

**TOGETHER
WE WILL
END AIDS.**

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Foreword

The global community has made great progress in responding to the AIDS epidemic. More people than ever are receiving treatment, care and support. The prevention revolution is delivering dramatic results while science is offering new hope.

A decade of antiretroviral treatment has transformed HIV from a death sentence to a manageable chronic disease. There is a real opportunity to eliminate new infections among children within the next three years, and our goal to ensure that 15 million people receive antiretroviral therapy by 2015 can be achieved.

Yet every day, thousands more people are newly infected with HIV. Many are in groups at higher risk. They deserve special support and access to prevention services, such as condoms and measures to reduce harm. Others lack the information and resources they need and deserve to avoid infection. Far too many do not have the power to negotiate safer sex.

Stigma against people living with HIV and those at higher risk of infection persists. This is a human rights violation that also hampers our ability to address AIDS. Stigma, discrimination, punitive laws, gender inequality and violence continue to inflame the epidemic and thwart our strongest efforts to 'get to zero'.

Last year, United Nations Member States set clear targets for significantly reducing HIV infection and AIDS deaths, and for scaling up treatment by 2015. The goals in their Political Declaration on HIV and AIDS can be met with the right commitment to, and investment in, the AIDS response.

People living with HIV enjoy full and productive lives, raising families, supporting others and becoming leaders in their own right. This success comes in large part thanks to the contributions of rights advocates, health workers, young people and communities united in their efforts to end the epidemic. The AIDS response has proven the power of partnerships among the private sector, the international community and political leaders.

Now is the time to take even more bold action, inspired by true global solidarity to achieve an AIDS-free world. I hope all those reading this report will use the information it provides to spur progress towards this goal. Together, we can realize our vision of zero new HIV infections, zero discrimination and zero AIDS-related deaths.

Ban Ki-moon
Secretary-General of the United Nations



Mobilizing African leadership to help end AIDS

Dramatic progress made in access to HIV treatment in Africa during the past decade has transformed the lives of numerous families, strengthening the social fabric and increasing economic productivity. We can state that we have renewed hope, but there is no room for complacency.

The United Nations 2011 Political Declaration on HIV and AIDS called for shared responsibility and global solidarity. Africa is committed to demonstrating its leadership to sustain progress and to making the vision of an AIDS-free generation a reality. To this end, AIDS Watch Africa is being relaunched as a unique platform for advocacy, mobilization and the accountability of the heads of state and government who are already members of AIDS Watch Africa as well as inviting new countries to join and take ownership of this initiative. The AIDS response can also benefit from being integrated with efforts to address tuberculosis, malaria and other diseases that will benefit from Africa-sourced, sustainable solutions.

As the Chairperson of the African Union, I am promoting shared responsibility and truly African ownership for the AIDS response. I am working closely with all African leaders to develop a roadmap for shared responsibility with concrete milestones for funding, for access to medicines that must imperatively be produced locally in Africa, for enhanced regulatory harmonization and for improved governance. The roadmap will outline the roles and responsibilities of governments, regional economic communities, African institutions, people living with and affected by HIV and our development partners. It will bring me pride to share this plan at the United Nations General Assembly in New York later this year – an African contribution to achieving the goal of eliminating mother-to-child transmission of the virus and stopping the spread of HIV in the entire world.

Yayi Boni
President of Benin and
Chairperson of the African Union

GETTING TO ZERO



Shaping the future we want

It has been two years since the XVIII International AIDS Conference in Vienna. At that time, the global community had begun to cautiously celebrate the fragile progress in preventing and treating HIV.

Nevertheless, the world was clearly at a defining moment, and forward movement was not guaranteed.

Soon after that Conference, UNAIDS began to articulate a new vision for the future of AIDS: one that swept aside the pale aspirations of incremental gains and dared the world to imagine what the end of AIDS should look like – and challenged everyone to reach for it, fearlessly and without compromise.

It was a bold vision – some even called it a dream – but the world deserves no less than a future of zero new HIV infections, zero discrimination and zero AIDS-related deaths.

Today, progress towards this vision is accelerating dramatically in several areas. Many prominent leaders are now speaking openly about the beginning of the end of AIDS, getting to zero and the start of an AIDS-free generation.

The world is investing in this vision, and the investment is paying off.

In 2011, more than 8 million people living with HIV in low- and middle-income countries were receiving antiretroviral therapy, up from 6.6 million people in 2010 – for an increase of more than 20%. This puts the international community on track to reach the goal of 15 million people with HIV receiving

treatment by 2015, as set out by the 2011 Political Declaration on HIV and AIDS and unanimously adopted by United Nations Member States.

New infections among children have declined dramatically for the second year in a row. Of the estimated 1.5 million pregnant women living with HIV in low- and middle-income countries in 2011, 57% received effective antiretroviral drugs to prevent transmission of HIV to their children – up from 48% in 2010. With the momentum being generated by the Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive, the international community has set a strong course to achieve an AIDS-free generation.

During the past year, many countries – especially the burgeoning economies of Africa – have seized the opportunity to demonstrate their ownership of their national AIDS response and share responsibility for the global response. They are transcending the outdated donor–recipient paradigm and using the AIDS response to create a new and more sustainable agenda for global health and development.

This agenda of shared responsibility is taking firm hold. We are seeing the evidence as countries step up to increase domestic investment in HIV, sharing the burden and the accountability for results. Sharing the burden, however, is more than investment – it means collectively tackling the political, institutional and structural barriers that impede progress. It means ensuring that resources are going where they can have the greatest impact.

Importantly, it also means reinforcing inclusive country leadership. This is global solidarity in action.

Low- and middle-income countries are steadily increasing their domestic investment in AIDS, even during this difficult economic time. Total domestic HIV resources in low- and middle-income countries reached an estimated US\$ 8.6 billion [US\$ 7.3 billion–US\$ 10.0 billion] in 2011 - the highest ever. Many African countries, including Ghana, Kenya, Nigeria and South Africa, have increased their domestic spending on AIDS in recent years. After the Global Fund to Fight AIDS, Tuberculosis and Malaria changed its eligibility criteria, China pledged to fill the resource gap with its own money. This year, the Government of India plans to contribute at least 90% of the funding for Phase IV of its National AIDS Control Programme.

During this difficult economic period, the leading contribution of the United States of America to the global AIDS response remains strong. Through the individual compassion and collective commitment of the American people, the United States has saved millions of lives around the world over many years. In 2003, when only about 100 000 people in sub-Saharan Africa had access to treatment and the goal of extending HIV treatment to people in low- and middle-income countries seemed beyond reach, the United States launched the United States President's Emergency Plan for AIDS Relief (PEPFAR). Last year, with the support of PEPFAR and other international funding sources – including through the Global Fund and domestic programmes – nearly 6.2 million people were receiving HIV treatment in Africa. In 2011, the United States continued to provide 48% of all international assistance for the global HIV response.

The United States has also been directly affected by the epidemic. There are more than 1.2 million Americans living with HIV who must also benefit from the global response. Over the last 20 years, the annual number of new infections in the United States has not decreased, while the epidemic has become particularly concentrated in selected communities. To reverse the HIV epidemic, both globally and domestically, the leadership of the United States remains of critical importance.

Just as the international community has a shared responsibility to reach the target of US\$ 22 billion to US\$ 24 billion for the global AIDS response by 2015, it also shares responsibility to pursue sustainable and equitable solutions for health and development.

Although sub-Saharan Africa accounts for 23.5 million of the 34 million people living with HIV globally, it imports more than 80% of its antiretroviral drugs. Global solidarity can help to strengthen regional and national capacity for the production of quality-assured medicines and foster harmonization of policies regulating medicines across countries and regions – thereby breaking down trade barriers and encouraging the emergence of local centres of excellence for producing medicines.

When Africa ensures greater ownership and sustainability of its AIDS response, the benefits will also strengthen the growth of new industries and expand knowledge-based economies.

In these ways, the AIDS response can catalyse broader health and development gains – such as leveraging partnerships for innovative financing and enhancing pharmaceutical security for other health emergencies.

As we drive to reach the targets of the United Nations 2011 Political Declaration on HIV and AIDS and to foster the agenda for shared responsibility and global solidarity, we must keep our eyes on the future. We must write the next – and final – chapter in the story of AIDS.

This is what UNAIDS is calling the **AIDS-Plus Agenda – shaping the future we want.**

What we want is a future in which innovation is prized, protected and promoted. A future in which social justice and human rights are not just desired but demanded. A future in which science is pressed into action to serve people.

We want a future that embraces the ‘Treatment-Plus’ approach – expanding the use of antiretroviral drugs to prevent and treat HIV infection to include serodiscordant couples, pregnant women living with HIV, people with higher CD4 counts and, perhaps ultimately, all people diagnosed with HIV.

Certainly, the major challenge we face is to make paying for treatment sustainable over the long term. Regardless of how successful we are in getting life-saving drugs to people, we still face the inevitably rising costs of drug resistance and the need to provide chronic care for people living with HIV over their lifetimes.

It does not matter how many people can access treatment if we cannot keep them alive and receiving treatment.

We must start planning now how to manage the cost of treatment beyond 2015. How will we fund costly

second-line regimens if resistance develops? In high-income countries, where people have been receiving treatment for decades, the high cost of HIV medication – up to US\$ 6000 per month – is a sobering reality.

We must avoid developing drug resistance by designing smarter combination therapy. Low- and middle-income countries could set the standard for treatment programmes worldwide through rationally designed and simplified treatment options that can stave off large-scale resistance and escalating costs.

Innovation will be a major deciding factor in the future of the HIV response. Innovation is more than making new medicines and making them easier to use.

We must also innovate service delivery, we must innovate prevention – in particular, we must not falter in our quest for a vaccine – and we must innovate how we invest resources.

Sustainable, long-term funding for the AIDS response can be ensured by demonstrating to countries, donors and stakeholders that this is a smart investment. UNAIDS’ new investment tool for countries demonstrates how improving the efficiency of investment and the effectiveness of HIV programming will deliver far greater returns.

If fully implemented, this approach can reverse the rising trends in the resources required for AIDS within this decade.

Innovation will be a major deciding factor in the future of the HIV response

Innovation also extends to social justice. HIV thrives amid inequality and disparity and in the absence of opportunity. A climate that supports human rights, dignity and gender equality can help to prevent people from becoming infected with HIV and dying from AIDS-related causes. Such a climate reduces ignorance about what fuels the epidemic and empowers individuals and communities to address their risks and related needs. Allowing stigma, discrimination, criminalization, gender inequity and violence against women and girls to continue is tantamount to deciding to perpetuate HIV.

We also need to innovate AIDS activism – to revive the spirit of the early days of the response, when people living with HIV and affected by AIDS rose up to defy ignorance and inertia and the time when collaboration – not competition – brought scientists together and into direct contact with the affected communities.

A vigorous civil society is central to holding partners and countries to account for honouring the commitments they make. People living with HIV, people at higher risk of HIV infection, women and young people must therefore be present at the tables where decisions are made. We must listen to them, learn from them and respect their leadership.

We must support them in living with dignity and purpose.

Getting to zero discrimination requires us to do more than protect people who are vulnerable to HIV – we must empower them. This is why civil society remains the lifeblood of the AIDS response. People living with HIV, women and girls, young people and communities at increased risk of HIV infection have a unique role in developing and monitoring the global compact to end AIDS. They are essential stakeholders in ensuring that investment frameworks respond to their needs and in identifying where investment gaps may exist.

As we gather at the XIX International AIDS Conference in Washington, DC, some key issues need to be debated that are at the core of the AIDS-Plus Agenda. Let us start the conversation now – together.

Finally, I ask you to keep optimism in your heart. If we cannot envision a world without AIDS, then we will always be dealing with its consequences. Getting to zero is our only option.

No other number is good enough for us, for our families and partners, for our children and for their children.

Michel Sidibé
Executive Director, UNAIDS

Let us start the
conversation
now – **together.**

"WE CAN END THIS PANDEMIC. WE CAN BEAT THIS DISEASE. WE CAN WIN THIS FIGHT. WE JUST HAVE TO KEEP AT IT, STEADY, PERSISTENT - TODAY, TOMORROW, EVERY DAY UNTIL WE GET TO ZERO."

"THE UNITED STATES NOW SUPPORTS ANTI-RETROVIRAL TREATMENT FOR NEARLY 4 MILLION PEOPLE WORLDWIDE. BUT WE'VE GOT TO DO MORE. WE'RE ACHIEVING THESE RESULTS NOT BY ACTING ALONE, BUT BY PARTNERING WITH DEVELOPING COUNTRIES. THIS IS A GLOBAL FIGHT, AND IT'S ONE THAT AMERICA MUST CONTINUE TO LEAD."

"I WAS SO PROUD TO ANNOUNCE THAT MY ADMINISTRATION WAS ENDING THE BAN THAT PROHIBITED PEOPLE WITH HIV FROM ENTERING AMERICA."



US President Barack Obama,
World AIDS Day speech 2011.
<http://goo.gl/0gDNg>

**"FEW COULD HAVE
IMAGINED THAT
WE'D BE TALKING
ABOUT THE REAL
POSSIBILITY OF
AN AIDS-FREE
GENERATION."**

**"THE RATE OF NEW
INFECTIONS MAY BE
GOING DOWN ELSEWHERE,
BUT IT'S NOT GOING DOWN
HERE IN AMERICA ... THERE
ARE COMMUNITIES IN
THIS COUNTRY BEING
DEVASTATED, STILL, BY
THIS DISEASE."**

**"TO THE GLOBAL COMMUNITY - WE ASK YOU TO JOIN
US. COUNTRIES THAT HAVE COMMITTED TO THE GLOBAL FUND
NEED TO GIVE THE MONEY THAT THEY PROMISED. COUNTRIES
THAT HAVEN'T MADE A PLEDGE... NEED TO DO SO. THAT INCLUDES
COUNTRIES THAT IN THE PAST MIGHT HAVE BEEN RECIPIENTS, BUT
NOW ARE IN A POSITION TO STEP UP AS MAJOR DONORS."**

RESULTS, RESULTS ...
MORE NEEDED

Strong results for some targets, not enough for others

The 2011 Political Declaration on HIV and AIDS set ambitious targets to achieve by 2015. The world is close to being on track to reach the targets of having 15 million people living with HIV on treatment and eliminating new HIV infections among children by 2015, but more action is needed to halve sexual HIV transmission and transmission of HIV among people who inject drugs.

15 million can be receiving treatment by 2015

More people than ever are receiving antiretroviral therapy, as treatment coverage continues to expand. Just over 8 million people in low- and middle-income countries were receiving treatment in 2011, with coverage reaching 54% [range 50–60%].¹ This is 1.4 million more people than in 2010 and significantly higher than the 400 000 people receiving treatment in 2003.

If this momentum is maintained in the coming years, the world will be close to reaching the target of having 15 million people on antiretroviral therapy by 2015 as set out in the 2011 Political Declaration on HIV and AIDS (1). Progress is especially impressive in sub-Saharan Africa, where nearly 6.2 million people were receiving antiretroviral therapy in 2011, up from just 100 000 in 2003.

The expansion of HIV treatment has resulted in fewer people dying of AIDS-related causes. As treatment expands, other challenges emerge. Early treatment is a key challenge, and high standards of service quality must be maintained to ensure people remain on treatment, limit side effects and prevent drug resistance from emerging. More needs to be done to achieve equitable access to treatment for key populations at higher risk of HIV infection. New efforts are needed to ensure that all countries have affordable and reliable access to the highest-quality antiretroviral drugs. Fresh solutions are required for the funding, licensing and logistical challenges that accompany the global roll-out of HIV treatment.

As of 21 June 2012, 185 countries reported as part of the Global AIDS Response Progress Reporting system. All estimates of epidemiology, treatment, efforts to eliminate new infections among children (data collection and analysis jointly done with UNICEF, UNAIDS and WHO), domestic spending on HIV and data from the National Commitments and Policy Instrument for 2011 are preliminary. The data for some of the countries had not been fully validated at the time of going to press.

An estimated 1.4 million more people were receiving antiretroviral therapy in low- and middle-income countries in 2011 than in 2010, similar to the progress made between 2009 and 2010 (2). The most dramatic progress has been in sub-Saharan Africa, where treatment coverage increased by 19% between 2010 and 2011. In addition, at least 745 000 people were receiving antiretroviral therapy in high-income countries.

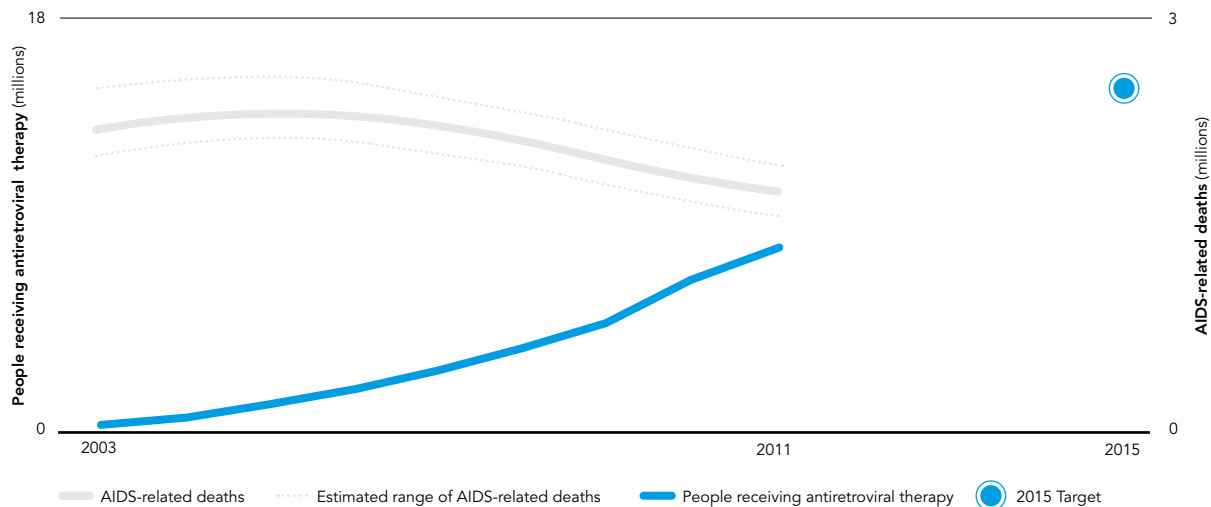
More lives are being saved. Antiretroviral therapy has added 14 million life-years in low- and middle-income countries globally since 1995, with more than 9 million of these in sub-Saharan Africa. The estimated number of cumulative life-years added in sub-Saharan Africa more than quadrupled between 2008 and 2011.

Declining death rates meant that there were more people living with HIV in 2011 than ever before: 34.2 million [31.8 million–35.9 million]. Globally, women comprised half (49% [46–51%]) of the adults living with HIV in 2011, a proportion that has varied little in the past 15 years. The burden of HIV on women, however, is considerably greater in sub-Saharan Africa, where 6 in 10 adults living with HIV in 2011 were women.

Treatment access is expanding especially rapidly where the need is greatest. In sub-Saharan Africa, more than half (56% [53–60%]) the people needing treatment were getting it

The world is nearly on track to having 15 million people living with HIV on antiretroviral treatment by 2015

People receiving antiretroviral therapy versus the 2015 target and the number of AIDS-related deaths, low- and middle-income countries, 2003–2011



in 2011, and 22% more people were getting treatment in 2011 than a year earlier: 6.2 million versus 5.1 million. Coverage of antiretroviral treatment was highest in Latin America (70% [61–82%]) and the Caribbean (67% [60–73%]), which boast some of the longest-running antiretroviral treatment programmes in the world. Treatment coverage remains low in other low- and middle-income regions.

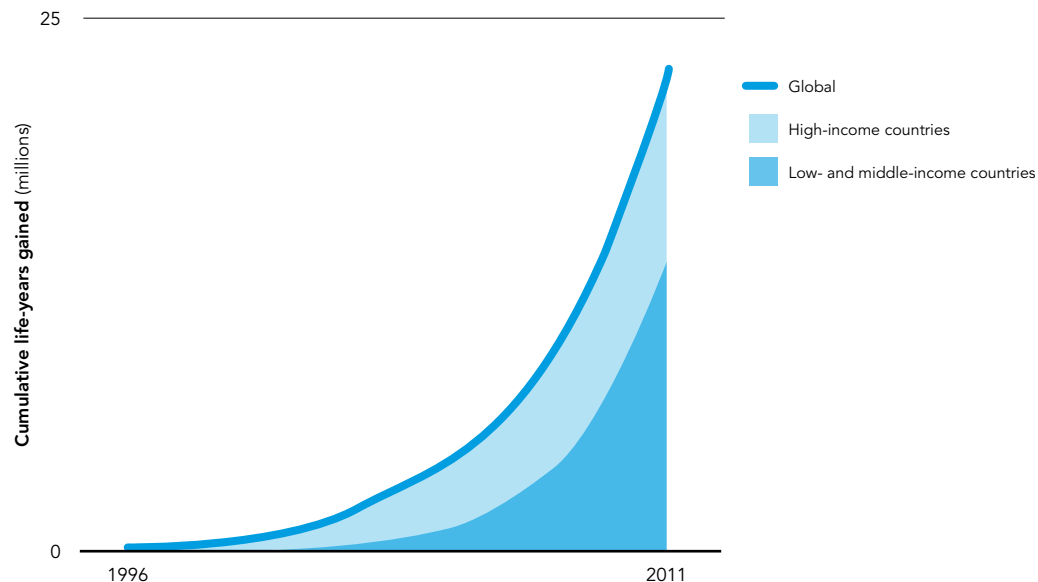
Along with expanded treatment access, a shift is under way towards drug regimens associated with fewer side effects. Stavudine (or d4T), a comparatively inexpensive drug that has played an important role in the early scaling up of treatment in most countries in sub-Saharan Africa but has debilitating side effects, is steadily being phased out. About 58% of adults in low- and middle-income countries were receiving either zidovudine- or tenofovir-based first-line regimens in 2010 versus 33% in

2006. The rest of adults on treatment were still receiving a stavudine-based combination, but almost all the countries reporting these data have officially decided to shift away from such regimens (2).

Equitable access – room for improvement

Achieving equitable access to treatment for key populations at higher risk remains an unmet challenge of the global HIV response. Treatment coverage is low in Asia (44% [36–49%]), Eastern Europe and Central Asia (23% [20–27%]) and North Africa and the Middle East (13% [10–18%]). The HIV epidemics in these regions are mostly concentrated among key populations at higher risk of HIV infection (such as people who inject drugs, sex workers and their clients and men who have sex with men), who often face special difficulties in accessing treatment and care services. In the eight countries in Eastern Europe and Central Asia

Cumulative life-years gained from antiretroviral drugs, 1996–2011



TREATMENT 2.0

In 2010, UNAIDS and WHO launched Treatment 2.0, a programmatic approach to make antiretroviral therapy more accessible, affordable, simple and efficient. It aims to achieve and sustain universal access and maximize the preventive benefits of treatment.

Treatment 2.0 has five interrelated priority areas: optimizing drug regimens, simplifying diagnostics, reducing costs, adapting service delivery and mobilizing communities.

Optimizing treatment regimens means promoting safer and more effective antiretroviral regimens – preferably as fixed-dose combinations with minimal toxicity, a high barrier to drug resistance and minimal interactions with other drugs, while harmonizing drug regimens for children and adults (including pregnant women and people with TB and hepatitis coinfection). This addresses the key needs of individuals and programmes from a public health perspective.

Treatment does not simply mean delivering drugs; it also requires easy-to-use diagnostic and monitoring tools to test people's HIV status and assess the people already receiving treatment. New point-of-care laboratory technologies are emerging, but accessibility and affordability are major concerns.

UNAIDS and UNDP have launched policy briefs on intellectual property rights, aiming to create a legislative environment that fully uses the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement flexibilities. These enable countries to improve their local pharmaceutical capacity and/or to better facilitate the import of generic drugs from existing suppliers, enhancing competition and reducing prices. The policy briefs also advise against creating new 'TRIPs-plus' provisions in pharmaceutical patenting that go beyond TRIPS.

Alternative affordable and sustainable mechanisms to foster pharmaceutical innovation should be pursued. Ongoing negotiations based on the Global Strategy and Plan of Action on Intellectual Property, Innovation and Public Health and a recent report from the WHO Consultative Expert Working Group are seeking to establish innovative funding mechanisms for health research and development.

Treatment 2.0 requires the full involvement of people living with HIV and affected communities in planning, implementing and evaluating quality-assured, rights-based HIV care and treatment programmes. In partnership with civil society organizations, such as Médecins Sans Frontières, UNAIDS is gathering evidence that more strongly involving community-based organizations in treatment adherence support and treatment monitoring can improve service delivery and treatment outcomes and reduce the burden on health systems.

for which data are available (Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan and Ukraine), people who inject drugs who are also living with HIV are less than half as likely to be receiving HIV treatment as people living with HIV who do not inject drugs.² Laws and policies that discriminate against these populations and lack of services to meet their needs are important barriers to increasing access to treatment.

Coverage of HIV treatment for children also needs to improve, since it is much lower than for adults.

Better links to care

Realizing the full potential of antiretroviral therapy requires a series of further advances, starting with more effective approaches to HIV testing.

Many people living with HIV do not know they are infected, which is one reason why an estimated 7 million [6.4 million–7.3 million] people in low- and middle-income countries who are eligible for HIV treatment are not accessing it. New approaches to HIV testing need to be explored to ensure that people are aware of their HIV status and people infected with HIV can access care and HIV treatment.

Integrating HIV testing into routine health services has helped to increase the uptake of testing but not sufficiently. Too often, people who take HIV tests do not return to learn the results. Rapid tests and community-based approaches to testing may help to increase accessibility and uptake.

People who test HIV-positive need to enrol and remain in care until they become eligible

for treatment, but many do not. In a review of studies in sub-Saharan Africa (4), 31–77% of people living with HIV stayed in care until they initiated antiretroviral therapy. Many people living with HIV (including in high-income countries), regardless of whether they are aware of their HIV status), commence treatment only after they begin experiencing AIDS-related illnesses. This is a major reason why late initiation is still associated with high rates of mortality during the first months following the initiation of HIV treatment (5–9).

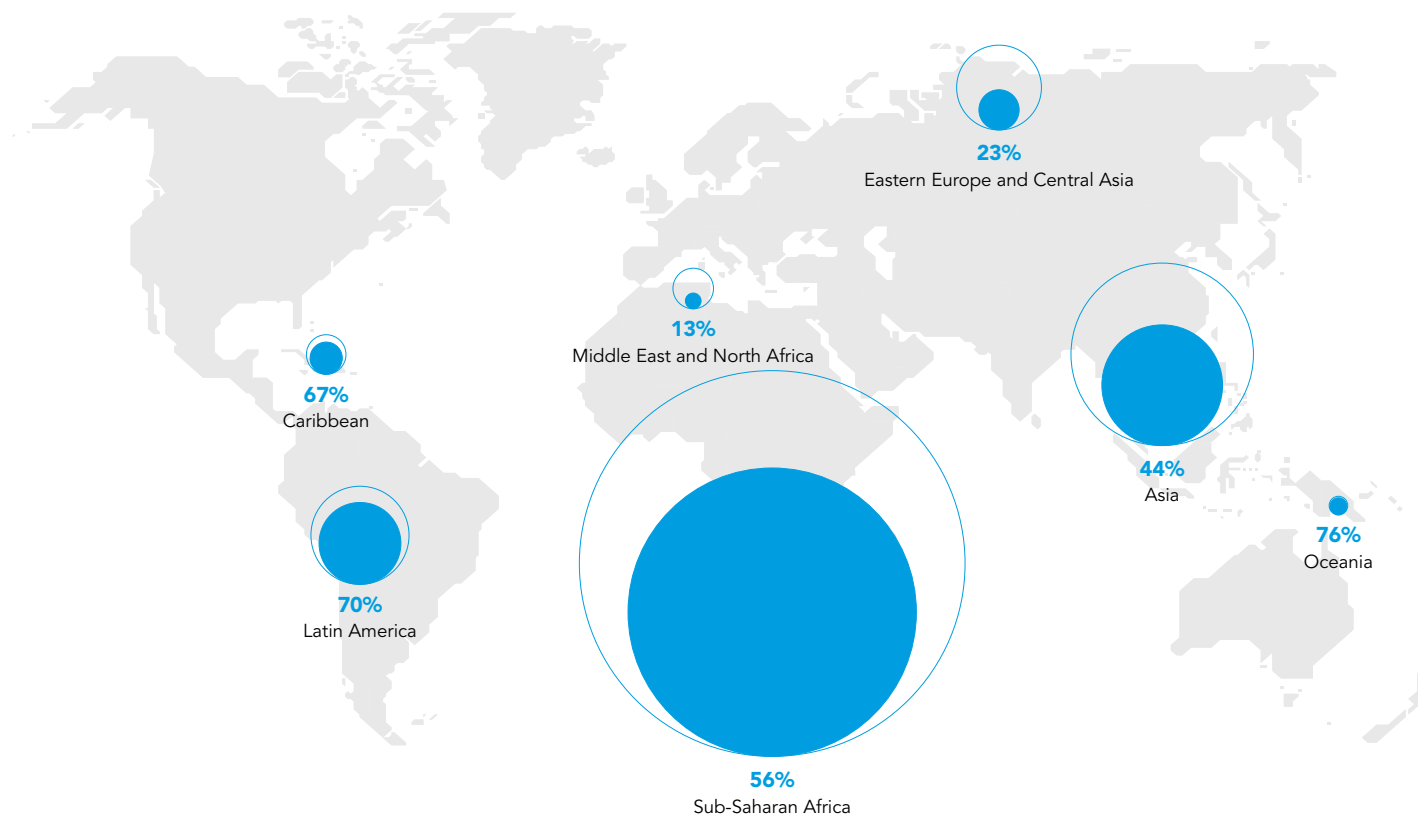
There are practical ways around these barriers. In South Africa, for example, people who received their CD4 test result at the same time as they were diagnosed with HIV infection were twice as likely to start treatment within three months as those who had to wait an extra week to get the same results (10).

Drug resistance

As more people start antiretroviral therapy, concerns are growing about the possible increase in HIV drug resistance. HIV mutates rapidly, and since treatment is intended to be lifelong, more drug-resistant strains of the virus seem likely to emerge.

Low to moderate levels of transmitted drug resistance have been observed, but the need for vigilance remains. The rate of acquisition of HIV drug resistance in people on HIV treatment has remained relatively stable and low, thanks to the use of effective HIV regimens. However, the transmission of HIV drug resistance among people recently infected with HIV increased from about 1% in 2005 to about 3% in 2010. Among people initiating treatment in low- and middle-income countries, about

Eligibility for antiretroviral therapy versus coverage, low- and middle-income countries, by region, 2011



The area of the larger circle represents the number of people eligible for antiretroviral therapy. The shaded circle and percentage represent coverage in 2011.

5% had drug resistance in recent surveys, with resistance increasing somewhat with the scale-up of treatment programme coverage (12). WHO has developed a global strategy for preventing and assessing HIV drug resistance in collaboration with the WHO HIVResNet. More than 60 countries had implemented one or more elements of the strategy by mid-2011 (13). The strategy has two components. The first is monitoring programme performance,

to detect and minimize events associated with the development of resistance, such as poor adherence, stock-outs, prescription of inappropriate regimens and errors in dispensing. The second pillar is surveillance of resistance among people newly infected with HIV and among people receiving antiretroviral therapy. Both are essential to avoid the development of resistance and to design effective first- and second-line regimens.

HIV and tuberculosis coinfection

HIV-related tuberculosis (TB) remains a serious challenge. In 2010, 8.8 million people acquired active TB worldwide, of which 1.1 million were living with HIV. TB remains the leading cause of death among people living with HIV. More than 80% of the people living with HIV and TB are in sub-Saharan Africa; in some countries in this region, up to 82% of people with TB are also living with HIV (14). Action to tackle HIV and TB jointly is increasing, but it needs to accelerate further.

Reducing mortality figures will require increasing TB cure rates from 70% to 85%, detecting at least 80% of TB cases among people living with HIV and ensuring that at least 30% of people with HIV who do not have active TB receive isoniazid preventive therapy, an inexpensive and highly effective regimen (2).

AIDS-related mortality decreasing

Increasing access to antiretroviral therapy has resulted in significantly fewer people dying of AIDS-related causes. The number of people dying annually from AIDS-related causes worldwide decreased from a peak of 2.3 million [2.1 million–2.5 million] in 2005 to an estimated 1.7 million [1.6 million–2.0 million] in 2011. The impact of HIV treatment is most evident in sub-Saharan Africa, where an estimated 550 000 (or 31%) fewer people died from AIDS-related causes in 2011 than in 2005, when the number of AIDS-related deaths peaked.

In **sub-Saharan Africa**, increased access to HIV treatment has reduced the number of people dying from AIDS-related causes from an annual peak of 1.8 million [1.6 million–1.9 million] in 2005 to 1.2 million [1.1 million–1.3 million] in

2011. Almost half these deaths occurred in southern Africa. In **Latin America**, wide access to antiretroviral therapy has helped reduce the annual number of people dying from AIDS-related causes to 57 000 [35 000–86 000] in 2011, down from 63 000 [35 000–105 000] 10 years earlier. In the **Caribbean**, an estimated 10 000 [8000–12 000] people died from AIDS-related causes in 2011, about half as many as in 2001. The annual number of people dying from AIDS-related causes in **Oceania** fell to 1300 [1000–1800] in 2011, down from about 2300 [1700–3000] during 2006.

In **Western and Central Europe** and **North America**, the extensive availability of antiretroviral therapy, especially in the countries with the largest epidemics, has significantly reduced AIDS-related mortality. The combined number of people dying from AIDS-related causes in these regions has varied little during the past decade and totalled an estimated 29 000 [26 000–36 000] in 2011.

Although the numbers of AIDS-related deaths are declining globally and in most regions, this trend is not universal. The number of people dying from AIDS-related causes has remained stable in **Asia**, where the number of people dying from AIDS-related causes in 2011 totalled an estimated 330 000 [260 000–420 000], the largest number of deaths outside of sub-Saharan Africa. In **Eastern Europe and Central Asia**, AIDS-related deaths continue to rise. In 2011, an estimated 90 000 [74 000–110 000] people died of AIDS-related causes, six times more than the estimated 15 000 [11 000–26 000] in 2001. AIDS-related deaths in the **Middle East and North Africa** increased from 14 000 [8600–28 000] in 2001 to 25 000 [17 000–35 000] in 2011.



JOSÉ GOMES TEMPORÃO

Executive Director, South American Institute of
Governance in Health

IMPLEMENTING TRIPS FLEXIBILITIES WILL HELP END AIDS

The right of access to health is a principle of Brazil's national health system. Sustaining this public health policy is a major challenge.

As Brazil's Minister of Health during President Lula's second term, I made every effort to keep up this commitment, understanding that all people living with HIV need timely, continuous access to treatment. In 2007, after protracted negotiations with the patent holder, the Government of Brazil issued a compulsory license for efavirenz, used by one third of Brazilian people with advanced HIV disease at the time. This was not an easy decision for the government, but it was the right decision to protect the public interest. It gave us access to generic versions and reduced our costs by about US\$ 95 million over five years, thus guaranteeing the sustainability of our treatment programme.

By using the flexibilities provided by TRIPS and the 2001 Doha Declaration on TRIPS and Public Health, we were able to use resources more efficiently and introduce new third-line drugs to ensure options for people living with HIV to enjoy longer and better lives.

As President Lula stated at the time, the government must use all measures to protect the right to health of all citizens. It worked for Brazil, and it could make a difference to help end AIDS in other countries as well.

Progress has been made in eliminating new HIV infections among children and keeping mothers alive

One year ago, the Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive (15) was launched at the United Nations General Assembly High Level Meeting on AIDS. This plan, launched by UNAIDS and the United States Office of the Global AIDS Coordinator, includes two ambitious targets for 2015: reduce the number of children newly infected with HIV by 90%; and reduce the number of pregnancy-related deaths among women living with HIV by 50%. Although the Global Plan involves all countries, 22 countries (including 21 in sub-Saharan Africa) have been given priority, since they account for nearly 90% of pregnant women living with HIV.³

Progress has been made towards reaching the targets of the Global Plan. The number of children acquiring HIV infection continues to decline as services to protect them and their mothers against HIV expand.

About 330 000 [280 000–380 000] children were newly infected with HIV in 2011, almost half the number in 2003, when the number of children acquiring HIV infection peaked at 570 000 [520 000–650 000] (2), and 24% lower than the number of children newly infected in 2009 (the baseline year for the Global Plan). Among the 21 Global Plan priority countries in sub-Saharan Africa, the number of children newly infected decreased from 360 000 [320 000–420 000] in 2009 to 270 000 [230 000–320 000] in 2011, a 25% decrease. With accelerated efforts, the number of children acquiring HIV infection can probably be reduced by 90% by 2015 from the baseline year of 2009. The estimated number of women living with HIV dying from pregnancy-related causes has declined worldwide by 20% since 2005.

Focusing on children

The pace of the improvements is impressive.

Decline in new HIV infections among children, 2009–2011

The Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive identified 22 priority countries. Many of them need urgent action to achieve the Global Plan target. Greater progress is possible.

Rapid decline

Will reach the target if the 2009–2011 decline of more than 30% continues through 2015.

31%	Ethiopia
31%	Ghana
43%	Kenya
60%	Namibia
49%	South Africa
39%	Swaziland
55%	Zambia
45%	Zimbabwe

Moderate decline

Can reach the target if the decline in 2009–2011 of 20–30% is accelerated.

22%	Botswana
30%	Burundi
24%	Cameroon
20%	Côte d'Ivoire
21%	Lesotho
26%	Malawi
24%	Uganda

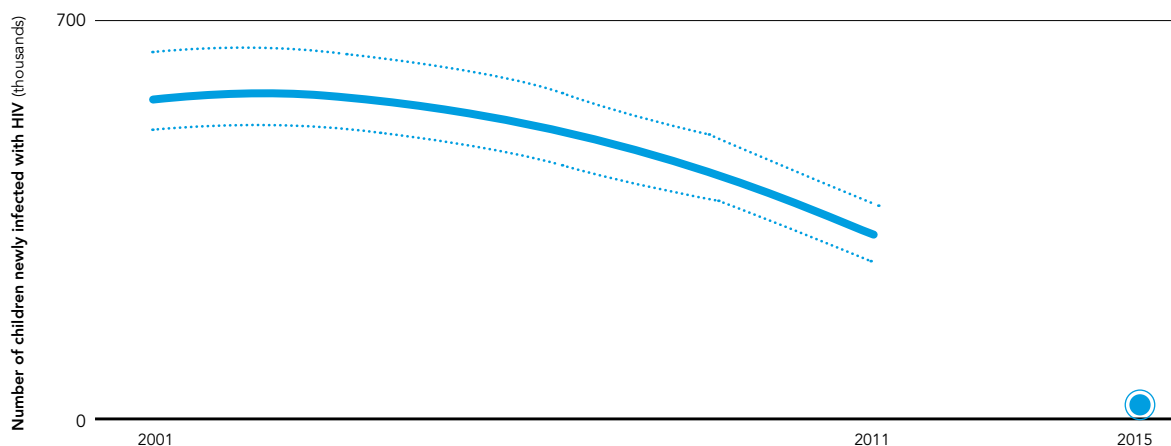
Slow or no decline

In danger of not reaching the target, with a decline in 2009–2011 of less than 20%.

0%	Angola
4%	Chad
–	Democratic Republic of the Congo
5%	Mozambique
2%	Nigeria
19%	United Republic of Tanzania
–	India

Note: The baseline year for the Global Plan is 2009. Some countries had already made important progress in reducing the number of new HIV infections among children in the years before 2009, notably Botswana which by 2009 already had 92% coverage of antiretroviral regimens among pregnant women and a transmission rate of 5% (see table pp122–123). In countries with high coverage, further declines are much harder to achieve.

New HIV infections among children (0–14 years old), 2001–2011 and the target for 2015



The cumulative number of new HIV infections averted among children more than doubled between 2009 and 2011 in low- and middle-income countries, as services to eliminate new HIV infections among children expanded (1). Almost 600 000 new HIV infections among children have been averted since 1995 because of antiretroviral prophylaxis being provided to pregnant women living with HIV and their infants. Most of the children who averted infections live in sub-Saharan Africa, where the number of children who acquired HIV infection in 2011 (300 000 [250 000–350 000]) was 26% lower than in 2009.

Drastically reducing the numbers of children newly infected with HIV will depend especially on progress being made in the priority countries identified in the Global Plan.

Focusing on mothers

In low- and middle-income countries, an estimated 1.5 million [1.3 million–1.6 million] women living with HIV were pregnant in 2011. Reaching the target of halving the number of mothers dying among these women requires that all the estimated 620 000 [600 000–700 000] pregnant women living with HIV who are eligible for treatment receive it. This is especially crucial in sub-Saharan Africa, where AIDS is the leading cause of mothers dying (16).

Globally, the number of women dying from AIDS-related causes during pregnancy or within 42 days after pregnancy ends (referred to as pregnancy-related deaths) was estimated to be 37 000 (18 000–76 000) in 2010, down from an estimated 46 000 (23 000–93 000) deaths in 2005. Among the 22 high-priority countries, the

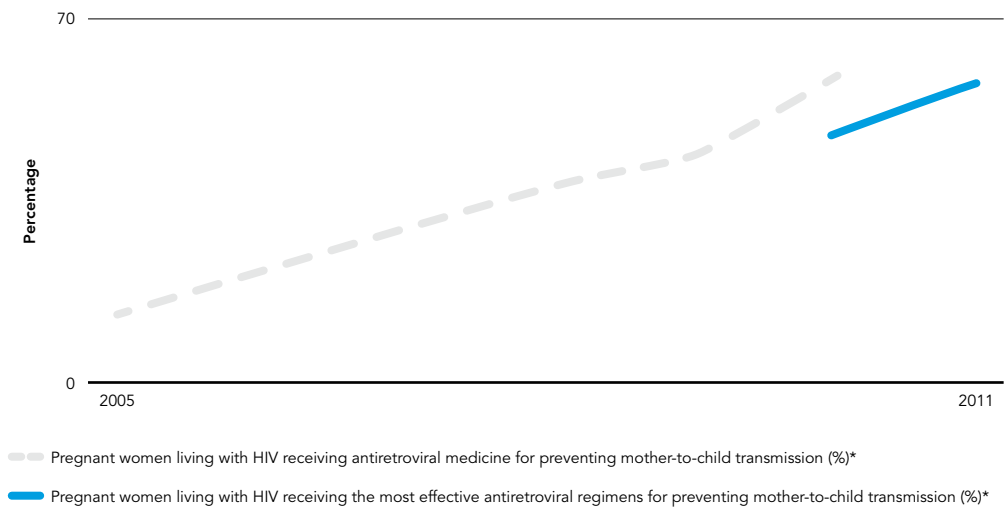
number of pregnancy-related deaths among mothers living with HIV decreased from 41 500 (21 000–84 000) in 2005 to 33 000 (16 000–68 000) in 2010 (17).

If HIV infection in children is to be eliminated and mothers kept alive, a comprehensive package of interventions must be implemented. This package involves a series of steps that starts with preventing women from becoming infected with HIV. Expanding community engagement in creating demand and expanding community support services linked to health facilities at the primary level of care are essential for successfully delivering the package.

Preventing reproductive-age women from acquiring HIV infection

In several countries with high levels of HIV prevalence, steep drops in the number of adults acquiring HIV infection since 2001 have helped to reduce the number of pregnant women living with HIV and, in turn, reduced the number of children newly infected. Further reducing the number of people acquiring HIV infection in the general population will help to reduce the number of children infected even more. Recent recommendations by WHO to provide HIV testing and counselling to couples and to offer antiretroviral therapy for HIV prevention in serodiscordant couples could reduce the number of people newly infected

Coverage with antiretroviral regimens among pregnant women living with HIV, low- and middle-income countries, 2005-2011



*Coverage in 2010 and onwards cannot be compared with previous years as it does not include single-dose nevirapine, which WHO no longer recommends.

further. When couples are counselled and tested for HIV infection together they can make informed decisions about HIV prevention and reproductive health, including contraception and conception.

If a woman becomes infected with HIV during pregnancy or when breastfeeding, the probability of transmission to the child is higher than among women who are already living with HIV (18). It is therefore vital that pregnant women and women who are breastfeeding take extra precautions to avoid HIV infection.

New HIV infections among children can be dramatically reduced by 2015

Reducing the number of reproductive-age women acquiring HIV infection will also have long-range benefits to maternal health and reduce the number of

all women dying from pregnancy-related causes, especially in countries with a high prevalence of HIV infection.

Avoiding unintended pregnancies

Preventing unintended pregnancies is the second intervention that is critical for reducing the number of children acquiring HIV infection. In 17 of the 22 priority countries, more than 20% of married women report wanting to limit or space their next birth but lack access to contraception. A recent analysis of 6 of the 22 priority countries found that 13–21% of women living with HIV who knew their HIV status had an unmet need for family planning. Family planning services need to be made available to both women living with HIV and women who are HIV-negative.

Reducing the unmet need for family planning will improve the prospects of mothers surviving. Globally, an estimated 20% of pregnancy-related deaths could be prevented if unmet need for contraception were to be eliminated (19).

A recent study (20) suggested that using hormonal contraception potentially increases a woman's chances of becoming infected with HIV. After reviewing existing evidence, a group of experts convened by WHO determined that there is not enough evidence to suggest that women at higher risk of HIV infection should stop using hormonal contraception but highlighted the importance of using condoms for preventing HIV infection among women using hormonal contraceptives.

Reducing transmission of HIV from mothers living with HIV to their babies

The third intervention is to counsel and test pregnant women for HIV, and if they are living with HIV, to provide the services and medication necessary to ensure their health and reduce the risk of transmission to the child. In 2011, 57% of the estimated 1.5 million [1.3 million–1.6 million] pregnant women living with HIV in low- and middle-income countries received effective antiretroviral drugs to avoid transmission to the child. This is considerably short of the Global Plan's coverage target of 90% by 2015.

Among the 22 priority countries, Botswana, South Africa and Swaziland have achieved 90% coverage for preventing mother-to-child transmission with dual- and triple-therapy regimens. Ghana, Namibia, Zambia and

Zimbabwe appear to be on track to achieving this.

In the other priority countries, however, less than 75% of the estimated number of pregnant women living with HIV received antiretroviral therapy during pregnancy in 2011 (2). Elsewhere, coverage was especially low in western and central Africa (27% [23–30%]), North Africa and the Middle East (6% [4–9%]) and Asia (19% [14–25%]), where single-dose nevirapine is still in wide use (2).

Counselling and testing pregnant women and providing them with the necessary medication and services are only part of the intervention. The most effective antiretroviral regimens (excluding single-dose nevirapine, which is no longer recommended for pregnant women living with HIV except for emergency use among pregnant women who first present to the health facility during labour) must be provided to the mother and the child to prevent the children from acquiring HIV infection. Antiretroviral prophylaxis must be continued throughout breastfeeding. Among the 21 priority countries in sub-Saharan Africa, coverage of prophylaxis during pregnancy and delivery is estimated at 61%, but the estimated coverage drops to 29% during breastfeeding. Several of the priority countries have documented low rates of HIV transmission at six weeks of age because of increased access to high-quality services to prevent infants from acquiring HIV infection. However, the infection rates among children up to 18 months (and sometimes older) are still high because of transmission during breastfeeding.

Two options are currently recommended. Programmes that use option A need to distinguish whether or not pregnant women require antiretroviral therapy for their own health (CD4 count less than 350 cells per mm³) before starting antiretroviral medicine. Women who do not need antiretroviral therapy for their own health should receive antiretroviral medicine through 7 days after delivery, and their babies receive antiretroviral medicine through the end of the breastfeeding period. The additional step of CD4 testing before starting treatment is important for programmes that use option A. Not only will option A not protect the health of the women with lower CD4 counts but it is also less effective than option B in stopping transmission from mother to child when mothers are at advanced stages of HIV disease. Programmes that use option B can immediately start the regimen of three antiretroviral drugs, which will be administered until one week after breastfeeding has ended, while their infants receive a short course of 4–6 weeks of antiretroviral medicine. Some countries are considering switching protocols from option A to option B or to option B+, in which pregnant women start lifelong antiretroviral therapy immediately. Option B+ would bring further advantages, since it probably improves women's health and ensures that women and babies are protected from day one of future pregnancies, further reducing the chances of HIV transmission. In particular, in countries with high fertility, this may have a considerable effect on the number of children acquiring HIV infection. The increased resources needed for continued treatment may be offset by simplified procedures, improved

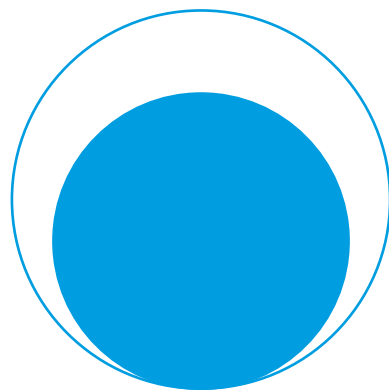
health outcomes for mothers and children and additional benefits, such as preventing HIV transmission in discordant couples and reducing the risk of developing resistant HIV strains as a consequence of treatment interruptions among women with multiple pregnancies (21).

High coverage and the most effective regimens will allow countries to reach the low mother-to-child transmission rates targeted by the Global Plan of 5% in breastfeeding populations and 2% in non-breastfeeding populations. Between 2000 and 2005, despite widespread knowledge of how to reduce mother-to-child transmission, the transmission rate remained flat.⁴ Initially, the coverage of vertical transmission interventions was too low to have any effect; once coverage

started to increase, the regimens were not strong enough to reduce the transmission rate substantially. Since 2010, when more effective prophylaxis regimens were introduced, the transmission rate has declined.

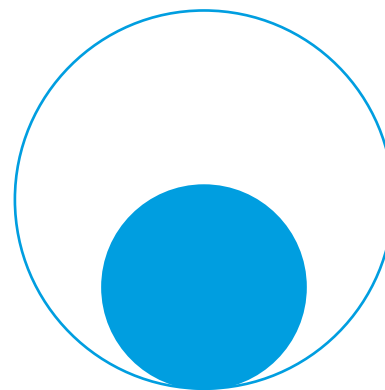
Lower rates of HIV transmission from mothers to children confirm the increasing success of countries' efforts to provide effective prophylaxis throughout pregnancy, delivery and breastfeeding. Between 2010 and 2011, much of the progress in reducing the transmission rate resulted from moving towards more effective regimens, whereas the number of women reached with any prophylactic regimen increased slowly.

Percentage of eligible mother-child pairs receiving effective prophylaxis to prevent new HIV infections among children, low- and middle-income countries, 2011



61%

During pregnancy and delivery



29%

During breastfeeding



LUCY GHATI

National Empowerment Network of People Living with HIV/AIDS in Kenya

ENDING NEW HIV INFECTIONS AMONG CHILDREN AND KEEPING THEIR MOTHERS ALIVE WILL HELP END AIDS

As a mother living with HIV, I would do everything in my capacity to stop passing the virus to my baby and I know that other women sharing my status would do the same. I believe we can end new HIV infections among children and keep their mothers alive: we have the scientific knowledge and tools to make this a reality and proof that it can be done. But in Kenya, one of every five children born to a woman living with HIV still gets infected with HIV.

Results from many locations show that providing antiretroviral therapy to pregnant women living with HIV will prevent the transmission of HIV to infants. But science will only work when programmes are well designed and address the unique challenges facing women. Only 60% of pregnant women living with HIV in Africa received the medicine needed to prevent their children from becoming infected with HIV in 2011.

Many programmes still focus on health facilities, even though half the relevant women do not access these facilities. This calls for better programme design, necessary investment and the meaningful and sustainable involvement of communities at all levels of the response. We need women and men to become agents of change, to build knowledge and demand and to advocate for resources, stronger community systems and the scaling up of services.

Challenges remain. One of five children born to women living with HIV was infected with HIV during pregnancy or through breastfeeding in 2011. More effective regimens and higher coverage can reduce this rate to less than 5%.

Providing treatment, care and support to mothers living with HIV and their families

As a result of the slow progress earlier in the decade, about 3.4 million [3.1 million–3.9 million] children younger than 15 years were living with HIV globally in 2011, 91% of them in sub-Saharan Africa. An estimated 230 000 [200 000–270 000] children died from AIDS-related illnesses in the same year.

The fourth intervention is to provide support, care and treatment to mothers living with HIV and to their families. Children who become infected when their mother is pregnant or while breastfeeding require early HIV diagnosis and timely treatment. Providing appropriate HIV treatment and care for mothers and children, including screening and managing TB, improves overall survival prospects for children. Failing that, disease progression and death is usually rapid: almost 50% of the children infected during pregnancy or delivery die within one

year, and about 50% of children infected during breastfeeding die within nine years of infection (22). The use of dried blood spots has increased access to early infant diagnosis. However, too many regimens for children are being used, complicating service provision, and efforts to simplify must continue to be made. As programmes to eliminate new HIV infections among children in antenatal care settings at the primary level of care continue to expand, more attention must be paid to ensure that children are diagnosed and treated in these settings.

There is still a major gap between children and adults in coverage of antiretroviral therapy. Globally, about 562 000 children received antiretroviral therapy in 2011 (up from 456 000 in 2010), but coverage was only 28% [25–32%]: higher than the 22% [20–25%] in 2010 but much lower than the 57% [53–60%] coverage of antiretroviral therapy among adults. Even though antiretroviral therapy services still reach only a small fraction of eligible children, substantially fewer children are dying from AIDS-related causes: 230 000 [200 000–270 000] in 2011 versus 320 000 [290 000–370 000] in 2005.

In 2011, an estimated 620 000 [600 000–700 000] pregnant women were eligible for antiretroviral therapy for their own health, but only 190 000 pregnant women living with HIV with a CD4 count less than or equal to 350 cells per ml received it. Fewer than half (45%) of pregnant women known to be living with HIV in low- and middle-income countries were even assessed for their eligibility to receive antiretroviral therapy in 2010⁵ (2).

Providing timely antiretroviral therapy to mothers living with HIV greatly reduces the indirect maternal mortality among them. In addition to reducing pregnancy-related deaths,

treatment allows mothers to live longer and more healthy lives.

Improving the retention of women and children in programmes for preventing mother-to-child transmission and in antiretroviral therapy is critical to reducing vertical transmission and keeping mothers and babies living with HIV alive and healthy. Enhancing community support and using mobile health technologies, such as text messaging for appointment and adherence reminders, as well as reducing the number of steps in the cascade of care are crucial to optimizing results.

Fewer adolescents and adults acquiring HIV infection but not declining rapidly enough

The number of adolescents and adults (adults means people 15 years and older in the remainder of this section) newly infected with HIV continues to decline globally as prevention efforts gain momentum. Nevertheless, the rate of decline is not sufficient to reach the goals of reducing the number of people acquiring HIV infection by 50% by 2015. The estimated number of adults acquiring HIV infection in 2011 was 2.2 million [2.0 million–2.4 million], 500 000 fewer than in 2001. This declining trend stems from a combination of factors, including the natural course of HIV epidemics, behavioural changes and increasing access to antiretroviral therapy.

Most of the adults newly infected are still living in sub-Saharan Africa,⁶ but the number acquiring HIV infection is declining. The number

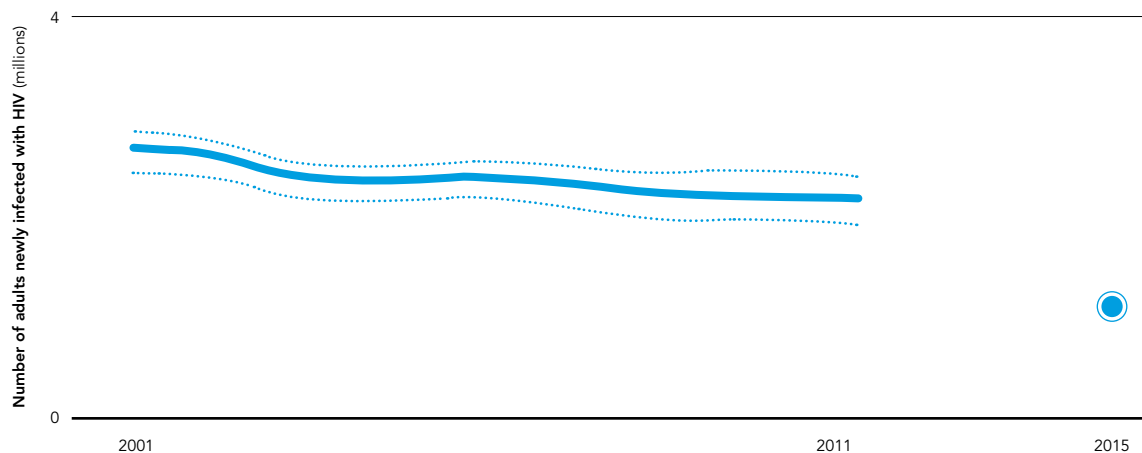
of adults acquiring HIV infection in 2011 in that region fell by more than 35% to 1.5 million [1.3 million–1.6 million] from the estimated 2.2 million [2.1 million–2.4 million] at the height of the epidemic in 1997.

HIV services are not yet reaching all key populations at higher risk of infection, such as sex workers, people who inject drugs and men who have sex with men. The number of people newly infected is therefore not declining sufficiently in areas where the epidemic is concentrated among key populations at higher risk. This is particularly evident in Eastern Europe, Central Asia, the Middle East and North Africa. After slowing in the early 2000s, the number of people newly infected in Eastern Europe and Central Asia has been rising again since 2008. The annual number of people newly infected has also risen in the Middle East and North Africa for the past decade.

Fewer new infections in several regions

Fewer people acquired HIV infection in **sub-Saharan Africa** in 2011 than in any year since 1997. An estimated 1.5 million [1.3 million–1.6 million] adults were newly infected with HIV in 2011, about 22% fewer than in 2001 and 3% fewer than in 2010. Modifications in risky

New HIV infections among adults, 2001–2011 and the target for 2015



behaviour, including a reduced number of sexual partners, increased condom use and delayed sexual debut provided the momentum for this downward trend, as did increasing coverage of biomedical interventions, such as male circumcision and antiretroviral therapy.

The vast majority of adults newly infected with HIV in sub-Saharan Africa acquire the virus during unprotected sexual intercourse, including paid sex and sex between men (23,24). Especially in countries with high prevalence, many of the people acquiring HIV infection have multiple and concurrent partners. Another important share of the people newly infected are HIV-discordant couples (25–29).

The rate of HIV transmission is also slowing in **Asia**. An estimated 360 000 [240 000–480 000] adults were newly infected with HIV in the region in 2011, considerably fewer than the 440 000 [290 000–510 000] estimated for 2001. This reflects slowing HIV incidence in

the larger epidemics, with seven countries accounting for more than 90% of people living with HIV: China, India, Indonesia, Malaysia, Myanmar, Thailand and Viet Nam (2). Although India has done particularly well, halving the number of adults newly infected between 2000 and 2009 (30), some smaller countries in Asia, such as Afghanistan and the Philippines, are experiencing increases in the number of people acquiring HIV infection (2).

Injecting drug use, unprotected sex between men and unprotected paid sex fuel the epidemics in this region. The prevalence of HIV among these key populations at higher risk is high in many Asian countries. Overall, an estimated 16% of the people who inject drugs in Asia are living with HIV (31), but the prevalence of HIV infection is much higher in some places. Between 8% and 32% of men who have sex with men are living with HIV in cities in China (32), India (33), Indonesia (34), Myanmar (35) and Thailand (36).

The annual number of adults newly infected with HIV in **Oceania** has declined in recent years, including in Papua New Guinea, which has the largest HIV epidemic in this region (37). In 2011, an estimated 2600 [1900–3500] adults acquired HIV infection, 17% fewer than in 2001. Most of the people who acquire HIV infection in this region get the virus by sexual transmission (38).

In the **Caribbean**, the estimated 12 000 [8700–14 000] adults newly infected with HIV in 2011 were 38% fewer than in 2001. Although most countries in the region have acknowledged that heterosexual transmission is a main route

More action is needed to halve sexual HIV transmission among people who inject drugs by 2015

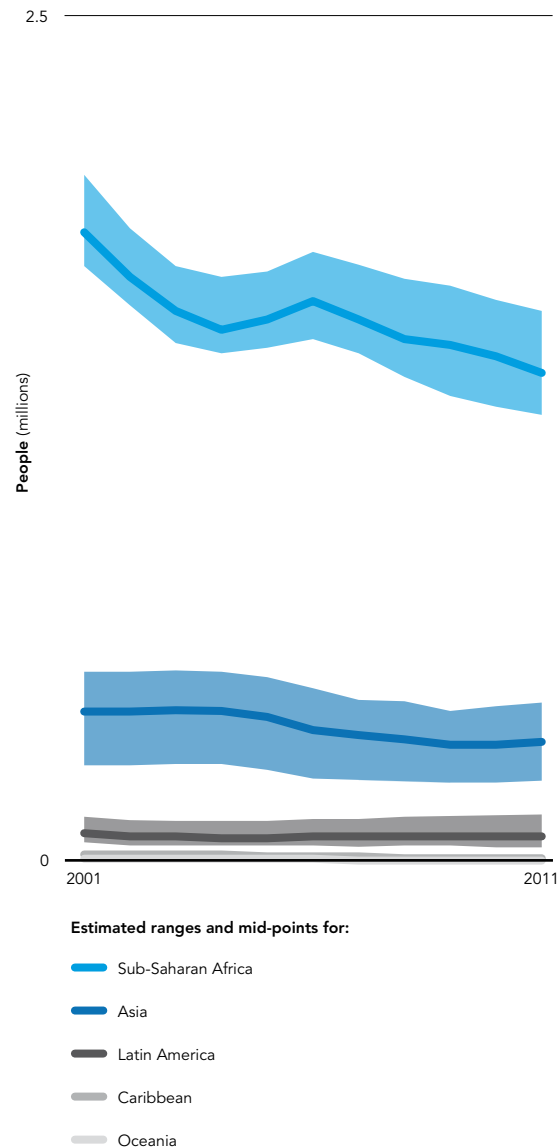
of HIV infection, with high prevalence among female sex workers (25), few have acknowledged unprotected sex between men as a factor in their epidemics. Yet studies have found the HIV prevalence among men who have sex with

men ranging from more than 5% in cities in the Dominican Republic (39) to 8% in the Bahamas, 19% in Guyana and 33% in Jamaica (40).

Stable incidence elsewhere

The HIV epidemics in **Latin America** have stabilized at comparatively low levels. However, nearly 100 000 people acquire HIV infection annually in this region. In most countries in this region, HIV is spreading mainly in and around networks of men who have sex with men. Studies have found an HIV prevalence of at least 10% among men who have sex with men

New HIV infections among adults, 2001–2011, in regions with declining and stable incidence



in 9 of 14 countries in the region, with infection levels as high as 19% in some cities (41–43). Injecting drug use is another significant route of HIV transmission in this region, especially in the southern cone of South America and in Mexico.

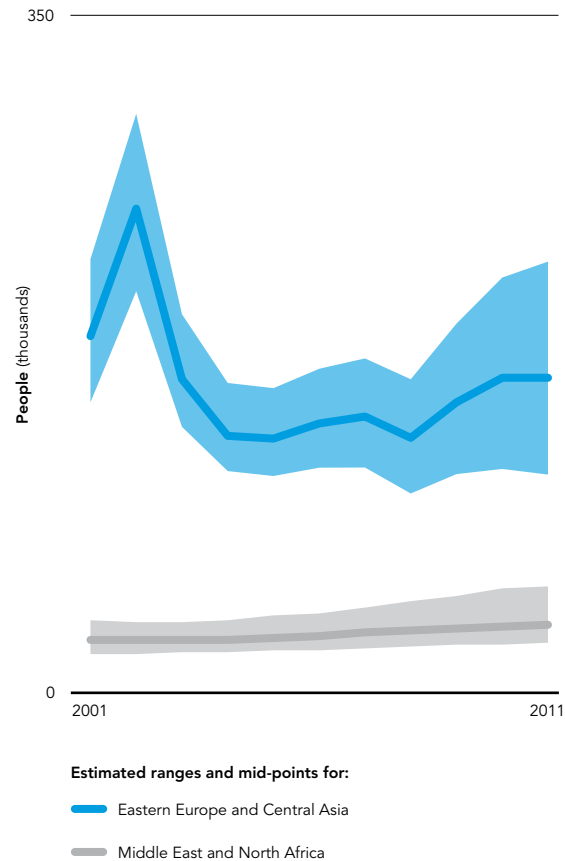
The incidence of HIV infection has changed little since 2004 in **North America** and **Western and Central Europe** overall, but there are troubling developments in some of the smaller epidemics in central Europe.⁷ An estimated 88 000 [54 000–156 000] adults were newly infected with HIV in 2011, compared with 79 000 [65 000–97 000] in 2001. Unprotected sex between men is still the main driver of HIV transmission in this region (44), with injecting drug use and unprotected paid sex relatively minor factors. The epidemics among men who have sex with men appear to be resurgent in North America and much of Western Europe (45).

Increasing incidence in two regions

There is no sign yet that the epidemics in **Eastern Europe** and **Central Asia** are slowing down. An estimated 160 000 [110 000–220 000] adults were newly infected with HIV in 2011, 22% more than in 2005. In the Russian Federation, the number of people reported newly diagnosed increased from 39 207 in 2005 to 62 581 in 2010 (2). Since 2005, newly reported HIV cases have also been increasing in the smaller epidemics in Central Asia (Kyrgyzstan, Tajikistan and Uzbekistan) (44).

The use of contaminated injecting equipment remains the main route of transmission in this region. The HIV incidence among people who inject drugs in St Petersburg, Russian

New HIV infections among adults, 2001–2011, in regions with rising incidence



Federation, for example, was 8.1 per 100 person-years in 2009, almost twice the rate five years earlier (46). Studies in other cities have found an HIV prevalence of 32–64% among people who inject drugs (47–49). An estimated 35% of women living with HIV in this region probably acquired HIV through injecting drug use, and an additional 50% were probably infected by partners who inject drugs (50).

The available evidence in the **Middle East and North Africa**⁸ points to ongoing increases in the number of people acquiring HIV infection. In 2011, an estimated 36 000 [26 000–56 000] adults acquired HIV infection, 29% more than in 2001. Unprotected sex (including between men) and sharing contaminated drug-injecting equipment are the primary drivers of HIV infection in this region (51).

Key programmes lag behind

Achieving prevention goals requires systematically implementing a comprehensive package of basic services, including greater efforts in reaching key populations at higher risk of HIV infection.

The global response to HIV appears likely to fail to meet internationally agreed targets for HIV prevention. Epidemiological data suggest that this failure primarily stems from a failure to adequately implement and scale up some of the basic programmes that aim to reduce HIV transmission among adults. These include: voluntary medical male circumcision, where appropriate; behavioural change programmes; condom promotion; and programmes for key populations at higher risk of HIV infection. Implementing voluntary medical male

circumcision programmes has been slow. This intervention has the potential between 2011 and 2025 to prevent 22% of the people who would otherwise acquire HIV infection from acquiring it in 14 countries of Eastern and Southern Africa if 80% of men aged 15–49 years are circumcised by 2015 and that coverage is maintained. Achieving this level of coverage requires that almost 21 million men be circumcised. By the end of 2011, over 1.3 million men had been circumcised, representing just over 6% of the target.

Some groups in society face exceedingly high risks of acquiring and transmitting HIV. People who sell sex, for example, have a disproportionately large burden of HIV. A recent meta-analysis of surveys in 50 countries (41) found an average prevalence of HIV infection among female sex workers of 12%. HIV data for male sex workers are scarce, but studies have found HIV prevalence of 14% in Campinas, Brazil (52), 5% in Shenzhen, China (53) and 16% in Moscow, Russian Federation (54). Studies suggest that the HIV prevalence among men who have sex with men in low- and middle-income countries could be 19 times higher than among the general population (55), and about one third of all the people acquiring HIV infection outside sub-Saharan Africa were infected in relation to injecting drug use (56).

HIV transmission is concentrated among key populations at higher risk in many countries, and yet the availability and uptake of services for these key populations is woefully inadequate. There are proven, effective methods to prevent HIV from being transmitted by sharing contaminated drug-injecting



OLGA BELYAEVA

Head of the Board of the Association of Substitution Treatment Advocates of Ukraine

STOPPING NEW HIV INFECTIONS AMONG INJECTING DRUG USERS WILL HELP END AIDS

The HIV epidemic is still growing in eastern Europe and central Asia. The main driver of this epidemic is the sharing of contaminated drug-injecting equipment. We can end HIV transmission among people who inject drugs. We know how to do that.

The success of well-designed and well-run harm reduction programmes in reducing HIV transmission is indisputable. I know this from personal experience. The introduction of harm reduction has changed the quality of my life and that of others who use drugs in Ukraine.

The benefits of needle and syringe programmes and opioid substitution therapy are obvious. There is increasing policy support for substitution therapy in the region, but coverage is still too low. Programmes must be adapted for women and girls who inject drugs; they remain in the shadows.

Current drug policies exacerbate stigma and discrimination against people who use drugs, and they limit access to comprehensive HIV services. 'Nothing for us without us' – the principle that people who use drugs should have a central role in decisions affecting them – is becoming a reality in our region, but a great deal still remains to be done.

We know harm reduction works. If we can make it work for more people, we can end the HIV epidemic in my region.

8 million received treatment

More than 8 million people living with HIV received antiretroviral therapy in low- and middle-income countries in 2011.

equipment (57,58), for example, but many countries still shun them (59).

Preliminary data from 95 countries reporting in 2011 suggest that less than 20% of countries for which data were available had HIV-testing coverage of sex workers of 80% or greater. About 15% reported HIV testing of people who inject drugs of 80% or greater. The poorest availability and uptake of testing services was reported for men who have sex with men, with less than 10% of countries reporting 80% or greater coverage.

Although efforts to provide treatment for people living with HIV and to prevent HIV being transmitted from mothers to their children appear to be nearly on track to achieve global targets, other basic HIV services are being neglected. Basic programme activities, including services that adequately address the prevention needs of key populations at higher risk and programmes that aim to change sexual behaviour and increase voluntary medical male circumcision need to be implemented to accelerate progress towards agreed prevention targets.

**SCIENCE INTO
ACTION**

Turning science into programmes

There have been many breakthroughs in scientific research and product development in recent years. Combined with the results of existing programmes, there is a clear opportunity to apply this knowledge to help end AIDS.

The global epidemic has slowed since the 1990s, with the help of collective efforts and significant investment in prevention, treatment, care and support. AIDS will not end of its own accord in the foreseeable future, but it is possible to see a route that can lead us to ending the epidemic. Efforts and investment will need to rise to meet this challenge.

There are four clear reasons why we can see a solution, and all of them are underpinned by political commitments. First, widespread changes in behaviour and other concerted, multifaceted actions have significantly reduced the number of people acquiring HIV infection.

We can see the route to ending AIDS

This reduction has been most dramatic in the most severely

affected countries. This encouraging trend towards fewer people becoming infected can be maintained through continued AIDS-focused social transformation and intensive tailored efforts that target risk. The momentum of an expanding epidemic is difficult to reverse, but a shrinking epidemic is much easier to manage, albeit with sustained effort.

Second, mass access to antiretroviral therapy, including in the most resource-constrained environments, has already reduced HIV-related illness and deaths and is poised to drive the number of people newly infected further downwards, as those living with HIV become less infectious. Widespread concern that access to antiretroviral therapy would distort priorities and harm health systems in countries struggling to provide even the most basic health services has proven unfounded. On the contrary, concerted efforts on HIV have more often lifted the capacities of health systems, especially in relation to procurement and related systems and facilities, with benefits felt across all health conditions.

Third, the goal of eliminating HIV transmission from mothers to their children has become a litmus test of equity and the health of women

and infants. In overcoming the global disparity between the countries in which infants are rarely infected with HIV and those in which this is still common, eliminating infections among children and keeping their mothers alive (1) has become a rallying point for collective action and global solidarity.

Fourth, there is a new willingness to be inclusive and respectful of human dignity in AIDS responses, even in relation to taboo and stigmatized behaviour. In many places, AIDS has brought to light social fault-lines and made visible the places and populations where social exclusion and marginalization have allowed the virus to become endemic. Responses to vulnerability which have built a broad platform of respect for inalienable human rights and supported gender equality have made significant contributions to positive social transformation.

Investment in AIDS has benefited from an increasingly accurate picture of where new infections are occurring, what actions need to be in place to prevent them, and the most urgent steps to ensure people in need are able to access treatment. The transition from small scale projects and proof of concept studies, to mass treatment access programmes has been realized. With this transition, unit costs have declined as systems have expanded to meet need and economies of scale and scope have been realized. As the AIDS response has changed gears from a short-term emergency response to a sustained long-term programme, both effectiveness and efficiency have come to the forefront of programming efforts.

Do more of what works

Each of these signals of change must be amplified if we are to chart a course to end AIDS. This requires overcoming the barriers that restrict access to treatment (2). A system-wide approach is required to ensure that individual options to control HIV can be translated into impact at the population level.

Individuals have more options to manage their risk of HIV infection, as do couples to address their risk together. These include managing sexual and drug-use behaviour, using condoms or clean injecting equipment to avoid transmission, reducing the risk of acquiring HIV through male circumcision and using antiretroviral therapy to keep the virus in check for those who are living with HIV.

As Anthony S. Fauci and Elly Katabira write below, the latest additional option is to provide antiretroviral therapy to people who are not infected with HIV but at high risk of exposure. Clinical trials have shown a significant reduction in the number of HIV-negative people newly infected when they take daily antiretroviral therapy during a sustained period. However, these trials have also shown that healthy individuals face a major challenge in adhering to daily antiretroviral therapy, even in the closely monitored and supported setting of a clinical trial.

Options can transform the response

Setting the epidemic on a decisive downward course requires that new HIV prevention and treatment options build on and add to existing responses. Individual benefits need

to be converted into systemic responses with population-wide impact. UNAIDS is convening an array of partners to ensure that the AIDS response is transformed in the next four years. To realize this potential, barriers to access must be removed. Services need to be reoriented to be more accessible at the grassroots level, using community- and people-centred delivery. Treatment and prevention programmes need to be overhauled so that people are empowered to use existing biomedical tools to prevent and treat HIV and integrate these biomedical tools into individual and community strategies to minimise risk.

This report documents the steady rise in access to antiretroviral therapy and the increasing value for money that can be achieved as programmes have moved to scale. Integral to this progress has been decentralizing care. HIV treatment was once confined to tertiary hospitals with specialist facilities located only in the largest cities, whereas today treatment can be made available at local and district health centres. Treatment can be devolved because of

Prevention options for individuals can be scaled up for population-level impact

improved supply chains, which can reliably deliver diagnostics and treatment. Although drug stock-outs continue to be a concern, early-warning systems and stock

control management systems are increasingly in place to minimize any disruptions.

As antiretroviral therapy regimens have become more stable and simpler, attention has turned to diagnostic systems. Developing and making

available these diagnostic technologies is a central plank of the Treatment 2.0 agenda developed by WHO, UNAIDS and diagnostic experts. This was designed to reduce prices and improve access while ensuring quality, reliability and accuracy. The key diagnostic steps in managing HIV are initially diagnosing and confirming HIV infection and monitoring CD4 cell count and viral load. Simplified diagnostic platforms for estimating the CD4 count at the point of care or in basic laboratory settings are starting to become commercially available and rapid testing for viral load is at an advanced stage of development. Technologies to test for multiple diseases such as HIV, tuberculosis, sexually transmitted infections and viral hepatitis using one simple, reliable device are also in the pipeline.

There is a pressing need to address the bottlenecks in human resource capacity to support HIV services. This was a key element for progress in the Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive (1) in the 22 countries with the highest burden of infants acquiring HIV infection. Task-shifting has been critical to delivering HIV programmes on a wider scale. At the first annual progress meeting of the Global Plan in May 2012, health ministers from many countries, including Burundi, Chad and the Democratic Republic of the Congo, described advances in service delivery, including nurses delivering antiretroviral therapy. In the United Republic of Tanzania, all family planning services integrate HIV services and vice versa; Ghana has issued a policy to provide free family planning to everyone; and Botswana has

integrated HIV services into all health settings providing antenatal care to pregnant women.

Testing is easier than ever

HIV testing, the first point of entry into HIV care, has become steadily simpler to use and less expensive to deliver because of technological advances over the past decade. In most cases, HIV testing is initially by rapid test, either of blood through a finger-prick or a swab of saliva, with results available within 30 minutes. These technologies have made mass testing drives feasible and have been deployed to great effect in South Africa. A concerted government effort launched in April 2010 resulted in nearly 14 million people being tested for HIV in the public and private sectors during a 15-month period (3).

Advances in testing technology and the wide availability of treatment have led to calls for HIV test kits to be made available for individuals to test themselves when and where they choose, without having to consult a clinical service provider. In 2011, WHO reviewed self-testing among health care workers who frequently have access to test kits in the workplace and made tentative moves towards regularizing this informal self-testing practice. The United Kingdom's largest community organization in the AIDS response, the Terrence Higgins Trust, has long advocated home self-testing, and the House of Lords Committee on AIDS in 2011 recommended a policy change that the government is now considering. Numerous studies and reviews of home self-testing in Kenya, Malawi and South Africa as well as Canada, the United Kingdom and the United

States have overwhelmingly found that they are highly attractive to potential users (4–6).

In April 2012, the Blood Products Advisory Committee of the United States Food and Drug Administration recommended approval for an application for over-the-counter sales of an HIV test kit, together with user information and access to a 24-hour information and referral hotline. Nearly 6000 people used the kit unobserved in a trial conducted for the application, which demonstrated 93% sensitivity and more than 99% specificity. Based on these results, it was estimated that, for every million tests sold, more than 9000 people who would not otherwise have known would find out that they were HIV-positive, resulting in an additional 700 people who would avoid becoming newly infected.

Male circumcision is simpler

Male circumcision is also becoming a simpler procedure that can be delivered in field settings. WHO and UNAIDS guidance for voluntary medical male circumcision to reduce the risk of acquiring HIV among adult males recommends a surgical procedure that can be performed in 20 to 30 minutes. Nonsurgical circumcision devices that simplify the procedure even further are being considered for WHO prequalification, and one such device has been recommended for scaled-up use in Rwanda. Subject to monitoring of its use and outcomes, the device may be recommended for use in other countries (7).

However, the uptake of male circumcision for HIV prevention has fallen far short of targets.

This may in part be explained by resource constraints, but considerable shifts in cultural and social norms are probably needed to increase demand for adult male circumcision significantly. Part of that change may come from publicity promoting circumcision, such as that greeting South African President Jacob Zuma's announcement in 2010 that he had been circumcised.

A prevention and treatment continuum

In the first two decades of the HIV epidemic, HIV was an invariably fatal, predominantly sexually transmitted disease that required urgently mobilizing communities. In this period, it became evident that the most effective responses depended on leadership, both from above in the form of supportive governments and social leaders, and from below, with mass community action. Success came where and when norms and social practices in relation to sex and drug use changed, often rapidly, to minimize the risk of HIV. What triggered this change varied between communities, but in many cases the visible impact of people dying from AIDS-related causes was pivotal (8).

In the past decade, antiretroviral therapy programmes have expanded greatly in low- and middle-income countries. As a result, access to antiretroviral therapy has greatly reduced sickness and death from AIDS.

The impact of antiretroviral therapy on sexual and other high-risk behaviour is complex (9), but one major impact is the larger number of people who know they are living with HIV and the additional option this knowledge gives them in managing the risk of transmitting

HIV within their relationships. Observational studies and clinical trials show unequivocally that, when individuals are receiving effective antiretroviral therapy, they have a low likelihood of transmitting HIV to other people.

In addition to measures to support retaining people who test positive for HIV in care, the effectiveness of treatment must be supported, through community support structures, for example. Couples are a vital point of entry for treatment support and are also a crucial entry point for reducing transmission within serodiscordant couples. Guidelines issued by WHO in April 2012 (10) make an important advance in recommending that, for couples in which only one partner is living with HIV, antiretroviral therapy should be offered to this partner, regardless of the CD4 cell count, to reduce the likelihood of transmitting HIV.

The predicament of serodiscordant couples illustrates the need to extend treatment access and effectiveness in the interest of public health. However, interrupting HIV transmission through antiretroviral therapy has far wider applications and is the subject of more than 50 studies still in progress (11). The outcomes of these studies will help to direct public health responses towards expanding HIV treatment in areas where this will have the greatest impact. In addition, a large multi-country trial, together with other smaller studies, is currently seeking a definitive answer to the question of whether starting treatment earlier results in better health outcomes for those living with HIV. However, enhancing the effectiveness of programmes using treatment for prevention does not need to wait until these research studies are completed.

The same steps are required as for antiretroviral therapy in its own right: identifying the people in need, ensuring continuity of care and supporting adherence. These programmatic efforts also need to overcome the systemic barriers that have prevented equitable access to care for some key populations at higher risk. For example, only an estimated 4% of the people living with HIV who inject drugs receive antiretroviral therapy (12).

Leadership for scaling up

The 2011 Political Declaration on HIV and AIDS agreed at the United Nations General Assembly High Level Meeting (13) set clear and specific global goals and targets aimed at overcoming the AIDS epidemic by reducing HIV incidence, getting people on treatment and eliminating violations of rights and inequities standing in the way of progress.

The 2011 Political Declaration on HIV and AIDS has mobilized leadership across many fronts. Regional initiatives boosting the response have come from the African Union,

New Partnership for Africa's Development, the Arab Parliament, the UN Economic and Social Commission for Asia and the Pacific, the Pan Caribbean Partnership Against HIV and AIDS, Latin American Ministers of Health and Education, and the Russian Federation and countries of Eastern Europe and Central Asia through an action plan on MDG6. National programmes are addressing scale and gaps in their responses. In developing the National AIDS Control Programme Phase IV for India (14), strategists assessed the progress made during the previous five-year plan and devised a full-scale response for AIDS control in the coming years. Key movements and sectors have engaged in AIDS responses as never before. For example, in May 2012 the GlobalPOWER Women Network Africa, gathered a group of women leaders to collectively address accelerating action for women's empowerment and gender equality in HIV and sexual and reproductive health and rights.

Support for scale-up must be galvanized worldwide

The beginning of the end?

Anthony S. Fauci & Elly Katabira



Extraordinary scientific advances are providing the tools to control and ultimately end the AIDS epidemic. One set of interventions is ready for wider implementation or awaiting the results of confirmatory trials, whereas others further away on the research horizon continue to show promise.

People living with HIV who can access and adhere to antiretroviral therapy and other needed services can live for decades, according to modelling studies, and in some cases their life expectancy can approach that of people in the general population (1,2). HIV testing is the critical gateway to therapy, and compelling emerging evidence suggests that widespread home-based testing and counselling can result in earlier diagnosis of HIV infection and linkage to care compared with traditional testing approaches (3). Retention in care following a

positive HIV test is also a critical challenge, and we are encouraged by recent data showing that high levels of retention are possible, even in resource-poor countries (4).

Implementing treatment as prevention has the potential to dramatically reduce the number of people acquiring HIV infection and to be cost-effective (or even cost-saving), especially when used in conjunction with behavioural counselling, condom use and other methods of prevention (5). A large prospective, randomized controlled clinical trial (6) dramatically fortified the evidence for this approach. Among more than 1700 heterosexual couples in which one partner was living with HIV and the other was not, starting combination antiretroviral therapy immediately in the partner living with HIV – when blood tests indicated his or her immune system was still strong – resulted in a 96% reduction in HIV transmission to the uninfected partner relative to deferring treatment until the same tests showed the immune system to be weaker.

Various test-and-treat strategies are being pursued in various populations, and several strategies are being evaluated to achieve effective uptake and sustained delivery of the complete HIV testing, linkage, treatment and retention platform. These strategies include approaches to increase demand for HIV testing and new ways to improve adherence, including mobile phone-based reminders.

At least three randomized clinical trials (one study enrolling men who have sex with men and two heterosexual couples) have suggested that oral pre-exposure prophylaxis (in which

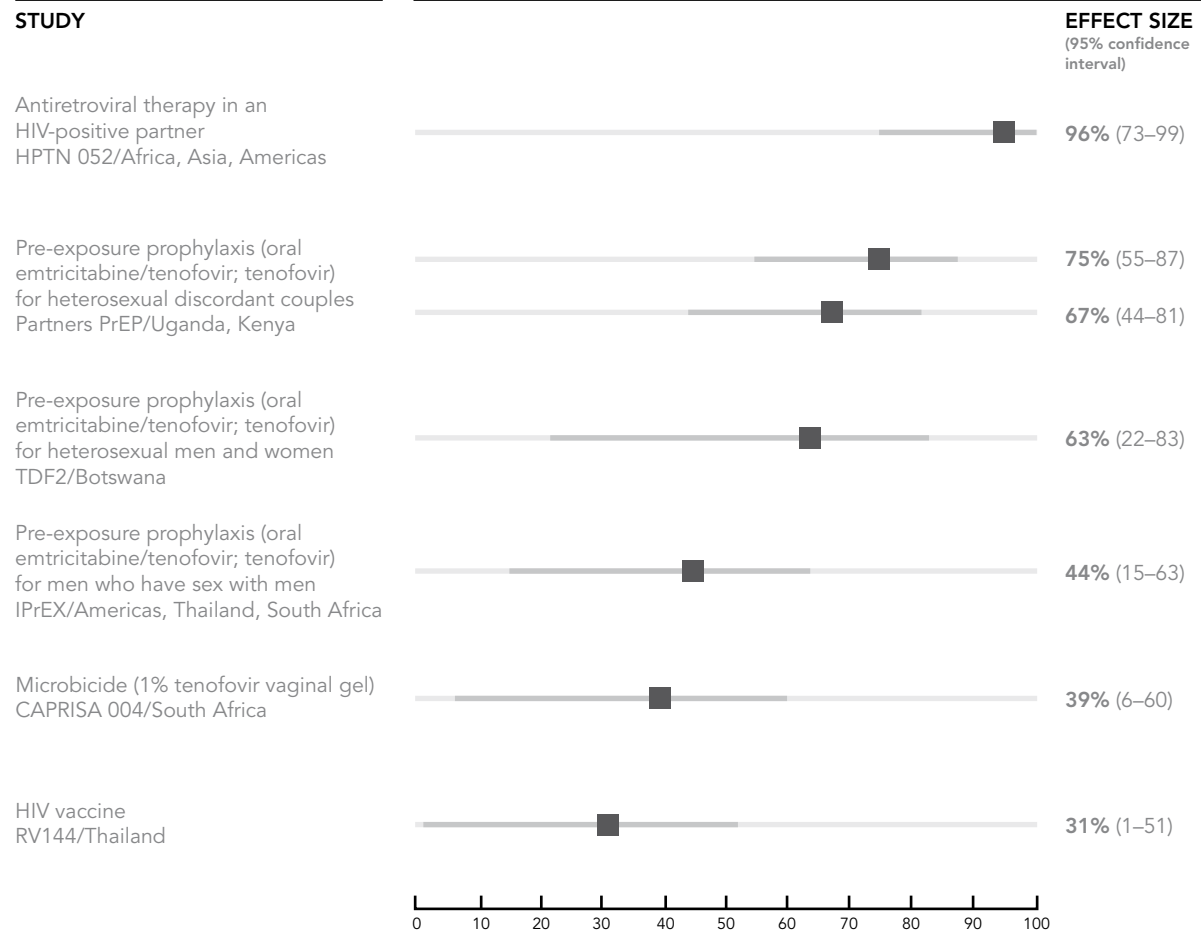
an individual at higher risk for HIV infection takes one or two antiretroviral drugs daily) may be effective, substantially reducing seroconversion.

In the iPrEx study, which enrolled 2500 men who have sex with men, the group taking pre-exposure prophylaxis had 44% fewer HIV seroconversions than the placebo group; the efficacy more than doubled among men with detectable study drugs in their blood (7). In the TDF2 study conducted in partnership between the United States Centers for Disease Control and Prevention and Botswana’s Ministry of Health, 1200 HIV-negative men and women in Botswana were randomized to take oral pre-exposure prophylaxis or placebo daily. Pre-exposure prophylaxis reduced the risk of acquiring HIV infection by 63%. The risk reduction was even greater (78%) among individuals believed to be taking the study drugs (8).

In the Partners PrEP Study, the uninfected partners in nearly 5000 HIV-serodiscordant heterosexual couples in Kenya and Uganda were randomized to take two-drug pre-exposure prophylaxis, one-drug pre-exposure prophylaxis or placebo. Relative to placebo, two-drug pre-exposure prophylaxis was associated with a 75% reduction in risk of acquiring HIV infection, and one-drug pre-exposure prophylaxis was associated with a 67% reduction in risk (9). The protective effects were similar for both men and women. Significantly, the study found no evidence of

“Treatment as prevention has the potential to dramatically reduce HIV incidence and to be cost-effective”

Selected HIV prevention technologies shown to be effective in reducing HIV transmission in randomized controlled trials



Source: Adapted from Karim SS, Karim QA. Antiretroviral prophylaxis: a defining moment in HIV control. *Lancet* 2011;378:e23–e25.

increased risky sexual behaviour in any of the three study arms. In two additional studies, however, pre-exposure prophylaxis showed no benefit in protecting heterosexual women from infection (10,11), perhaps because of poor adherence and/or dosing regimens that did not result in sufficient levels of drug at the vaginal mucosa (11–14).

Many questions about pre-exposure prophylaxis remain, especially its cost and safety and the danger of complacency with safer sex practices. Nevertheless, we anticipate that pre-exposure prophylaxis will prove useful and cost-effective as a targeted HIV prevention for certain individuals.

Topical gels and vaginal rings containing antiretroviral drugs also have shown promise as HIV prevention tools that could be applied to the vagina or rectum before sexual intercourse to block HIV infection. The CAPRISA 004 study demonstrated that using 1% tenofovir intravaginal gel before and after sexual intercourse was 39% more effective in preventing HIV infection than a placebo gel (15). Subsequently, a second study found no advantage to the daily use of a tenofovir-gel based microbicide over placebo gel (16,17), perhaps because of lower adherence and suboptimal drug levels in vaginal tissues with the daily dosing regimen (12,14). A vaginal ring containing the antiretroviral drug dapivirine was

safe and well tolerated in a study of African women and is scheduled to move into expanded safety and efficacy studies in 2012 (18).

On the horizon

Over the past two years, an accelerated research effort has been directed towards determining the exact mechanisms of HIV persistence and developing interventions to eliminate or permanently suppress HIV. The effects of a cure would be significant for an individual, obviating the need for lifelong daily therapy, and for society, reducing treatment costs and HIV transmissions (19).

Compelling evidence from animal studies and data from a large randomized clinical trial in Thailand have shown that an HIV vaccine is possible (20–22). These studies provided important leads to the types of immune responses that may contribute to a vaccine's protective effect, and this information can help to guide efforts to develop improved vaccines. Other data, such as identifying and structurally characterizing epitopes on the HIV envelope recognized by antibodies that can neutralize a broad range of HIV strains, are providing researchers with a way to design new components for next-generation vaccine candidates (23).

“Compelling evidence ... shows that an HIV vaccine is possible”

Anthony S. Fauci is the Director of the National Institute of Allergy and Infectious Diseases at the United States National Institutes of Health. Elly Katabira is the President of the International AIDS Society.

TRANSFORMING SOCIETIES

Social transformation is at the heart of the HIV response

The full potential of the recent breakthroughs in HIV prevention and treatment will not be realized if social, legal, gender and economic inequalities continue to undermine the coverage and uptake of HIV services.

HIV programmes achieve the best outcomes when they are founded in rights-based approaches, emerge from inclusive processes, draw on the knowledge and energies of affected communities and confront inequality and unfairness in society. Only then can scientific breakthroughs be used most effectively to improve people's lives.

Broader social transformation is paramount to halt and reverse the HIV epidemic

Protecting human rights, advancing gender equality and empowering communities are widely recognized as essential for the HIV response (1). These are the building

blocks for broader social and developmental progress.

More than 30 years of experience has taught the world that HIV responses work best when they are built on evidence, reflect local contexts and use the most effective interventions. Inclusive, rights-based approaches that harness the expertise of affected communities and networks of people living with HIV are the most successful. In addition, effective HIV responses need to address people's specific HIV and sexual and reproductive health needs, especially those of young women.

When affected communities help to plan and implement HIV initiatives, the demand for better and more equitable services increases, awareness of societal barriers and harmful gender norms is raised, governments are held accountable for meeting the needs of citizens and services and outcomes improve. This leads to broader social transformation, which is paramount to halt and reverse the HIV epidemic.

Empower communities

Communities are working to ensure that their governments honour their pledges to protect

Community support keeps people on treatment

One of the most effective ways of reducing the spread of HIV and mitigating its impact is to mobilize people to define, demand and shape HIV services in their own communities.

CLINIC-BASED TREATMENT

70%

still receiving treatment after two years

A recent systematic review of treatment programmes in sub-Saharan Africa reported that, on average, only 70% of the people receiving antiretroviral therapy from specialist clinics were still receiving treatment after two years.

Source: Fox MP, Rosen S. Patient retention in antiretroviral therapy programs up to three years on treatment in sub-Saharan Africa, 2007–2009: systematic review. *Tropical Medicine and International Health*, 2010, 15(Suppl. 1):1–15.



COMMUNITY TREATMENT MODEL

98%

still receiving treatment after two years

The Community ART Group model initiated by people receiving antiretroviral therapy in Mozambique, to improve access and retention on treatment and decongest health services, resulted in 97.5% of people still receiving treatment after 26 months.

Source: Decroo T et al. Distribution of antiretroviral treatment through self-forming groups of patients in Tete province, Mozambique. *Journal of Acquired Immune Deficiency Syndromes*, 2010 [Epub ahead of print].



the rights of people living with HIV and key populations at higher risk of HIV infection, remove gender inequalities and eliminate gender-based violence.

Community-led initiatives feature in virtually every aspect of the global HIV response. This affirms the unique advantages of community systems in supporting the scaling up of HIV services, especially HIV treatment and care. Experience shows that strengthening community systems and building strong links between state-run and community-managed service delivery networks help to increase the uptake of basic HIV services.

Community activism has been one of the driving forces behind the remarkable expansion of affordable HIV treatment and care in the past decade. Now community mobilization is also proving to be a vital factor in improving the design and management of those programmes, and in enhancing their outcomes.

Linking antiretroviral therapy services in adjoining communities appears to be an especially effective way to strengthen adherence to treatment (2,3). In Mozambique, antiretroviral therapy distribution and adherence monitoring by community groups proved a highly successful alternative model for

HIV programmes achieve the best outcomes when they are founded in human rights and when they engage affected communities

delivering services and retaining people in care, with 97.5% remaining in care after one year and only 0.2% lost to follow-up (4). The financial, economic and social costs of treatment were

significantly decreased for people who enrolled in community antiretroviral therapy groups (4).

Link treatment to communities

Other practical examples of links between treatment services and communities include establishing referral systems for patients who experience side effects, providing support for buddy systems and introducing community-assisted outreach to locate people who stop treatment. Treatment literacy and support groups have become vital to treatment and care programmes, along with the networks of community health workers that support these programmes. In South Africa, for instance, evidence indicates that people who receive support from community health workers tend to have better treatment outcomes than those who rely on formal clinic services. In fact, “after two years of treatment, community support emerged as the most important predictor of treatment success” (5).

Another example is in Ukraine, where communities of people who use drugs and are living with HIV provide physical care, psychosocial and legal support and lobbying and advocacy to protect the rights of people living with HIV (6). Elsewhere, community members help to provide health services, such as programmes to prevent children from acquiring HIV infection and to keep mothers alive. They do so in several ways: through community health workers and traditional birth attendants, for example, or by providing peer support. Community-driven communication encourages early attendance in antenatal care, encourages more men to become involved in such programmes and encourages timely



PHILL WILSON

President and CEO of the Black AIDS Institute

MOBILIZING COMMUNITIES WILL HELP END AIDS

Let's not get it twisted: nothing has ever happened in HIV that was not driven by the communities most impacted. Communities have been at the forefront of the HIV response since the earliest days of the epidemic, with community groups coming together and saying: "We are not going to allow this to happen to us", caring for each other and building their own institutions.

Still, some communities have borne a greater burden of the HIV epidemic than others. HIV prevalence among Black Americans is eight times higher than among whites, and Black Americans have not benefited equally from medical advances in HIV treatment.

Community-level outreach, engagement, support and advocacy initiatives are found in every area of the global HIV response. Community-based organizations were the first responders to the epidemic, providing a full spectrum of care, treatment and prevention services. They are uniquely positioned to provide the necessary scale-up. Partnerships are also important. Black Americans living with HIV are working together with the African and Black Diaspora Global Network to drive global and national HIV policy agendas to ensure resources reach communities where they are needed.

Communities need to jointly develop ideas that bring us to the end of the epidemic, because as long as HIV is raging in any community, all of us are vulnerable. This is our deciding moment; together we are greater than AIDS.



DAME CAROL KIDU

Former Leader of the Opposition, Papua New Guinea

RESPECTING RIGHTS WILL HELP END AIDS

I was privileged to serve on the Global Commission on HIV and the Law, which looked carefully at how law can help or hinder our response to HIV. We heard powerful testimonies of people living with HIV or vulnerable to it desperately needing the protection of the law to guarantee access to prevention and treatment and to protect against discrimination and violence. But too often the law punishes and doesn't protect. It criminalizes HIV transmission, as well as sex workers, people who use drugs and men who have sex with men.

All people, regardless of their social or legal status, have the right to health and to life. The law must protect them, protect open access to HIV and other health services, reduce the risk of police violence and abuse and make it possible to start dealing with the stigma and discrimination that people continue to experience.

I support the statement of the Executive Director of UNAIDS, that "No one should be infected by a virus that can be prevented, and no one should die from a virus that can be treated." HIV is such a virus. We have the means to prevent it and to treat it. Our human rights demand that we take action, and our leaders must rise to this challenge.

follow-up of infants who have been exposed to HIV (3,7,8).

Community and faith-based organizations also provide services and support for people living with HIV, including microfinance, nutritional assistance, childcare and various types of referral help and training. In remote areas, these organizations are often the only providers of such assistance. The African Religious Health Assets Program report estimates that faith-based organizations operate 30–70% of health care services in Africa (9).

Protect human rights

Programmes that protect the rights of people living with and affected by HIV and that increase their access to justice make basic HIV services more effective. For example, HIV-related legal advice and court representation can help to improve health outcomes. In Kenya, on-site legal services, human rights training for service providers and clients and referral to legal and health services are reported to have led to more people using health services and being satisfied with them. The users of health services said they felt empowered, referrals between services improved and rights violations were more likely to be reported or contested (10).

Integrating HIV-related legal services into harm-reduction programmes has also been shown to bring positive results. Such legal assistance can help in tackling police misconduct, bribery and harassment (11), all of which hinder access to HIV services. In addition to broadening the reach of harm-reduction programmes, legal services appear to have improved the self-esteem of people who use drugs and supported

them in taking their health needs more seriously (11).

Legal literacy is an important tool for empowering communities that face marginalization and harassment. The sex worker–managed organization Veshya Anyay Mukti Parishad in India (12) developed a legal literacy booklet that outlines the respective legal rights and obligations of sex workers and the police (13). Sex workers use the booklets to remind police officers of their rights under the law. Using the booklet has increased sex workers' confidence and improved their interactions with police (13). Such community-led programmes that focus on empowerment have been linked to lower HIV rates among sex workers compared with other approaches (14). Similarly, sex workers participating in the Sonagachi Project, also in India, were more likely to practise safer sex, and their relations with the police improved after they received know-your-rights training (15).

Provide rights training

It is important that law enforcement authorities know and uphold the rights of the communities they serve. When law enforcement officials are properly trained in human rights issues and HIV, the social and legal environments become more conducive to an effective HIV response. For example, such training enables the police to take decisions that reduce the health risks for people who use drugs or sell sex, especially when combined with a community policing approach that includes referral procedures to health and welfare services (16). In Papua New Guinea, where female sex workers face severe stigma and discrimination, the Poro Sapot

project started a training and sensitization programme for the police in 2010 (13). Since then, reports of violence against sex workers have decreased, and those who are subjected to violence are more likely to report their cases to the police (13).

Training health care providers on non-discrimination, patients' rights and medical ethics helps improve their interactions with people who use their services, the quality of care they provide and people's ability to protect their health more effectively (17). This is especially important in the many countries in which women's unequal status continues to frustrate their attempts to use health services. Health workers and other community members violating women's sexual and reproductive rights, especially those of women living with HIV, further undermines their right to health (18). These obstacles can be overcome, however, when health workers are sensitized to the needs and rights of women and girls and to their own ethical obligations.

Tackle legal barriers to the HIV response

HIV-related litigation has been used widely and successfully in all regions to challenge HIV-related discrimination and criminalization, broaden access to HIV treatment and secure people's right to confidentiality about their HIV status (19,20).

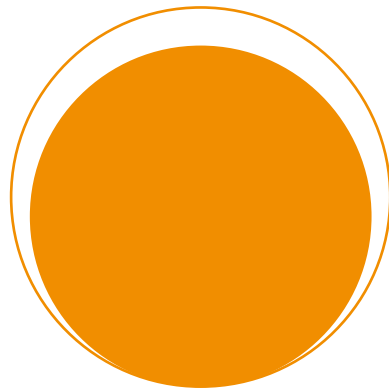
Court rulings have obligated governments to increase access to antiretroviral drugs in

Venezuela (21), widen access to services to prevent the mother-to-child transmission of HIV in South Africa (22) and allow affordable antiretroviral drugs to be produced in Thailand (23,24) and Kenya (25). Courts have also confronted HIV-related stigma and discrimination by affirming the employment rights of people living with HIV in Botswana, Brazil and Colombia (26–29) and by ruling against HIV-related restrictions on entry, stay and residence (30).

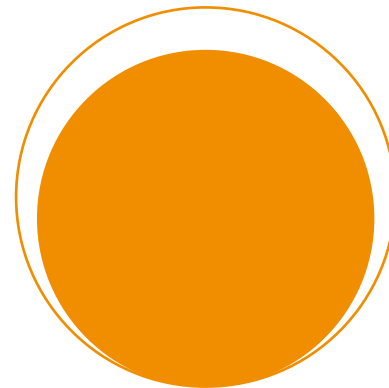
Court decisions can encourage social change on issues connected to the HIV epidemic, such as domestic violence, by enforcing the state's obligation to protect women (31) and promote gender equality (32). Judges have also ruled in favour of decriminalizing key populations at higher risk, such as people who use drugs (33) and/or sell sex (34), a move that often eases their access to HIV services. Community activists mobilizing public support often enable such landmark rulings.

The legal environment is not always supportive of the HIV response. In 2012, 80% of countries had general non-discrimination laws and 62% of countries reported having laws prohibiting discrimination against people living with HIV. Laws or policies protecting women from discrimination were reported by 78% of countries, 22% of countries reported having laws that protect men who have sex with men and 15% reported having laws that protect transgender people from discrimination (35).

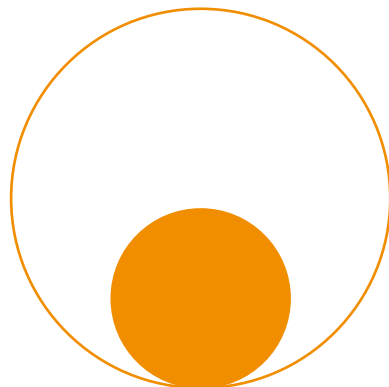
Percentage of countries reporting non-discrimination laws or regulations for specific populations



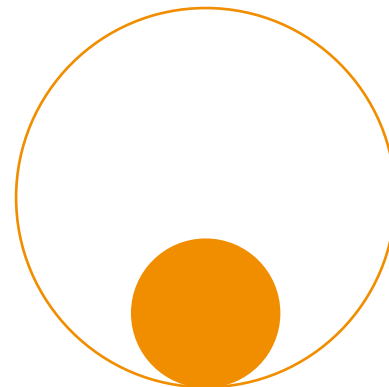
80%
General non-discrimination



78%
Women



22%
Men who have sex with men



15%
Transgender people

Source: Data from 162 countries. NCPI (National Commitments and Policy Instrument) data, nongovernmental sources, country progress reports, 2012. Geneva, UNAIDS, 2012.

Civil society activism has been instrumental in having laws enacted to protect key populations at higher risk from discrimination. For example, in May 2012, Chile passed an anti-discrimination law that explicitly includes sexual orientation and gender identity as prohibited grounds of discrimination, and Argentina approved a gender identity law that promotes equal access to health, education and work for transgender men and women and allows them to change their biological identity to the identity they present through a simple administrative procedure (36).

Forty-six countries, territories and areas restrict the ability of people living with HIV to enter, stay or reside in them (37). However, several have abandoned curbs, including Armenia,

Fiji, Namibia, Ukraine and the United States of America, while Ecuador and India have clarified that restrictions that were once in force no longer exist. Many countries still have laws that criminalize sex work (38), drug use (39) and sex between men (40), proscriptions that often are associated with marginalization, abuse and violence and blocking access to HIV and other health and social services.

Several countries have removed punitive laws in order to uphold human rights and enhance HIV responses. When the High Court of Delhi in India in 2009 decriminalized consensual same-sex relations, it explicitly noted that criminalization impeded the ability of men who have sex with men to access HIV prevention and treatment services (41).

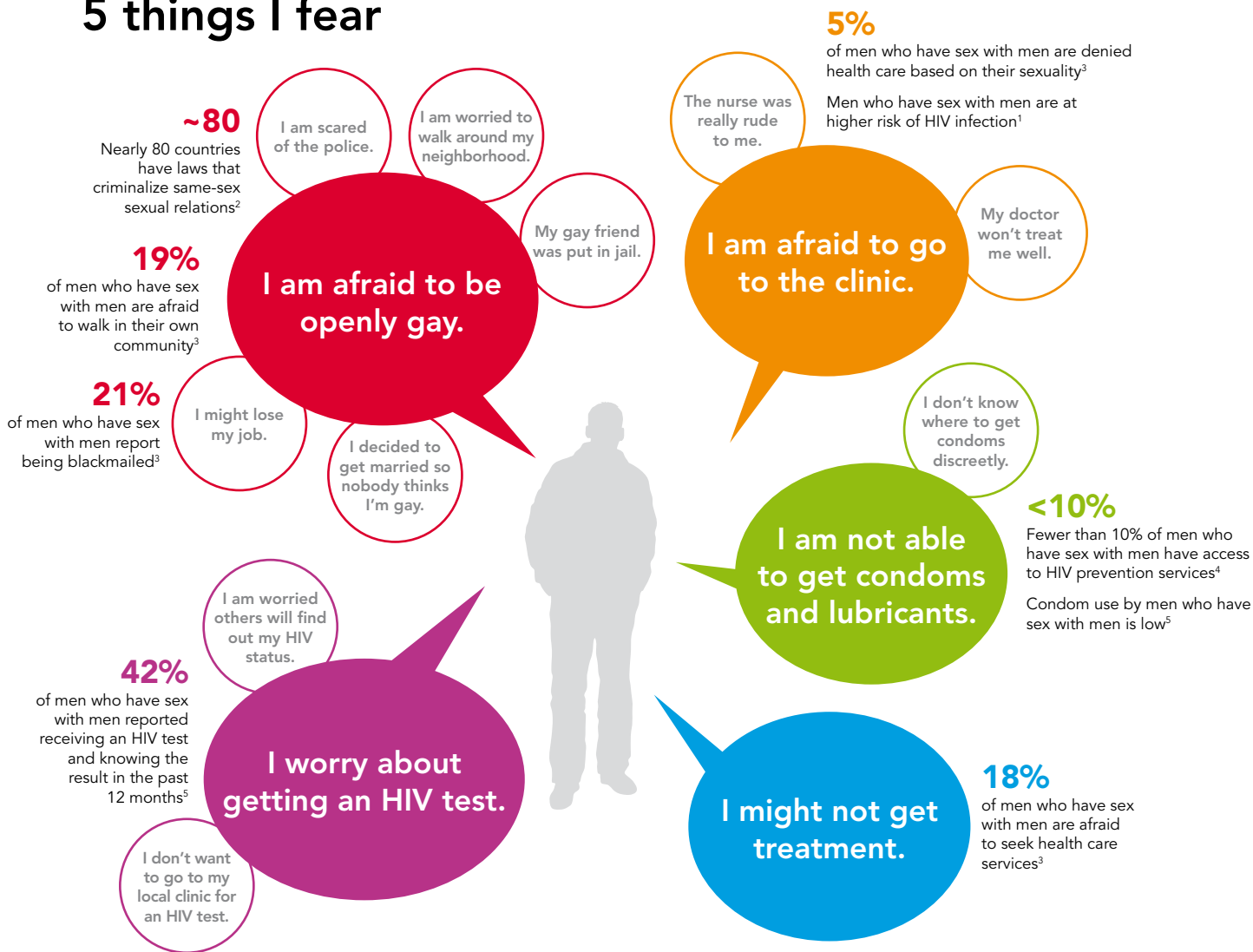
MURDERED GAY ACTIVIST STILL INSPIRES OTHERS

Gay activist David Kato set an example that has inspired many others to confront rights violations and inequities that rob them of their health and dignity.

“I am sure he felt that if his people only knew what tremendous harm intolerance and homophobia were causing to countless of their fellow citizens – including the spread of HIV as a result of vulnerable groups being forced underground away from effective prevention, treatment, care and support interventions – then all Ugandans would, in one voice, call for an end to such acts of cruel inhumanity.”

Maurice Tomlinson, a legal adviser on marginalized groups for AIDS-Free World, on receiving the inaugural David Kato Vision and Voice Award in London, United Kingdom on 29 January 2012.

I am gay: 5 things I fear



It shouldn't be like this...

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In 2003, New Zealand decriminalized sex work (42) and assigned to the Ministry of Health rather than the police responsibility for ensuring that sex-work enterprises monitor and protect the health of sex workers. The change has made it easier for sex workers to promote safer sex with their clients and has strengthened links with peer-based outreach services and with sexual and reproductive health clinics (43). After Portugal decriminalized possessing and using small quantities of narcotics in 2001 (44), illegal drug use among teens decreased (45) and the rates of people acquiring HIV infection from sharing contaminated injecting equipment declined (45).

Other barriers to securing the human and legal rights of people living with HIV remain in place, however. In the past few years, more than 100 countries have used the criminal law to prosecute citizens who fail to disclose their HIV serostatus or transmit HIV to others (46). The Global Network of People Living with HIV has identified 600 such convictions, most in high-income countries (47).

Some countries have been reconsidering their laws, practices and policies on HIV non-disclosure, exposure and transmission to ensure that applying criminal law in the context of HIV does not compromise public health outcomes (46,48). These are positive developments that can help to avoid the excessively broad criminalization of HIV transmission, which deters

people from seeking HIV services and increases stigma against people living with HIV (49).

Eliminate stigma and discrimination

HIV-related stigma and discrimination still obstruct efforts to protect people from acquiring HIV infection. According to surveys using the People Living with HIV Stigma Index, 20% of the people living with HIV surveyed in Rwanda and 25% of their peers in Colombia have experienced physical violence because of their HIV status. In Pakistan, 26% of people living with HIV say they have been excluded from family activities because of their HIV status (50), and at least 10% of their peers in Belarus, Myanmar and Paraguay have been denied health care because of HIV-related stigma (50). Large proportions of people living with HIV report losing their jobs or income because of their HIV status (50). Many people internalize this stigma: more than 60% of people living with HIV in Bangladesh, China, Myanmar and Scotland said they felt ashamed of being HIV-positive (50).

When stigma is reduced, however, people are more likely to get tested for HIV (51), initiate antiretroviral therapy and adhere to HIV treatment and care (52–63). There are also indications that reducing stigma helps to increase access to services for preventing mother-to-child transmission and reduce the incidence of mother-to-child transmission of HIV (64). More generally, the quality of HIV care by family members and friends improves when stigma is low (65).

Measuring stigma

The People Living with HIV Stigma Index is a tool to measure stigma and discrimination as experienced by people living with HIV. To date, 36 countries, territories and areas are using the Index to understand the extent and forms of stigma and discrimination faced by people living with HIV.

IMPEDING PROGRESS TOWARDS UNIVERSAL ACCESS

	COUNTRY OR REGION*									
	Belarus	China	El Salvador	Myanmar	Paraguay	Poland	Rwanda	United Kingdom	Zambia urban	Zambia rural
% EXPERIENCING STIGMA IN FAMILY AND COMMUNITY										
Excluded from family events	7	10	10	15	17	11	22	...	28	27
Gossiped about	67	39	48	45	56	55	42	63	72	80
% EXPERIENCING VIOLENCE										
Verbally insulted	42	30	31	18	26	...	53	40	52	51
Physically assaulted or physically harassed	14	6	7	10	9	25	20	22	17	33
% EXPERIENCING STIGMA AND DISCRIMINATION IN THE WORKPLACE										
Employment opportunity refused	17	14	8	15	8	11	37	...	...	...
Loss of job or income	28	...	19	...	12	17	65	...	36	39
% EXPERIENCING INTERNALIZED STIGMA										
Feel ashamed or have low self-esteem	36	75	...	81	43	38	22	63	36	38
Feel suicidal	7	...	17	25	22	19	14	25	8	22

*These countries represent a cross-regional snap-shot of information collected using the People Living with HIV Stigma Index.

Protect women and girls

HIV affects women and girls everywhere, although disproportionately so in sub-Saharan Africa, where they comprise 60% of people living with HIV. Globally, an estimated 1.2 million [1.1 million–2.8 million] women and girls newly acquired HIV infection in 2011.

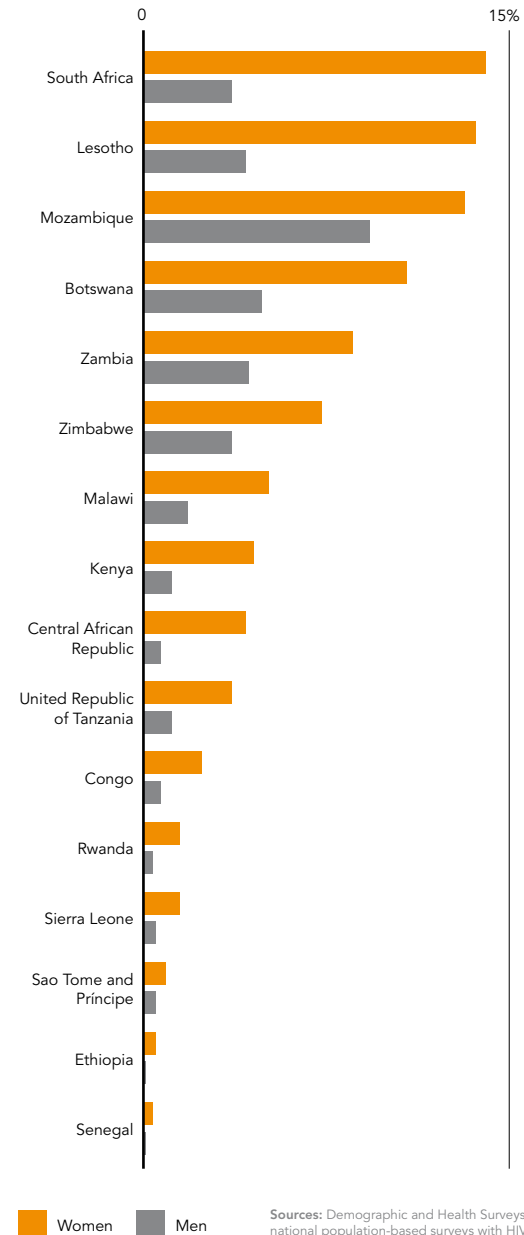
Studies show that, in generalized epidemics, early sexual debut, early marriage and sexual violence are significantly associated with an increased risk of women acquiring HIV infection. One study in South Africa found that an estimated one in seven of the cases in which women aged 15–26 years old acquired HIV infection was associated with gender power imbalances and intimate partner violence (66). Such findings suggest that improving women’s social and economic status can cut their risk of acquiring HIV infection by reducing their dependence on male partners and boosting their decision-taking power.

Governments increasingly recognize the importance of gender equality in national HIV responses. In 2012, 81% of countries reported that they included women as a specific component of their multisectoral HIV strategies, meaning that 19% had no strategy that specifically included women. Of those including women in their HIV strategies, only 41% allocated a specific budget for those activities (35).

Combat harmful gender norms

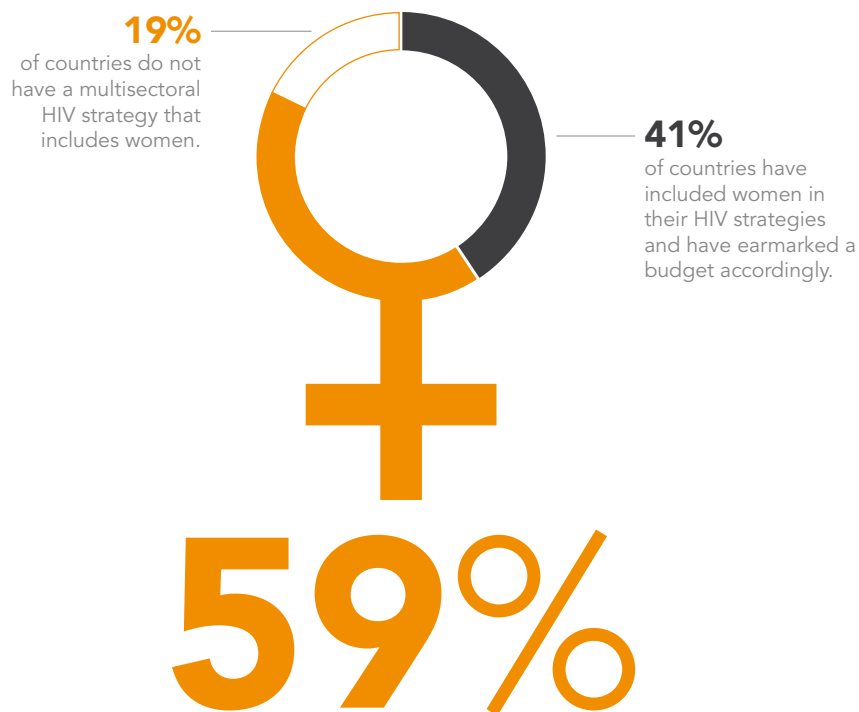
Broad, socially transformative programmes that promote gender equality and discourage gender-based violence are a smart investment to turn the tide of the HIV epidemic and

HIV prevalence (%) among people 15–24 years old, by sex, selected countries, 2008–2011



Women need funded HIV strategies

Globally, women represent 49% of all adults living with HIV. Young women have a much higher risk of acquiring HIV than young men. HIV strategies therefore need to account for the specific needs of women and girls, and they need budgets to get implemented.



Of 170 countries reporting in 2012, 59% did not have a multisectoral HIV strategy, including women, with an earmarked budget. Some 40% had included women as a sector in their HIV strategies but had not earmarked a budget. The other 19% had neither an HIV strategy nor an earmarked budget.

Source: NCPI (National Commitments and Policy Instrument) data, government reporting, from 2012 country reports. Geneva, UNAIDS, 2012

help reach the health-related Millennium Development Goals. Increasingly, evidence shows that gender equality not only contributes to HIV prevention but also leads to improved sexual and reproductive health (67,68). Higher socioeconomic status, as well as delayed sexual debut and marriage, enable greater financial self-reliance, independence from male partners and more autonomous sexual decision-making (68). These are associated with better maternal health and sexual and reproductive health outcomes. Eliminating gender barriers can contribute to improved service delivery and better health outcomes for women and girls (52).

Human rights, gender equality and community empowerment boost HIV responses and broader social and developmental progress

Evidence suggests that involving men in programmes addressing HIV, sexual and reproductive health and gender-based violence is essential to challenge harmful gender norms (69). In 2012, 72% of

countries (versus 67% in the last reporting round) reported having promoted the greater involvement of men in reproductive health programmes offering information, education and communication (35).

Economic empowerment

Increasing evidence (70–72) indicates that education levels often correlate with factors that substantially lower HIV risk, such as delayed sexual debut, greater HIV awareness and knowledge, and higher rates of condom use. In a study in Malawi, girls receiving conditional cash transfers were 60% less likely to acquire

HIV infection compared with their counterparts who did not receive the payments (73). The women who received monthly cash transfers were more likely to delay sexual debut and had fewer partners. The cash transfers appear to have reduced the risks of acquiring HIV infection by keeping girls in school and making them less financially dependent on (usually) older male partners (74). These and similar interventions, such as microfinance and training schemes for women, have the potential to help reduce higher-risk HIV behaviour (75,76).

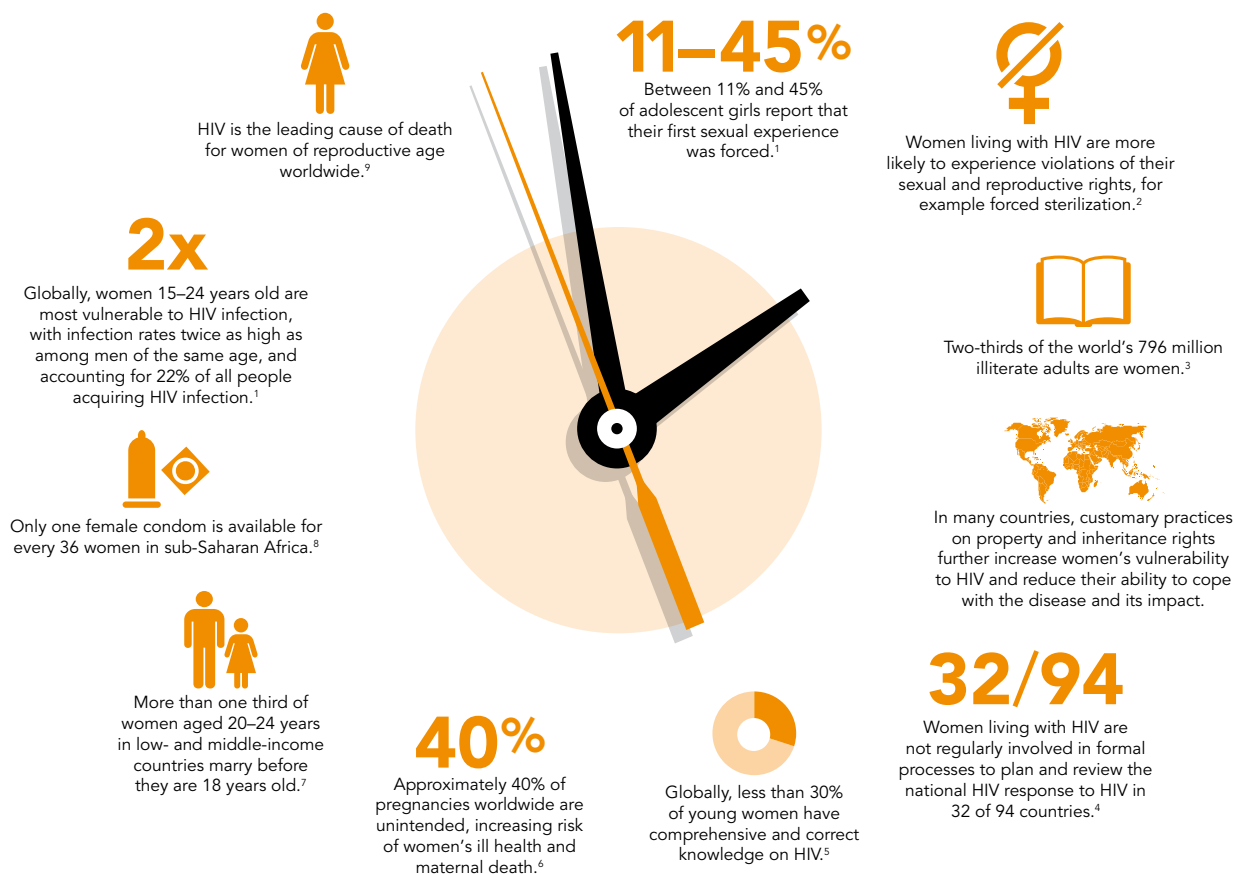
Twin epidemics

Gender-based violence, including sexual violence, occurs worldwide (18,77,78). Studies have shown that intimate partner violence is associated with an increased risk of HIV in women and girls (66). In Soweto, South Africa, for example, women who had been physically abused by their partners were most likely to be living with HIV (79). Men who perpetrate gender-based violence are also more likely to be living with HIV, according to evidence from South Africa and India (66,80,81).

Women who have been subjected to gender-based violence are more likely to adopt behaviour that places them at greater risk of acquiring HIV infection. Violence against girls also appears to be linked to later high-risk sexual behaviour. In a recent study in the United Republic of Tanzania (82), girls who had been sexually assaulted as children were twice as likely to avoid using condoms compared with their peers who had not been sexually abused. Violence, the fear of violence and rejection by families, also discourage women from disclosing their HIV status.

Every minute, a young woman acquires HIV infection

Because of their lower economic and sociocultural status in many countries, women and girls are disadvantaged in negotiating safer sex and accessing HIV prevention information and services.



Sources:

- UNAIDS World AIDS Day report 2011. Geneva, UNAIDS, 2011 (<http://www.unaids.org>, accessed 15 June 2012).
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Countries and communities must adopt a broad-based response built on zero tolerance for gender-based violence. Such a strategy has to empower women and girls to protect themselves and to engage men and boys to help to change harmful gender norms. This is a long-term undertaking; in the meantime, health services have to become more supportive of women and girls, especially those who experience violence and other rights violations. Some projects are already achieving this. Stepping Stones, a community-based intervention started by women living with HIV, has been shown to change behaviour among men and reduce gender-based violence and some of the factors that put women at risk of HIV infection (83).

Smart investments

A growing body of evidence shows that protecting human rights, confronting

inequities, advancing gender equality and supporting community mobilization enhances HIV responses and the broader health and development agenda. Communities know their needs best. People living with HIV, representatives from key populations at higher risk and women and young people have to be at the forefront of community-based efforts, in civil society organizations that serve as watchdogs and advocates and as service providers who can ensure that services meet the needs of the people they serve.

Investing in human rights, gender equality and community mobilization is vital to sustain the gains of the global HIV response. Efforts to protect rights and confront gender inequality are integral to successes in the HIV response and for the health and well-being of citizens in general.

WE WILL SPEAK OUT

The We Will Speak Out coalition is one of the initiatives advocating zero tolerance for gender-based violence (84). Prompted by the findings of a report on churches' responses to sexual violence in three African countries (85), Rowan Williams, the Archbishop of Canterbury, and Michel Sidibé, UNAIDS Executive Director, supported the launch of the coalition in March 2011. The partnership is active in four countries in Africa, encouraging believers of all faiths to speak out against sexual violence and lead their communities in providing counselling and support to survivors, whether men, women or children. The partnership will soon be extended to Papua New Guinea and the United Kingdom to underline the message that gender-based violence is a global phenomenon.



DEBBIE McMILLAN

Transgender Health Empowerment

RESPECT AND DIGNITY WILL HELP END AIDS

Transgender people are among the most socially ostracized of all communities, and this hurts us terribly as we struggle against AIDS. Neither society nor the law recognizes that we are human beings with as much right to equal respect and dignity as any other person. Instead, our human rights are denied, including the rights to health and non-discrimination. In most places, there are punitive laws, harassment, and even worse: rape, violence and murder.

Just because we are 'different', these are the unacceptable 'facts of life' for us. These realities strip us of our ability to avoid HIV infection and to live successfully if HIV positive.

We're challenging these wrongs and asserting our rights by organizing and supporting each other. We're creating advocacy networks and legal aid groups and making other efforts to know our rights and be able to demand them in ways that protect us and strengthen our communities, including in the AIDS epidemic. We push for better access to health services, for an end to laws that criminalize and debase us and for AIDS responses that are anchored in rights and respect for *all* those affected. That means us too.

We are the people who are tired of being in the target sights of this epidemic and other storms. We are going to make that change.

Young people make the HIV response more relevant

HIV is a serious health issue for young people, with more than 2400 people a day aged 15–24 years newly infected in 2011. Putting young people at the centre of the response makes it more innovative and sustainable.

Youth leaders and advocates are demanding a say in HIV policies and programmes and, increasingly, their voices are being heard. Young people worldwide are active in peer-led HIV initiatives and are influencing governments, donors and institutions such as UNAIDS.

Young people account for 40% [36–45%] of all adult HIV infections and about five million are living with HIV. By helping make key decisions, young people become better-informed advocates and can drive the agenda for transformative social change within their families and societies. Their participation also ensures programmes and policies are more relevant to their needs and thus more effective.

The 2011 Political Declaration on HIV and AIDS committed to supporting the leadership of young people, including those living with HIV,

and to work with these new leaders to engage other young people in the HIV response within families, communities, schools and workplaces. In 2012, UN Secretary-General Ban Ki-moon pledged to deepen the youth focus of existing UN programmes, including education in sexual and reproductive health, rights protection and the political inclusion of young people.

When UNAIDS set out to develop a new youth strategy, it emboldened young people to take the lead. To better understand the needs and priorities of young people, UNAIDS invited them to take charge of CrowdOutAIDS, a collaborative policy project for young people around the world.

CrowdOutAIDS got young people involved via social media and crowdsourcing. Youth leaders organized discussion forums in which thousands participated, and they hosted face-to-face meetings in communities that could not contribute online. This generated hundreds of ideas for action, which an independent, youth-led committee developed into specific strategy recommendations (see box). UNAIDS will use these recommendations in its New Generation Leadership Strategy.



ANNAH SANGO

International Community of Women Living
with HIV/AIDS

SEX EDUCATION WILL HELP END AIDS

“Mom, where did I come from?” My mother told me that I fell from heaven. A simple question made my parents uncomfortable; looking for creative ways to avoid answering.

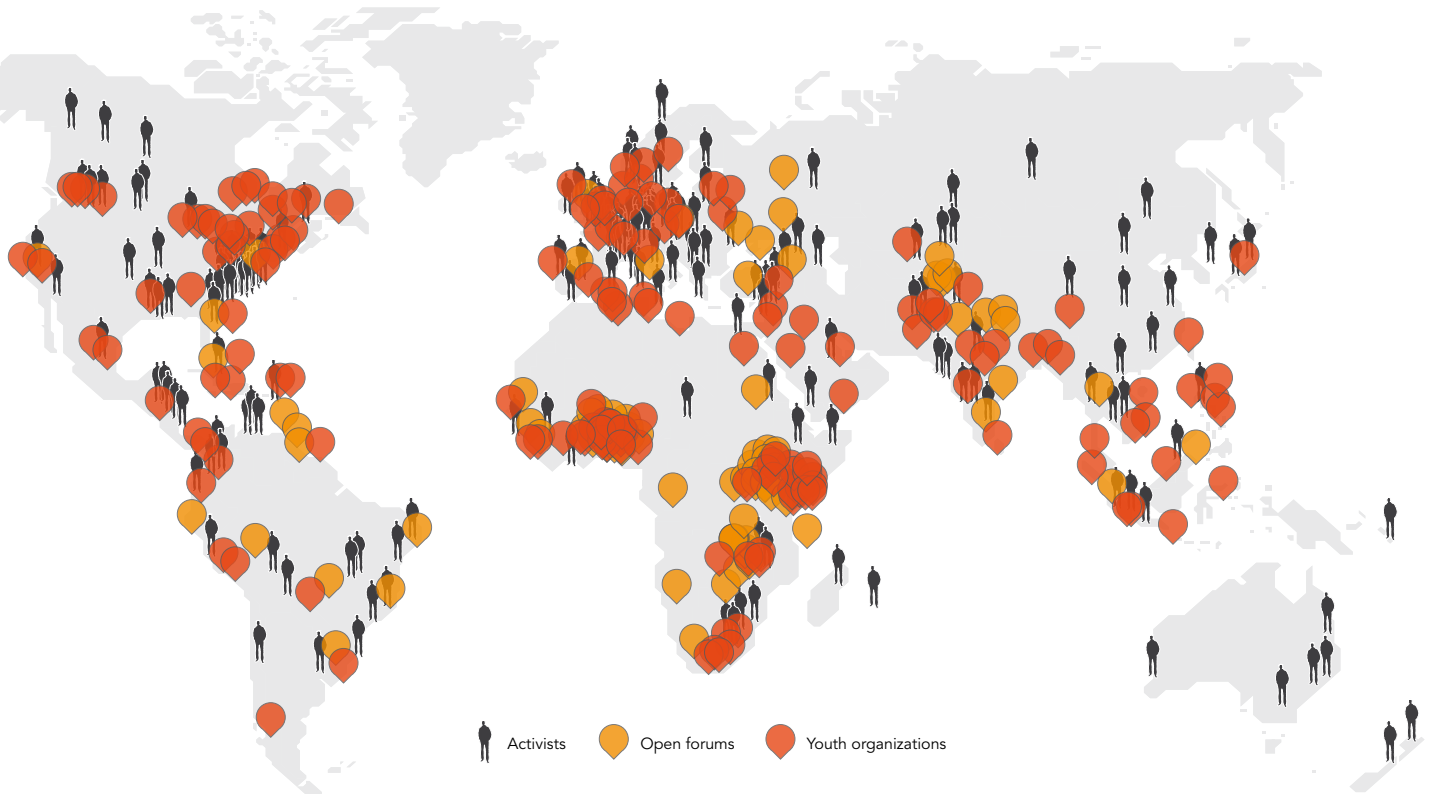
Confused, I was reluctant to ask further because I did not want to be disrespectful. Besides, in our community, a child who asks uncomfortable questions can be called all sorts of names like ‘nzenza’, a person of loose morals, or ‘jeti’, going ahead of her time. I grew up with a strong belief that a good girl should not think about sex, let alone talk about it.

This experience is quite common among young girls in Africa as they grow up with so many unanswered questions about their bodies and relationships with boys. Having proper sex education will help girls to answer all these questions. Sex education will help us understand our bodies, sexuality and health needs. It will build our self-confidence and show us how to develop healthy relationships with the opposite sex, avoid unwanted pregnancies and protect ourselves and our future children from HIV. Sex education will tell girls where to go if they need help and how to help others to better understand themselves and build their future.

If we want to decrease new HIV infections in Africa, let’s start talking about sex and sexuality with our children in our homes, schools and communities.

Young people meet to CrowdOutAIDS

Young volunteers hosted CrowdOutAIDS open forums around the world to ensure that recommendations for a new UNAIDS strategy on HIV and young people reflected the diverse perspectives of young people, especially where Internet penetration is low.



Source: CrowdOutAIDS meet-ups. CrowdOutAIDS, 2012 (<http://www.crowdoutaids.org/wordpress/crowdoutaids-meet-ups>, accessed 15 June 2012).

Young people are also working at the national level to bring about social change and influence policy through initiatives – such as Education as a Vaccine (EVA) in Nigeria, where an estimated 700 000 young people are living with HIV. EVA’s sexual and reproductive health advocacy is coordinated by a team of 10 young Nigerians. The initiative encouraged thousands of others

to help draft the HIV/AIDS anti-stigmatization and discrimination bill. EVA enables young people to promote their rights and needs in new legislation and to demand social change from policy-makers.

The Egyptian Youth Association for Health Development has been leading youth-to-youth

“With the rise of technology comes the demise of silence. Young people can take a stand and make their voices heard!”

CrowdOutAIDS open forum

interactions to mobilize young women from slum areas at risk of HIV infection. Working with more than 40 civil society organizations, the youths have been reaching large numbers of potentially sexually active young women to raise health awareness, especially of sexual and reproductive health and sexually transmitted infections. The project aims to establish a sustainable coalition and motivate others to ensure that, through training and public events, young women are heard in communities. The project advocates for comprehensive and

accurate information for young people through education, and for access to services including condoms and needle exchange.

Young people have a unique role in reaching out to their peers, particularly in key populations at higher risk of HIV such as young people who inject drugs. The Crystal Clear programme in Vancouver started as a three-month training project for nine young people with experience of street life and crystal methamphetamine use. It grew into a successful, peer-led harm-reduction programme involving many young people. Crystal Clear included peer outreach training, peer support and community engagement. Its peer-based nature opened new paths to reach young people and improve their access to services.

YOUNG PEOPLE DETERMINE ACTIONS NEEDED TO END AIDS

Young people led the CrowdOutAIDS project and synthesized hundreds of ideas into practical recommendations:

1. **Stronger leadership skills** – provide leadership training and resources, and measure the impact of youth leadership and participation.
2. **Full youth participation** – advocate for young people’s inclusion in global, regional and national programmes.
3. **Access to information** – collect and share knowledge and information and create youth audits of national AIDS programmes.
4. **Strategic networks** – partner with youth-led organizations for young people at risk of HIV and young people living with HIV, and support research.
5. **Increased outreach** – network youth organizations and projects, and establish a dialogue platform.
6. **Smarter funding** – diversify funding for youth-led projects, and train young people to mobilize resources.

**GETTING VALUE
FOR MONEY**

More than ever we need value for money

HIV programmes are reaching increasing numbers of people and achieving better results than ever, but with finite resources, ending the AIDS epidemic requires getting greater value for money. To deliver that, HIV programmes must be efficient and effective.

While advocacy for reducing commodity prices continues, there is also a push to implement HIV programmes as efficiently as possible, with fewer parallel structures and stand-alone services, at scale and with reduced programme support costs.

At the same time, essential management, technical support and supervision needs to be maintained and strengthened, processes need to be streamlined and costs contained. The use of funding must be monitored to ensure it is getting to where it is needed and working as hard as it can.

Focus on what works

Growing scientific evidence indicates that six types of HIV activities are effective in reducing HIV transmission, morbidity and mortality (1):

- antiretroviral therapy for both treatment and prevention;
- preventing children from becoming newly infected with HIV and keeping their mothers alive;
- voluntary medical male circumcision in countries with generalized epidemics and low prevalence of circumcision;
- promoting condom use;
- integrated activities for key populations at higher risk of HIV infection; and
- programmes to promote behaviour change to reduce people's risk of exposure to HIV.

The programme activities listed above have all proven to be cost-effective when assessed against a standard measure (2). The cost-effectiveness of HIV treatment and care programmes, for instance, has been well established (3). Modelling studies suggest that earlier initiation of antiretroviral therapy is likely



STEFANO BERTOZZI

Director, HIV, Bill & Melinda Gates Foundation

BETTER VALUE EQUALS BETTER HEALTH

In the AIDS response, our ultimate measures of success are infections prevented, lives improved for those living with HIV, and deaths averted. Despite exceptional progress, we remain woefully far from these goals: there are too many new infections, too few people have access to treatment, and too many people are lost to treatment from lack of support.

We have a moral imperative to ensure that every kwacha, dollar, rand and rupee is wisely spent to maximize impact. Not pursuing greater efficiency denies people the prevention and treatment services they need.

Because we now have better tools to measure efficiency – for mapping epidemics, rigorously evaluating prevention programmes and measuring treatment costs and quality – we increasingly understand how to focus resources on the most effective programmes. Our challenge is to use this knowledge to prevent more infections and save more lives. We must have the courage to measure the varying costs and effectiveness of our programmes. Only by revealing best practices can we emulate them. Only by revealing inefficiencies can we correct them.

I am confident that one day funding for AIDS will grow again. But until it does, the only way to continue expanding effective treatment and prevention is to extract even greater value from our available resources. This is our moral obligation.

to save money over the long term because, in addition to averting morbidity and mortality, it also prevents people from becoming newly infected and reduces inpatient costs (4).

Preventing children from acquiring HIV infection is also cost effective, with costs varying depending on the location and the package of activities (5–10).

Voluntary medical male circumcision is highly cost-effective in countries with generalized HIV epidemics in which circumcision is uncommon (11–15), with one HIV infection averted for every six men circumcised in Lesotho, and every four men in Swaziland, and the cost of preventing a person from acquiring HIV infection over a 20-year period ranging from US\$ 180 to US\$ 390 (14, 16–18).

Similarly, prevention and treatment services targeting key populations at higher risk of HIV infection, including female sex workers (19), people who inject drugs (20–22) and men who have sex with men (23), have proven to provide good value for money. For example, modelling of the epidemic in Ukraine indicates that achieving high levels of access to methadone substitution therapy and antiretroviral therapy is the most effective intervention in that country (24).

Both the effectiveness and cost-effectiveness of these programmes depend on whether they are implemented at sufficiently high scale and intensity and with high quality. Several critical factors enable these programmes to be delivered effectively, including community

mobilization, which drives demand and support for programme participation and adherence. Other critical enablers include a conducive policy, legal and regulatory environment and programme management to ensure the adequate performance of relevant systems.

Allocate resources strategically

An increasing number of countries are allocating their HIV resources towards activities that are (cost-)effective in their local context. Since 2008, more than 30 countries have analysed their HIV epidemics to determine how and where people are most likely to acquire HIV infection, and some have used their analysis to direct resource allocation.

In Kenya, for example, while unprotected heterosexual intercourse continues to be the main mode of transmission, analysis of national epidemic patterns showed that one third of the people newly infected involve key populations at higher risk: men who have sex with men, prison populations, people who inject drugs and sex workers and their clients. These findings guided Kenya's 2009/10–2012/13 national strategic plan, stimulating significant funding increases for services targeting key populations at higher risk. Similar analysis prompted Zambia to increase HIV resources for preventing children from becoming infected and keeping their mothers alive, male circumcision, and preventing discordant couples and vulnerable groups from acquiring HIV infection. Benin is directing more resources towards sex workers and their clients, while Ghana has increased its funding for preventing

Investment needs to focus on proven, effective and context-specific HIV interventions

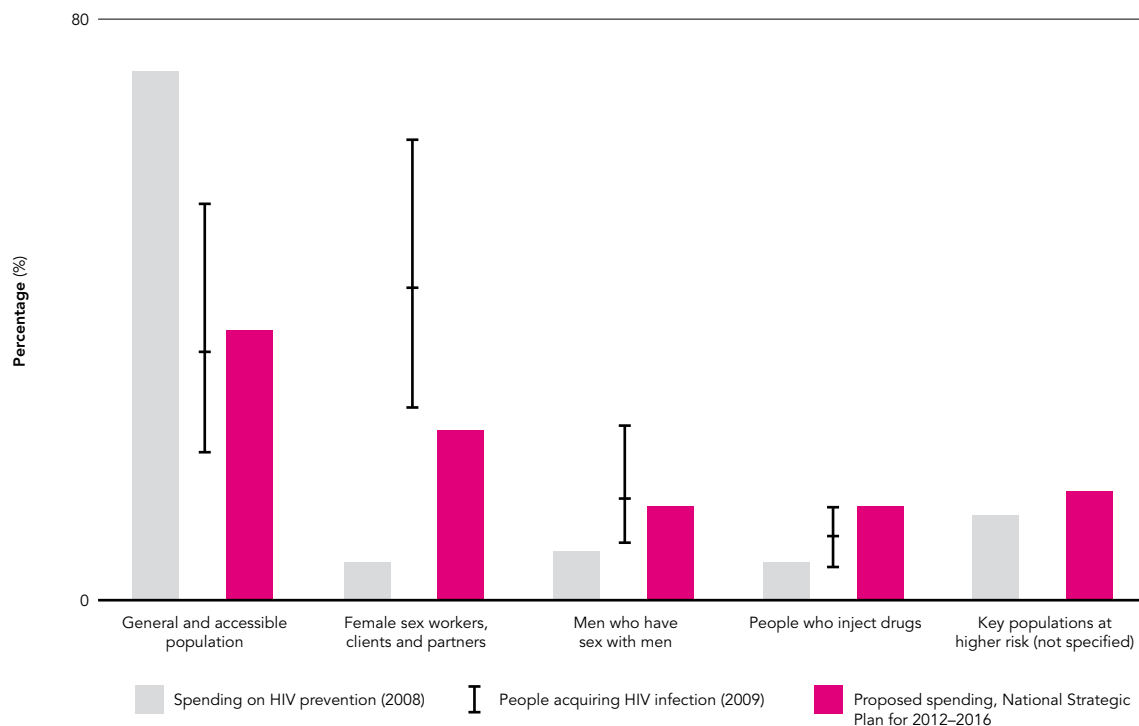
key populations at higher risk from acquiring HIV infection, from 2% of the total prevention budget in 2005–2010 to 20% in 2011–2020.

Similar adjustments have been made in Latin America, where most HIV resources in the mid-2000s had been targeted at the general population (26). Through evidence-based planning and costing, country budgets in 2010 allocated substantially more resources towards men who have sex with men, female sex workers, prisoners and people who inject drugs.

In Morocco, the latest national strategic plan corrected the imbalances between the proportion of the people acquiring HIV infection among key populations at higher risk and the corresponding allocation of prevention funding (25).

Key donors are supporting this trend towards more strategic investments. The Global Fund to Fight AIDS, Tuberculosis and Malaria has increased its allocation of funds to high-impact interventions over time. The proportion of

Reallocation of resources to programmes for key populations at higher risk of HIV infection in Morocco



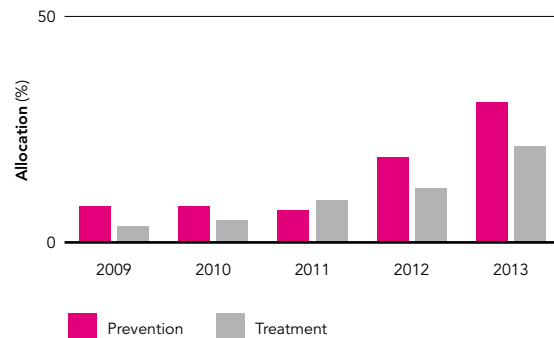
Source: Morocco Ministry of Health, National STI/HIV Programme, *HIV modes of transmission in Morocco*. August 2010.

Global Fund funding allocated to delivering the basic effective programme activities increased from 36% in 2008 to 51% in 2012 in 13 countries with a high burden of HIV¹ (27). In Cambodia, India, Thailand and Ukraine, all countries experiencing a concentrated epidemic, funds for HIV treatment and prevention activities for key populations have increased from 17% in 2008 to 31% for 2013, whereas funds allocated to the general population have decreased. The performance-based funding model used by the Global Fund has identified savings over time (28) and turned the spotlight on strategic, high-impact interventions.

Similarly, the United States President's Emergency Plan for AIDS Relief indicates that resources are allocated more effectively following guidance to focus on core intervention. In Ethiopia, broad-based behaviour change communication programmes declined between 2004 and 2010, with a parallel increase in more effective prevention programmes, including the prevention of mother-to-child transmission.

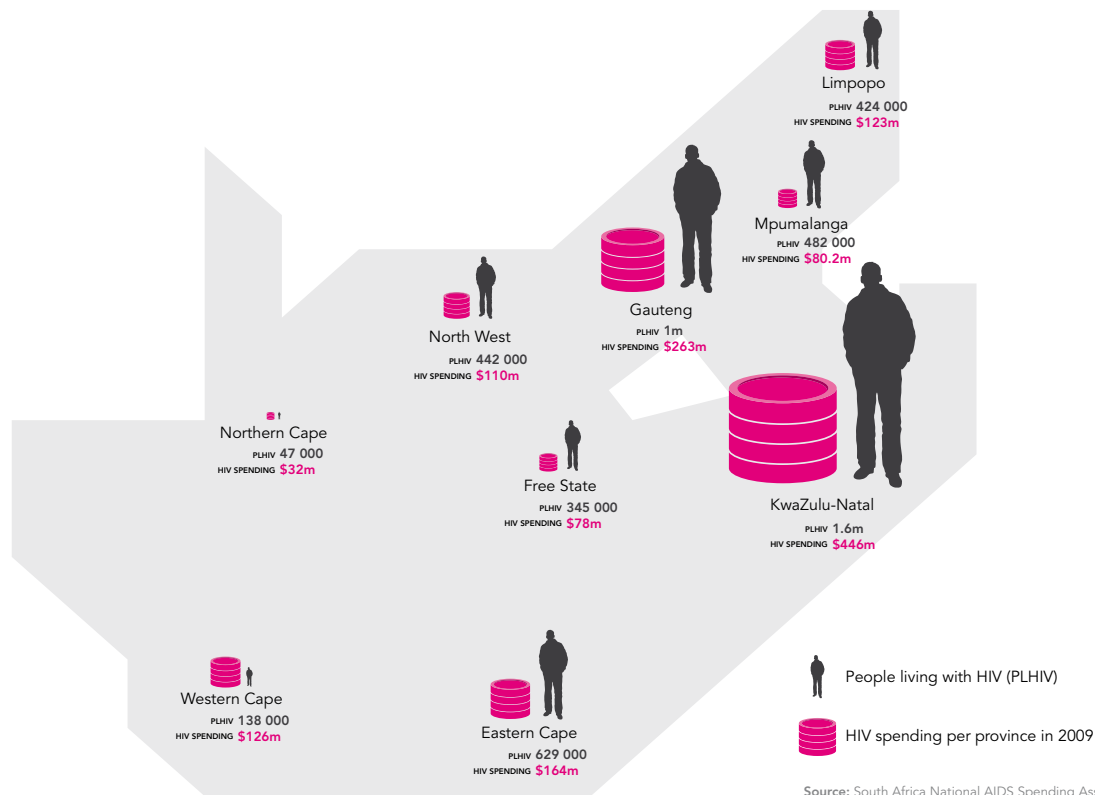
In addition to focusing on effective interventions and targeting the populations most severely affected, those allocating resources must consider the geographical distribution of the people acquiring HIV infection. Kenya's national strategic plan, for example, takes into account the high concentration of people infected with HIV in the Nyanza, Nairobi and Coast provinces, and intensified service delivery will focus on the 50 districts with the highest prevalence (29). In South Africa, HIV spending patterns

Increased allocation of money from the Global Fund for prevention and treatment activities for key populations at higher risk in four countries with concentrated epidemics



Source: Report commissioned by UNAIDS: Evidence of re-allocation of funds to basic HIV program activities in GFATM grants; 2012.

HIV spending and numbers of people living with HIV, South Africa, by province, 2009



Source: South Africa National AIDS Spending Assessment 2009.

still vary widely between provinces with similar epidemic profiles (30) and are influenced by capacity to deliver rather than need (31). Efforts are now under way to develop capacity and create demand for services in provinces in which absorption is suboptimal. The increasing rate of urbanization, especially in low- and middle-income countries, requires greater understanding of variation in HIV patterns within cities to improve city-specific response strategies (32).

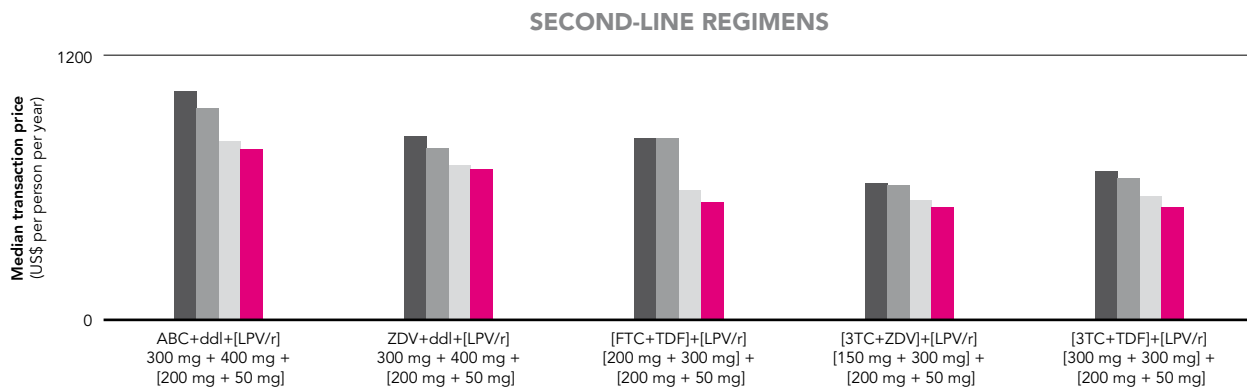
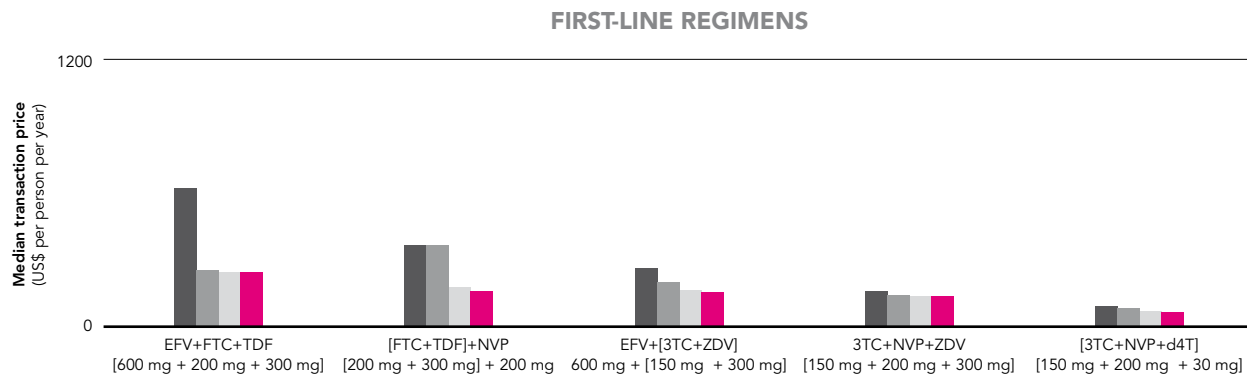
Contain HIV commodity costs

Lower costs for antiretroviral drugs mean that more people can be treated with the same resources. The good news is that the prices of antiretroviral drugs and many other HIV commodities have declined steeply in the past decade because of a range of factors, including economies of scale, competition between generic drug manufacturers, reduced procurement costs and sustained advocacy by activists.

The cost of a year's supply of first-line antiretroviral drugs decreased from more than US\$ 10 000 per person in 2000 to less than US\$ 100 for the least expensive WHO-recommended regimen in 2011 (33,34).

However, price reductions have slowed recently, and the global prices of the most frequently used first-line regimens recommended by WHO, all of them generics, may be bottoming out (33).

Prices of first-line and second-line antiretroviral regimens for adults in low-income countries, 2008–2011



EFV: efavirenz;
 FTC: emtricitabine;
 TDF: tenofovir disoproxil fumarate;
 NVP: nevirapine;
 3TC: lamivudine;
 ZDV: zidovudine;
 d4T: stavudine;
 ABC: abacavir;
 ddl: didanosine;
 LPV/r: lopinavir with a ritonavir boost.

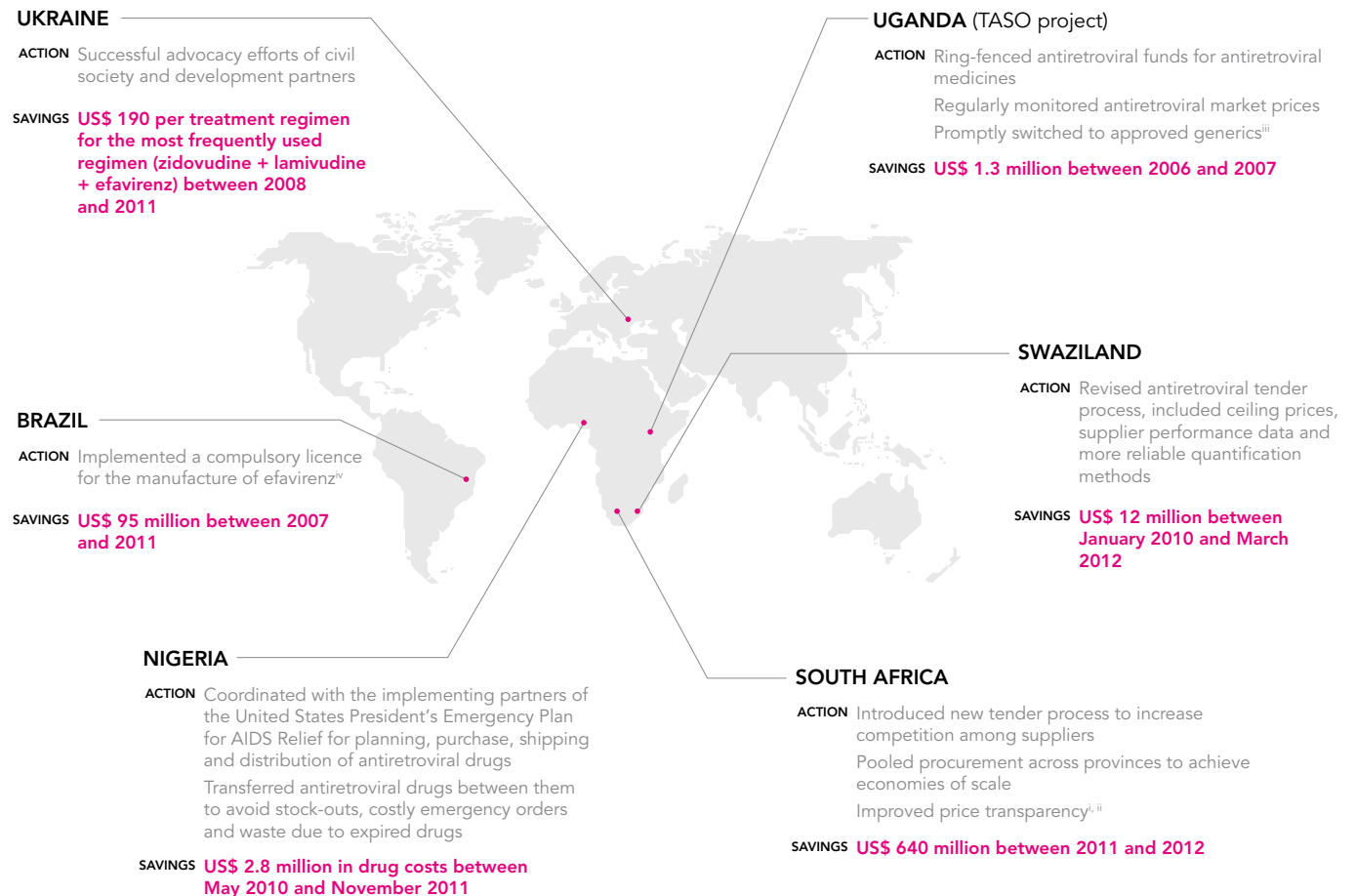
■ 2008 ■ 2009 ■ 2010 ■ 2011

Source: Global Price Reporting Mechanism, World Health Organization, 2012.

The prices of second-line antiretroviral drugs have also declined in the past five years, as have those of antiretroviral drugs for children. Since most second- and third-line antiretroviral drugs are still protected by patents, further price reductions will require

stronger competition and greater use of the flexibilities that were negotiated under the DOHA Declaration on Trade-Related aspects of Intellectual Property Rights (TRIPS) and Public Health (34).

Successful country initiatives to cut the costs of antiretroviral drugs



Note:

i) At an exchange rate of 7.40 ZAR/USD, the savings amounted to R 4.7 billion.

Sources:

ii) *Massive reduction in ARV prices*. Johannesburg, Government of South Africa, 2010 (www.info.gov.za/speech/DynamicAction?pageid=461&sid=15423&tid=26211, accessed 15 June 2012).

iii) Mutabaazi I.I. Scaling up antiretroviral treatment using the same dollar: cost efficiency and effectiveness of TASO Uganda Pharmacy Management System of CDC-PEPFAR funded program. XIX International AIDS Conference, Washington, DC, 22–27 July 2012. Note: the content of poster discussion abstracts and poster exhibition abstracts for the XIX International AIDS Conference is embargoed until 15:00 (U.S. Eastern Standard Time) on Sunday, 22 July 2012.

iv) Viegas Neves da Silva F, Hallal R, Guimaraes A. Compulsory licence and access to medicines: economic savings of efavirenz in Brazil. XIX International AIDS Conference, Washington, DC, 22–27 July 2012. Note: the content of poster discussion abstracts and poster exhibition abstracts for the XIX International AIDS Conference is embargoed until 15:00 (U.S. Eastern Standard Time) on Sunday, 22 July 2012.

Treatment recommendations have shifted towards more effective and safer regimens, such as those based on zidovudine and tenofovir rather than stavudine. The higher cost of these regimens further reinforces the need to press for reducing prices.

Antiretroviral prices are still high in some regions and countries, and prices can vary widely across countries. For instance, in Latin America and the Caribbean, the prices of antiretroviral drugs vary extensively (35,36). Most countries in that region could treat between 1.2 and 3.8 times more people if the procurement prices of first-line combinations were closer to the lowest regional generic price (36). For the mostly patented second-line combinations, the potential for cost savings is also high. Price reductions (prices closer to the lowest regional innovator or global median transaction price) could result in treating up to five times more people (36).

Global market prices account for only part of the costs incurred by national programmes, and costs may be reduced further by improving tender arrangements, abolishing tariffs and taxes and reducing transport and other costs at country levels.

Several countries have improved their procurement practices in recent years, resulting in major cost reductions.

The price range of most HIV diagnostics, including rapid assays and enzyme-linked immunosorbent assays, has been stable over the past 10 years, with some concerns about future price increases if market competition

were to diminish. According to internal WHO procurement data, the prices of CD4 test kits varied between US\$ 1.80 and US\$ 12.60 in 2010, suggesting some scope for savings (40). Similarly to antiretroviral drugs, the prices of diagnostics vary according to regions and countries and are higher in Latin America and the Caribbean, for example. Viral-load testing remains expensive, at US\$9–10 (United Nations prices), US\$ 30 for reagents and about US\$ 100 000 for equipment (40).

Procuring and selecting appropriate laboratory equipment according to need will improve service delivery and contribute to improving efficiency. For example, a project in Ethiopia tailored laboratory capacity, including using less expensive machines, and thereby saved US\$ 600 000 in the first year and a further US\$ 100 000 per year thereafter (41).

High demand has boosted the production of condoms, a mainstay of the HIV response, and this in turn has driven down costs. In 2010, unit costs for male condoms procured through the public sector were US\$ 0.04 to US\$ 0.25, and female condom prices ranged from US\$ 0.60 to US\$ 0.90 (44). However, since condoms account for only 2–3% of global HIV response costs, any further price reduction will have little overall impact (1,42,43).

Deliver services efficiently

HIV programme decision-makers are increasingly demanding information on unit

Ending the AIDS epidemic requires low-cost quality medicines and efficiently delivering HIV services

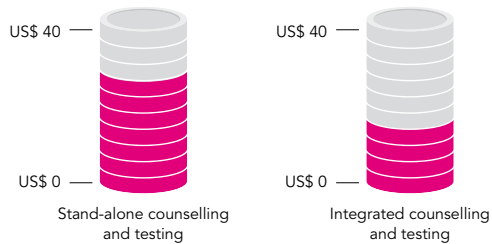
costs and striving for efficiency in delivering HIV services. Service delivery sites vary widely, even within countries, but overall costs appear to have been declining because of greater scale and adopting more efficient delivery models.

The costs of HIV programmes, such as counselling and testing, can vary widely even within the same country (44,45). Costs tend to be lower when the volume of counselling

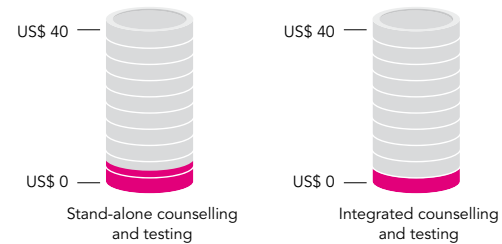
and testing services grows (44,45) and when these services are integrated with other health services (46). Outreach-based models of counselling and testing can achieve lower costs than facility-based approaches in some settings (47). Community-based HIV prevention and counselling and testing, integrated with other health services, can substantially affect coverage and cost (48).

Integration saves money: integrated versus non-integrated HIV counselling and testing, average costs, selected countries

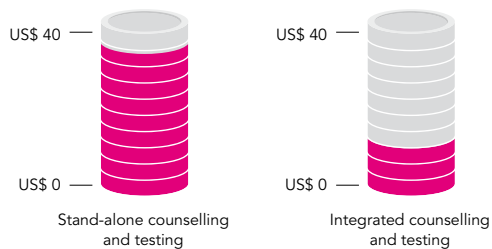
KENYA (2002)



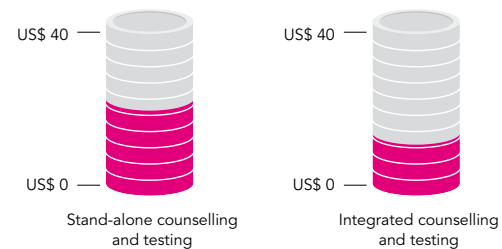
INDIA (2007)



KENYA (2008)



UGANDA (2009)



Notes:

An example of stand-alone counselling and testing is separate HIV clinics. Integrated counselling and testing includes other health services such as sexual and reproductive health, family planning or primary health care. Kenya (2002): average unit costs of stand-alone counselling and testing sites compared with integrated counselling and testing in three primary health care clinics. Kenya (2008): stand-alone versus integrated in health centres in nine sites. India (2007): stand-alone versus integrated in one clinic offering reproductive health services and counselling and testing. Uganda (2009): one stop versus same structure in hospital setting (all hospital counselling and testing clients).

Sources: Menzies N et al. The costs and effectiveness of four HIV counseling and testing strategies in Uganda. *AIDS*, 2009, 23:395–401.
 Liambila W et al. *Feasibility, acceptability, effect and cost of integrating counseling and testing for HIV within family planning services in Kenya*. Washington, DC, Population Council, 2008 (http://pdf.usaid.gov/pdf_docs/PNADN569.pdf, accessed 15 June 2012).
 Das R et al. *Strengthening financial sustainability through integration of voluntary counseling and testing services with other reproductive health services*. Washington, DC, Population Council Frontiers, 2007 (http://www.popcouncil.org/pdfs/frontiers/FR_FinalReports/India_CINI.pdf, accessed 15 June 2012).
 Forsythe S et al. Assessing the cost and willingness to pay for voluntary HIV counseling and testing in Kenya. *Health Policy and Planning*, 2002, 17:187–195.
 Sweeney S et al. Costs and efficiency of integrating HIV/AIDS services with other health services: a systematic review of evidence and experience. *Sexually Transmitted Infections*, 2012, 88:85–99.

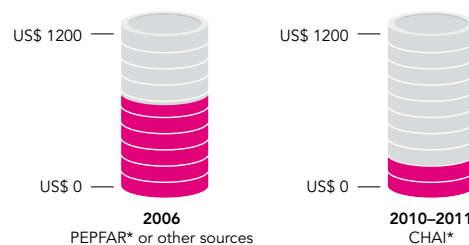
The facility-level costs of antiretroviral therapy, including commodities and service delivery, have declined significantly in recent years, from more than US\$ 500 to US\$ 200 per person per year in low- and lower-middle-income countries in Africa, ranging from an average US\$ 136 per person per year in Malawi to US\$ 278 in Zambia. This downward trend is matched in Ethiopia, South Africa and Zambia from 2006 to 2010–2011. South Africa’s facility-level treatment costs were higher at US\$ 682, reflecting higher salary levels and more frequent laboratory testing in that country (49). The United States President’s Emergency Plan for AIDS Relief analysed facility-based care and treatment partners in Mozambique, demonstrating that managing partner expenditure reduced expenditure per person treated by 44% between 2009 and 2011 alone. The average costs are lower in facilities with a higher patient load (49, 50), at more mature sites (50,51) and when people start treatment early (52).

Integrating antiretroviral therapy with other services, including treatment for tuberculosis and other coinfections, may be less costly than stand-alone provision (46). For instance, in Viet Nam, the labour and administration costs in stand-alone HIV facilities were higher than in integrated service models (52).

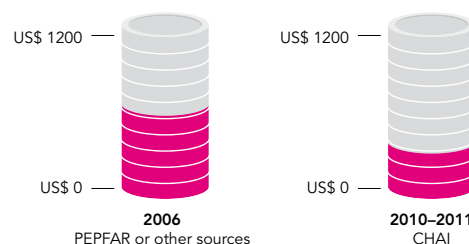
Additional efficiency can be gained by task-shifting, decentralization and greater community involvement (53–59). For example, the costs of antiretroviral therapy managed by nurses at decentralized facilities studied in South Africa were 11% lower than those managed by doctors in hospitals (60). In India,

Reduction in the annual cost of antiretroviral therapy, per person, selected countries, 2006 to 2010–2011

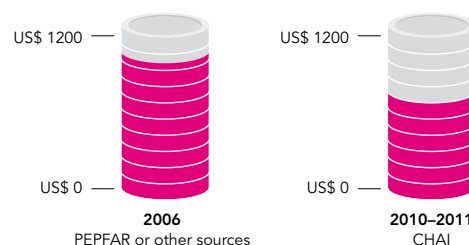
ETHIOPIA



ZAMBIA



SOUTH AFRICA



*PEPFAR is the United States President’s Emergency Plan for AIDS Relief. CHAI is the Clinton Health Access Initiative.

Sources: Ethiopia 2006: Menzies NA et al. The cost of providing comprehensive HIV treatment in PEPFAR-supported programs. *AIDS*, 2011, 25:1753–1760. Zambia 2006: Bollinger L, Adesina A. *Review of available antiretroviral treatment costs, major cost drivers and potential efficiency gains. Internal report.* Geneva, UNAIDS, 2011. South Africa 2006: Bollinger L, Adesina A. *Review of available antiretroviral treatment costs, major cost drivers and potential efficiency gains. Internal report.* Geneva, UNAIDS, 2011. Ethiopia, Zambia and South Africa 2010–2011 CHAI data: *Facility-based unit costing of antiretroviral treatment: a costing study from 161 representative facilities in Ethiopia, Malawi, Rwanda, South Africa and Zambia.* New York, Clinton Health Access Initiative, in press.



AGNES BINAGWAHO

Minister of Health, Republic of Rwanda

INTEGRATION WILL HELP END AIDS

HIV is a general health menace that cannot be tackled in isolation. Integration with other health programmes is the only way to make the HIV response efficient, effective, equitable and sustainable.

Rwanda's experience proves that reinforcing the health system and tackling the HIV epidemic go hand in hand. Rwanda's performance-based financing approach has shifted the focus of health care financing from input to results and contributed to improving access and the quality of care. Rwanda's national health insurance has also helped streamline health financing. This has increased efficiency and community ownership and participation in health care.

Programmes to eliminate HIV infection among children and keep their mothers alive are integrated into routine maternal and child health services in 80% of facilities. Health workers are trained to provide both services, and clients save time and effort.

Integration is the way to attain universal access: more than 95% of the people in Rwanda who need antiretroviral therapy are receiving it.

Rwanda therefore not only benefits from the declining global prices of essential HIV medicines. We also implement HIV and other health programmes efficiently, maximizing the benefit from every dollar spent.

Continued, sustainable funding is paramount to the HIV response, but visionary leadership, innovation and ownership are also crucial to help end AIDS.

decentralized antiretroviral therapy services (at the primary and secondary levels) showed similar drug costs but lower non-drug unit costs compared with antiretroviral therapy centres at the tertiary level. The satisfaction of service users and treatment adherence improved and travel-related costs decreased (53).

Data on costs for preventing new HIV infections among children and keeping their mothers alive are less easily available but also confirm wide variation and overall declining trends. In Kenya, the average cost of each averted child HIV infection fell by almost two thirds from 2005 to 2010 (61). In Ghana, recent data (62) showed high costs, suggesting task-shifting as an option to gain efficiency. Recent multicountry analysis found that community involvement was a key component in the programmes that achieved the highest level of service provision at the lowest cost (63).

Data on the costs of carrying out male circumcision suggest room for savings. A study in Kenya (64) found that administrative and programme support had the largest potential for reducing costs. Using forceps-guided

surgery, assembly-line patient management, task-shifting and community mobilization efforts can improve clinical efficiency (65).

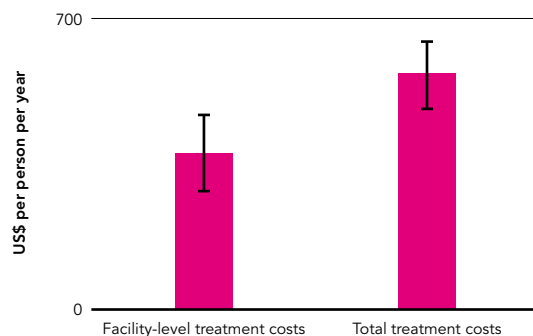
As HIV services for key populations at higher risk of HIV infection have grown in scale, their costs have tended to decline (45,66–68). Evidence from the Avahan India Aids Initiative project showed that expanded prevention activities among sex workers and their clients, transgender people and men who have sex with men reduced average costs (66).

Scale effects should be factored into countries' planning cycles and investment needs estimates, but costs should not be the only consideration. Projects serving sex workers and men who have sex with men in cities in India, for example, have lower costs per person reached than those focusing on transgender people, but transgender people are also at high risk for HIV infection and require effective services (69).

Contain programme costs

Beyond the facility level, there is considerable scope for further improving efficiency. The

Facility-level and total treatment costs per person per year in Zambia, 2009



Note: Total treatment costs include facility-level costs, finance and accounting, Human Resources management, procurement, quality assurance, inventory and supply control, data analysis, insurance, IT and telecommunication, laboratory support and community liaison.

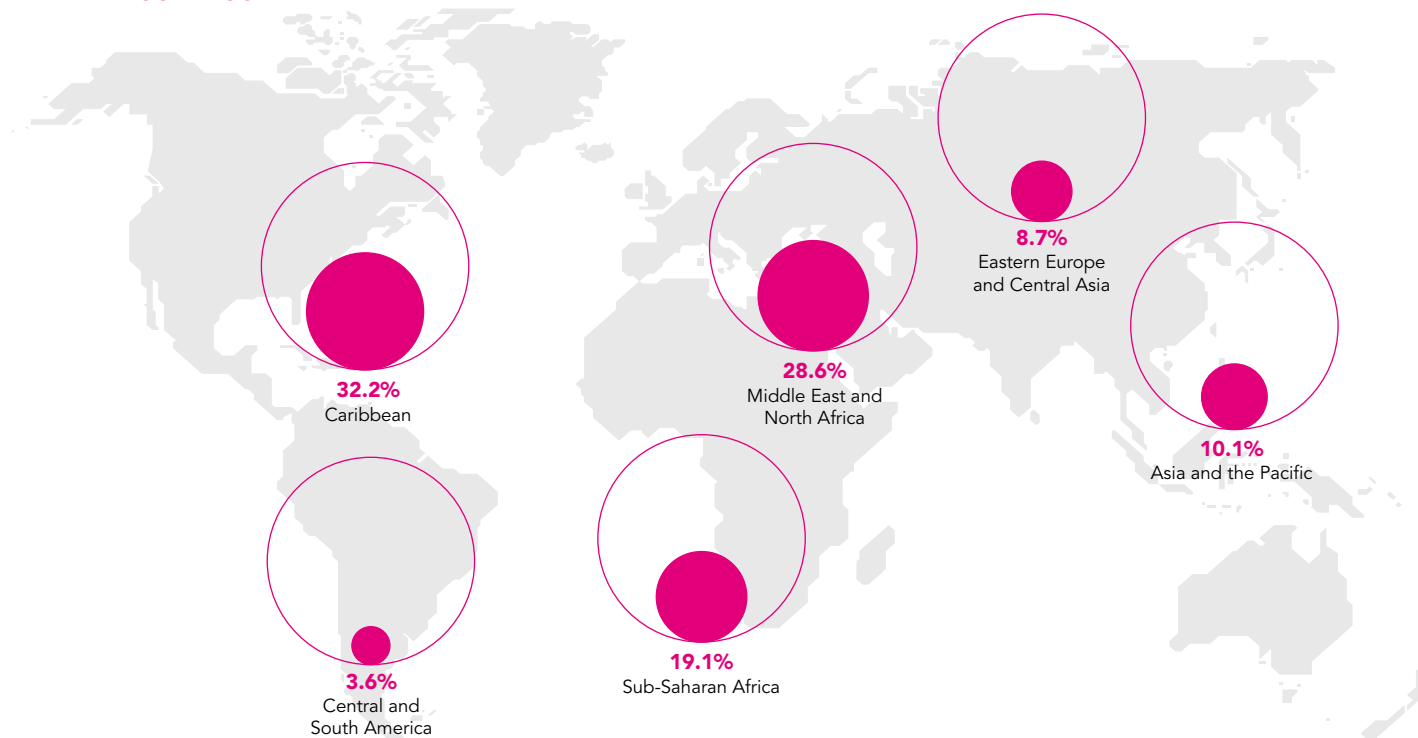
Source: Elliott Marseille, Health Strategies International, personal communication, analysis of data from the Centre for Infectious Disease Research in Zambia, 2012.

costs of planning, coordinating and managing HIV programmes, include administering funds, drug supply, monitoring and evaluation, information and communication technology and infrastructure, and these vary widely by region. In most regions, programme management and support costs comprise about 10% of total HIV spending. But these costs absorb almost 20% of total HIV spending in sub-Saharan Africa, close to 30% in the Middle East and North Africa, and more than 30% in the Caribbean. Programme management and support costs are typically higher in smaller HIV programmes and low-prevalence countries.

When substantial external or donor funding is involved, management and support costs tend to be higher compared with programmes that are funded mainly from domestic sources. Externally funded programmes tend to be associated with additional management, technical support, monitoring and evaluation and reporting components. On average, for every US\$ 1.00 of external funding that is replaced with domestic funding, programme management costs decrease by US\$ 0.18.

Total treatment costs including programme support costs can be considerably higher than facility level treatment costs.

Proportion of total HIV resources spent on programme management by region, 2007–2009



Note: UNGASS 2010 data (or last year available). Programme management includes planning, coordinating and managing programmes, such as administering the disbursement of funds, drug supply, monitoring and evaluation, information and communication technology and infrastructure.

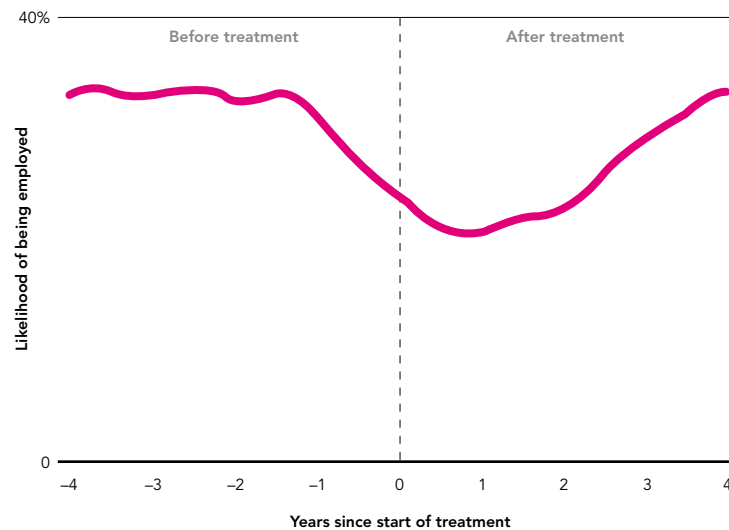
Technical support, at US\$ 300–700 per day, is expensive, but efforts to reduce costs are under way, as shown in a recent review of the UNAIDS-supported technical support facilities in sub-Saharan Africa, Asia and the Pacific (70–73). Technical support facilities that use regional and local technical staff have consistently lower costs than when drawing primarily on international experts (70–73). Reducing the costs of training is another strategy that has been pursued to lower programme support costs. In Zimbabwe, the average costs of training for eliminating new infections among children and keeping their mothers alive was reduced by 38% with the same results (74). Countries, donors and international organizations all need to document more

systematically such cost components and variation in programme support activities.

Get a high return on investment

Investing in effective HIV prevention, treatment, care and support results in social and economic gains that far outweigh the costs. In the absence of this investment, HIV exacts a heavy economic toll. People living with HIV and their families face health and social care expenses, loss of income and demands for care and support (75). These demands often limit access to education, especially for girls. When adults are well enough to work, household well-being improves and health care costs are reduced. Companies incur fewer costs from absenteeism, retraining and having to recruit replacement workers. Especially

Likelihood of employment before and after antiretroviral therapy in KwaZulu-Natal, South Africa



Sources: Bärnighausen T et al, *The economic benefits of ART: evidence from a complete population cohort in rural South Africa* 2nd International HIV Workshop on Treatment as Prevention, Vancouver, Canada, April 2012.

in countries with a high burden of HIV infection, communities enjoy a range of spin-off benefits, such as stronger public health systems, improved educational enrolment, female empowerment and reduced stigma.

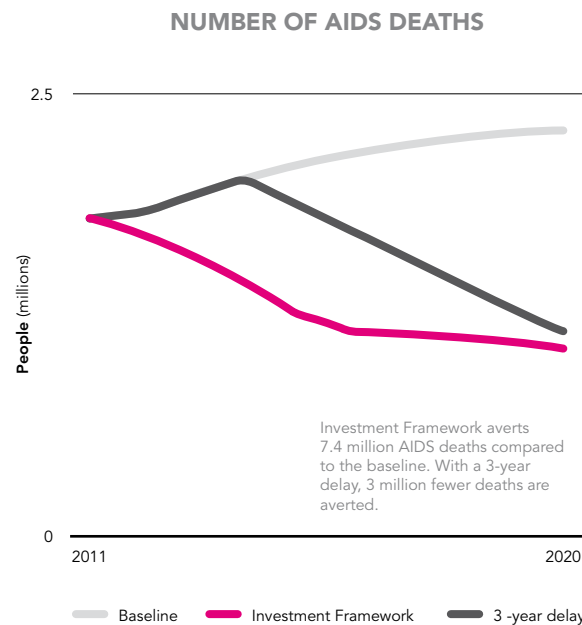
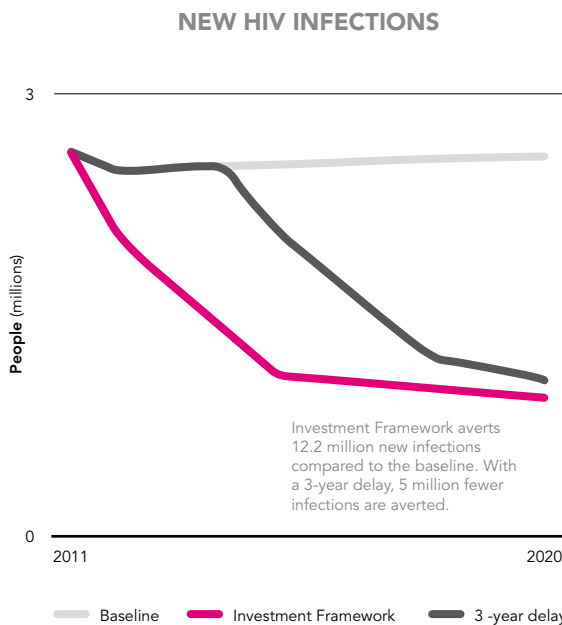
Saving lives

Overwhelming evidence indicates that core prevention and treatment activities save lives. Antiretroviral therapy alone has added an estimated 14 million life-years among adults in low- and middle-income countries since 1995, with increasing gains as treatment coverage expands.

Implementing a core package of HIV prevention and treatment activities, together with critical enablers, would prevent a cumulative 12.2 million people from acquiring HIV infection and 7.4 million people from dying from AIDS-related causes between 2011 and 2020 and add a further 29.4 million life-years (1).

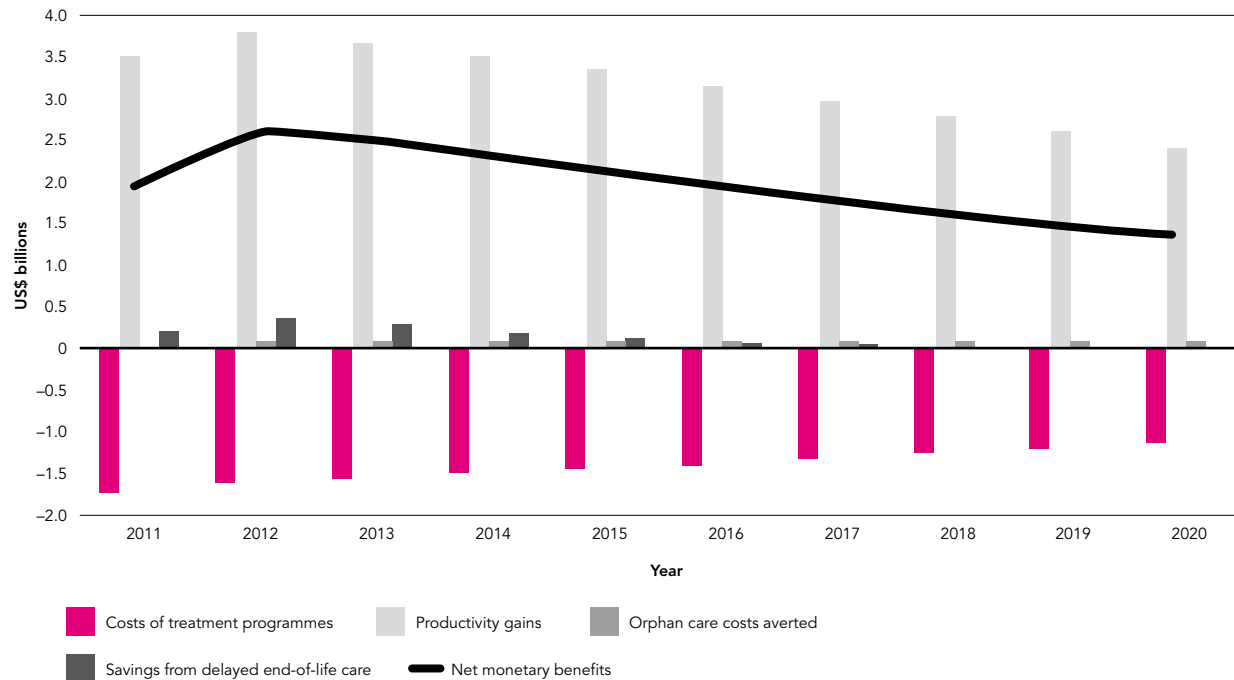
Delaying the investment called for in the UNAIDS Investment Framework would result in additional suffering and costs. A three-year delay would result in 5 million more people acquiring HIV infection and an additional 3 million people dying.

Timely action could avert 5 million infections and 3 million deaths



Sources: Schwartländer B et al. Towards an improved investment approach for an effective response to HIV/AIDS. *Lancet*, 2011, 377:2031–2041; John Stover, Futures Institute, personal communication, May 2012.

Projected antiretroviral therapy programme costs and benefits for 2011–2020 for people receiving treatment supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria, as of 2011



Source: Resch S et al. Economic returns to investment in AIDS treatment in low- and middle-income countries. *PLoS One*, 2011, 6:e2510.

Saving costs

Fewer people acquiring HIV infection and more people accessing antiretroviral therapy reduce the burden on countries' health systems and reduce future HIV-related health care costs. Access to treatment reduces the cost of clinical HIV care, end-of-life hospitalization for people with advanced HIV disease and the costs associated with other diseases such as tuberculosis (77–79).

Cost benefits do not take long to accrue. A recent study in Haiti showed early antiretroviral therapy (provided at CD4 counts between 200 and 350 cells per cubic mm) to be cost-beneficial within three years (80). Modelling based on HIV treatment provision in South Africa makes a compelling case for front-loaded investment in earlier antiretroviral therapy. Providing universal access to treatment for those eligible can pay for itself in 4–12 years



ERIC GOOSBY

Ambassador, United States Global AIDS Coordinator

ACCESS TO EFFECTIVE TREATMENT WILL HELP END AIDS

Treatment is central to achieving an AIDS-free generation. For millions, it represents the difference between life and death. Through PEPFAR, the United States is proud to be a partner in meeting the shared responsibility to scale up treatment, supporting nearly 4 million people globally through 2011. On World AIDS Day, President Obama announced a 50% increase in PEPFAR's treatment goal, to 6 million people.

Science shows that expanding treatment will also dramatically advance evidence-based combination prevention, as studies demonstrate 96% less transmission. As Secretary Clinton stated, "[L]et's end the old debate over treatment versus prevention and embrace treatment as prevention." Treatment keeps families intact: for every 1000 people treated for one year, we avert orphaning an estimated 449 children. This is cost-effective: a recent study found that the societal and economic benefits of treatment programs outweigh the costs.

PEPFAR is fully committed to a strong United States contribution to the global effort to end AIDS. We support national programs to prevent mother-to-child transmission, strengthen sustainable health system platforms of care and support and ensure integration with other essential programs. We are working with partner countries to promote evidence-based, holistic programs at the community level.

To all our global partners in achieving an AIDS-free generation, thank you.

Investment in the HIV response saves costs and increases productivity

as care shifts from inpatient to ambulatory care and the burden of disease declines (4).

Preventing children from acquiring HIV infection not only saves millions of lives, but also leads to long-term savings by averting the costs of extended treatment and care (81).

The cost of voluntary medical male circumcision amounts to a small fraction of the lifetime cost of treating and caring for a person living with HIV. An investment supported by the United States President's Emergency Plan for AIDS Relief of US\$ 1.5 billion between 2011 and 2015 to achieve 80% coverage of male circumcision in 13 priority countries in southern and eastern Africa could result in net savings of US\$ 16.5 billion (82).

Although few studies have assessed the returns on investment of behaviour prevention programmes (11), evidence indicates that voluntary counselling and testing, school-based interventions and programmes for distributing and promoting condoms can bring some savings by reducing the costs of treating HIV and other sexually transmitted

infections (83,84). Similarly, programmes that prevent female sex workers and people who inject drugs from acquiring HIV infection have also been shown to lead to long-term savings (19,85).

Gaining productivity

People receiving antiretroviral therapy are able to resume productive working lives and potentially earn their customary incomes again (86–89). A seven-year study in KwaZulu-Natal, South Africa, found that 89% of the people living with HIV receiving treatment either regained or kept their employment (90).

School enrolment of children tends to be better in households where HIV-positive parents are receiving HIV treatment (compared with those that do not access treatment). Children in those households also tend to work fewer hours, eat healthier meals and are physically in stronger health (91,92).

There is a good business case for companies to provide antiretroviral therapy to workers. Especially for large companies, increased worker productivity and reduced absenteeism and need to recruit and train replacements translate into lower HIV-related costs.

The 3.5 million people receiving antiretroviral therapy through programmes co-funded by the Global Fund will gain an estimated 18.5 million life-years between 2011 and 2020 and return between US\$ 12 billion and US\$ 34 billion to society through increased labour productivity, averted orphan care and deferred health care for opportunistic infections and end-of-life care (75).

Modelling indicates that scaling up access to HIV treatment may counteract the detrimental

long-term impact of HIV epidemics on economic growth, albeit by differing degrees, depending on the country (93).

Investing in the right combination of HIV programmes, matched to the needs of the community affected, therefore not only saves lives but saves money. Smart use of scarce resources makes for an excellent return on investment for families, workplaces, communities and countries.

**INVESTING
SUSTAINABLY**

HIV investment is increasing and diversifying

Global spending on HIV is increasing: up 11% in 2011 over 2010 at US\$ 16.8 billion. International assistance is essentially flat, and some donor countries are reducing their funding. It is, however, diversifying.

Global spending on HIV is increasing. It totalled about US\$ 16.8 billion in 2011, up 11% from the 2010 estimate, including stable international funding and increasing domestic spending. Coming after a two-year period in which international assistance stagnated and then declined in 2010, the new data indicate that global funding for HIV has not yet peaked.

More countries are providing assistance, including in-kind contributions and knowledge transfer by Brazil, the Russian Federation, India, China and South Africa. Domestic public spending continues to increase, with some low- and middle-income countries now funding their own response, often in innovative ways. Despite increasing national commitment and ownership, however, HIV programmes in low-income

countries still rely on external aid to a much greater extent than the health sector overall. To reach internationally agreed goals, donor and middle- and low-income countries all need to do more.

New estimates show that funding from domestic public sources grew by more than 15% between 2010 and 2011, with 41% coming from sub-Saharan Africa. Domestic resources in low- and middle-income countries support more than 50% of the global response.

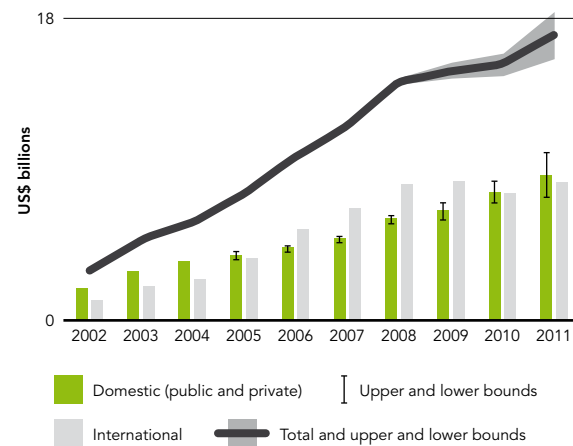
HIV funding from the international community has been largely stable between 2008 and 2011, led by the United States of America and the Global Fund to Fight AIDS, Tuberculosis and Malaria. Together they accounted for US\$ 5.5 billion in disbursements to countries in 2011. Other bilateral donors, including countries outside the Organisation for Economic Co-operation and Development (OECD), provided about 20% of funding, while the philanthropic sector provided about 3% and development banks and development funds contributed about 2%. Total international funding has, in effect, stabilized during the past four years.

Nevertheless, the shortfall remains significant, at more than US\$ 7 billion, and further investment needs to be mobilized. The gap is especially critical in sub-Saharan Africa, accounting for about half the total. Estimates show that this region will need US\$ 11–12 billion per year by 2015 to prevent people from acquiring HIV infection and to scale up treatment, US\$ 2–3 billion more than the current total annual investment.

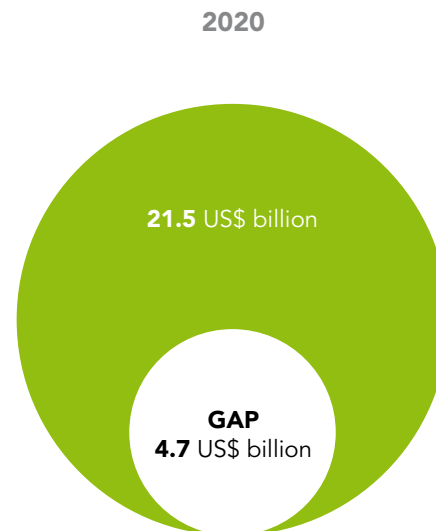
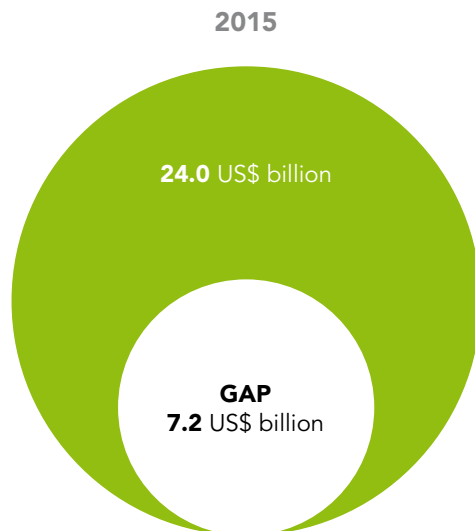
National ownership growing

As the economies of low- and middle-income countries grow and their capacity to manage their response increases, many are gradually taking charge of their HIV programmes. More than 50% of international HIV assistance to low-

Resources available for HIV in low- and middle-income countries, 2002–2011



HIV investment needed in low- and middle-income countries



Source: UNAIDS, May 2012.

and middle-income countries was disbursed to governments in 2010, compared with 10% in 2005, indicating increased government commitment.

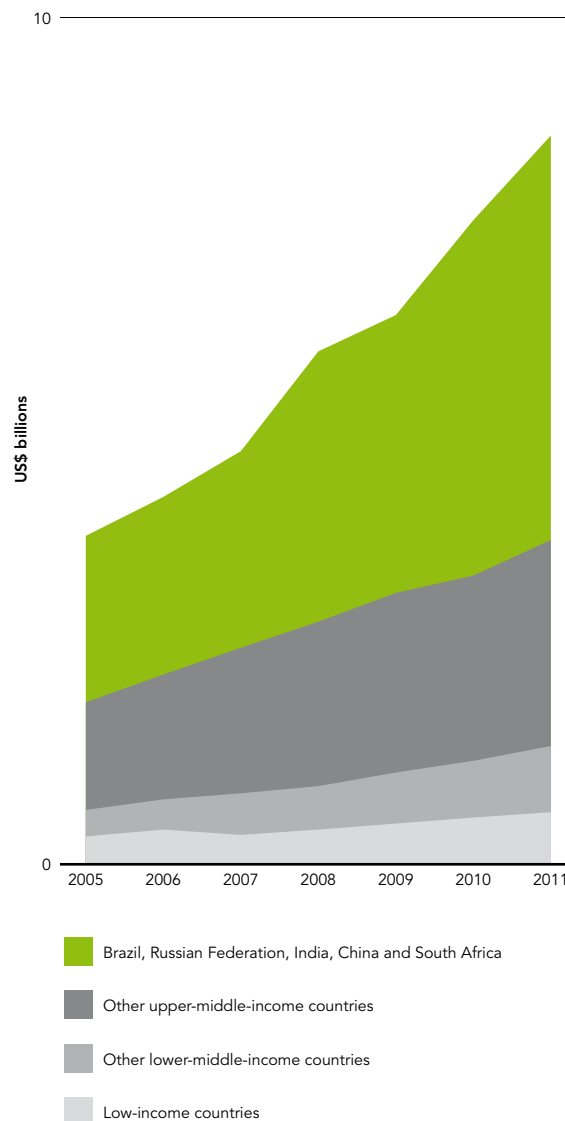
Domestic financing is growing, too. In 2011, according to the latest estimates, low- and middle-income countries allocated about US\$ 7.7 billion to HIV programmes, and domestic private expenditure added another US\$ 0.9 billion. Following years of continuous growth, in 2011 domestic spending for HIV became larger than all donor assistance combined.

There is a growing list of low- and middle-income countries that are able and willing to devote additional resources to health, including HIV programmes. As of 2011, 56 of 99 middle-income countries fund more than half their AIDS response.

Estimated global HIV funding was up 11% in 2011, with Brazil, the Russian Federation, India, China and South Africa leading the way

Brazil, the Russian Federation, India, China and South Africa are leading the way in assuming greater responsibility for their domestic HIV responses. Brazil and the Russian Federation already pay for almost all their HIV response, with Brazil spending between US\$ 600 million and US\$ 1 billion per year, and antiretroviral therapy entirely paid for by the government. South Africa has increased five-fold its funding for HIV over the last 5 years. With an estimated US\$ 2 billion spent in 2011, it is the top funder among middle and low income countries. India has committed to pay more than 90% of its national

HIV expenditure by national income level



strategic plan for 2012–2017, compared with 10% in 2009 (1), while China’s domestic public spending quadrupled from US\$ 124 million in 2007 to US\$ 530 million in 2011. China’s share of domestic funding, currently at 80%, is likely to further increase as internationally funded programmes are closing (2).

Some middle-income countries, such as Botswana and Mexico, also finance almost all of their own response, while several others, including Kazakhstan, Namibia and Viet Nam, have initiated plans, in consultation with key partners such as the United States President’s Emergency Plan for AIDS Relief, to progressively take over funding their response.

Many low-income countries have also started to explore innovative ways to expand domestic funding of the HIV response. Zimbabwe’s AIDS levy, for example, has been in place for 12 years and earmarks a portion of individual and corporate income tax for the country’s AIDS response. Kenya and Zambia are considering

establishing an AIDS trust fund, and have begun to draft the necessary legislation. Both countries propose to finance the trust fund from many sources, including an earmarked contribution from central government.

Some African countries impose a levy on the mobile phone industry to fund health programmes. In the East African Community, including Rwanda and Uganda, these tax rates range from 5% to 12% on the cost of calls. Several countries, including Botswana, Burkina Faso, Cameroon, Gabon, Kenya and Malawi, have investigated imposing an airtime levy specifically for AIDS financing. Modelling indicates that a levy could raise as much as 0.13% of gross domestic product, a valuable contribution to AIDS programmes. Several African countries¹ are members of UNITAID, an international drug purchasing agency that uses innovative funding mechanisms, such as a solidarity levy on airline travel, to increase coverage for AIDS, tuberculosis and malaria.

KAZAKHSTAN AND THE GLOBAL FUND

Kazakhstan has enjoyed strong economic growth since it became independent in 1991 and has steadily increased its public expenditure on health, while also providing incentives to public and private health providers.

The Government of Kazakhstan is expecting that the country’s eligibility for international aid will be reduced and is therefore progressively taking over the funding of key elements covered by grants from the Global Fund to Fight AIDS, Tuberculosis and Malaria, especially for antiretroviral and tuberculosis drugs, as well as HIV prevention programmes, which will be entirely funded by the government.

Donor assistance flat

The principal sources of donor assistance may have stayed broadly the same, but the landscape of HIV funding and their place in it is changing. International development assistance

for HIV responses from United Nations agencies, the World Bank and other regional development funds has remained essentially flat for the past five years, reaching about US\$ 400 million per year (3,4).

INNOVATIVE FUNDING IN KENYA

Kenya has a significant funding gap for its HIV programme in the medium term, and the government has tackled the gap in a simple and direct way. A special task force to investigate HIV funding developed a Cabinet paper outlining some key actions.

Innovative funding could plug the gap, including from government and other sources.

- The initial proposal is that between 0.5% and 1% of ordinary government tax revenue could be earmarked for HIV and channelled through a trust fund.
- Over time, as other sources become available, the earmarking would decrease and this public money could be diverted to fund health-related growth through the Mid-Term Expenditure Framework or the expansion of the National Hospital Insurance Fund as it evolves into a social health insurance scheme.
- The revenue in the HIV trust fund would operate in addition to the normal health budget. It will thereby increase the Kenyan government's HIV spending.

Parallel initiatives to diversify funding sources include:

- an AIDS bond, attracting private-sector purchasers wishing to raise their corporate social responsibility profile, and offering an interest rate;
- an airline levy;
- a dormant fund, using property that has been unclaimed for a defined period, mainly from commercial accounts;
- a mobile phone airtime levy; and
- boosting private-sector contributions.

The first four of these proposed sources have particular potential to help close the gap and to provide sustainable contributions to the HIV trust fund.

ROBINSON NJERU GITHAE

Minister of Finance, Kenya

PREDICTABLE DOMESTIC INVESTMENT IN AFRICA WILL HELP END AIDS

Life expectancy in Kenya is rising, and poverty has declined. These achievements result from inclusive economic growth and poverty reduction policies, including strong leadership in tackling AIDS.

As the Minister of Finance, I see the adverse effects of the AIDS epidemic in its impact on economic growth and development, the rising costs of the response and high dependence on uncertain global funding. The cost of fighting HIV in Kenya in 2011 was US\$ 709 million. Development assistance provided 81% of that capital. Kenya is grateful for that support, but our dependence – not seen in other sectors – also makes us vulnerable. By 2030, we expect an annual HIV funding gap of US\$ 300 million.

In response, we are actively assessing the viability of short-term innovative funding options and the extension of HIV services in social health insurance. But long-term sustainability and national ownership requires that we continue improving the efficiency of current HIV programmes, reducing the burden of disease and delivering better value for money in health services.

Saving billions in future health costs and helping Kenyans live productive lives is a good investment. In the short term, aid is still needed. We call on our partners to continue providing the support we need in a predictable fashion. Together, we will take on the shared responsibility.



The United States President's Emergency Plan for AIDS Relief provided US\$ 4.0 billion as bilateral assistance in 2011, accounting for 48% of all international assistance for the HIV response (5). The United States President's Emergency Plan for AIDS Relief is reallocating its support away from middle-income countries with greater capacity to take over their programmes and towards lower-income countries with greater need for support.

Funding from most other donor governments is also flat or in decline, with a shift in priorities away from HIV towards other health and non-health priorities. European governments provided an estimated US\$ 2.7 billion in 2011, of which US\$ 1.7 billion was disbursed through bilateral channels (5). Their contribution slightly

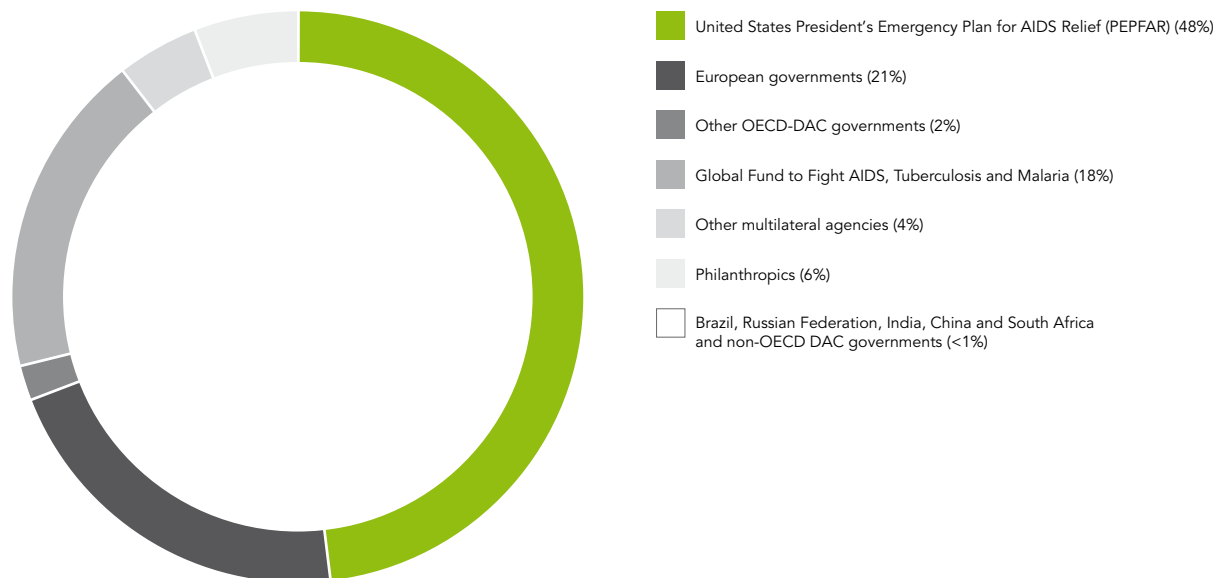
increased from 2010 to 2011 (by 3%) but remained 29% lower than in 2008 and 3% lower than in 2009.

Patterns of international assistance between 2009 and 2012 suggest that some countries are shifting away from HIV funding and integrating it with budgets for health assistance (3,5).

The United States and Europe have provided considerable support to the Global Fund to Fight AIDS, Tuberculosis and Malaria, which in return disbursed US\$ 1.5 billion to low- and middle-income countries (6). European countries were the main funders of the Global Fund, with many using it as their main channel for international assistance. The

International assistance for HIV must be maintained.

International assistance disbursed to low- and middle-income countries for HIV in 2011



United Kingdom, a key provider of bilateral international assistance, recently decided to focus its support for HIV on multilateral sources, such as the Global Fund (6). The United States also has maintained its contributions at a high level.

Although the US\$ 1.5 billion the Global Fund disbursed represented a 5% reduction from 2010, at its 26th Board Meeting in May 2012, the Global Fund identified an additional US\$ 1.6 billion of uncommitted assets for 2012–2014. A new funding opportunity will be put in place, with the intention to mobilize the funds by April 2013. The specific design of this new funding opportunity has not yet been defined. It is clear, however, that any decision will be made on the basis of solid data, expressing demand and need for Global Fund resources, which are based on high-quality analysis of programmatic and financial gaps in the national AIDS responses.

International assistance is starting to diversify. Brazil, the Russian Federation, India, China and South Africa, other middle-income countries of the G20, Organization of the Petroleum Exporting Countries (OPEC) governments or OECD members that are not members of the Development Assistance Committee (DAC) are complementing the support from traditional donors, with growing contributions to multilateral organizations, including the Global Fund or UNITAID. HIV-related contributions to such organizations exceeded US\$ 30 million in 2011, a 55% increase from 2010 (7). Brazil, the Russian Federation, India, China and South Africa and other non-OECD DAC countries also increasingly provide in-kind contributions

directly to low-income countries by sharing technical expertise and productive capacity.

Brazil, the Russian Federation, India, China and South Africa: stepping up

HIV assistance provided by Brazil to other countries reflects its domestic achievements and the experience gained in the response to HIV. Since 2006, it has been a key player in founding and developing UNITAID. As part of its bilateral cooperation, Brazil is promoting technology transfer and a partnership with Mozambique to manufacture antiretroviral drugs in that country. Within Latin America, Brazil has formed partnerships with Paraguay, Bolivia and other low- and medium-income countries providing antiretroviral therapy, technology transfer and assistance with effective national HIV programme development.

As an emerging donor, the Russian Federation mostly provides traditional, vertical assistance to multilateral organizations. In 2011, it provided at least US\$ 31 million to organizations that implement HIV programmes, of which US\$ 13 million was HIV-related. Bilateral assistance focuses on the Commonwealth of Independent States region, primarily on infectious diseases, with the aim of preventing diseases crossing the Russian border (8). From 2007 to 2010, the Russian Federation provided US\$ 88 million to the HIV Vaccine Enterprise for vaccine research. The country also exchanges expertise with scientific institutions in eastern European and central Asia and supports international research programmes. From 2006–2010, the Russian Federation committed US\$ 100 million to disease surveillance programmes in neighbouring countries,

accounting for the largest share of bilateral health funding of the Russian Federation (9). The Russian Federation has asserted growing leadership, hosting the international Millennium Development Goals 6 forum in October 2011, for example.

India has contributed enormously to the AIDS response through its capacity to manufacture generic antiretroviral drugs in the private sector. With 80% of these drugs being generics purchased in India, several billion dollars have been saved over the past five years. The country is also committed to new forms of partnership with low-income countries through innovative support mechanisms and South–South cooperation. India already provides substantial support to neighbouring countries and other Asian countries; in 2011, it allocated US\$ 430 million to 68 projects in Bhutan across key socioeconomic sectors, including health, education and capacity-building. In 2011 at Addis Ababa, the Government of India further committed to accelerating technology transfer between its pharmaceutical sector and African manufacturers.

Although China’s foreign assistance budget is not publicly available, an estimated US\$ 3.9 billion was disbursed in 2010 (10). Its foreign assistance model is based on providing South–South cooperation focusing on mutually beneficial economic development, infrastructure and research. Within research and development for HIV, China is now one of the top five contributors, with US\$ 18.3 million for research on HIV vaccines in 2011 (11). Its foreign assistance on health mainly benefits African countries through capacity-building and

developing health infrastructure and workforces (10,12). In addition, China’s contribution to the Asian Development Bank (about US\$ 50 million a year) could widely support health systems strengthening in other countries in the region.

South Africa is heavily investing in research and development, spending US\$ 2.6 billion in 2008 and committing to spend more than US\$ 10 billion by 2018 (10). Emphasizing infectious diseases and research and development for prevention and drug development, South Africa greatly contributes to the global AIDS response and is now the second largest funder for microbicide research and development. In 2011, it invested US\$ 10 million (11), including US\$ 2.5 million for the CAPRISA 004 study, the first to demonstrate that microbicides can reduce a person’s risk of becoming HIV-positive.

Bilateral HIV assistance was also provided in 2011 by Saudi Arabia (US\$ 2 million), Mexico (US\$ 1 million), the United Arab Emirates (US\$ 320 000), Israel (US\$ 300 000) and Poland (US\$ 185 000).

Philanthropy for HIV

Philanthropic funding has remained stable over the past eight years, with between US\$ 500 million and US\$ 600 million per year disbursed to low- and middle-income countries, primarily from foundations based in the United States of America (77%), followed by European funders (23%) and philanthropies located in Canada and Australia (13,14). The Bill & Melinda Gates Foundation remains by far the largest philanthropic HIV funding organization worldwide. Although still modest

in size, philanthropic and private contributions from low- and middle-income countries are increasing, with 16 individual and corporate funders originating from Brazil, Ghana, India, Kenya, Morocco, South Africa, Taiwan and Ukraine (7).

Innovative financing mechanisms contribute to international solidarity

Innovative funding initiatives

Innovative funding initiatives are

contributing to the HIV response and new ideas for fund-raising are in the pipeline. So far, nine countries (Cameroon, Chile, Congo, France, Madagascar, Mali, Mauritius, Niger and the Republic of Korea) (15) have implemented a UNITAID airline levy. Norway allocates part of its tax on carbon dioxide emissions to UNITAID. There are proposals to expand air travel levies to more countries and the voluntary contributions paid by air travellers.

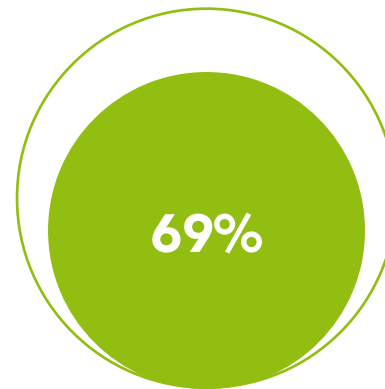
Reliance on aid

Despite considerable efforts to increase domestic funding, many low-income countries remain highly dependent on international aid to support their national AIDS response. International funding accounts for more than half of HIV resources in 76 countries, including 23 high-impact countries. The Global Fund remains the main funding source for most of them, representing more than 30% of the total in 51 countries, including 40 low- or lower-middle-income economies and 15 generalized epidemics.

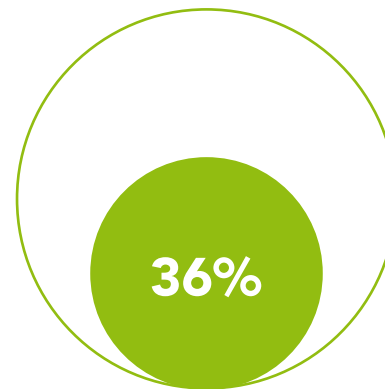
Despite increasing national commitment and ownership, HIV programmes still rely on external aid to a much greater extent than the

Domestic share of total investment in health and AIDS in Africa, 2010

HEALTH



AIDS



Source: UNAIDS, May 2012 and WHO, Global health expenditure database, 2012.

health sector overall. In Africa, for example, international sources account for two thirds of HIV investments, whereas more than two thirds of general health expenditure comes from domestic sources.

HIV treatment programmes in Africa are especially reliant on external support. On average, donor funding pays for about 84% of treatment costs in low-income countries.

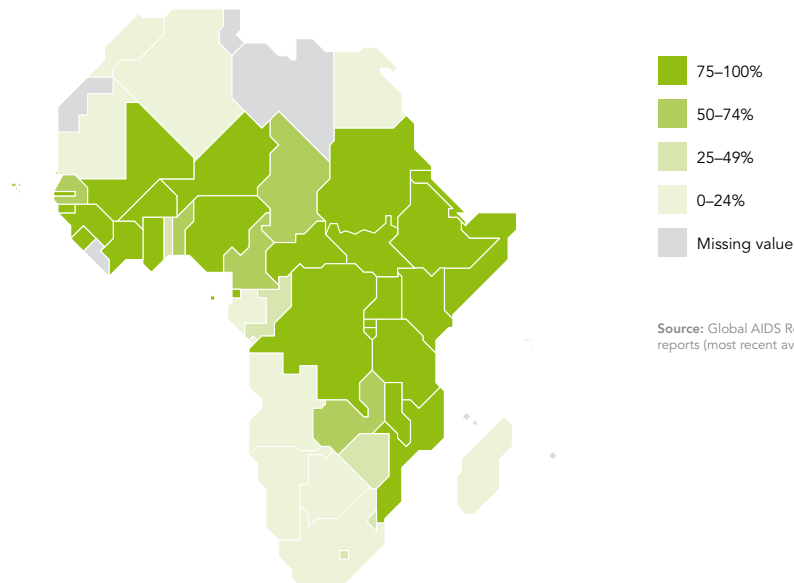
In concentrated epidemics, programmes targeted at key populations at higher risk of HIV infection, although not particularly expensive, also often continue to be funded externally, despite countries' ability to pay for them. In 68 countries reporting programmes on key

populations at higher risk, 57 relied more than 50% on international funding, with the Global Fund providing more than half the resources for 19 of them.

Everyone can do more

To reach internationally agreed goals, countries and the international community must do more. Donor countries could contribute more by meeting the development assistance commitments they have already made. If all high-income countries were to meet the target of providing 0.7% of their gross national income as official development assistance, the total value of international assistance across sectors would more than double, from about US\$ 133 billion in 2011 to almost US\$ 280

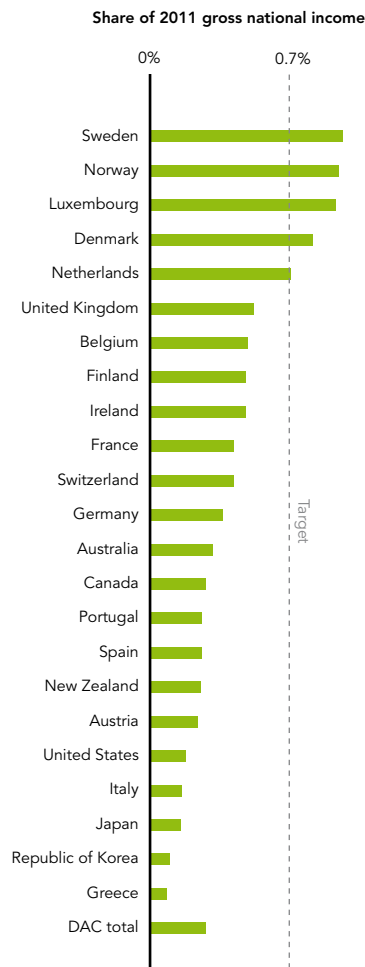
Share of care and treatment expenditure originating from international assistance, African countries, 2009–2011



billion, and the HIV funding gap could be easily filled. Some of the world's largest economies, including Germany, Japan and the United

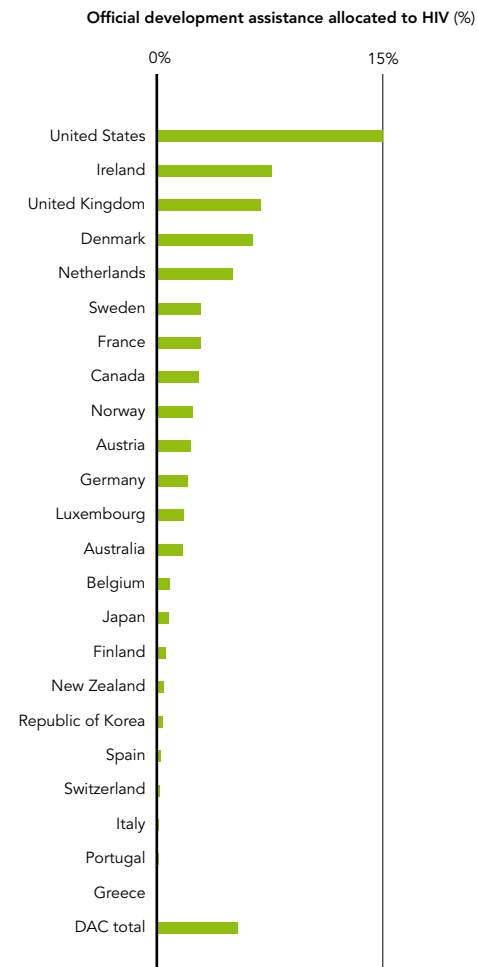
States of America, contribute only half or less of the target level, although the United States is by far the largest donor for HIV in Africa.

Net official development assistance as a percentage of gross national income, OECD-DAC members, 2011



Source: OECD, *Official development assistance from DAC members in 2011*, 4 April 2012.

Share of official development assistance allocated to HIV, OECD-DAC members, 2011

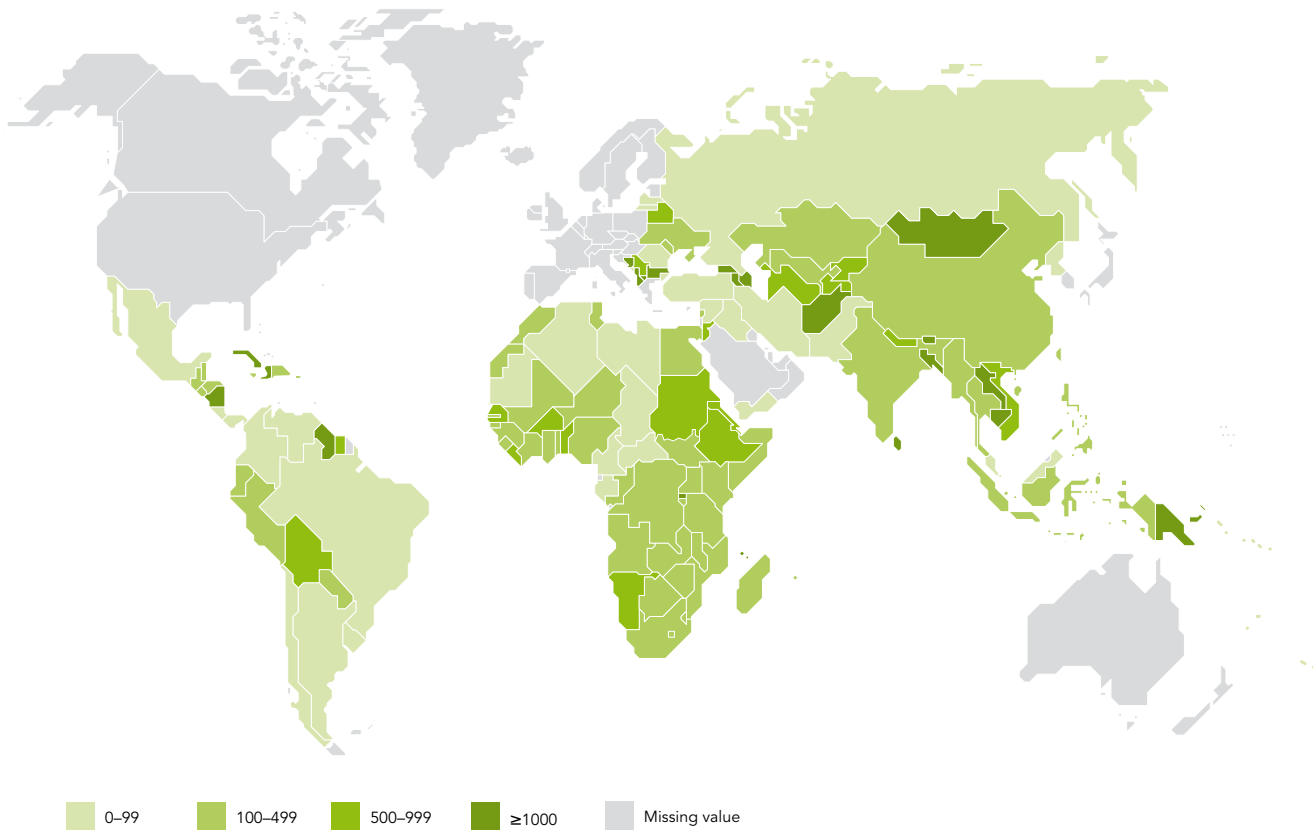


Source: UNAIDS/Kaiser Family Foundation, June 2012.

Donors could also increase the proportion of international assistance devoted to health and AIDS. In 2011, 5% of total international assistance was allocated to HIV. Some countries, notably the United States of America (15%), Ireland (8%), the United Kingdom (7%) and Denmark (6%), already contribute a large share of their international assistance to HIV,

whereas other countries contribute much less, varying from about 3% for Sweden and France to less than 1% for Japan, Spain or Italy. If health assistance increased by only 10%, to 12% of total assistance, while keeping the proportion devoted to HIV stable, more than US\$ 600 million would become available for HIV responses.

International assistance (US\$) per person living with HIV, 2011



International assistance for HIV is not always allocated according to the need in countries. In 2011, international HIV assistance per person living with HIV among key recipient countries ranged from more than US\$ 2000 in Guyana to about US\$ 48 in Cameroon. Namibia received more than 3 times the amount per person living with HIV as Malawi did, and 15 times more than Cameroon, indicating donor preferences rather than need. The gross domestic product per capita for Cameroon is about 20% of Namibia's, while Malawi's is about 6%.

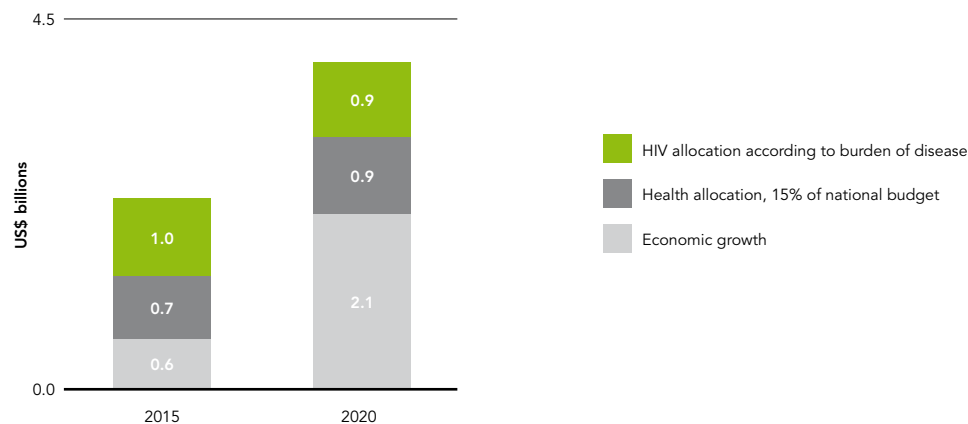
Adopting a multisectoral approach to HIV from donors is also a way to develop synergy with other development sectors and contribute to strengthening social, legal and health systems. For example, some European countries (Denmark, France, the Netherlands, Norway and the United Kingdom) have traditionally taken a wider approach to HIV funding,

earmarking on average only 26% of their development aid, while the rest is provided to multilateral organizations (25%) or integrated into other development sectors (50%), such as education, health systems strengthening or support for civil society or reproductive health.

The potential of emerging economies

The potential of Brazil, the Russian Federation, India, China and South Africa and other middle-income countries to contribute to funding the global HIV response is growing with their economic strength. Some can fund their own HIV responses, thereby freeing development assistance for poorer countries, and also become major actors in development. For example, a contribution of only 0.1% of gross domestic product from Brazil, the Russian Federation, India, China and South Africa could add as much as US\$ 10 billion to global international assistance.

Scenarios for additional domestic public HIV investment in low- and middle-income countries, 2015 and 2020



In contrast with traditional donors, emerging non-OECD economies are already increasing their development assistance, contributing more than US\$ 2.5 billion in 2011.

The growing number of private fortunes in middle-income countries could open space for greater philanthropic giving from these countries. From 2008 to 2009, the number of millionaires grew 51% in India, 31% in China, 21% in the Russian Federation and 12% in Brazil (16). If the level of philanthropy in Brazil, the Russian Federation, India, China and South Africa reached that of the United States, an additional US\$ 216 billion could be mobilized from private funding each year, including US\$ 13 billion for HIV programmes and research and development if 5% of such funding was allocated to it.

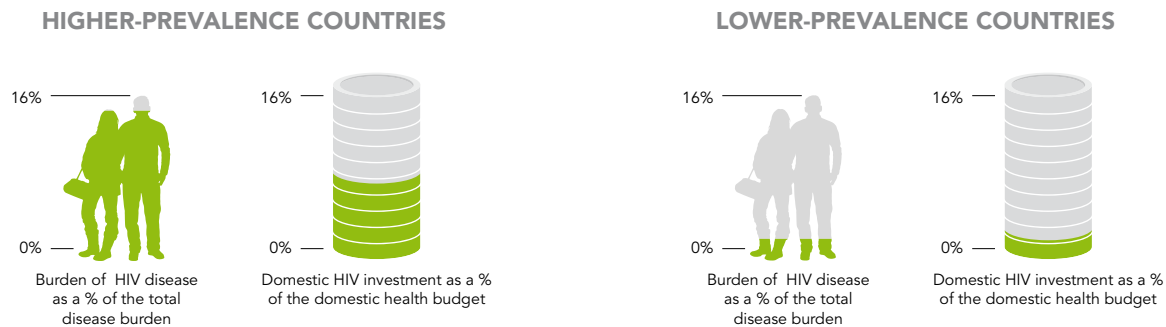
Governments of low- and middle-income countries should be able to devote an additional US\$ 1 billion annually to their own HIV responses by 2015, based simply

on economic growth, with middle-income countries contributing most of it (80%). If countries' health spending was matched with the burden of disease and at least 15% of their budget was allocated to health, an additional US\$ 1.1 billion would become available.

Depending on the burden of disease caused by HIV, reaching the above target would require domestic public spending in sub-Saharan Africa to reach an average of 0.3% of countries' gross domestic product. Only in a handful of high-impact countries would it reach more than 1%. In other regions, this would be significantly less, with an average of 0.03% of countries' gross domestic product and not exceeding 0.5%. Such allocations are eminently affordable.

A recent analysis for UNAIDS modelled various options for innovative funding to fill these gaps at the country level, assessing their potential for collecting additional revenue, including levies on alcohol, mobile phone use, airline tickets and general income. The potential of

Domestic health expenditure does not always match the burden of disease



Source: Global AIDS Response Progress Reporting country reports, 2012.

the mechanisms varied considerably between countries, and countries could choose different combinations of mechanisms, but the modelling indicated that a sustainable contribution of more than 0.3% of gross domestic product would be feasible in most countries.

Social health insurance schemes also have the potential to raise additional revenue from those who can afford it by risk-pooling to reduce the sometimes catastrophic, out-of-pocket expenses that burden poor and marginalized households. Several low- and middle-income countries have been introducing national health insurance schemes and gradually including HIV prevention and treatment in the coverage package.

By 2015, an additional five countries in the middle-level income category or with a lesser burden of disease should be expected to fund more than half of their own responses in accordance with the funding needs implied by the UNAIDS Investment Framework. A further 11 countries should be able to do so by 2020.

Greater innovation

Global innovative funding mechanisms offer a possible means to expand global solidarity. A widely debated option to raise additional money for development is a financial transaction tax or a currency transaction levy. In its 2011 report to the G20, the International Monetary Fund (17) considered a transaction tax practical and endorsed the principle of increasing the level of taxation on the financial sector. The estimates of potential revenue from such taxes vary widely, from US\$ 9 billion annually if restricted to Europe, to as much as US\$ 400 billion annually if extended to all global financial transactions. If this mechanism were to be adopted as an additional tax and half of the new revenue allocated to development, then this mechanism alone could more than double the money available for development. Closing the estimated US\$ 7 billion funding gap for HIV in 2015 would require only 2% of the most optimistic estimate of the revenue potential of this mechanism.

Potential of new global health funding mechanisms

Potential international revenue source	Probable revenue	Possible amount available for HIV	Assumptions
Tax on financial transactions	US\$ 150 billion	US\$ 3.75 billion	50% for development, of which 5% for HIV
Currency transaction levy for development	US\$ 35 billion	US\$ 1.75 billion	5% for HIV
Expansion of airline levy and MASSIVEGOOD	US\$ 1 billion	US\$ 1 billion	100% for HIV

Sources: Leading Group; Interviews; McKinsey analysis.

BY THE NUMBERS

Progress in 22 priority countries of the Global Plan towards the elimination of new HIV infections among children and keeping their mothers alive

COUNTRIES	Number of women living with HIV delivering ^a		OVERALL TARGET Children acquiring HIV infection from mother-to-child transmission ^b		OVERALL TARGET Women dying from AIDS-related causes during pregnancy or within 42 days of the end of pregnancy ^b		PRONG 1 TARGET HIV incidence among women 15–49 years old (%) ^a		PRONG 2 TARGET Percentage of married women 15–49 years old with an unmet need for family planning ^c	
	2009	2011	2009	2011	2005	2010	2009	2011	Latest available data	Year
Angola	15 700	16 000	5 300	5 300	480	380	0.26	0.24	..	
Botswana	14 500	13 500	700	500	220	80	1.34	1.18	..	
Burundi	8 100	7 000	2 700	1 900	380	300	0.09	0.08	29%	2002
Cameroon	30 300	28 600	8 900	6 800	1 100	980	0.46	0.42	21%	2004
Chad	14 500	14 500	5 000	4 800	460	380	0.35	0.33	21%	2004
Côte d'Ivoire	18 500	16 100	5 400	4 400	1 400	940	0.19	0.17	..	
Democratic Republic of the Congo	..	..	..	..	1 140	1 100	..	..	27%	2007
Ethiopia	54 100	42 900	18 900	13 000	1 740	760	0.04	0.04	25%	2011
Ghana	11 900	10 800	3 900	2 700	520	400	0.11	0.09	36%	2008
India					2 000	1 700	..	..	14%	2006
Kenya	89 300	86 700	23 200	13 200	3 400	2 200	0.58	0.52	26%	2009
Lesotho	16 400	16 100	4 700	3 700	420	320	3.12	2.88	23%	2009
Malawi	68 500	63 500	21 300	15 700	2 600	1 780	0.74	0.58	26%	2010
Mozambique	96 800	98 300	28 400	27 100	2 200	2 400	NA	NA	19%	2004
Namibia	9 700	9 200	1 900	800	220	140	0.98	0.90	21%	2007
Nigeria	219 200	228 600	70 900	69 300	7 400	6 600	0.47	0.42	20%	2008
South Africa	250 000	241 300	56 500	29 100	3 600	3 800	1.81	1.67	14%	2004
Swaziland	11 100	10 900	2 000	1 200	220	150	3.39	3.04	25%	2007
Uganda	88 300	96 700	27 300	20 600	3 000	2 400	1.05	0.98	38%	2006
United Republic of Tanzania	92 500	96 000	26 900	21 900	4 000	3 000	0.69	0.69	25%	2010
Zambia	86 100	83 400	21 000	9 500	2 200	1 620	1.13	0.94	27%	2007
Zimbabwe	57 900	52 700	17 700	9 700	2 800	1 680	1.68	1.25	13%	2011
TOTAL	1 287 000	1 265 000	365 000	273 000	42 000	33 000				

.. Data not available or not applicable. NA: not available.

Sources:

a. Spectrum software 2012 country files.

b. WHO, UNICEF, UNFPA and World Bank. *Trends in maternal mortality: 1990 to 2010* (<http://www.who.int/reproductivehealth/publications/monitoring/9789241503631/en>, accessed 15 June 2012).

c. MDG database updated [online database]. New York, United Nations, 2012 (<http://mdgs.un.org/unsd/mdg/News.aspx?Articleid=49>, accessed 15 June 2012).

COUNTRIES	PRONG 3 TARGET 3.1		PRONG 3 TARGET 3.2		PRONG 3 TARGET 3.3		PRONG 4 TARGET		CHILD TARGET			
	Mother-to-child transmission rate (%) ^a		Percentage of women receiving antiretroviral drugs, excluding single dose nevirapine, to reduce transmission during pregnancy ^b		Percentage of mother-infant pairs receiving antiretroviral drugs to reduce transmission during breastfeeding ^a		Percentage of eligible pregnant women receiving antiretroviral therapy ^b		Percentage of under-five deaths caused by HIV ^c		Coverage of antiretroviral therapy among children younger than 15 years old (%) ^b	
	2009	2011	2009	2011	2009	2011	2009	2011	2008	2010	2009	2010
Angola	34%	33%	19%	16%	1%	0%	0%	0%	2%	2%	10%	11%
Botswana	5%	4%	92%	93%	31%	44%	62%	77%	17%	15%	91%	89%
Burundi	34%	27%	19%	38%	19%	39%	0%	0%	6%	6%	13%	14%
Cameroon	29%	24%	20%	54%	12%	20%	28%	42%	5%	5%	11%	13%
Chad	34%	33%	7%	13%	7%	13%	19%	0%	3%	3%	5%	8%
Côte d'Ivoire	29%	27%	50%	68%	0%	0%	0%	0%	4%	3%	15%	15%
Democratic Republic of the Congo	..	..	..	..	..	..	..	..	1%	1%	..	..
Ethiopia	35%	30%	8%	24%	2%	11%	4%	24%	2%	2%	11%	19%
Ghana	33%	25%	31%	75%	0%	0%	0%	0%	4%	3%	11%	14%
India	..	..	..	..	..	..	..	..	..	..	..	..
Kenya	26%	15%	34%	67%	16%	67%	42%	61%	9%	7%	19%	31%
Lesotho	28%	23%	38%	63%	10%	19%	28%	45%	31%	18%	16%	25%
Malawi	31%	25%	24%	53%	4%	22%	12%	51%	13%	13%	22%	29%
Mozambique	29%	28%	38%	51%	8%	14%	22%	25%	11%	10%	0%	20%
Namibia	20%	8%	60%	85%	13%	79%	36%	84%	20%	14%	75%	77%
Nigeria	32%	30%	12%	18%	3%	11%	9%	27%	4%	4%	9%	13%
South Africa	23%	12%	60%	>95%	0%	38%	0%	69%	35%	28%	39%	58%
Swaziland	18%	11%	57%	95%	17%	34%	40%	71%	30%	23%	53%	60%
Uganda	31%	21%	27%	50%	0%	50%	0%	15%	6%	7%	14%	21%
United Republic of Tanzania	29%	23%	34%	74%	7%	17%	18%	40%	6%	5%	12%	14%
Zambia	24%	11%	58%	86%	21%	67%	51%	88%	12%	10%	24%	31%
Zimbabwe	31%	18%	11%	78%	2%	19%	4%	51%	25%	20%	22%	37%
TOTAL	28%	22%	34%	61%	6%	29%	16%	48%			19%	26%

Sources:
a. Spectrum software 2012 country files.
b. 2012 progress reports submitted by countries. Geneva, UNAIDS, 2012 (<http://www.unaids.org/en/dataanalysis/monitoringcountryprogress/progressreports/2012countries>, accessed 15 June 2012) and Spectrum software 2012 country files.
c. *World health statistics 2011*. Geneva, World Health Organization, 2011 (<http://www.who.int/whosis/whostat/2011/en/index.html>, accessed 15 June 2012).
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NOTES AND REFERENCES

Results, results ... more needed

NOTES

1. The estimated number of people eligible for antiretroviral therapy is based on the 2010 WHO guidelines. About 4 million additional people have recently become eligible for antiretroviral therapy under new guidelines that recommend antiretroviral therapy for HIV-discordant couples.

2. Secondary analysis of data presented in the *UNAIDS Report on the global AIDS epidemic 2010 (3)*, including the UNAIDS AIDS scorecards for 2010 (3), show that a mean of 5% (median of 3%) of people living with HIV who inject drugs are receiving treatment versus a mean of 12% (median 8%) of all people living with HIV receiving treatment.

3. The 22 priority countries are Angola, Botswana, Burundi, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, Ghana, India, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, South Africa, Swaziland, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

4. The mother-to-child transmission rate is the number of children newly infected in a year divided by the number of women living with HIV who delivered in that same year. The transmission rate applies to the full population and not just those in programmes for preventing mother-to-child transmission and includes both perinatal and breastfeeding transmission.

5. This was in the 99 low- and middle-income countries reporting data, representing 81% of the estimated number of pregnant women living with HIV.

6. In these statistics, sub-Saharan Africa includes South Sudan, which was previously included in the Middle East and North Africa region.

7. The rates of diagnosed HIV cases doubled between 2000 and 2009 in Bulgaria, the Czech Republic, Hungary, Lithuania, Slovakia and Slovenia and increased by more than 50% in the United Kingdom. In contrast, the number of people newly diagnosed with HIV infection decreased by more than 20% in Latvia, Portugal and Romania (44).

8. In these statistics, the Middle East and North Africa region no longer includes South Sudan.

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Getting value for money

NOTES

1. Cambodia, Ethiopia, Ghana, India, Kenya, Lesotho, Malawi, Rwanda, Thailand, Ukraine, United Republic of Tanzania, Zambia and Zimbabwe.

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Investing sustainably

NOTES

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