher than 90% in 2011 included Kenya, Lesotho Mozambique, Namibia, Rwanda, Swaziland, United Republic of Tanzania and Uganda. Coverage was lowest in Zimbabwe (29%) and Ethiopia (62%) (4).

Preventing TB in people living with HIV

Provision of ART to people living with HIV significantly reduces the risk of morbidity and mortality from TB (1). A meta-analysis published in 2012 found that ART reduces the individual risk of TB disease by 65%, irrespective of CD4 cell count (5). Using IPT along with ART can have an additive effect and can substantially reduce the risk of developing active TB disease among people living with HIV (6,7,8).

There is evidence that an increase in ART coverage lowers TB incidence at the community or population levels. In countries where large proportions of people are receiving ART, significant drops in TB incidence have been achieved: ART scale-up has been associated with reductions in TB incidence of 33% and 24% in high-burden Malawian (9) and South African (10) communities, respectively. These studies confirm the importance of increasing access to HIV testing for all people in settings with high HIV and TB burdens, and to provide ART to all those diagnosed with HIV and in need of treatment, in order to prevent TB disease and death.

Major gains can be made if ART coverage can be further expanded. Mathematical models using data from several countries in sub-Saharan Africa³² indicate that frequent annual testing combined with initiating ART for HIV-positive persons within 5 years of seroconversion could reduce the incidence of HIV-related TB in 2015 by 48% [37–55%]. With immediate treatment, it is estimated that incidence of HIV-related TB can be reduced by 98% [98–99%] by 2050 (1).

Early access to ART therefore must be part of the TB prevention package, together with the “Three I’s” for HIV/TB. WHO recommends that ART should be provided to all TB patients living with HIV irrespective of CD4 cell count. However,

Table 6

Percentages of people living with HIV and TB disease who received ART, eastern and southern Africa, 2011 (11)

		76–100%
		Angola Rwanda
	51–75%	
	25–50%	
Botswana	Kenya	
Ethiopia	Malawi	
Lesotho	Namibia	
Mozambique	Swaziland	
South Africa	Zambia	
Uganda	Zimbabwe	
UR Tanzania		

expanding access to ART for people with both TB and HIV has been a challenge in many countries. The percentage of identified HIV-positive TB patients who had started ART was still under 50% in Botswana, Ethiopia, Lesotho, Mozambique, South Africa, Uganda and the United Republic of Tanzania in 2011 (4).

People living with HIV who are routinely exposed to TB should be protected against TB. This can be achieved with a daily dose of isoniazid, which is cheap and simple to use. Everyone enrolled in HIV care should therefore be screened for TB at each visit, people with a positive screen result should be investigated for active TB, and people living with HIV without active TB should receive at least six months of IPT.

Globally, the number of people in HIV care who were screened for TB reached 3.2 million in 2011—an increase of 39% since 2010. Among 29 countries that reported data, IPT was provided to almost 450 000 people living with HIV in 2011, more than double the 201 000 who had received the therapy the year before. Most of that increase was due to progress in South Africa, where the number of HIV-positive people screened for TB rose almost

³² Using data from Gabon and Ghana in West Africa; United Republic of Tanzania in East Africa; and Botswana, Lesotho, Malawi, South Africa, Swaziland and Zambia in southern Africa.

twofold (to 1.26 million), and the number of people living with HIV receiving IPT increased nearly threefold (from 146 000 to 373 000) between 2010 and 2011 (4).

Strengthening and expanding services for HIV and TB

Access to services to diagnose and treat HIV and TB must be expanded. For example, 64% of people who are eligible for ART (according to the 2010 WHO ART guidelines) are receiving it, but in many countries less than half of HIV-positive TB patients were receiving ART in 2011. There are generally more facilities providing TB services than ART services in the region (4). These widely decentralized TB services and staffing offer opportunities to further decentralize and increase access to ART services.

HIV and TB services have to be integrated more effectively (see Chapter 10). Political leadership is needed to achieve this at every level of the health system and ensure that the requisite programmes are carefully designed and fully funded. Stronger mobilization of communities is needed to help drive those efforts forward.

Monitoring and evaluation systems are generally weak in many countries. Improved systems are needed in order to track people with HIV and TB to ensure that they have access to interventions such as earlier ART and IPT, and to monitor adherence and drug resistance. The growing threat of multidrug- and extensively drug-resistant TB underscores the importance of prevention interventions such as earlier treatment and infection control, along with interventions that can improve TB treatment adherence. It also highlights the need for measures that reduce TB exposure in places where people living with HIV may be concentrated, such as clinics, hospital wards and prisons.

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6. RESOURCES AND SPENDING

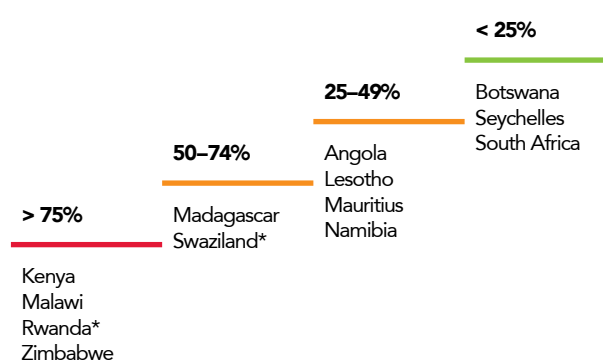
An 11% increase in total HIV spending in low- and middle-income countries between 2010 and 2011 has narrowed the overall AIDS resource gap, and brought total investment in those countries to US\$ 16.8 billion. However, a significant gap of at least US\$ 7 billion remains to be bridged to reach the global target of US\$ 24 billion by 2015, which countries collectively have agreed to achieve (1,2).³³ The eastern and southern Africa region accounts for a large part of the total AIDS resource gap in low- and middle-income countries.

The overall increase in HIV spending globally in recent years has been due to rising HIV investments from low- and middle-income countries themselves. In 2011, domestic resources for the first time overtook international assistance for HIV (3). While international assistance has remained stable at around US\$ 8.2 billion in the past few years, domestic investments increased to reach US\$ 8.6 billion in 2011—a 15% increase from the year before.

In eastern and southern Africa, domestic funding for HIV has also risen in recent years. However, dependency is still a major challenge for countries

Table 7
Dependency on external resources in eastern and southern Africa (2010/11)

Sources: National AIDS Spending Assessments and UNGASS data



*Data available from 2009

in the region as shown in Table 7 (4). The reliance on donor funding in most countries in the region prompts concerns about the sustainability of their HIV responses and underscores the importance of countries to focus on long-term predictable sources of HIV financing.

Figure 17

Sources of HIV spending in South Africa, 2007/08–2009/10

Source: National AIDS Spending Assessments

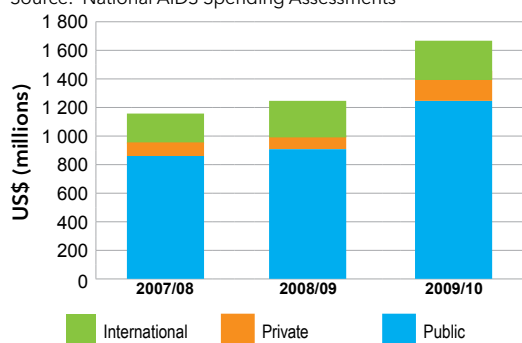
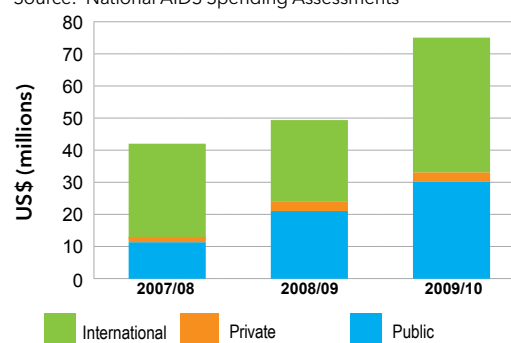


Figure 18

Sources of HIV spending in Swaziland, 2007/08–2009/10

Source: National AIDS Spending Assessments



³³ It is estimated that HIV programme funding in low- and middle-income countries globally needs to increase from US\$ 16.8 billion in 2011 to US\$ 24 billion in 2015, after which funding needs are projected to decline to US\$ 19.8 billion in 2020.

Total HIV expenditures in the region increased over the past decade, according to National AIDS Spending Assessments (NASAs) estimates, enabling countries to make significant progress in their HIV responses.³⁴ Spending on HIV varies widely in the region, as Figures 17 and 18 show for South Africa and Swaziland.

In South Africa and Botswana, unlike most other countries in the region, public funds are the main source of HIV spending. South Africa, which has the world's largest HIV programme, quadrupled its domestic HIV investments between 2006 and 2011, during which time it totalled more than US\$ 1.9 billion.

External resources are an important source of HIV investments in Swaziland, where more than 50% of the HIV resources in 2009/2010 originated from external partners.

The allocation of HIV resources also varies from country to country, but in most countries treatment programmes absorb the largest share. South Africa's treatment programme received more than half of the resources for HIV (Figure 19), whereas in Swaziland orphans and vulnerable children, programme management and administration received substantial proportions of overall HIV resources (Figure 20). Estimates from available NASAs suggest that resource allocation for prevention programmes is comparatively low in most countries and is funded largely by external sources.

Figure 19

Spending on HIV activities in South Africa (all sources), 2007/08-2009/10

Source: National AIDS Spending Assessments

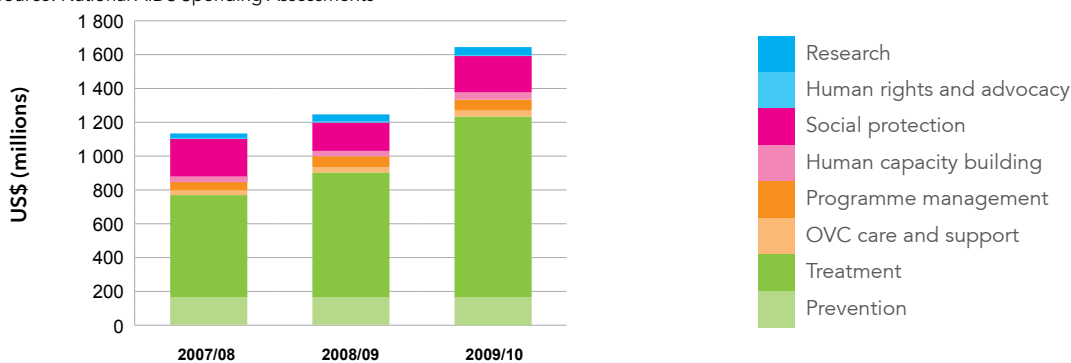
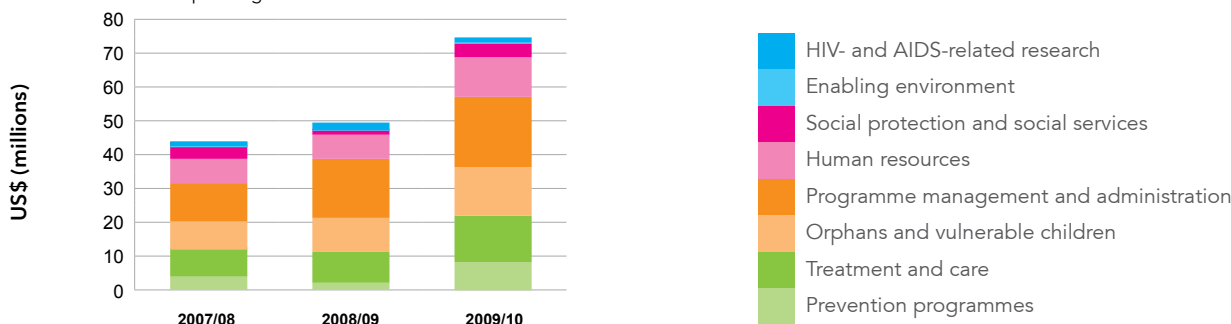


Figure 20

Spending on HIV activities in Swaziland (all sources), 2007/08-2009/10

Source: National AIDS Spending Assessments



³⁴ Based on data from Botswana, Comoros, Kenya, Lesotho, Malawi, Namibia, South Africa, Swaziland, Uganda and Zimbabwe.

The Global Fund and PEPFAR have been important contributors to the HIV responses of countries in eastern and southern Africa, in some cases enabling the roll-out of treatment programmes that otherwise would have been unattainable. Since 2004, funding for the AIDS response by PEPFAR has been about US\$ 25 billion in total, of which US\$ 18 billion (73%) were invested in 15 countries in eastern and southern Africa. The Global Fund has invested more than US\$ 7 billion in HIV/AIDS in eastern and southern Africa to date (50% of the overall allocation for HIV). Other major donors in the region include bilateral and regional programmes of the European Union, Sweden and the United Kingdom.

Several countries are experiencing a decline in external resources, a development that is likely to have profound implications for HIV programmes in the region. Lifelong HIV treatment constitutes a financing and replenishment challenge that will extend well into the future. The decline in external support, coupled with shifting donor priorities, threatens the gains achieved over the past two decades, increases the risk of service delivery gaps and intensifies the competition for funding among various public health priorities.

Sufficient funding for treatment and care programmes would have a significant impact on future epidemic trends, as the declining HIV incidence and AIDS-related mortality in the region indicate (see Chapters 1 and 4). While provision of lifelong treatment for millions of people will remain a challenge in the future, this intervention has been shown to be cost-effective in reducing morbidity and mortality, and in preventing onward transmission.

Modelling exercises suggest that substantial upfront investments in treatment scale-up could become rapidly cost-beneficial in some settings. A 2011 economic analysis based on South African data examined several treatment scenarios involving

annual HIV testing and counselling with 90% coverage for adults. It found that if everyone who tests HIV-positive and has a CD4 count < 500 cells/ μ L immediately starts ART, it would avert an additional 585 000 new HIV infections within 5 years, compared to a CD4 < 200 cells/ μ L baseline. This approach would reach a “break even” point in cumulative costs within 5 years, and yield cumulative (undiscounted) cost savings of US\$ 17.3 billion over 40 years (5).³⁵

In an effort to enhance sustainability, external funding has to be made more predictable, harmonized and aligned with country priorities, and it needs to be delivered in a manner that does not undermine national ownership. Multi-year funding support will enable countries to plan ahead with greater predictability. It is critically important that governments negotiate transition plans with donors, and that donors put in place exit strategies to ensure continuity of programmes.

The private sector and out-of-pocket payments by individuals are important sources of financing, especially in paying for expenses related to accessing treatment and care services, but very few countries have collected information on this sector (6).³⁶ A hidden facet of HIV financing in many countries is the extent to which health care is paid for through personal, out-of-pocket payments. Poor households are excessively burdened in such arrangements.

Civil society, in particular community-based organizations, are increasingly integral to countries' HIV responses, especially in relation to support for providing treatment and care. In South Africa, for example, non-governmental organizations manage more than 60 000 volunteer health workers who have been deployed countrywide to strengthen HIV and other healthcare services. It is vital that funding and other support for civil society organizations should be predictable and sustained.

³⁵ The comparisons are with a baseline scenario with 90% annual HIV testing and counselling, a high ART acceptance rate (92%), and ART initiation at CD4 < 200 cells/ μ L.

³⁶ Private funds are mostly out-of-pocket payments, and these are believed to be under-reported in most country NASA reports.

Finding new routes towards sustainability

Domestic investment in HIV in eastern and southern Africa could be further improved if governments lived up to the commitments made in Abuja in 2001 of allocating 15% of their national budgets to health. To date, only Madagascar, Malawi, Rwanda and Zambia have fulfilled their pledge, whereas other countries continue to allocate less than the agreed target. Countries and their external partners have a joint responsibility to fill the HIV funding gap, by investing a fair share of their respective resources.

The current changes in the HIV financing landscape underscore the need to ensure that countries also focus on improving the allocation and use of available resources. This can be achieved with the scale-up of evidence-based and high-impact interventions, by delivering programmes of the highest possible quality, and by ensuring that programmes are affordable and sustainable. The UNAIDS framework for strategic investments (2) outlines an approach for doing so and suggests that the HIV response should focus on:

- prioritizing and scaling up basic programme activities that have been shown to reduce morbidity and mortality directly;

- putting in place critical enablers that foster an enabling environment for programme implementation; and
- fostering synergies with health and other development sectors.

Countries should identify, select and fund those programmes that are most appropriate and effective in relation to their respective epidemics and other contexts. A re-allocation of resources may be required in order to maximize programme impact.

UNAIDS is currently supporting strategic investment dialogues in eastern and southern African countries to apply these principles. A next step involves supporting countries to develop investment cases that are firmly anchored in their respective national strategic plans.

Several initiatives are under way in the region to identify and realize potential savings and cost-effectiveness gains. Some countries are saving millions of dollars by improving their ARV drug tendering processes. Reforms to South Africa's tender process to increase competition and improve transparency led to savings of ZAR 4.7 billion (US\$ 640 million)³⁷ between 2011 and 2012, potentially enabling the Government to treat twice the number of ART patients. It has applied similar

Using the framework for strategic investments to sharpen and expand the HIV response

Countries in the region could have an improved understanding of their HIV epidemics through “Know your epidemic/Know your response” exercises, including comprehensive assessments and analyses of available data, estimation of the distribution of new HIV infections, and National AIDS Spending Assessments. An important related step is to examine whether the allocation of resources matches epidemic trends and patterns.

Such evidence-based analysis should guide budgetary decisions. Analysis of the cost and effectiveness of ART provision informed the South African National Treasury's decision to approve significant increases in

funding to reach the ART coverage targets. A similar process was used to examine the costs of widening HIV treatment eligibility for adults and children. Several other countries are also using new methods to enhance efficiency and extend savings in their ART programmes. For example, task shifting—whereby health workers perform tasks that traditionally are carried out by staff with higher qualifications—and larger roles for communities have been shown to improve the reach and quality of treatment programmes. There is also evidence that integrating HIV with health and other services can increase uptake of certain services and improve efficiency (Chapter 10).

reforms to other health sector tenders, including for anti-TB drugs, thus generating additional savings. Swaziland also cut its ARV costs by 27% (compared to 2009 tender prices) between 2010 and 2012, when it introduced ceiling prices, supplier performance data and more reliable quantification methods in its ARV tender process (7).

The Multi-Country Analysis of Treatment Costs for HIV (MATCH), led by the Clinton Health Access Initiative (CHAI), has identified additional opportunities to expand ART coverage and improve patient outcomes without increasing costs in the region. Importantly, a study conducted at 161 ART facilities in Ethiopia, Malawi, Rwanda, South Africa and Zambia showed that ART services were not excessively costly. The original aim of the study was to identify ways to reduce waste, cut costs and save money, but researchers found that facility-level costs—including salaries—were already much lower than anticipated, especially in Ethiopia and Malawi. However, many ART sites, especially smaller ones, were not being used to their full potential (8).³⁸ The World Bank's Public Expenditure Tracking & Quantitative Service Delivery surveys are also being used to determine whether resources and programmes are reaching the intended beneficiaries, and are being used efficiently and effectively.

Exploring new financing options

There is recognition that not all countries have the scope to increase domestic allocations, and that shared responsibility is central to enhancing sustainability. In addition to achieving a reasonable balance between external and domestic sources, countries need to explore options to diversify funding sources and devise funding mechanisms that are more sustainable. The latter would include new

and additional sources of funding, such as additional taxes and levies and social health insurance.

Earmarked taxes or levies for health or specifically for HIV have the advantage of protecting funding from other competing priorities. One example is Zimbabwe's AIDS levy, which was created in 1999 and which involves a contribution of 3% of taxable income from employers and employees. The National AIDS Council manages the funds, about half of which are allocated to Zimbabwe's HIV treatment programme. The levy made it possible to add an estimated 70 000 Zimbabweans to the ART programme in 2012 (9). This inspired Kenya and Zambia to consider a similar mechanism. Kenya's plans include earmarking 0.5% to 1% of standard government revenues to an HIV Trust Fund. Calculations suggest that this mechanism could fill 70% of Kenya's HIV funding gap between 2010 and 2020, after which it could close the gap entirely (10).

Options being considered in South Africa, for example, include additional excise taxes on alcohol, tobacco and unhealthy foods (so-called "sin taxes"), with a portion of the revenue allotted to the HIV and TB response. Malawi is considering applying an airline levy on international flight departures, and a levy on the net operating income or termination fees from international telecommunication traffic (7). Madagascar and Mauritius have been using a levy on air travel tickets, a mechanism that is transparent and equitable and that is simple and cost-effective to collect (9).³⁹ (However, its potential value is best realized in settings with high volumes of air travel such as South Africa.)

Additional levies and taxes, however, should not unfairly burden the poor, while there is a possibility that additional administrative costs may dilute the net benefits. The potential of such mechanisms should also not be exaggerated. An analysis of national case

³⁷. At an exchange rate of 7.4 ZAR/US\$.

³⁸. Average (mean) costs per patient were lowest in Malawi, at US\$ 136 a year. That rose to US\$ 186 in Ethiopia, US\$ 232 in Rwanda, US\$ 278 in Zambia and US\$ 682 in South Africa.

³⁹. Seven other countries around the world have deployed the air ticket levy: Cameroon, Chile, Congo, France, Mali, Niger and South Korea.



studies in the region suggests, for example, that a combination of airline, airtime, tobacco and alcohol levies could bridge Malawi's HIV financing gap for 2012/2013.⁴⁰ However, with that gap projected to widen, the levies would cover a decreasing portion of the shortfall in subsequent years. In Botswana, Namibia and Zambia, the study concluded that substantial financing gaps would persist even after alternative financing options were introduced (11,12).

Risk-pooling arrangements that cross-subsidize healthcare payments in favour of poorer sections of society can help reduce underlying inequality and make it more affordable for poor persons to access health services, including treatment services. A number of options are available, ranging from progressive social insurance schemes to universal national insurance schemes. For example, Rwanda's community-based health insurance scheme, Mutuelles, which was introduced in 1999, ensures

that the healthcare needs of more than 90% of Rwandans are covered with an annual premium of only US\$ 2 per member (13). Lesotho is exploring a social health insurance arrangement to pool resources for health and HIV.

Increased investment by the business sector (including increased provision of HIV and other essential health services to employees), for example, would help reduce some of the current funding pressures. Several mining companies, for example, manage corporate social responsibility initiatives that include HIV components. But there are opportunities for expanding these programmes, for example by using larger, pooled approaches that can boost their impact (14).

For many countries in the region, even the maximum effort to increase domestic funding will not remove the financing shortfalls as they scale

⁴⁰ Calculated at US\$ 82 million.

up HIV programmes. The burden of need eclipses the revenue they can reasonably generate and redistribute via government budgets. Sustained and predictable international assistance therefore remains crucial (1).

External partners also have a major duty to devise new sources of funding support to buttress countries' HIV responses (and health systems more generally). There is potential, for example, in a financial transaction tax or a currency transaction levy. If adopted by the world's largest economies, and if 50% of the new revenue was allocated to development, such a mechanism could raise as much as US\$ 400 billion annually. Closing the estimated US\$ 7 billion gap for HIV in low- and middle-income countries in 2015 would require less than 2% of that amount (1).

Solidarity from high-income countries needs to match the scale and urgency of need in eastern and southern Africa. Very few of them have met the long-standing target of increasing overseas development assistance (ODA) to 0.7% of gross domestic product (GDP). If all high-income countries meet the 0.7% ODA/GDP target, the total

value of ODA could double, and the HIV funding gap could conceivably be bridged.

There are also opportunities to build or extend new alliances, especially with the BRICS countries (Brazil, Russia, India, China, South Africa). These countries can do more to realize their potential for promoting international health and development by advancing the global HIV response. Trade and other forms of collaboration are growing rapidly; extending those partnerships into the public health and HIV arena seems a natural progression.

Longer-term donor commitments could be linked to country partner strategies for setting and reaching levels of domestic investment in their HIV responses specifically and public health more generally. Those targets would reflect anticipated levels of government revenue, the magnitude of countries' HIV burdens, and the goals countries agreed to in the 2011 Political Declaration on HIV/AIDS. Countries would decide on short-term milestones for reaching the financing goals, and donor consortia could commit to fund the financing gaps accordingly.

New routes towards shared responsibility and global solidarity

The African Union's 2011 Roadmap for Shared Responsibility and Global Solidarity for AIDS, TB and Malaria in Africa offers new approaches to enhance shared responsibility and global solidarity around responses to these three diseases. It is based on three pillars: diversified financing; access to medicines; and enhanced health governance (1). The first is geared toward more diversified and sustainable financing models (including financial sustainability plans with clear targets) and for ensuring that development partners align their support with country priorities and meet their commitments. The last pillar involves the use

of strategic investment approaches for scaling up basic programmes, ensuring that investments contribute to health systems strengthening, and supporting communities to claim their rights and participate in the governance of the responses.

Countries need support to implement the African Union Roadmap to diversify sources of funding and close the funding gap with domestic resources; ensure access to medicines through local production and regulatory mechanisms; and improve leadership and governance of the AIDS response.

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7. GENDER AND THE HIV RESPONSE

The contribution of gender inequality and gender-based violence to the HIV epidemic is of grave concern in southern and eastern Africa, where HIV is the leading cause of death among women of reproductive age. Women in the region currently comprise 58% of adults living with HIV and account for 53% of all adult AIDS deaths.

The 2011 Political Declaration set as a target the reduction and eventual elimination of gender discrimination, gender-based abuse and gender-based violence, and an increase in the capacity of women and girls to protect themselves from HIV. However, measuring progress towards this target is difficult because of the multi-faceted dimensions of gender equality and women's rights, and data shortcomings.

Political commitment to reduce gender-based inequality and abuse—especially in relation to the HIV epidemic—has been growing in eastern and southern Africa. Intensified efforts to provide people with knowledge and services that can enable them to protect themselves against HIV infection

have contributed to the observed reduction in new HIV infections (Chapter 1). Legal and other reforms have been introduced to curb violence against women and girls, and several countries have strengthened their efforts to improve women's socio-economic status. However, few of the structural factors that put women and girls at increased risk for HIV infection have been adequately addressed and much more needs to be done to counteract the underlying gender norms and social relations that put people at risk for HIV and deny them the full benefits of prevention, treatment and care services.

Gender inequality and the HIV epidemics in eastern and southern Africa

Gender inequalities can contribute to HIV risk in several ways. Social and economic power imbalances between men and women can trap

Figure 21

Estimated HIV prevalence and deaths among women and men living with HIV in eastern and southern Africa, 2000–2011

Source: UNAIDS

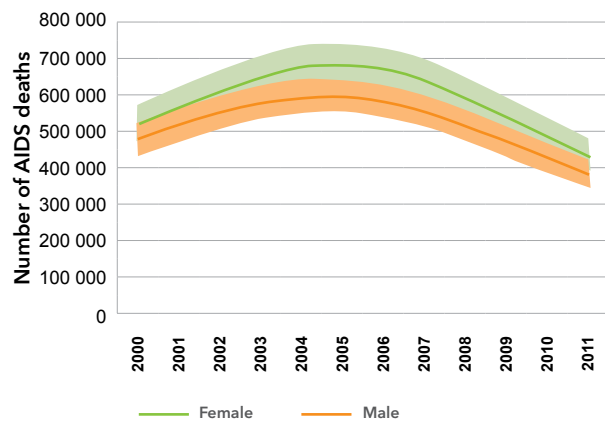
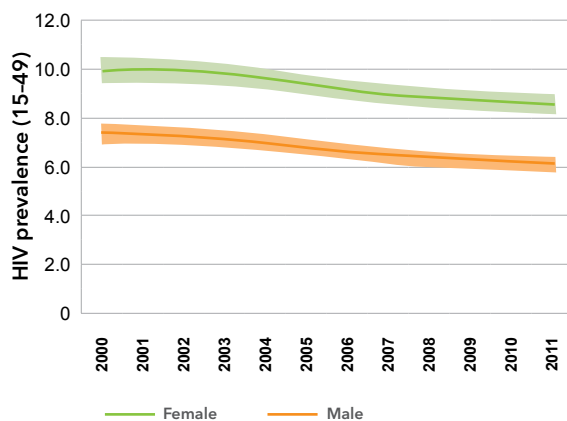
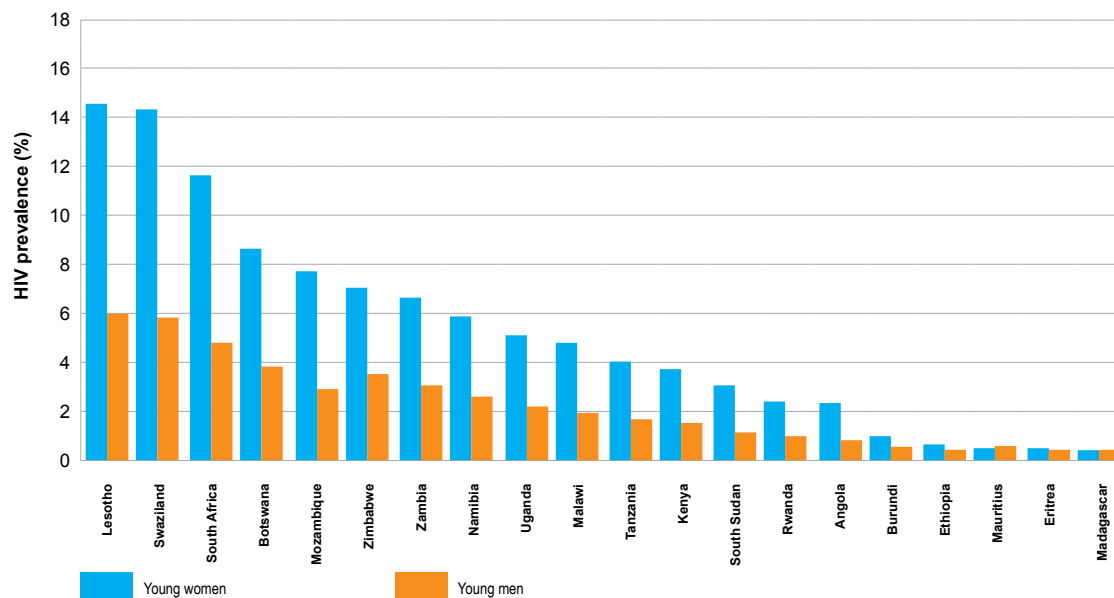


Figure 22

Estimated HIV prevalence among young women and men (15–24 years) in eastern and southern Africa, 2011

Source: UNAIDS



women in economic dependency on male partners, expose them to violence and sexual aggression, and deny them control over their sexual and reproductive lives (1). The vulnerability of young women aged 15–24 years is a particular cause for concern in eastern and southern Africa, with infection levels considerably higher than for young men of similar

age (Chapter 1). In 2011, young women were at least twice as likely to be HIV-infected as their male counterparts in the majority of countries in the region (Figure 22) (2). Prevailing norms of masculinity also increase men’s vulnerability to HIV, encouraging high-risk sexual behaviour and deterring them from seeking health care.

Hidden risks

As the HIV epidemics in the region mature, HIV transmission within long-term and stable relationships is becoming an increasing concern. For example, it is estimated that in Kenya, Malawi and Uganda more than 80% of all unprotected sex acts involving HIV-infected persons occur with spouses or cohabitating partners (3,4), and a recent modelling study has suggested that women are at greater risk than men of acquiring HIV in such relationships (5). Based on data from eastern and southern Africa and some West African countries, the latter study indicates that HIV transmission in discordant couples (where only one person is living with HIV) occurs largely from men to women. Many of the men were infected before entering the relationship,

but the study also estimated that 32–65% of new HIV infections in men in the cohabiting couples were acquired during sex with a person outside the relationship. Among women in cohabiting couples, 10–47% of new infections were acquired during sex with another person. In addition, before entering stable relationships, women often experience periods when they are at high risk of infection (5). However, an earlier meta-analysis suggested that men and women are equally likely to get infected in a discordant relationship (6). The findings of both studies underline the need for long-term partners to know and disclose their HIV status, to be able to share that knowledge with each other, and to be able to negotiate safe sex.

Gender disparities in access to treatment and care programmes

Women's access to HIV treatment varies from country to country in the region, and many women continue to encounter barriers when seeking or initiating ART. Overall, however, ART coverage in eastern and southern Africa is considerably higher among adult women than among adult men: 78% [74–82%] of women eligible for ART were receiving it in 2011, compared with 58% [56–62%] of men (Chapter 4) (7). ART coverage was lower among men than women in all countries in the region in 2011, with the exception of Ethiopia and Mauritius. HIV-testing rates are also consistently lower among men than women, while men tend to access treatment with more advanced disease and show poorer adherence to treatment (8). As a result, AIDS-related mortality rates tend to be higher among men than women on ART in some eastern and southern African countries, including Malawi (9), South Africa (10), Tanzania (11) and Uganda (12).

Integration of HIV services with antenatal care has made it easier for women to access testing, treatment and care services. It is also possible that the opportunity costs of visiting treatment facilities for consultations and medicines may be discouraging some men from starting or continuing on ART (13). Although gender differences in the use of HIV services are more likely to stem from social than from health system factors, health systems can be made more responsive by designing services in ways that enable earlier and easier use by men (14). This is particularly important given that prevailing norms of masculinity tend to discourage men from seeking health care in a timely manner (15,16).

As in most of the rest of the world, the overall maternal mortality ratio (i.e., maternal deaths per 100 000 live births) in this region has improved since the 1960s.⁴¹ However, between 1990 and 2005 the maternal mortality ratio increased in all

southern African countries as a result of the HIV epidemic. Since 2005, when ART became more widely available, that ratio has started to decline again. HIV is one of the leading causes of maternal mortality in the region, however, and in 2010 it was estimated that the proportion of maternal deaths attributed to HIV was greater than 20% in all countries in southern African. It is estimated that, without HIV, maternal mortality would have been 10% lower than the 500 deaths per 100 000 live births in sub-Saharan Africa in 2010 (17).

HIV increases the risk of other reproductive health-related complications, including cervical cancer, which is a common cause of death among women in the region. Cervical cancer screening and management in the region is rare, and in all but two countries in the region there is very little coordinated country action to address this (18). Networks of women living with HIV are starting to address this problem and Botswana, Rwanda, South Africa and Zambia have recently scaled-up access for screening and management of cervical cancer among women living with HIV. The integration of HIV and sexual and reproductive health services must improve in order to increase demand, coverage and outcomes of such services.

Continued gender-based violence

Violence against women, especially in the home, is ubiquitous worldwide, and eastern and southern Africa is no exception. More than 20% of women in Angola, Mozambique, United Republic of Tanzania and Zimbabwe, and more than 40% of those in Kenya and Rwanda, for example, reported that they had been physically or sexually aggressed by their male intimate partners (2). Social norms in many countries still sanction the notions that men should dominate and control women, and that women should submit and not challenge the state of affairs.

⁴¹ The maternal mortality ratio in eastern and southern Africa decreased to an estimated 410 per 100 000 in 2010; see WHO, UNICEF, UNFPA, World Bank. *Trends in maternal mortality: 1990–2010—WHO, UNICEF, UNFPA and The World Bank estimates*. Geneva: WHO; 2012.

Domestic abuse is often regarded as a “private” matter, thus denying millions of abused women the legal recourse and other support they need. These attitudes are not confined to adults; recent research in South Africa has shown that teenagers tend to adopt even more conservative attitudes towards gender roles than older men and women (19).

In addition to violating women’s human rights, violence against women is associated with a heightened risk of HIV infection. Exposure to violence tends to be associated with high-risk sexual behaviour, including multiple sexual partnerships, substance use, transactional sex and prostitution, and less frequent condom use (20,21). Adolescent girls who have been subjected to violence from an intimate partner, or who are in relationships with low equality, face an increased likelihood of acquiring HIV, according to studies conducted in rural South Africa (22) and Uganda (23). Research also shows that young women who were sexually abused in childhood are twice as likely to avoid using condoms compared to their peers who had not been sexually abused (24), and are at greater risk of subsequent HIV infection (25).

Violence, and the fear of violence and rejection by families, can discourage women and girls from disclosing their HIV status, or accessing essential HIV services. Women living with HIV appear to be even more vulnerable to sexual, physical and psychological violence (26), as confirmed by the People Living with HIV Stigma Index surveys (27). Earlier research in the United Republic of Tanzania also showed that young women living with HIV were 10 times more likely to report partner violence, compared with their peers who had not acquired HIV (28). There are also suggestions from some countries in the region of coerced or forced sterilization and/or termination of pregnancy of women living with HIV.

Harmful gender norms, including notions of masculinity that legitimize violence against women

and girls, appear to be highly resistant to change. Nevertheless, some promising initiatives are under way to help reduce violence against women. Evidence from the Stepping Stones programme evaluation shows that interventions that address gender issues can change men’s behaviours. Rural men who attended this 50-hour programme on gender communication and HIV prevention in South Africa’s Eastern Cape province became less violent and had a lower incidence of genital herpes infections, although there was no observed decrease in HIV incidence (29).

Unfortunately, larger-scale systematic interventions are still lacking in most countries. National strategic plans for HIV and AIDS across the region generally fail to prioritize measures to reduce gender-based violence. A recent review of gender policies and actions in the region found that over half of the countries fail to address the elimination of gender-based violence and discrimination in a meaningful manner (30).

Increased capacity of women and girls to protect themselves from HIV

It is difficult to quantify progress in strengthening women’s and girls’ capacities to protect themselves against HIV, although some proxy indicators (such as access to education and comprehensive knowledge of HIV) can offer insights.

Education access and literacy are among the more elemental ways in which gender inequality is manifest. Adult literacy rates vary widely in the region (ranging from a low of 42% in Ethiopia to a high of 93% in Zimbabwe), but they are generally higher for adult men than for women. Only in Botswana, Lesotho and Rwanda was adult literacy higher for women than for men (31).

School enrolment for girls in eastern and southern Africa has improved in the past decades, but girls are still less likely than boys to be attending secondary school in Angola, Botswana, Eritrea, Ethiopia, the United Republic of Tanzania and Zambia (32). These kinds of disparities can affect risks of HIV infection (33). In a rural community in South Africa, for example, women and girls were 7% less likely to acquire HIV for each year of education they attained (34). In Zambia, urban women with more than 11 years of schooling were one third less likely to be living with HIV than their peers with seven or fewer years of schooling (35). Those findings are in line with general evidence that better-educated women are more likely to delay marriage and childbearing, have fewer children, earn better incomes and have greater decision-maker power within relationships (36).

Efforts to strengthen knowledge of HIV, especially among young people, have had an effect in several countries in the region. Recent national surveys have shown that there is little difference in the knowledge levels between young women and young men, although the overall levels of knowledge are still low in several countries in the region (Figure 23) (37).

Figure 23
Comprehensive knowledge among young men and women (aged 15–24 years) about HIV prevention, eastern and southern Africa

Source: Various Demographic and Health Surveys, 2007–2011



Knowing how to prevent HIV does not automatically translate into safer behaviour. Gender inequalities also affect behaviour, and the physiological vulnerability of girls and young women increases their risk of acquiring HIV during unprotected sex. That risk rises rapidly among women in their late teens and early twenties, as they start engaging in regular sexual relationships. In Lesotho and Swaziland, for instance, household surveys showed about 6% of adolescent girls aged 15 to 17 years had acquired HIV—but among women aged 23 to 24 years, HIV prevalence was nearly 30% in Lesotho (38) and more than 40% in Swaziland (39). Men who are several years older and therefore more likely to be infected with HIV will have infected many of those girls.

Interventions that can reduce women's financial dependence on male partners are showing considerable promise. In a study in rural Malawi, girls receiving conditional monthly cash payments were significantly⁴² less likely to be living with HIV, more likely to delay their sexual debuts, had fewer teen pregnancies and were less likely to drop out of school than their counterparts who did not receive the payments (40,41). It appears that the cash transfers reduced HIV risks by keeping girls in school and rendering them less financially dependent on older male partners. This suggests that economic development and anti-poverty programmes that benefit young women can alter the terms on which sexual decisions are made. However, it is not yet clear whether the findings from these studies can be generalized or sustained (42).

Women's and girls' access to HIV services

HIV prevention efforts are showing positive results. Condom use has been increasing in almost all countries in the region, especially among young people, and could be associated with the declining

⁴² HIV prevalence was 64% lower in the intervention arm than in the control arm of the study.

HIV prevalence observed among young people in several eastern and southern African countries between 2000 and 2011 (see Chapter 1) (43).

Reported condom use also appears to be increasing among women aged 15–49 years who have had multiple sex partners in the last 12 months, although overall condom use remains low. Data from national surveys show that only in Lesotho, Namibia, South Africa and Swaziland did more than half of the women and/or men with multiple partners use a condom the last time they had sex (44).

Countries need to invest more in HIV prevention tools that women can control. The female condom is the only female-initiated HIV prevention tool currently available that is both an effective contraceptive and can reduce the risk of transmitting and acquiring sexually transmitted infections. Although female condoms have been introduced in many countries, they tend to be much more expensive than male condoms, and are poorly marketed. As a result, their supply and uptake in countries is insufficient in the majority of countries in the region.

Results of research studies to find an effective, female-controlled, vaginal microbicide to protect women from HIV infection have been varied. The CAPRISA 004 trial conducted in South Africa showed that ARVs such as tenofovir, when used as a microbicide gel before and after sexual intercourse, could be safe and effective in blocking the acquisition of HIV (45). Several microbicide candidates have been tested in clinical trials, and results thus far underline the critical importance of adequate adherence. A major prevention trial in South Africa, Uganda and Zimbabwe—the VOICE study⁴³—tested three products that required daily use, and none proved to be effective in preventing HIV in young, unmarried women—mainly because of poor adherence (46). The effectiveness of microbicides may be facilitated by vaginal rings that contain one

or more ARVs and that would be replaced monthly (rather than requiring daily use or before sexual intercourse).

Women's access to other HIV-related services, such as testing and counselling, still varies considerably, but women tend to be much more likely than men to take an HIV test. In Mozambique, for example, women were more than twice as likely as men to have taken an HIV test and received the results in the previous year (47), and in Zambia they were 1.5 times more likely than men to have done so (48). This is probably because testing and counselling services are offered at antenatal clinics. However, even in mass testing campaigns (as in South Africa, where some 13 million HIV tests were conducted over a 15-month period in 2010–2011) (49), fewer men than women took an HIV test.

Stronger policies and laws are in place

At the policy level, progress has been made with the enactment of important commitments to address gender inequality and HIV. The Southern African Development Community (SADC) Protocol on Gender and Development was signed in 2008, and legally compels SADC member states to improve efforts to promote gender equity in the region. Article 27 states that parties shall take every step necessary to adopt and implement gender-sensitive AIDS policies and programmes, and enact legislation that will address prevention, treatment, care and support. These actions must take into account the unequal status of women, the particular vulnerability of the girl child, as well as harmful practices and other factors that put women at increased risk of infection. A similar protocol on gender and development is being developed for East Africa.

⁴³. VOICE = Vaginal and Oral Interventions to Control the Epidemic.

A growing number of countries (most recently Angola, Kenya, Malawi and Swaziland) now have specific legislation to address domestic and/or sexual violence. Some countries are still lagging behind: Comoros, Ethiopia, Madagascar, the Seychelles and the United Republic of Tanzania, for example, still lack legislation for tackling domestic violence, and Ethiopia also lacks specific sexual violence legislation. Even where such laws and policies have been introduced, their enforcement is often a challenge.

Nearly all countries now include women-focused initiatives in their national AIDS strategies. However, country reports show varied understanding of what it means to “include women” in national AIDS responses, suggesting that current approaches may be only partial, inadequately rights-based and inadequately focused on the meaningful involvement of women and girls. Very few countries in the region (among them Eritrea, Kenya and Malawi) have fully costed and budgeted HIV-related activities in their national strategic plans for advancing gender equality. And only about half the countries’ national strategic plans include interventions that promote men’s and boys’ access to sexual and reproductive health services in order to ensure shared responsibility with women and girls (30).

The disproportionate burden of care borne by women and girls has to be reduced. Home- and community-based care models are less expensive than formal health services, but mainly because many of the considerable costs they entail are displaced onto caregivers, patients, and their kin. Those costs include expenditures on medicines, health service fees and transportation, the opportunity costs of lost earnings or abandoned education, as well as trauma and stress. Caregivers need more and better-coordinated support (in terms of materials, training and referrals) from formal health services. Governments and donors should also provide stronger economic support to caregivers and their dependants (including regular

cash transfers), along with structured psychosocial support.

Other priorities include the collection and analysis of more robust gender- and age-disaggregated data, and a clearer demonstration of how resources are being allocated to support women and girls, and promote gender equality in the HIV response.

The barriers posed by gender inequalities are formidable, but efforts to remove them have increased. Evidence points to several ways in which further progress can be made. Much more effective interventions are needed to combat gender-based violence and enhance women’s access to integrated HIV and sexual and reproductive health services. Projects that involve strong community engagement—and that also engage men and boys—have been shown to alleviate HIV-related stigma and discrimination, and to reduce sexual risk-taking and gender-based violence (50). Promising strategies such as conditional cash transfers to young women should be explored further, as should other ways of increasing the economic empowerment of women and girls. Actions that boost school attendance and increase access to school-based HIV and sexual health information and support are also critical elements of an effective HIV response.

Most of the factors that put women and girls in eastern and southern Africa at increased risk for HIV infection also deprive them of their rights and harm their life chances more generally. Many of the same actions that can help reduce women’s vulnerability to HIV therefore are also needed to safeguard their rights and improve their quality of life overall. Meanwhile, some of the prevailing ideas about masculinity that generate gender inequalities in the region also put men’s health at risk. Substantial social and psychosocial changes are needed to remedy the destructive effects of gender inequality in the region.

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8. STIGMA, DISCRIMINATION AND THE LAW

The need to defuse HIV-related stigma and discrimination is widely recognized in eastern and southern Africa. While there are signs that stigma is decreasing, it will require extraordinary leadership, will and effort to eliminate stigma and discrimination against people living with and affected by HIV.

Most countries' national strategic plans for HIV contain commitments to a rights-based response to HIV, and countries increasingly are introducing laws and policies that can help eliminate stigma and discrimination. However, actual programmatic steps to address HIV, laws and human rights are not being implemented everywhere. The enforcement of such policies and laws, and access to justice for people whose rights have been violated, remains inadequate. These shortcomings are aggravated by the use of punitive approaches to HIV responses in some countries.

Stigma and discrimination remain problematic

Fear and ignorance continues to surround the HIV epidemic, fuelling stigma and discrimination, and even abuse and violence. The ongoing realities of HIV-related stigma and discrimination in the region are confirmed by surveys done among people living with HIV in Ethiopia, Kenya, Malawi, Rwanda, South Africa, Swaziland, United Republic of Tanzania and Zambia to compile national Stigma Indexes (1).

A third or more of the respondents in Ethiopia, Malawi and Zambia said that they had been verbally or physically aggressed (1). Almost one in

five (17%) respondents in Ethiopia (2) and 5% of those in Zambia (3) said they had been detained, quarantined or segregated due to their HIV status. In Zambia, about 15% of the surveyed persons living with HIV said that access to antiretroviral treatment had been made conditional on their using contraceptives (3).

Stigma and discrimination in work settings remain a serious concern in many countries in the region. About 30% of surveyed people living with HIV in Ethiopia and Kenya (4), and 17% of their peers in Zambia, said that they had been refused employment or work opportunities in the previous 12 months because of their HIV status. Exclusion from family and social activities such as weddings and funerals is a common problem in all the surveyed countries; in Kenya and Zambia, for example, between 20% and 30% of the respondents said they had been barred from a family or religious event in the previous year. Many of the respondents appear to have internalized the stigma, with half or more of the respondents in Ethiopia, Kenya and Zambia saying they blamed themselves for being infected with HIV, and 35% of those in Malawi saying they deserved punishment (1).⁴⁴

Key populations at higher risk of HIV infection often experience intense and generalized stigma and discrimination (discussed in more detail in Chapters 1 and 2) and are likely to be marginalized and criminalized in many countries in the region (Table 9), which increases their exposure to routine harassment and abuse.

There have been important positive developments in the region. According to the People living with HIV Stigma Index survey in Ethiopia, levels of

⁴⁴ Performing a Stigma Index study in a country is an important first step to understand and address issues related to stigma. In this report, reference is made to those countries that have conducted such studies and that have relevant data.



stigma have declined in recent years, and the vast majority of respondents in a survey conducted in South Africa's Eastern Cape province said that they had disclosed their HIV status to partners (87%), family members (82%) and even friends and neighbours (46%) (5).⁴⁵ Large proportions of people living with HIV in some countries (for example, more than 60% in Kenya) reported that they feel empowered enough to challenge individuals who stigmatize or discriminate against them.

People living with HIV continue to lead the way in combating HIV stigma and discrimination. In Namibia, for example, three women living with HIV who had been sterilized without their consent brought a case which led to a landmark High Court ruling in July 2012 requiring medical practitioners to obtain informed consent before performing such a procedure. Legal challenges were mounted recently also in Zambia against mandatory HIV testing of military personnel (6).

While the available information indicates that stigma against people living with HIV is generally decreasing, some countries still lack systematic information about the extent and nature of stigma and discrimination, and several have not yet compiled a national Stigma Index, which needs to be encouraged in all countries.

Laws that protect people living with HIV

Eliminating stigma and discrimination requires a bedrock of laws that can help safeguard human rights, empower people living with HIV, and promote social norms of tolerance and solidarity.⁴⁶ Anti-discrimination laws, for example, can play important roles if they indeed provide meaningful protection. That requires broad-based public education and awareness raising about the human

⁴⁵ Note that the South African survey was conducted in only one district in the Eastern Cape province.

⁴⁶ For example, countries such as Ethiopia, Kenya, United Republic of Tanzania and Zambia have compiled Stigma Indexes, yet have restrictive legislative environments that do not favour an effective HIV response.

rights of people who are at higher risk of HIV infection and of people who are living with HIV.

National HIV responses should include key programmes to reduce stigma and discrimination, monitor and reform laws and regulations relating to HIV, boost legal literacy, train healthcare providers on human rights and medical ethics, and sensitize lawmakers and law enforcement officials to HIV-related issues (7).

Enforcement mechanisms, including access to legal advice and representation for people whose rights have been violated, also need to be created or strengthened. Many people who have experienced HIV-related discrimination do not know where or how to seek legal redress. More than 70% of respondents in national Stigma Index surveys in Malawi did not seek legal redress after experiencing rights violations, and in Zambia over half of those who had sought legal redress said their efforts had proved fruitless. Rwanda and South Africa appear to be among the few countries in the region to have made it significantly easier for people to seek and achieve redress for rights violations (1). In South Africa, almost one in five people who had experienced discrimination from government or health officials said they had sought legal redress (5).

Substantial proportions of people subjected to rights violations did not know that their rights had been violated; in Swaziland, one in three respondents of the Stigma Index surveys were not sure whether their rights had been violated, as were one in five of their peers in Zambia (1). Basic human rights awareness and education appear to be lacking in parts of the region.

National strategic plans have to make provision for creating an enabling legal environment and increased access to justice, such as the provision of legal support services. These programmes should be costed and adequately monitored and evaluated. Training of law enforcement officials and the

judiciary is particularly important for strengthening the enforcement of anti-discrimination and other human rights laws and policies. Some efforts are under way in the region, including a UNAIDS-supported project to integrate key legal and human rights issues in national strategic plans.

Punitive approaches are still being used

Some countries have legal provisions that work at cross-purposes. Laws that seek to safeguard people's rights in certain respects operate alongside laws, regulations or policies that expose people to prosecution and harassment, and that compromise their access to potentially life-saving services. The latter types of legal provisions exist in close to half of the countries in eastern and southern Africa; in some instances the HIV law protects against discrimination, but at the same time includes a broad criminalizing provision.

- In 2012, laws that specifically criminalize HIV transmission existed or were being drafted in Angola, Kenya (2006),⁴⁷ Madagascar (2005), Mozambique (2009), United Republic of Tanzania (2008), Zambia and Zimbabwe (2004) (8). In Uganda, the criminalization of HIV transmission is currently proposed in a Bill. In addition, the wording of certain laws is ambiguous enough in several other countries to allow for conviction or aggravated sentencing for transmitting HIV (including in Botswana, Ethiopia and Swaziland) (8).
- Men who have sex with men are among the most stigmatized key populations in the region. They routinely face homophobia, harassment and discrimination from police, health workers, community members and even their own families (see Chapter 1) (9). Underpinning such treatment is the fact that sexual intercourse

⁴⁷ The date in parenthesis refers to when the law was enacted.

Table 8

Current status of laws affecting people living with HIV and key affected populations in eastern and southern African countries

Country	Laws criminalizing HIV non-disclosure, exposure or transmission (13)	Sex between men criminalized (14)	Sex work criminalized (15)
Angola	No	Yes	No
Botswana	No	Yes	Yes
Comoros	No	Yes	Yes
Eritrea	Unknown	Yes	No
Ethiopia	No	Yes	No
Kenya	Yes	Yes	Yes
Lesotho	No	Yes	Yes
Madagascar	Yes	No	No
Malawi	No	Yes	No*
Mauritius	No	Yes	Yes
Mozambique	No	Yes	Yes
Namibia	No	Yes	No*
Rwanda	No	No	Yes
Seychelles	No	Yes	Yes
South Africa	No	No	Yes
South Sudan	Unknown	Unknown	Unknown
Swaziland	No	Yes	Yes
Tanzania	Yes	Yes	Yes
Uganda	No, but proposed in Bill	Yes	Yes
Zambia	No	Yes	Yes
Zimbabwe	Yes	Yes	Yes

between consenting men is illegal throughout the region—except in Madagascar, Rwanda and South Africa (10).

- Similarly, a majority of countries in the region deem some or other aspect of sex work to be illegal, a stance that is often used to justify harassment, extortion and violence against sex workers by police and clients, which places them at increased risk of HIV infection (10). The only countries in the region that do not criminalize sex work are Angola, Eritrea, Ethiopia, Madagascar, Malawi and Namibia.⁴⁸ Even in these countries, sex workers still experience harassment and violence, including by the police. Decriminalization of sex work is an important objective, but in the meantime other progress is also feasible. Some sex worker organizations in Kenya and South Africa, for example, are working towards pragmatic arrangements with law enforcement services

in order to enhance sex workers' access to HIV prevention and treatment services (11). It is not clear which, if any, other countries in eastern and southern Africa are following a similar course.

- Every country in the region has punitive laws and policies pertaining to the use of certain drugs. Laws that criminalize the possession and use of drugs and drug-injecting paraphernalia, along with aggressive drug law enforcement practices, drive individuals away from public health services and into hidden environments where HIV risk increases. Punitive drug law enforcement practices also create barriers to HIV testing and treatment (including stigma and discrimination in healthcare settings, refusal of services, breaches of confidentiality, requiring that an individual be “drug-free” as a condition of treatment, and more). Prohibitions or restrictions on opioid

⁴⁸ Although Malawi and Namibia do not have national laws that criminalize sex work, they do have municipal bylaws that prohibit “loitering”, and these can be used against women who are suspected of being sex workers.

substitution therapy and other evidence-based treatment result in untreated addiction and avoidable HIV risk behaviours. Internationally, the evidence shows that countries or jurisdictions that have legalised comprehensive harm reduction services that include needle exchange and opioid substitution therapy have significantly reduced HIV infections among people who use drugs, compared with persistent or increasing rates of infection in countries or jurisdictions where such services are restricted or blocked by law (12).

The Global Commission on HIV and the Law recommends that countries refrain from explicitly criminalizing HIV exposure, non-disclosure or transmission, and take steps to remove punitive or discriminatory laws and policies regarding key populations (12). At the moment, however, many countries' national strategic plans do not explicitly acknowledge the range of laws that possibly hinder access to HIV services that may require review and reform, such as laws that criminalize HIV transmission, or the activities of certain key populations.

The review and reform of such laws and regulations—or at the very least the manner of their enforcement in the context of the HIV response—is urgently needed. But removing such obstructions from the statute books alone is not enough to change long-standing habits and practices. Strong advocacy and forthright leadership are needed from political, religious and community leaders—especially at local levels—to end practices that prevent people from exercising their right to health. An enabling rights-based legal and policy framework that is founded on evidence rather than on misplaced moral and pseudo-religious considerations also need to be ensured. There have been encouraging developments in recent years, with various legal reviews and law reforms under way in the region. An HIV Bill being developed in the East African Community, for example, could

provide protection for people living with HIV once it is enacted.

Moving towards 2015

The persistence of stigma, discrimination and punitive laws in the region underscores the need for greatly expanded action to anchor HIV responses in human rights. Experience has shown that where stigma and discrimination are reduced and people's rights are upheld, people are more likely to get tested for HIV (16), and initiate and adhere to ART. The quality of HIV care by family members and friends also improves when stigma is low (17).

All national strategic plans in the region feature commitments to a rights-based HIV response, but actual programmes to advance these commitments are lacking in several countries. However, most national strategic plans do provide for broad-based and community-level programmes to reduce stigma and discrimination, and some of those programmes are being integrated with healthcare services, particularly HIV prevention services (18). Such efforts should be supplemented with concerted actions that address the needs of key populations and other vulnerable groups. In addition, access to justice programmes for people living with HIV and key populations at higher risk of HIV infection should be expanded alongside concerted awareness and mobilization campaigns with community leaders.

Countries need to show stronger resolve in addressing the underlying factors that fuel stigma and impede people's access to HIV and other health services. That would include undertaking legal reforms, strengthening the enforcement of protective laws and improving access to justice. In doing so, countries need to adopt approaches that place the concerns, leadership and health of people living with HIV at the heart of their HIV responses.

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9. ELIMINATING RESTRICTIONS ON ENTRY, STAY AND RESIDENCE

All the countries in eastern and southern Africa have abandoned the discriminatory practice of imposing HIV-related travel restrictions. However, two countries—Comoros and Mauritius—still have restrictions of stay and residence for people living with HIV.

Some countries did impose restrictions in the early years of the HIV epidemic, when little was understood about HIV prevention, and when effective HIV treatment did not yet exist. In almost all cases in the region, those restrictions were eventually abandoned. The restrictions were recognized to be neither reasonable nor functional, particularly in a world where HIV now exists in every country, people living with HIV are capable of living long and productive lives, and freedom of movement has become an intrinsic facet of economic activity. Namibia is a recent example; it removed its restrictions in July 2010.

As in other regions, some small island countries that offer free health care to citizens are concerned

that this might attract people seeking free HIV treatment, thus distorting their healthcare budgets. Indeed, many governments around the world require health checks on people immigrating or migrating to a country, and require tests for various health conditions. However, restrictions that single out HIV for special treatment are discriminatory. Governments should treat all chronic health conditions alike. Where there are valid human rights or humanitarian claims, these should trump economic considerations. This would apply, for example, to asylum-seekers, people trying to reunite with family, and those whose health status is so compromised that their life depends on immediate access to life-saving medication.

These human rights considerations have prompted some small island countries in other regions to rethink aspects of their immigration policies. Fiji, for instance, lifted its HIV-related restrictions in 2011—an example that may inspire similar action in the two remaining countries in eastern and southern Africa that have such restrictions.

10. INTEGRATION

The HIV epidemics in eastern and southern Africa must be considered within broader health and social contexts (1). The great majority of people living with HIV in the region acquired the virus through sexual transmission or as a result of pregnancy, childbirth and breastfeeding. HIV infection is also associated with a range of other diseases and health complications, including TB and other opportunistic infections, sexually transmitted infections, and various cancers. While HIV prevention and treatment have often been addressed with separate or isolated policies and service delivery approaches, closer linkages and integration have the potential to increase the access, use, effectiveness and sustainability of services by answering multiple needs in more patient-friendly and functional ways (2).⁴⁹

Epidemiological and health system contexts should guide efforts to improve service integration. The main goal should be to provide streamlined service delivery that ensures that individuals have access to the appropriate combinations of skills, services and commodities that they need.

There is a growing body of evidence showing that integration of HIV with other health services is both feasible and desirable. ART services, for example, have been widely integrated into primary healthcare centres in eastern and southern Africa, as has paediatric HIV treatment and care (3). The clinical outcomes are generally positive and there are indications that integration has reduced some of the pressures on tertiary health facilities (see

Chapter 4). Also in widespread use is the practice of task shifting, which is helping to relieve some of the work burden for various tiers of healthcare workers. While the available evidence supports integration as a desirable and feasible option, more high-quality evidence is needed on its effectiveness and efficiency (4).⁵⁰

Better integration of HIV and TB services is needed

Integration of services related to HIV and TB is essential. The risk of developing TB is estimated to be between 20 and 37 times greater among people living with HIV than among those without HIV, and TB is the primary cause of death among people living with HIV (5). WHO estimates that scaling up collaborative HIV and TB activities worldwide prevented 1.3 million people from dying of AIDS-related causes between 2005 and 2011 (see Chapter 5) (6).

Collaborative activities to reduce the burden of TB/HIV co-infection were added to the WHO Stop TB Strategy almost a decade ago (7). The number of health facilities with integrated HIV and TB screening, diagnosis and treatment has rapidly increased since 2005, with important progress in eastern and southern Africa, the region with the highest prevalence of HIV and TB co-infection (8).

Initially, a lack of data to inform policies, as well as weak infrastructure and concerns about over-burdening personnel hampered integration of

⁴⁹ The terms “linkages” and “integration” are often used interchangeably (including in journal literature), but this can lead to confusion. Strictly speaking, “linkages” refers to the links between various policies, health system management and coordination structures, and healthcare providers and facilities. For example, a standard procedure for referring TB patients for HIV testing and counselling at another facility constitutes a “linkage”. “Integration” occurs when different kinds of services or operational programmes are offered at the same facility and are delivered through one service (full integration) or are referred from one service to the other (partial integration). See Foreit KGF, Hardee K, Agarwal K. When does it make sense to consider integrating STI and HIV services with family planning services? *International Family Planning Perspectives*, 2002; 28(2):105–107.

⁵⁰ In particular, there is a shortage of studies to evaluate the processes and impact of integrated services, and a shortage of data on key outcomes. This is likely to change in the near future, due to increasing interest in the topic.

HIV and TB services. Those difficulties have been largely overcome (9). In rural Swaziland in 2009, for example, intensified case finding of TB among HIV patients at a hospital and clinics was found to be operationally feasible and effective, and became a routine feature of TB and HIV integrated care (10). Similarly, a recent Kenyan study found that advanced HIV disease can be managed successfully in integrated TB/HIV clinics in rural areas; treatment outcomes improved over time, with the proportion of patients lost to follow-up falling by two thirds over five years (11).⁵¹ HIV and TB integration efforts also appear to increase service uptake. Integration of services for treating the two diseases in primary healthcare facilities in Zambia led to a 38% increase in enrolment in the ART programme of people who were co-infected with HIV and TB (12).

Positive experiences have encouraged more systematic and extensive integration efforts. South Africa in 2012 launched an integrated five-year strategy to address HIV, TB and sexually transmitted infections. HIV and TB, including their gender and rights dimensions, are also being mainstreamed into the core mandates of all government departments.

Modelling studies show that the 2011 Political Declaration target of reducing TB deaths among people with HIV by half by 2015 can be reached only if HIV and TB services are integrated at every level of the health system. Some modelling suggests that even greater results can be achieved. According to a 2010 study, testing for HIV and TB every three years in high-prevalence settings together with provision of treatment and prevention therapy for HIV and TB could reduce deaths by 80% by 2015 (13).

Integration involves challenges, though, and a recent systematic review of integrated TB and HIV services concluded that close integration (i.e. going beyond referral-based approaches)

requires increased staff training and additional infrastructure (14).

Furthermore, TB during pregnancy doubles the risk of mother-to-child transmission of HIV, and in places where TB and HIV are prevalent, children living with HIV are at high risk of developing TB. Therefore, TB and HIV services should also be integrated with antenatal care: all pregnant women should be examined for signs and symptoms of TB and should be provided with treatment if needed.

UNAIDS and its partners are calling for the full integration of TB and HIV services: every person living with HIV should be tested for TB, every person with TB should be offered an HIV test, and people with TB who are HIV-positive should be started immediately on ART.

HIV should be integrated with sexual and reproductive health services

The integration of HIV and sexual and reproductive health service delivery, including family planning services, has found wide support in eastern and southern Africa. A review of data from the Global Fund indicated in 2009 that about 94% of HIV programmes supported sexual and reproductive health-related activities (15). A systematic analysis of 35 studies⁵² (half of them from sub-Saharan Africa) in 2010 found many mutual benefits, including reduced incidence of HIV and other sexually transmitted infections, increased condom use and uptake of HIV testing, and improved service quality. The study concluded that it was both beneficial and feasible to link HIV and sexual and reproductive health services (16). Individual studies in Kenya (17), South Africa (18), Uganda (19) and Zambia (20) have shown that condom use

⁵¹. Proportions of patients lost to follow-up improved from 36% in year 1 to 12.5% in year 5.

⁵². A total of 185 studies from across the world were reviewed; 35 were analysed.

increased and pregnancies decreased when family planning was included as part of routine HIV services, and vice versa. Data from Rwanda showed that integrating HIV interventions with primary healthcare services improved patients' reproductive health (21). It is also likely that integrating family planning into ART services would make family planning services available to a broader range of clients, such as men and young people (22).

These experiences confirm the importance of the African Union's 2006 "Maputo Plan of Action" (23), which committed Member States to strive for universal access to sexual and reproductive services (including family planning) and to recognize and support the contribution of those services to HIV prevention efforts. Member States reaffirmed their support for the Plan of Action in July 2010.

There is considerable scope for expanding such integration. Clinic surveys in Kenya, Namibia, Rwanda, Tanzania and Uganda between 2006 and 2010, for example, found that almost one in five facilities offering family planning services did not normally stock condoms (24). More can therefore be done to seize the opportunities and realize the full benefits of closer integration.

Closer integration of HIV with maternal and child health

The massive effort to eliminate mother-to-child transmission of HIV (eMTCT) and keep mothers alive has strengthened maternal and child health services in the region (21,25). Services to prevent new HIV infections among children have been integrated into maternal and child health services in the region's 14 priority countries⁵³ that form part of the Global Plan towards the elimination of new HIV infections among children by 2015 and

Spreading the gains

The European Union is supporting a joint UNAIDS/ UNFPA regional initiative to promote linkages between HIV and sexual and reproductive health and rights policies and services in Botswana, Lesotho, Malawi, Namibia, Swaziland, Zambia and Zimbabwe. The project includes support for integrating HIV and sexual and reproductive health in national health and development strategies, plans and budgets. Early findings from Malawi suggest that fewer patients are dropping out of HIV treatment (services are now provided five days a week during normal clinic hours), utilization of family planning services has increased, and task sharing among health service providers has reduced workloads. There has also been an increase in the number of men who accompany their wives to antenatal care and receive counselling for sexual and reproductive health and HIV for couples.

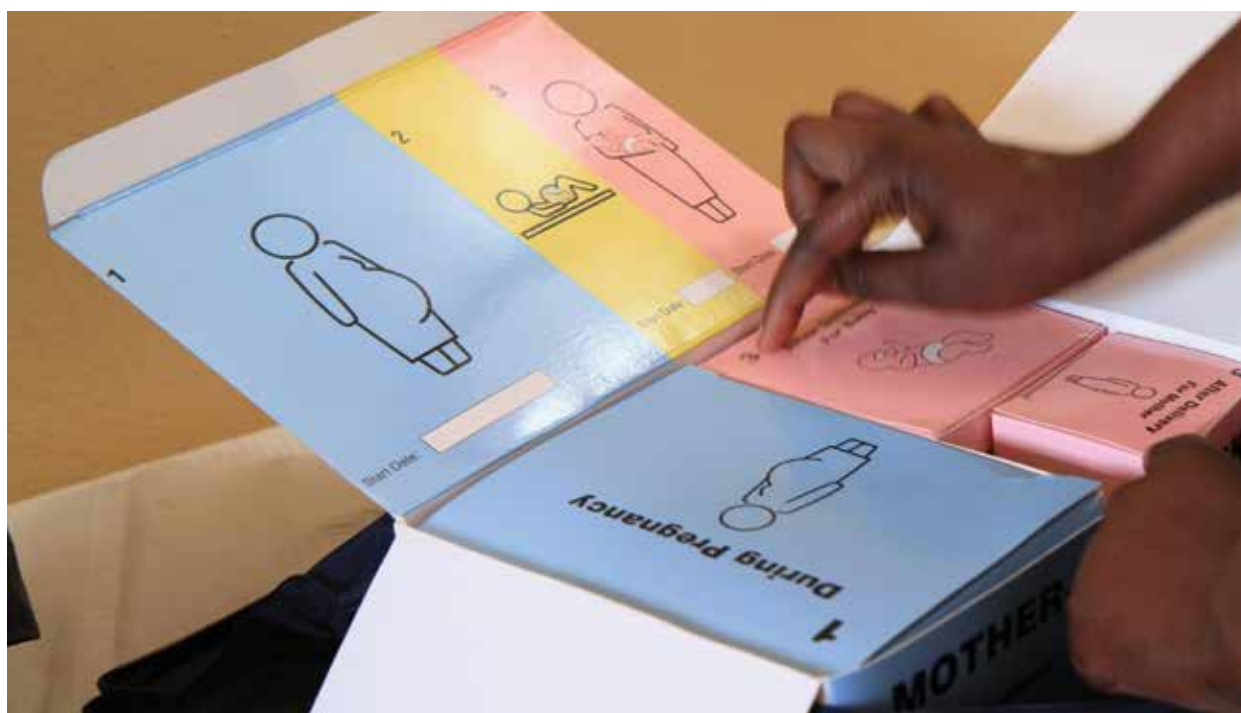
keeping their mothers alive (26). Conversely, efforts are under way to integrate maternal and child health services more deeply with HIV services.

The potential gains are huge. The overall maternal mortality ratio in sub-Saharan Africa declined in recent decades—by 41% between 1990 and 2010—but was still unacceptably high at 500 per 100 000 live births in 2010. In most southern African countries,⁵⁴ the maternal mortality ratio increased between 1990 and 2005 because of the HIV epidemics, but has been declining since 2005 due to the provision of ART (27).

Modelling studies indicate that integrated provision of eMTCT services can reduce vertical transmission of HIV by more than 80%, depending on the type of services (28), and can significantly improve the health and the survival rates of mothers and children (29). Strengthened links between the eMTCT campaign and maternal and child health programmes in South Africa have helped reduce

⁵³ Angola, Botswana, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, United Republic of Tanzania, Uganda, Zambia and Zimbabwe.

⁵⁴ Botswana, Lesotho, Namibia, South Africa, Swaziland and Zimbabwe.



the mother-to-child transmission rate of HIV significantly, especially at local levels (see Chapter 3). A recent review of 10 studies in Botswana, Ethiopia, Kenya, Malawi, Uganda and Zimbabwe found that integrating provider-initiated HIV testing and counselling into antenatal settings increased testing levels by 10–66%, with testing uptake exceeding 85% in eight of the studies (30). Higher testing rates mean that more people are aware of their serostatus, and those who are HIV-positive can be enrolled in HIV care and can take the necessary precautions to protect their partners from infection.

HIV treatment is increasingly being initiated and delivered through maternal health systems, with key tasks being shifted to midwives and nurses (31). This is a highly promising approach with the potential to improve ART take-up, retention and adherence (32). Integrating ART into antenatal clinics has been associated with higher treatment rates in Zambia (33) and with earlier treatment initiation in South Africa (34). More generally, a

recent Cochrane review concluded that integrating HIV prevention and treatment services with maternal and child health, and family planning services was feasible and had a positive impact on health outcomes (35).⁵⁵

Capitalizing on these gains requires expanding access to facility-based antenatal care, more solidly linking HIV and antenatal care services, and improving systems for procurement and supply chain management. Surveys in the United Republic of Tanzania and Uganda in the late 2000s suggested that the potential benefits were not being fully exploited; fewer than 40% of the antenatal care units surveyed offered HIV counselling, and only 20–25% of the units offered HIV testing. Similarly, surveys done in Kenya, Namibia, Rwanda, Uganda and the United Republic of Tanzania, also in the late 2000s, found a surprising lack of routine HIV testing during consultations on sexually transmitted infection, as well as a lack of counselling and dissemination of condoms (36).

⁵⁵ Importantly, the review also noted a need for more rigorous research that compares the outcomes of integrated services with those of non-integrated services.

HIV and non-communicable diseases

Additional linkages between HIV and other health risks are becoming important as more people with HIV receive ART and have longer survival times. Depending on their specific drug regimens, they might face higher risks of some non-communicable diseases than the general population, and there are indications that some ARV drugs may increase the risk of heart disease and diabetes. Consequently, the organization FHI360 has added services for non-communicable diseases to existing HIV programmes in Kenya (37), and South Africa has embarked on an integrated testing campaign that focuses on HIV, high blood pressure and diabetes (38). In Ethiopia (37), lessons learned about the HIV response are now informing the clinical management of diabetes, after a pilot study demonstrated the benefits of adapting tools and approaches used in an HIV clinic to support diabetes services (39).

HIV infection is also associated with increased risk of some types of cancer, including cervical cancer (40). Over 80% of new cases and deaths due to cervical cancer occur in low- and middle-income countries (41), and some of the highest rates of cervical cancer in the world are found in eastern and southern Africa (42). Yet a minority of women living with HIV is screened for cervical cancer and only a small fraction of the women who are screened receive appropriate treatment.

HIV and cervical cancer needs should be addressed in integrated ways, including through HIV testing for women who test positive for cervical cancer, and cervical cancer screening for women who test positive for HIV (43). This could address multiple health needs of women simultaneously, increase cancer screening rates, and ultimately reduce the number of women who develop cervical cancer.

Studies in Botswana (44), Kenya (40), Mozambique (45) and Zambia (46) found that integrating cervical cancer screening with a variety of HIV services was feasible and was associated with high rates of screening uptake.⁵⁶

HIV and social protection systems

HIV infection rates have persistently aligned with various forms of social disparity (47), and there is strong recognition in eastern and southern Africa that HIV responses have to link with broader socio-economic support and redress.

These kinds of linkages are being made in South Africa, for example, where the HIV and TB responses are underpinned by a range of supportive programmes, which other sectors implement and finance. Some are geared at safeguarding food security, while others seek to improve employment prospects (for example, by an expanded public works programme) and extend social protection networks. Especially important for women and girls is an extensive welfare grant system that supports 15.2 million South Africans, among them the 11.1 million mothers and children who receive a child support grant. Research shows that the latter grant reduces poverty and gender inequality, improves school enrolment and performance, boosts recipients' health status, and reduces several risky behaviours (including unprotected sex, alcohol abuse and drug use) among adolescent grant recipients (48). In Malawi, cash transfers to girls have been associated with lower HIV infection rates and a host of socio-economic improvements. A recent review by the World Bank of some 120 conditional cash transfer programmes in sub-Saharan Africa (49) has highlighted the potential benefits of this form of social protection (see Chapter 7).

⁵⁶ None of these studies was controlled or randomized.

HIV and the wider health system

Integrating HIV and other health services has the potential to achieve significant economic and health benefits. Technical efficiency (the provision of services at low cost) and allocative efficiency (improved health outcomes at a low cost) can be gained through economies of scope and scale, making integrated service delivery more cost-effective. A recent systematic literature review of the integration of HIV services with health services (including TB services, general health services, and family planning services) found strong evidence that the integration indeed was cost-effective. The most robust findings of cost-effectiveness and cost-savings were in relation to clinical service packages, i.e. integrated TB/HIV services or when HIV testing was integrated as part of programmes to prevent mother-to-child transmission of HIV (2).

Integrating HIV responses with other health and development efforts has the potential to increase access to a wider range of services that respond to the multiple needs of men, women, young people and children. Many of the mutual benefits are evident in eastern and southern Africa, where HIV responses have helped strengthen health systems in several ways:

- Access to many pharmaceutical goods and other medical technologies has become less restrictive and more affordable.
- Laboratory and blood safety services have been strengthened.
- Chronic care systems have become more flexible and resilient (39).
- HIV services integrated with other health services have been found to be more cost-effective than single-standing approaches, including for voluntary counselling and testing (2).
- The principle of patients' rights has been affirmed to an extent that was rare before the HIV epidemic started, and there is much

stronger community involvement in health services.

- Entire cadres of health and community workers have been trained and networked with other health and social services (50).
- Health information and monitoring and evaluation systems have improved. HIV investments have galvanized basic and clinical science initiatives in the region, including the search for an HIV vaccine, and South–South and North–South collaborations have flourished.

Integration, however, also carries some risks. Without the broader support of a robust health system, expecting an already over-stretched and under-resourced health workforce to deliver a wider range of services without sufficient training and resources could undermine the quality of care for HIV services, specifically, and for health services more widely (51). Examples of integration are increasing, but rigorous analysis of how best to integrate HIV programmes and services is lacking, partly because of the complexity of the issue.

As different models of integration are tested, the assessment and analysis of their performances demands more attention. Indicators for measuring the integration of HIV into the general health and development spheres in countries are needed, as are methods for integrating the monitoring and evaluation systems of different service channels and platforms.

It is vitally important to develop a knowledge base of guiding principles that can underpin decisions about how best to join aspects of programme or service delivery in ways that respond to the needs of individuals and that make effective and efficient use of resources. HIV and health programme planners and implementers require more specific guidance and insights into the opportunities and experiences of integrating HIV with other health services.

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ANNEXURES

Annexure 1

Trends in the estimated numbers of people living with HIV, new HIV infections and AIDS deaths by country 95

Annexure 2A

Estimates of the status of the HIV epidemic (with uncertainty bounds) in 2011 100

Annexure 2B

Estimates of the number of people receiving antiretroviral therapy, and the numbers in need according to the 2010 WHO eligibility criteria ($CD4 \leq 350$ cells/ μ L) 102

Annexure 2C

Estimates of the number of children receiving and needing treatment 103

Annexure 2D

Estimates of the numbers of HIV infected mothers receiving and needing PMTCT services 104

NOTES

The estimates and data provided in the tables relate to 2011. These estimates have been produced and compiled by UNAIDS/WHO in collaboration with national AIDS authorities and partners.

The estimates are presented with uncertainty ranges to reflect the uncertainty associated with each of the estimates. The estimates are presented in rounded numbers. However, unrounded numbers were used in the calculation of rates and regional totals.

The general methodology and tools used to produce the country-specific estimates in the table have been described in a series of papers in *Sexually Transmitted Infections* December 2012: "UNAIDS Report 2012"; Vol. 88 No. S2, and are available at sti.bmj.com

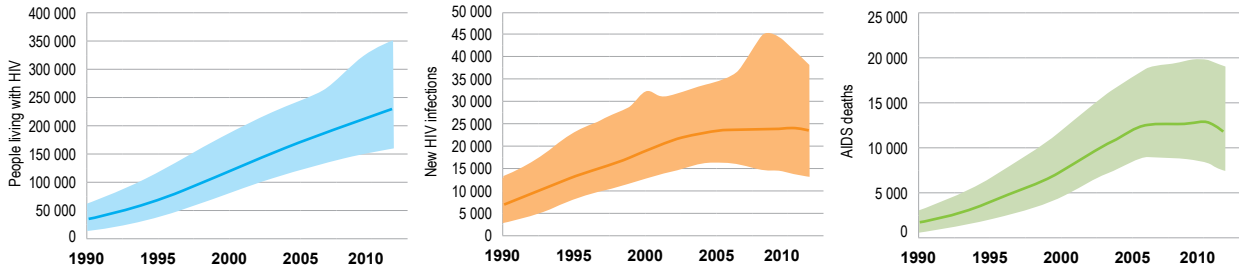
The estimates produced by UNAIDS/WHO are based on methods and assumptions that are informed by the UNAIDS Reference Group on HIV/AIDS Estimates, Modelling and Projections.

Estimates for the Seychelles are not available because of data limitations.

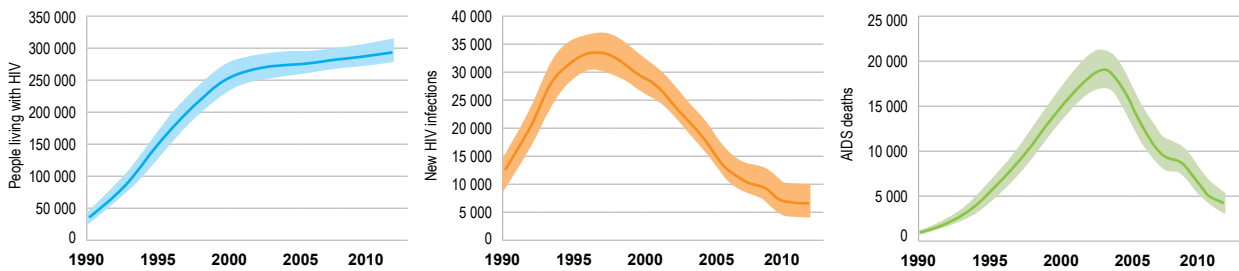
ANNEXURE 1

TRENDS IN THE ESTIMATED NUMBERS OF PEOPLE LIVING WITH HIV, NEW HIV INFECTIONS AND AIDS DEATHS BY COUNTRY

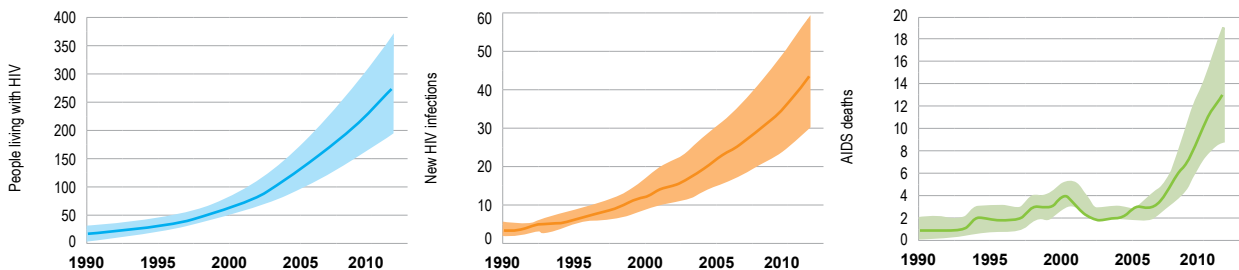
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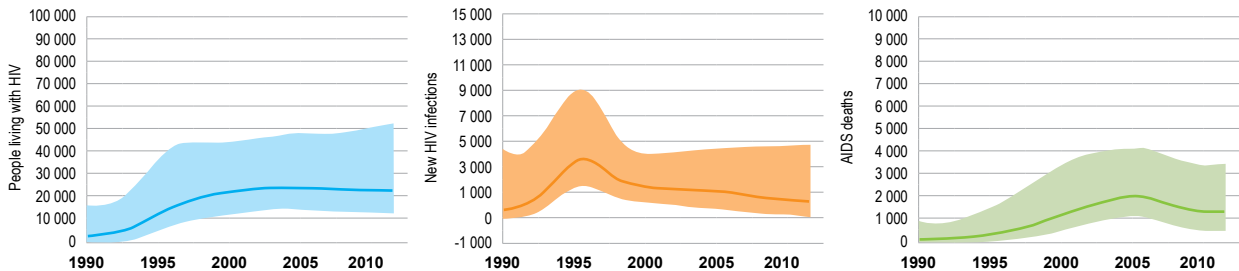
Botswana



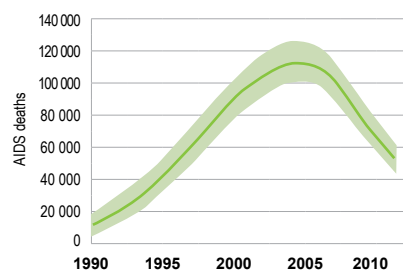
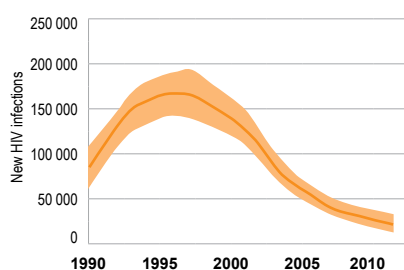
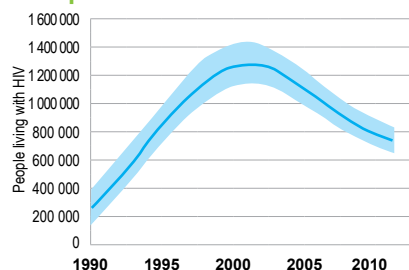
Comoros



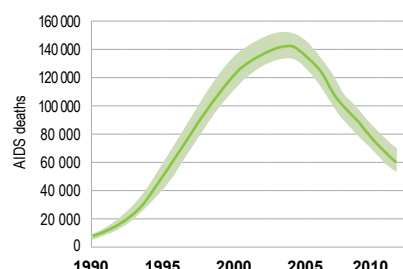
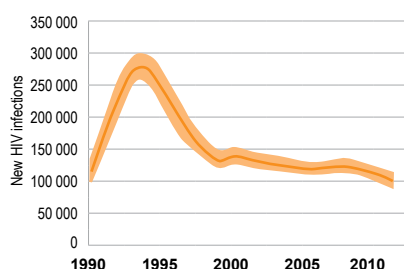
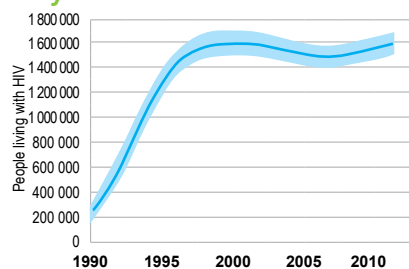
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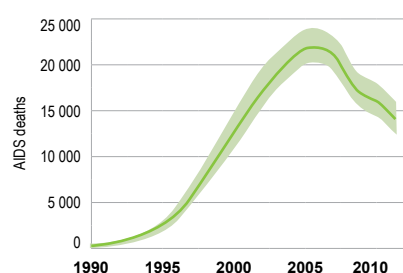
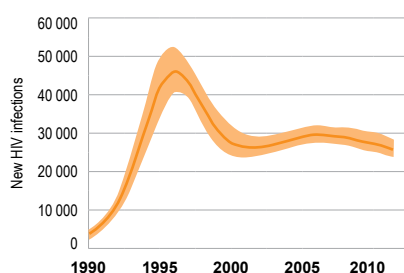
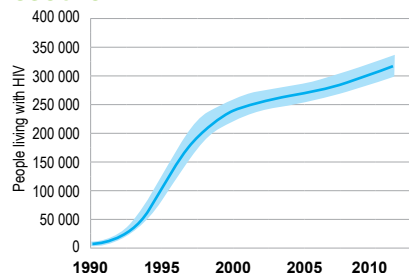
Ethiopia



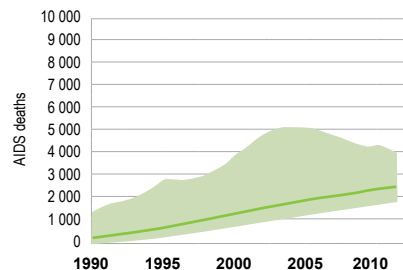
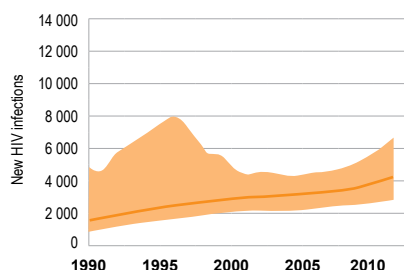
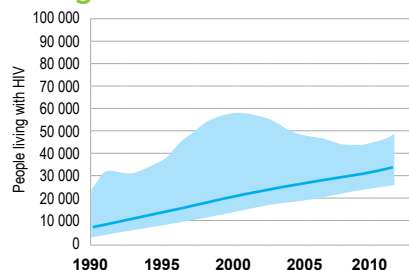
Kenya



Lesotho



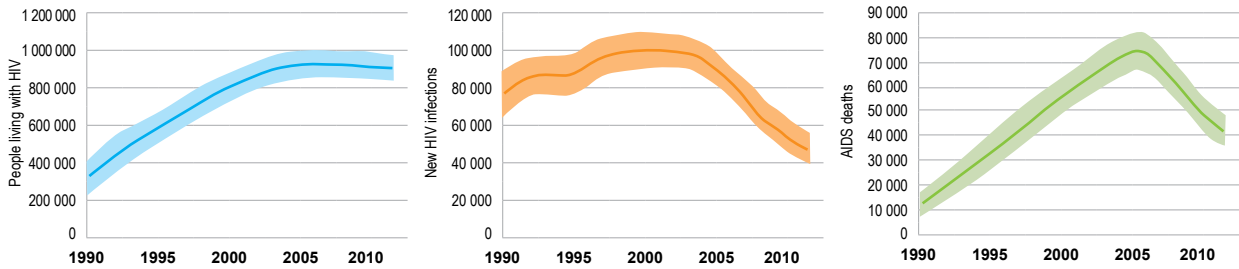
Madagascar



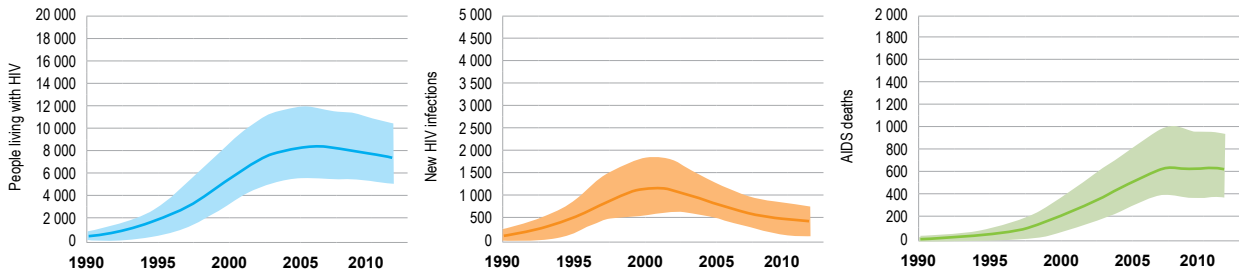
ANNEXURE 1

TRENDS IN THE ESTIMATED NUMBERS OF PEOPLE LIVING WITH HIV, NEW HIV INFECTIONS AND AIDS DEATHS BY COUNTRY (CONTINUED)

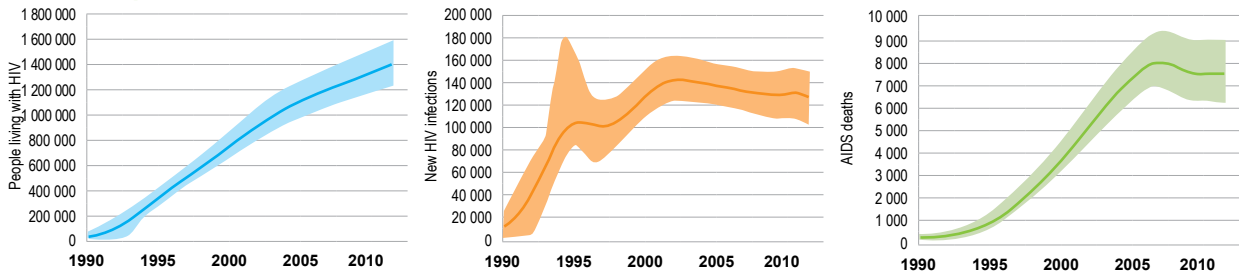
Malawi



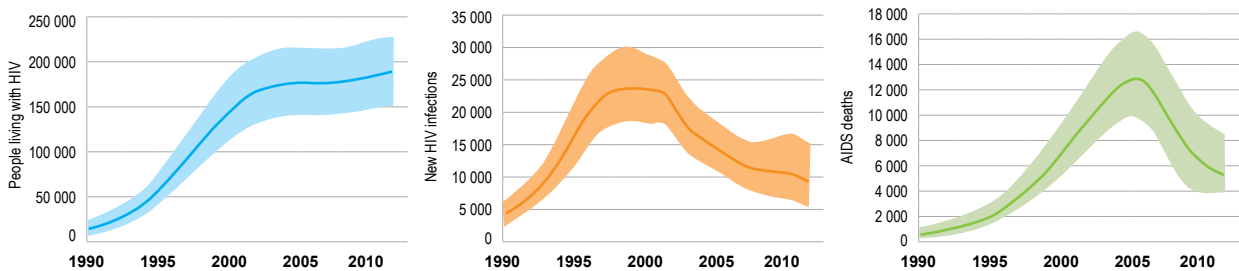
Mauritius



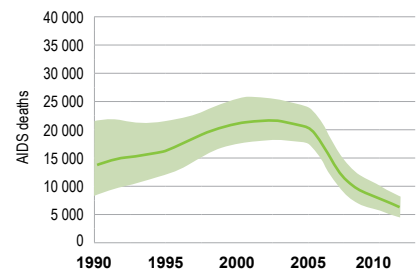
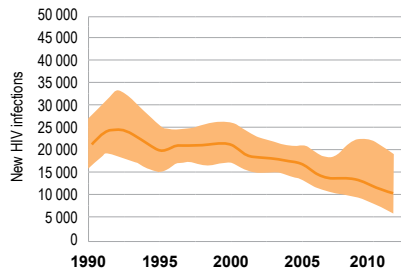
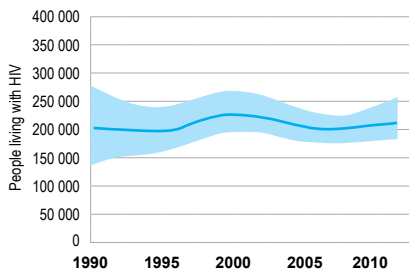
Mozambique



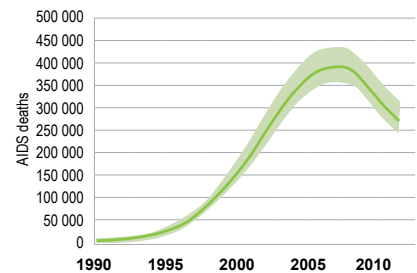
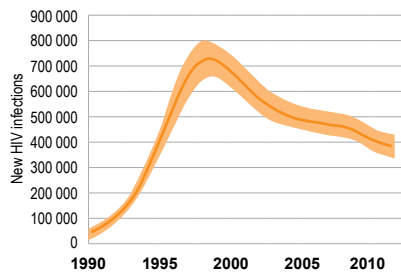
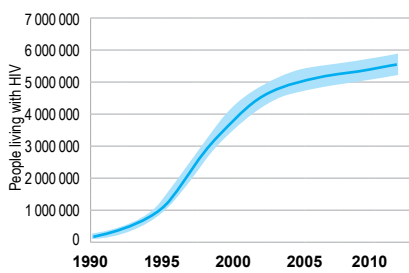
Namibia



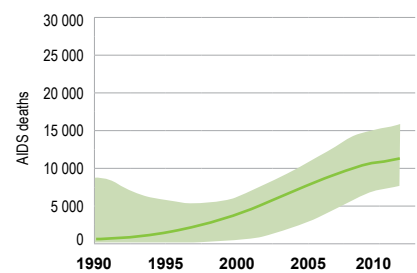
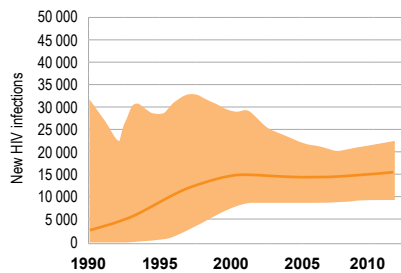
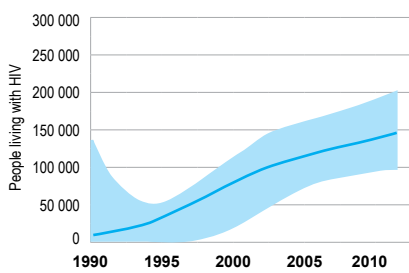
Rwanda



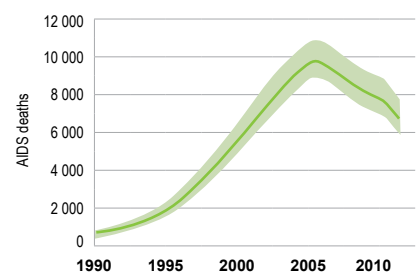
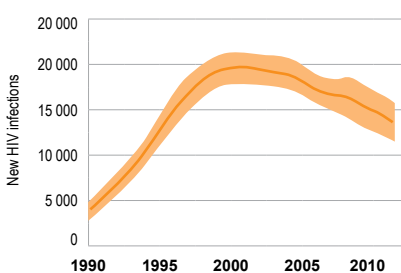
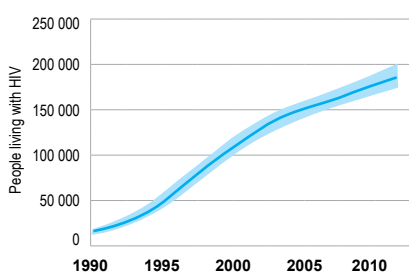
South Africa



South Sudan



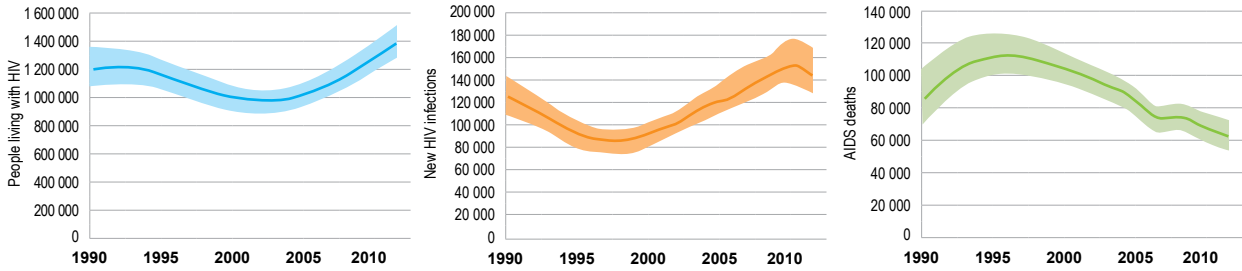
Swaziland



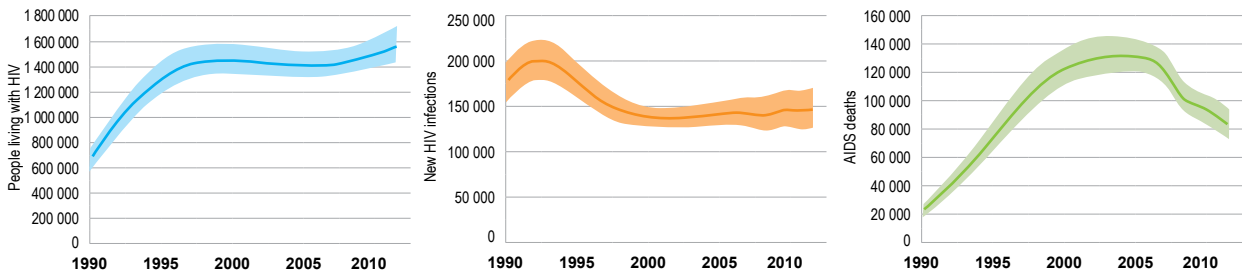
ANNEXURE 1

TRENDS IN THE ESTIMATED NUMBERS OF PEOPLE LIVING WITH HIV, NEW HIV INFECTIONS AND AIDS DEATHS BY COUNTRY (CONTINUED)

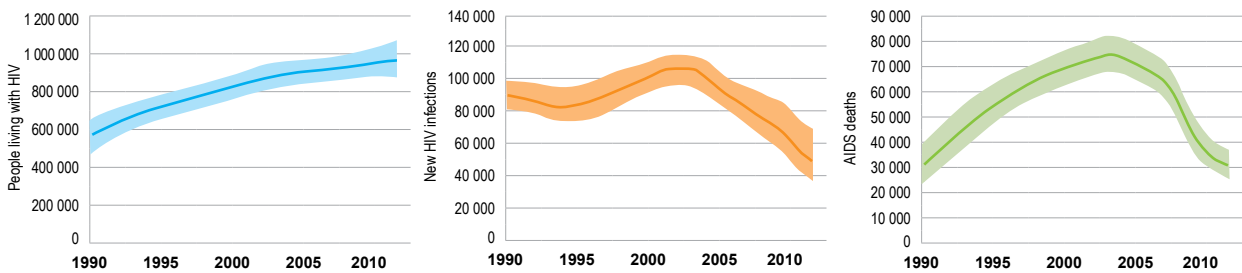
Uganda



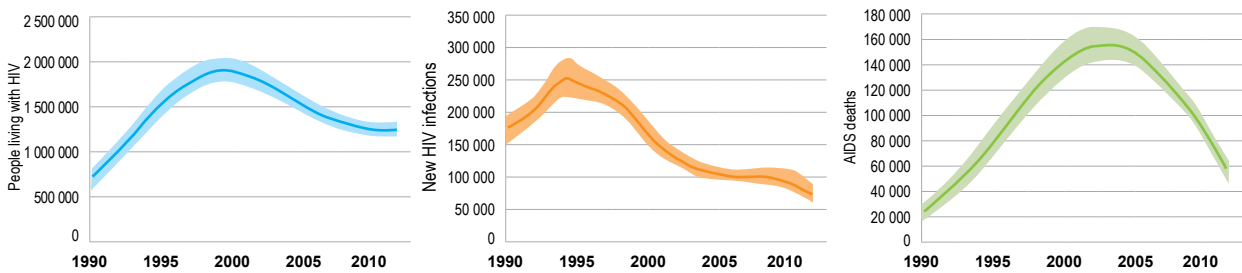
Tanzania



Zambia



Zimbabwe



ANNEXURE 2A

ESTIMATES OF THE STATUS OF THE HIV EPIDEMIC (WITH UNCERTAINTY BOUNDS) IN 2011

Country	Estimated adults and children living with HIV	Estimated adults and children living with HIV - LOW ESTIMATE	Estimated adults and children living with HIV - HIGH ESTIMATE	Adult (15-49) prevalence (%)	Adult (15-49) prevalence (%) - LOW ESTIMATE	Adult (15-49) prevalence (%) - HIGH ESTIMATE	Adult (15-49) incidence rate	Adult (15-49) incidence rate - LOW ESTIMATE	Adult (15-49) incidence rate - HIGH ESTIMATE
Angola	230 000	160 000	340 000	2.1	1.5	3.2	0.21	0.12	0.34
Botswana	300 000	280 000	310 000	23.4	22.3	24.6	1.00	0.76	1.35
Comoros	<500	<500	<500	<0.1	<0.1	<0.1	0.01	<0.01	0.02
Eritrea	23 000	13 000	52 000	0.6	0.4	1.5	0.03	<0.01	0.15
Ethiopia	790 000	720 000	870 000	1.4	1.3	1.6	0.03	0.02	0.05
Kenya	1 600 000	1 500 000	1 700 000	6.2	5.9	6.3	0.45	0.42	0.49
Lesotho	320 000	300 000	340 000	23.3	22.5	24.3	2.47	2.28	2.72
Madagascar	34 000	26 000	47 000	0.3	0.2	0.4	0.04	0.03	0.06
Malawi	910 000	850 000	970 000	10.0	9.5	10.6	0.49	0.41	0.63
Mauritius	7400	5200	10 000	1.0	0.7	1.4	0.06	0.01	0.09
Mozambique	1 400 000	1 200 000	1 600 000	11.3	10.0	12.7	1.13	0.88	1.33
Namibia	190 000	160 000	230 000	13.4	10.8	16.4	0.77	0.42	1.37
Rwanda	210 000	180 000	250 000	2.9	2.6	3.5	0.15	0.09	0.28
South Africa	5 600 000	5 300 000	5 900 000	17.3	16.6	18.1	1.43	1.30	1.59
South Sudan	150 000	100 000	200 000	3.1	2.1	4.2	0.33	0.20	0.46
Swaziland	190 000	180 000	200 000	26.0	24.8	27.2	2.60	2.19	3.04
Uganda	1 400 000	1 300 000	1 500 000	7.2	6.9	7.7	0.84	0.75	1.00
United Republic of Tanzania	1 600 000	1 500 000	1 700 000	5.8	5.4	6.2	0.59	0.51	0.68
Zambia	970 000	900 000	1 100 000	12.5	11.7	13.8	0.80	0.61	1.11
Zimbabwe	1 200 000	1 200 000	1 300 000	14.9	14.3	15.7	1.05	0.94	1.29
Eastern and southern Africa	17 100 000	16 300 000	17 900 000	7.3	7.0	7.6	0.56	0.52	0.62

Country	AIDS-related deaths in adults and children	AIDS-related deaths in adults and children - LOW ESTIMATE	AIDS-related deaths in adults and children - HIGH ESTIMATE	Adults and children newly infected with HIV	Adults and children newly infected with HIV - LOW ESTIMATE	Adults and children newly infected with HIV - HIGH ESTIMATE	Estimated adults (15+) living with HIV	Estimated adults (15+) living with HIV - LOW ESTIMATE	Estimated adults (15+) living with HIV - HIGH ESTIMATE
Angola	12 000	7200	19 000	23 000	14 000	37 000	190 000	140 000	300 000
Botswana	4200	3400	5600	9000	7100	12 000	280 000	270 000	300 000
Comoros	<100	<100	<100	<100	<100	<100	<500	<200	<500
Eritrea	1400	<1000	3500	1200	<500	5100	19 000	11 000	45 000
Ethiopia	54 000	46 000	63 000	24 000	18 000	34 000	610 000	560 000	680 000
Kenya	62 000	55 000	69 000	100 000	97 000	110 000	1 400 000	1 300 000	1 500 000
Lesotho	14 000	13 000	16 000	26 000	24 000	28 000	280 000	270 000	290 000
Madagascar	2600	2000	4000	4300	2900	6700	31 000	24 000	41 000
Malawi	44 000	38 000	50 000	46 000	40 000	56 000	740 000	690 000	790 000
Mauritius	<1000	<500	<1000	<500	<200	<1000	7400	5100	10 000
Mozambique	74 000	62 000	89 000	130 000	100 000	150 000	1 200 000	1 100 000	1 300 000
Namibia	5200	3800	8200	8800	5000	15 000	170 000	140 000	210 000
Rwanda	6400	4600	8000	10 000	6700	19 000	180 000	160 000	220 000
South Africa	270 000	240 000	300 000	380 000	350 000	420 000	5 100 000	4 900 000	5 400 000
South Sudan	11 000	7500	16 000	16 000	10 000	22 000	130 000	88 000	180 000
Swaziland	6800	6100	7800	13 000	11 000	16 000	170 000	160 000	180 000
Uganda	62 000	55 000	72 000	150 000	130 000	170 000	1 200 000	1 100 000	1 300 000
United Republic of Tanzania	84 000	75 000	94 000	150 000	130 000	170 000	1 300 000	1 200 000	1 500 000
Zambia	31 000	27 000	37 000	51 000	41 000	69 000	800 000	740 000	880 000
Zimbabwe	58 000	53 000	65 000	74 000	67 000	90 000	1 000 000	990 000	1 100 000
Eastern and southern Africa	800 000	730 000	890 000	1 200 000	1 100 000	1 300 000	14 900 000	14 200 000	15 700 000

ANNEXURE 2A

ESTIMATES OF THE STATUS OF THE HIV EPIDEMIC (WITH UNCERTAINTY BOUNDS) IN 2011 (CONTINUED)

Country	Estimated women (15+) living with HIV	Estimated women (15+) living with HIV - LOW ESTIMATE	Estimated women (15+) living with HIV - HIGH ESTIMATE	Young women (15-24) prevalence (%)	Young women (15-24) prevalence (%) - LOW ESTIMATE	Young women (15-24) prevalence (%) - HIGH ESTIMATE	Young men (15-24) prevalence (%)	Young men (15-24) prevalence (%) - LOW ESTIMATE	Young men (15-24) prevalence (%) - HIGH ESTIMATE
Angola	120 000	83 000	180 000	1.6	1.0	2.8	0.6	0.4	1.1
Botswana	160 000	150 000	170 000	9.0	7.1	11.0	4.1	3.1	6.0
Comoros	<100	<100	<200	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Eritrea	12 000	6600	27 000	0.3	<0.1	1.2	0.1	<0.1	0.4
Ethiopia	390 000	350 000	430 000	0.4	0.3	0.6	0.2	0.1	0.3
Kenya	800 000	760 000	840 000	3.5	2.9	4.5	1.6	1.3	2.1
Lesotho	170 000	160 000	170 000	15.4	12.7	20.3	6.4	5.0	8.8
Madagascar	9500	7400	13 000	<0.1	<0.1	0.2	0.2	0.1	0.6
Malawi	430 000	410 000	470 000	4.9	4.0	6.5	2.1	1.6	3.0
Mauritius	2200	1500	3100	0.4	0.2	0.7	0.6	0.2	1.8
Mozambique	750 000	670 000	850 000	8.2	6.4	10.9	2.8	2.0	3.8
Namibia	100 000	83 000	120 000	6.5	4.3	9.4	2.7	1.7	4.2
Rwanda	110 000	94 000	130 000	1.7	1.3	2.7	0.8	0.6	1.2
South Africa	2 900 000	2 700 000	3 000 000	11.9	9.7	15.5	5.3	4.1	7.4
South Sudan	77 000	52 000	100 000	2.5	1.5	3.8	1.0	0.6	1.5
Swaziland	100 000	96 000	110 000	15.3	12.2	20.5	6.3	4.8	8.8
Uganda	670 000	640 000	730 000	5.3	4.3	7.0	2.4	1.9	3.2
United Republic of Tanzania	760 000	700 000	830 000	4.0	3.2	5.3	1.8	1.4	2.4
Zambia	460 000	430 000	510 000	7.0	5.5	9.3	3.1	2.4	4.3
Zimbabwe	600 000	570 000	640 000	7.6	6.2	9.5	3.6	2.8	4.9
Eastern and southern Africa	8 600 000	8 200 000	9 000 000	4.5	3.8	5.6	1.9	1.6	2.6

Country	Estimated children (0-14) living with HIV	Estimated children (0-14) living with HIV - LOW ESTIMATE	Estimated children (0-14) living with HIV - HIGH ESTIMATE	Estimated orphans due to AIDS	Estimated orphans due to AIDS - LOW ESTIMATE	Estimated orphans due to AIDS - HIGH ESTIMATE	Children (0-14) newly infected with HIV	Children (0-14) newly infected with HIV - LOW ESTIMATE	Children (0-14) newly infected with HIV - HIGH ESTIMATE
Angola	34 000	24 000	50 000	140 000	94 000	210 000	5300	3400	8700
Botswana	15 000	14 000	16 000	100 000	93 000	120 000	<1000	<500	<1000
Comoros	...	...	...	...	...	...	...	...	...
Eritrea	4000	2500	7700	19 000	10 000	42 000	<500	<200	1100
Ethiopia	180 000	160 000	210 000	950 000	850 000	1 100 000	13 000	10 000	16 000
Kenya	220 000	190 000	250 000	1 100 000	1 000 000	1 200 000	13 000	10 000	17 000
Lesotho	41 000	37 000	47 000	140 000	130 000	150 000	3800	3100	4500
Madagascar	...	...	...	...	...	...	...	...	...
Malawi	170 000	150 000	200 000	610 000	550 000	660 000	16 000	13 000	20 000
Mauritius	...	...	...	...	...	...	...	...	...
Mozambique	200 000	170 000	240 000	800 000	690 000	920 000	27 000	22 000	34 000
Namibia	20 000	16 000	25 000	75 000	56 000	100 000	<1000	<500	1500
Rwanda	27 000	22 000	32 000	170 000	150 000	210 000	1800	1300	2700
South Africa	460 000	410 000	520 000	2 100 000	2 000 000	2 300 000	29 000	26 000	39 000
South Sudan	16 000	11 000	23 000	75 000	36 000	100 000	2700	1800	3800
Swaziland	17 000	15 000	19 000	75 000	68 000	82 000	1300	1000	1600
Uganda	190 000	170 000	220 000	1 100 000	1 000 000	1 200 000	21 000	17 000	26 000
United Republic of Tanzania	230 000	200 000	260 000	1 300 000	1 200 000	1 400 000	22 000	18 000	27 000
Zambia	170 000	150 000	200 000	680 000	620 000	740 000	9500	7700	14 000
Zimbabwe	200 000	180 000	230 000	1 000 000	960 000	1 100 000	15 000	12 000	17 000
Eastern and southern Africa	2 200 000	2 000 000	2 400 000	10 500 000	9 800 000	11 200 000	180 000	160 000	220 000

ANNEXURE 2B

ESTIMATES OF THE NUMBER OF PEOPLE RECEIVING ANTIRETROVIRAL THERAPY, AND THE NUMBERS IN NEED ACCORDING TO THE 2010 WHO ELIGIBILITY CRITERIA (CD4 ≤ 350 CELLS/μL), IN 2011

Country	Total number receiving ART	Estimated adults and children living with HIV	Estimated adults and children living with HIV - LOW ESTIMATE	Estimated adults and children living with HIV - HIGH ESTIMATE	Adult need for ART (15+); WHO 2010 criteria	Adult need for ART (15+) - LOWER BOUND	Adult need for ART (15+) - UPPER BOUND
Angola	33 515	230 000	160 000	340 000	72 000	54 000	100 000
Botswana	178 684	300 000	280 000	310 000	170 000	170 000	180 000
Comoros	19	<500	<500	<500	<100	<100	<200
Eritrea	6 245	23 000	13 000	52 000	10 000	7 000	19 000
Ethiopia	265 174	790 000	720 000	870 000	390 000	360 000	420 000
Kenya	538 983	1 600 000	1 500 000	1 700 000	590 000	570 000	610 000
Lesotho	83 626	320 000	300 000	340 000	120 000	120 000	130 000
Madagascar	383	34 000	26 000	47 000	11 000	8 400	16 000
Malawi	322 209	910 000	850 000	970 000	380 000	360 000	400 000
Mauritius	1 349	7 400	5 200	10 000	3 600	2 500	4 900
Mozambique	273 561	1 400 000	1 200 000	1 600 000	480 000	430 000	540 000
Namibia	104 531	190 000	160 000	230 000	93 000	85 000	110 000
Rwanda	96 123	210 000	180 000	250 000	100 000	93 000	110 000
South Africa	1 702 060	5 600 000	5 300 000	5 900 000	2 300 000	2 200 000	2 400 000
South Sudan	3 442	150 000	100 000	200 000	47 000	33 000	65 000
Swaziland	72 402	190 000	180 000	200 000	77 000	74 000	80 000
Uganda	313 117	1 400 000	1 300 000	1 500 000	470 000	440 000	500 000
United Republic of Tanzania	277 070	1 600 000	1 500 000	1 700 000	570 000	530 000	610 000
Zambia	415 685	970 000	900 000	1 100 000	410 000	390 000	430 000
Zimbabwe	476 321	1 200 000	1 200 000	1 300 000	500 000	480 000	530 000
Eastern and southern Africa	5 164 680	17 100 000	16 300 000	17 900 000	6 800 000	6 500 000	7 100 000

Country	Children needing ART	Children needing ART - LOWER BOUND	Children needing ART - UPPER BOUND	Total ART coverage	Total ART coverage - LOWER BOUND	Total ART coverage - UPPER BOUND
Angola	21 000	15 000	30 000	36	27	51
Botswana	11 000	10 000	12 000	>95	93	>95
Comoros	<100	<100	<100	19	14	26
Eritrea	2 600	1 700	4 800	49	33	89
Ethiopia	82 000	70 000	95 000	56	52	62
Kenya	160 000	140 000	180 000	72	68	77
Lesotho	24 000	21 000	27 000	58	54	61
Madagascar	1 800	1 200	3 400	3	2	5
Malawi	99 000	87 000	120 000	67	63	73
Mauritius	<100	<100	<100	37	26	51
Mozambique	120 000	98 000	140 000	46	41	52
Namibia	13 000	11 000	16 000	>95	89	>95
Rwanda	17 000	14 000	19 000	82	74	89
South Africa	260 000	230 000	300 000	66	63	71
South Sudan	10 000	6 500	14 000	6	4	8
Swaziland	11 000	9 900	12 000	83	79	88
Uganda	120 000	100 000	130 000	54	50	59
United Republic of Tanzania	130 000	110 000	150 000	40	37	43
Zambia	98 000	86 000	110 000	82	77	88
Zimbabwe	120 000	110 000	130 000	77	73	82
Eastern and southern Africa	1 300 000	1 200 000	1 400 000	64	61	68

ANNEXURE 2C

ESTIMATES OF THE NUMBER OF CHILDREN RECEIVING AND NEEDING TREATMENT IN 2011

Country	Children receiving ART	Estimated children (0-14) living with HIV	Estimated children (0-14) living with HIV - LOW ESTIMATE	Estimated children (0-14) living with HIV - HIGH ESTIMATE	Children needing ART (WHO 2010 criteria)	Children needing ART LOWER BOUND	Children needing ART UPPER BOUND	ART coverage for children (0-14)	ART coverage for children (0-14) - LOWER BOUND	ART coverage for children (0-14) - UPPER BOUND
Angola	2 314	34 000	24 000	50 000	21 000	15 000	30 000	11%	8%	17%
Botswana	9 702	15 000	14 000	16 000	11 000	10 000	12 000	88%	84%	93%
Comoros	1	...	...	...	<100	<100	<100	13%	8%	19%
Eritrea	517	4000	2500	7700	2 600	1 700	4 800	20%	13%	38%
Ethiopia	16 000	180 000	160 000	210 000	82 000	70 000	95 000	19%	17%	23%
Kenya	48 546	220 000	190 000	250 000	160 000	140 000	180 000	31%	27%	36%
Lesotho	6 095	41 000	37 000	47 000	24 000	21 000	27 000	25%	22%	28%
Madagascar	13	...	...	...	1 800	1 200	3 400	1%	0%	1%
Malawi	28 722	170 000	150 000	200 000	99 000	87 000	120 000	29%	25%	34%
Mauritius	11	...	...	...	<100	<100	<100	26%	13%	42%
Mozambique	23 053	200 000	170 000	240 000	120 000	98 000	140 000	20%	16%	24%
Namibia	10 284	20 000	16 000	25 000	13 000	11 000	16 000	76%	64%	93%
Rwanda	7 597	27 000	22 000	32 000	17 000	14 000	19 000	46%	38%	54%
South Africa	151 860	460 000	410 000	520 000	260 000	230 000	300 000	58%	52%	66%
Sudan South	138	16 000	11 000	23 000	10 000	6 500	14 000	1%	1%	2%
Swaziland	6 567	17 000	15 000	19 000	11 000	9 900	12 000	60%	54%	67%
Uganda	24 735	190 000	170 000	220 000	120 000	100 000	130 000	21%	19%	25%
United Republic of Tanzania	18 298	230 000	200 000	260 000	130 000	110 000	150 000	14%	12%	16%
Zambia	30 187	170 000	150 000	200 000	98 000	86 000	110 000	31%	27%	35%
Zimbabwe	40 140	200 000	180 000	230 000	120 000	110 000	130 000	34%	30%	38%
Eastern and southern Africa	424 785	2 200 000	2 000 000	2 400 000	1 300 000	1 200 000	1 400 000	33%	30%	37%

ANNEXURE 2D

ESTIMATES OF THE NUMBERS OF HIV-INFECTED MOTHERS RECEIVING AND NEEDING PMTCT SERVICES IN 2011

Country	Mothers receiving PMTCT (excluding sNVP)	Mothers needing PMTCT	Mothers needing PMTCT - LOWER BOUND	Mothers needing PMTCT - UPPER BOUND	PMTCT coverage for effective regimen	PMTCT coverage for effective regimen - LOWER BOUND	PMTCT coverage for effective regimen - UPPER BOUND
Angola	2 584	16 000	11 000	25 000	16	11	25
Botswana	12 738	14 000	12 000	15 000	94	83	105
Comoros	...	<100	<100	<100	...	...	...
Eritrea	...	1 200	<1 000	2 900	...	...	...
Ethiopia	10 103	43 000	36 000	51 000	24	20	28
Kenya	57 644	87 000	77 000	98 000	67	59	75
Lesotho	10 105	16 000	14 000	18 000	62	55	70
Madagascar	106	<1 000	<1 000	1 400	11	7	15
Malawi	33 557	63 000	55 000	74 000	53	46	61
Mauritius	67	<100	<100	<200	74	43	112
Mozambique	50 554	98 000	83 000	120 000	51	43	61
Namibia	7 868	9 300	7 100	11 000	85	65	104
Rwanda	5 960	11 000	9 000	13 000	56	47	69
Seychelles	...	...	...	...	...	...	...
South Africa	260 073	240 000	210 000	270 000	108	96	122
Sudan South	177	7 800	5 100	11 000	6	5	10
Swaziland	10 641	11 000	9 600	12 000	97	85	110
Uganda	47 965	97 000	85 000	110 000	45	39	52
United Republic of Tanzania	71 041	96 000	84 000	110 000	74	65	85
Zambia	71 429	83 000	73 000	96 000	86	75	99
Zimbabwe	35 948	66 000	58 000	75 000	54	48	61
Eastern and southern Africa	688 566	960 000	870 000	1 100 000	72	64	80



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