



# PROGRESS AGAINST HIV/AIDS

WINNING THE FIGHT AGAINST A DEADLY DISEASE

THE  
LIVING  
PROOF  
PROJECT

U.S. investments in global health are working.

The introduction of antiretroviral treatment in 1996 revolutionized the treatment of HIV/AIDS, adding decades of life to people living with the disease. Access to treatment has expanded dramatically over the past decade as a consequence of an unprecedented global effort to combat HIV/AIDS, but intensified efforts in prevention are still needed to reverse the course of the pandemic.

The early response to the emergence of HIV/AIDS was slow, resulting in a silent spread of the virus around the globe. However, in recent years the fight against HIV/AIDS has gained remarkable momentum. Unprecedented financial and political commitments by the global community have permitted millions of people in low- and middle-income countries to benefit from access to effective treatment.

## Global Progress

Funding for HIV/AIDS in low- and middle-income countries increased from a mere \$300 million (U.S.) in 1996 to \$13.6 billion (U.S.) in 2008, the highest level to date.<sup>1</sup> In addition, several new institutions were created to coordinate and finance global efforts to combat the pandemic:

- The **Joint United Nations Programme on HIV/AIDS (UNAIDS)** was launched in 1996 to strengthen the U.N. response to the pandemic. It coordinates the HIV/AIDS activities of 10 U.N. organizations, provides strategic information, and advocates for a greater political and financial commitment to control HIV/AIDS.
- The **Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)** was established in 2002 as an innovative financing mechanism to raise and disburse funding to countries in need. As a partnership representing public and private stakeholders, the Global Fund uses a demand-driven, performance-based model. Countries can apply for grants to finance their response to HIV/AIDS, whereas continued financing is dependent on achievement of targets. By March 2009, the Global Fund had committed \$11.9 billion (U.S.) to 136 countries for HIV/AIDS prevention, treatment, and care programs.<sup>2</sup>
- The **U.S. President's Emergency Plan for AIDS Relief (PEPFAR)**, established in 2003 by the U.S. government, represents the largest investment by any nation to combat a single disease in history. PEPFAR contributed \$25 billion

(U.S.) between 2004 and 2009 to address the global HIV/AIDS pandemic. Around 80 percent of this funding was channeled to 15 focus countries, with much of the remainder (16 percent) channeled through the Global Fund. In May 2009, U.S. President Barack Obama asked Congress to appropriate \$63 billion (U.S.) between 2010 and 2015 for global health, including \$51 billion (U.S.) to address HIV/AIDS, tuberculosis, and malaria.<sup>3</sup> If approved by Congress, a substantive portion of this funding will be channeled through PEPFAR for HIV/AIDS efforts.

## Innovation and Scientific Advances

The introduction of antiretroviral therapy (ART) in 1996 was a major scientific breakthrough that substantially improved the treatment of HIV-infected people.<sup>4</sup> Another major innovation was the introduction of fixed-dose combinations of antiretroviral drugs in a single pill, which reduces the number of tablets a patient has to take each day. This improves medication compliance, and reduces the development of resistance as well as the possibility of side effects and drug-drug interactions.

Significant efforts are also under way to develop and implement new prevention strategies and technologies:

- The timely administration of antiretroviral treatment to HIV-infected pregnant women was found to significantly reduce the risk of HIV transmission from mother to child. **Prevention of mother-to-child transmission (PMTCT)** was recommended as an effective strategy to halt transmission of HIV from mother to child in 1998.
- **Male circumcision** has been found to reduce the risk of heterosexually acquired HIV among men by 60 percent.<sup>5</sup> It is now recommended by the World Health Organization (WHO) and UNAIDS as an effective prevention strategy.
- Work is ongoing to develop new biomedical prevention products, particularly an HIV vaccine and microbicides.

Global initiatives, such as the International AIDS Vaccine Initiative and the Global HIV/AIDS Vaccine Enterprise are promoting the development of an HIV vaccine. In addition, there are several candidate microbicides currently being tested to prevent HIV/AIDS. They are to complement condoms, which are associated with an 80 percent reduction in transmission<sup>6</sup> but which cannot be used by women without the consent of their partner. Microbicides could be applied prior to sexual intercourse without the partner's knowledge.<sup>7</sup> The availability of an AIDS vaccine and effective microbicides, however, is still years away.

## WHAT ARE HIV AND AIDS?

HIV progressively weakens the human immune system and makes infected people more vulnerable to infectious diseases and tumors. The most advanced stage of HIV infection is AIDS. HIV is transmitted through sexual intercourse, contaminated blood transfusions and needles, and mother-to-child transmission during pregnancy, childbirth, and breastfeeding.

HIV/AIDS is one of the most serious health and development challenges the world has ever known. Since the first HIV cases were identified in 1981, more than 25 million people have died of AIDS-related illnesses. Globally, 33 million people were living with HIV/AIDS in 2007, and 2 million people died of AIDS in the same year, the majority of them in Sub-Saharan Africa.<sup>17</sup> The pandemic also has a severe economic impact, as it primarily affects people in their most productive years. Estimates suggest that high-prevalence countries suffer a 0.5 percent to 1.5 percent reduction in GDP per year (over 10 to 20 years) due to HIV/AIDS.<sup>18</sup>

While there is no cure for HIV/AIDS, treatment with antiretroviral drugs greatly decreases the number and severity of illnesses associated with HIV/AIDS, extends the duration, and dramatically improves the lives of HIV-positive people and their families.

## Results

Political and financial commitments really can make a difference in global health, as witnessed by the extraordinary results achieved in the fight against HIV/AIDS.

Treatment coverage has been scaled up in low- and middle-income countries, from virtually no treatment seven years ago to nearly 4 million people receiving ART by May 2009.<sup>8</sup> The greatest increase was achieved in Sub-Saharan Africa, where the number of people receiving lifesaving medicines grew from 80,000 in 2003 to 2.1 million in 2007, an increase in regional coverage from 2 percent to 30 percent.

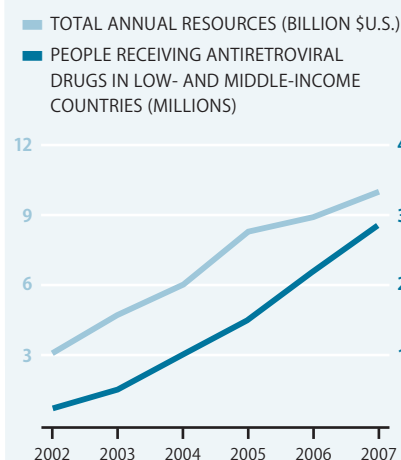
The unmatched scale-up of treatment has been strongly supported by a dramatic reduction in prices for ART [from \$10,000 (U.S.) to \$12,000 (U.S.) in the late 1990s to \$170 (U.S.) in 2007, in low-income countries].<sup>9</sup> This was made possible by the entry of new generic manufacturers into the market, and the work of various organizations to negotiate reduced prices, most notably the William J. Clinton Foundation.<sup>10</sup>

Rapid progress has also been made in expanding access to PMTCT services.<sup>11</sup> Coverage with PMTCT services in low- and middle-income countries tripled in recent years, from 10 percent in 2004 to 33 percent in 2007.

After decades of increasing mortality and incidence, there are also encouraging indications of impact in the fight against the pandemic:

- **Reduction in mortality:** UNAIDS estimates that the global number of AIDS-related deaths declined for the first time ever, from 2.2 million in 2005 to 2 million in 2007, largely due to the dramatically improved access to ART. The number of child deaths due to AIDS peaked at 320,000 in 2003 but has declined since then to 270,000 in 2007. According to UNAIDS, this is both a result of increased ART access and a decline in new infections among children.

## MORE RESOURCES MEAN MORE PEOPLE RECEIVE TREATMENT



Source: UNAIDS, *Global Resource Availability for AIDS 2005*; UNAIDS, *Report on the Global HIV/AIDS Epidemic 2008*.

- **Decline in global HIV incidence:** The number of new HIV infections declined from 3 million in 2001 to 2.7 million in 2007. In some countries, the growing access to PMTCT considerably reduced mother-to-child-transmissions. In Cambodia, the percentage of infants who were born to HIV-positive mothers and became infected via mother-to-child transmission decreased from 30.5 percent in 2001 to 11.4 percent in 2007. In countries such as Lesotho, Namibia, South Africa, and Swaziland, HIV prevalence appears to have stabilized, although at very high levels.
- **Lives saved:** Upcoming evidence shows that the unprecedented investments directed at HIV/AIDS saved millions of lives. A study from Stanford University indicates that PEPFAR has averted 1.2 million deaths in 12 African focus countries. In only four years (2003-2007), PEPFAR cut the HIV/AIDS death toll by 10.5 percent in the targeted countries, demonstrating what can be achieved with global investments.<sup>12</sup>

## Moving Forward

### Scaling up prevention strategies

The number of new infections still outpaces the progress in access to treatment. For every two people who receive HIV treatment, five are newly infected. Only 20 percent of those in need had access to prevention strategies in 2006.<sup>13</sup> Increasing access to scientifically proven prevention strategies such as PMTCT and male circumcision is a global priority. While the recent scale-up of PMTCT services suggests that future action can render this mode of transmission rare, globally, two-thirds of HIV-infected pregnant women still lack access to PMTCT. In addition, studies suggest that a 100 percent uptake of male circumcision in Sub-Saharan Africa could prevent 5.7 million new infections over 20 years.<sup>14</sup>

Prioritization of prevention also needs to be reflected in global investments. Close to half the funding UNAIDS

estimates is required to achieve the goal of universal access to prevention, treatment, and care by 2010 will be needed for prevention [\$20.6 billion (U.S.) out of \$44.9 billion (U.S.)].<sup>15</sup>

### Addressing HIV/AIDS and TB co-infection

Tuberculosis (TB) is one of the leading causes of death of people living with HIV, accounting for an estimated one-quarter of AIDS deaths in low- and middle-income countries. While diagnosing and treating TB is critical, only 32 percent of people who were living with HIV and diagnosed with TB received both antiretroviral and anti-TB treatment in 2007. A stronger effort on TB case detection and treatment could yield substantial reductions in HIV-related deaths.

### Financing rising treatment costs

Although dramatic progress has been made in 2007, only one-third of those in need of treatment had access to it. In addition, the success of ART in increasing life expectancy, coupled with the growing rates of new infections, is causing ever-increasing treatment costs. The challenge of how to finance these costs through sustainable, innovative domestic and global financing mechanisms is not yet solved. In this context, it must be ensured that escalating treatment costs will not squeeze out funding for HIV-prevention measures.<sup>16</sup>

## COUNTRY SPOTLIGHT: RWANDA'S RESPONSE TO THE HIV/AIDS PANDEMIC

Despite being one of the poorest countries in the world, Rwanda has achieved great progress in the fight against the HIV/AIDS epidemic in recent years. The Rwandan HIV/AIDS response is a great example of strong government leadership, sound management, and substantial external support. With 95 percent of funding for HIV/AIDS coming from international sources, mostly from PEPFAR and the Global Fund, the government's Multi-Sector HIV Strategic Plan places an equal focus on treatment, prevention, and care. The HIV/AIDS response is mainstreamed and integrated into all sectors, including education, nutritional support, and countrywide services to diagnose and treat HIV-tuberculosis co-infections. Civil society organizations play a critical role in providing services, and the decentralization of the health system has assisted in bringing services to communities. Today, every health district offers the most critical HIV/

AIDS services. As a result of these interventions, Rwanda has:

- Dramatically scaled up access to HIV/AIDS treatment: The number of people on ART increased from 870 people in 2002 to 44,400 people (59 percent of them women) in 2007, achieving the highest coverage of any low-income country for ART (71 percent) in that year.
- Expanded PMTCT coverage, from 35 percent in 2004 to 60 percent in 2007, and integrated PMTCT services into antenatal care (ANC) in more than half of all health facilities. Of women attending ANC in 2007, 94 percent were tested for HIV, as were 62.5 percent of their partners.
- Increased the number of people tested from 100,000 in 2003 to 1.6 million in 2006. While only 0.8 percent of women and 0.9 percent of men aged 15 to 24 were tested for HIV/AIDS in 2000,

12.6 percent of young women and 11.3 percent of young men took a test in 2007, revealing significant behavior changes.

Rwanda demonstrates that a concerted effort can change the course of the epidemic. According to UNAIDS, the number of AIDS deaths significantly declined in Rwanda, from 25,000 in 1996 to 7,800 in 2007. Prevalence data of pregnant women attending antenatal clinics indicate that the national prevalence slightly decreased, from 5.2 percent in 2003 to 4.3 percent in 2007. A population-based survey found a prevalence rate of 3 percent in 2005. Finally, while more difficult to measure, there are indications that incidence is also declining.<sup>19</sup>

Rwanda also illustrates some of the typical challenges in combating the epidemic: One-third of pregnant women who test HIV-positive still do not receive PMTCT. As a result, an estimated 11 percent of infants born



to HIV-positive mothers are infected. A significant challenge in scaling up PMTCT services is that not all women give birth in health facilities: About one-quarter of pregnant women identified as HIV-positive give birth at home, and 16 percent of them are lost during follow-up. Rwanda also shows that denial and stigmatization are barriers in accessing services. High-risk populations, such as sex workers and men who have sex with men, have difficulty accessing HIV prevention, treatment, and care services because of the stigma of their activities.<sup>20</sup>

# Endnotes

1. About half (52 percent) was financed through domestic sources in the affected countries. Of the international resources, 31 percent came from direct bilateral financing, 12 percent from multilateral sources, and 5 percent from the private and philanthropic sector. See UNAIDS, *What countries need: Investments needed for 2010 targets*, 2009.
2. This is the five-year proposed total budget; the two-year budget is \$4.3 billion (U.S.).
3. This is still pending congressional approval. See PEPFAR, *Making a Difference: Funding*, www.PEPFAR.gov.
4. People with HIV/AIDS are generally treated with a combination of three or more different antiretroviral drugs simultaneously.
5. WHO, UNAIDS, *Male circumcision: Global trends and determinants of prevalence, safety and acceptability*, 2007.
6. S. C. Weller, K. Davis-Beatty, "Condom Effectiveness in Reducing Heterosexual HIV Transmission," *Cochrane Database of Systematic Reviews* 4 (2007): Art. No. CD003255.
7. The HIV Vaccines and Microbicides Resource Tracking Working Group, *Sustaining the HIV Prevention Research Agenda*, 2008; S. Berkely, W. Koff, "Scientific and Policy Challenges to Development of an AIDS Vaccine," *Lancet* 370 (7 July 2007).
8. UNAIDS, Joint Action for Results. *UNAIDS Outcome Framework 2009–2011*, 2009.
9. UNAIDS, *Report on the Global AIDS Epidemic*, 2004; WHO/UNAIDS/UNICEF, *Scaling up Priority HIV/AIDS Interventions in the Health Sector*, Progress Report, 2007.
10. The average price for second-line treatment decreased from \$1,500 U.S. in 2004 to \$700 per annum in 2007. WHO/UNAIDS/United Nations Children's Fund (UNICEF), *Towards Universal Access: Scaling up Priority HIV/AIDS Interventions in the Health Sector*, Progress Report 2008, 2008.
11. Padian, et al., "Biomedical Interventions to Prevent HIV Infection: Evidence, Challenges, and a Way Forward," *Lancet* 372 (16 August 2008): 585–599.
12. E. Bendavid, J. Bhattacharaya, "The President's Emergency Plan for AIDS Relief in Africa: An Evaluation of Outcomes," *Annals of Internal Medicine* 150 (19 May 2009): 688–695.
13. WHO/UNAIDS/UNICEF, *Scaling up Priority HIV/AIDS Interventions in the Health Sector*, Progress Report, 2007.
14. B. G. Williams, J. O. Lloyd-Smith, E. Gouws, C. Hankins, W. M. Getz, J. Hargrove, I. de Zoysa, C. Dye, B. Auvert, "The Potential Impact of Male Circumcision on HIV in Sub-Saharan Africa," *PloS Med* 3 (2006): e262.
15. Compared to \$12.5 billion (U.S.) for treatment, \$4.2 billion (U.S.) for orphaned and vulnerable children, \$7.1 billion (U.S.) for program costs, and \$0.5 billion (U.S.) for prevention of violence against women. See UNAIDS, *What Countries Need: Investments Needed for 2010 Targets*, 2009.
16. Mead Over, *Prevention Failure: The Ballooning Entitlement Burden of U.S. Global AIDS Treatment Spending and What to Do About It*, Center for Global Development, Working Paper 144, 2008.
17. In Sub-Saharan Africa, more than 1.5 million die of AIDS every year, making AIDS the leading cause of death in the region.
18. The Joint United Nations Programme on HIV/AIDS (UNAIDS), *Report on the Global HIV/AIDS Epidemic 2008*, August 2008.
19. UNAIDS, *Report on the Global HIV/AIDS Epidemic 2008*, August 2008.
20. National AIDS Control Commission of Rwanda, *National Strategic Plan on HIV/AIDS*, 2008.

The Living Proof Project is a multimedia initiative intended to highlight successes of U.S.-funded global health initiatives. Millions of lives have already been transformed and saved with effective, affordable solutions. We have the knowledge, innovative technologies and proven tools to do much more. The content for this progress sheet was developed by the Global Health Group at the University of California, San Francisco and SEEK Development in Berlin. It is also available online at [www.livingproofproject.org](http://www.livingproofproject.org).