

The US President's Emergency Plan for AIDS Relief

Achieving Impact Through Scale Up of TB-HIV Activities



RESULTS Educational Fund
May 2007

RESULTS Educational Fund (REF) (www.results.org)

REF, based in Washington, DC, is a 501(c)3 non-profit citizens' advocacy organization committed to educating the public, the media, and government leaders about issues related to poverty and hunger in the United States and abroad. It organizes public forums, trains ordinary citizens in being active participants in democracy, holds media conference calls to share the latest information, and conducts oversight research to determine the effectiveness of programs meant to address poverty and inequity. REF combines advocacy efforts with its sister organization, RESULTS, Inc., a 501(c)4 organization, and six international affiliates in Australia, Canada, Germany, Japan, Mexico and the United Kingdom, for greater impact worldwide.

Primary writers: Paul Jensen and Sue Perez, with overall editing support from Joanne Carter

Contributors: Rebecca Simon, Cecili Thompson Williams and Melanie Vant

Designed by: Lesley Reed and Cecili Thompson Williams

© 2007 RESULTS Educational Fund

Suggested citation:

RESULTS Educational Fund. 2007. The US President's Emergency Plan for AIDS Relief: Achieving Impact Through Scale Up of TB-HIV Activities. Washington, DC: RESULTS Educational Fund.

The US President's Emergency Plan for AIDS Relief

Achieving Impact Through Scale Up
of TB-HIV Activities

RESULTS Educational Fund
Washington, DC

May 2007

RESULTS

Contents

Foreword by Archbishop Desmond Tutu.....	5
List of Figures and Boxes.....	6
Acronyms.....	6
Methodology.....	7
Executive Summary.....	8
The TB-HIV Link.....	12
TB-HIV in Geopolitical Context.....	16
The Need for TB-HIV Coordination.....	19
PEPFAR's Efforts to Fight TB-HIV: FY2007 COP Guidance.....	24
Key Gaps in PEPFAR's TB-HIV Programming.....	27
Recommendations.....	29
Recommendations to OGAC.....	29
Recommendations for Increased Strategic US Investment.....	31
Conclusion.....	32
TB-HIV Highlights from PEPFAR-Supported Country Programs.....	33
Ethiopia.....	33
Kenya.....	36
Rwanda.....	39
United Republic of Tanzania.....	41
Appendix: TB-HIV Statistics for Countries Receiving PEPFAR Support.....	42
Table 1. PEPFAR focus countries.....	42
Table 2. Countries receiving over US\$10 million per annum.....	43
Table 3. Countries receiving US\$5 to \$10 million per annum.....	44
Table 4. Countries receiving US\$1 to \$5 million per annum.....	45
References.....	46

Foreword

TUBERCULOSIS POSES FEW MYSTERIES. We know what causes it, we know how it spreads, and we know how to treat it. Yet TB, one of humanity's oldest scourges, kills more people now than ever before. Nearly 2 million people a year succumb to this cheaply treated and preventable disease. That's one person every 15 seconds.

As a teenager I suffered my own bout with TB, which confined me to a bed for 20 months before I recovered. At that time there were no effective drugs to treat TB — drugs that now, when taken properly, can cure the disease in 95 percent of cases. That was also before the advent of HIV/AIDS. In rich and poor countries alike, people know how AIDS destroys communities, destabilizes regions and has given rise to a population of orphans larger than that of most countries. Many do not realize, however, that AIDS works hand-in-hand with TB. In Africa, which suffers the highest rates of both diseases, TB is a leading cause of AIDS-related death. To halt the malicious spread of both diseases will take a concerted, coordinated assault. Nelson Mandela may have said it best: “We cannot win the battle against AIDS unless we also fight TB.”

Yet time is dwindling. After years of warnings from the public health community, a new form of TB has emerged that in some cases resists nearly all drugs used to treat it. “Extensively drug resistant TB,” or “XDR-TB,” is poised to undermine progress in the fight against AIDS. Like standard TB, XDR-TB spreads through the air, but it is virtually impossible to treat and almost always fatal in those with HIV. At the time of this writing, 35 countries on five continents have reported cases of XDR-TB, including the US. An outbreak in my own country of South Africa killed 52 of 53 patients, half of them within 16 days. Almost all were HIV-positive, and even those on anti-retroviral therapy succumbed. XDR-TB sounds a clamorous warning: without the political will to control TB, we will not only fail to defeat HIV but may enable the rise of an incurable, airborne disease.

As this report by RESULTS Educational Fund describes, the US President's Emergency Plan for AIDS Relief supports some critical efforts that seek to diagnose and provide treatment and care for those with both TB and HIV. Some of these efforts are quite simple in principle, such as pilot programs that routinely test TB patients for HIV — now recognized as potentially the most efficient means of identifying those eligible for anti-retroviral therapy. By widely replicating these efforts, PEPFAR could make stronger headway toward its goals and show the world that TB control must become part and parcel of the AIDS response.

— Archbishop Emeritus Desmond Tutu

1984 Nobel Peace Prize winner, anti-apartheid leader, former chairman of South Africa's Truth and Reconciliation Commission, TB survivor, Honorary Chairperson of the Global AIDS Alliance

List of Figures

Figure 1: TB notification rate vs. HIV prevalence in 18 African countries	15
---------------------------------------------------------------------------	----

List of Boxes

Box 1: The Burden of TB and TB-HIV within PEPFAR's 15 Focus Countries	11
Box 2: Two Diseases, One Patient — TB/HIV control strategy towards 2015	14
Box 3: WHO's Interim Policy on Collaborative TB/HIV Activities	20
Box 4: Best Practices — Kenya: Integration of HIV and TB diagnostic testing results in improved ART access	22
Box 5: TB-HIV Focus Partner: Fenote Tesfa Project (Ethiopia)	35

Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Therapy
ARV	Anti-Retroviral
CDC	US Centers for Disease Control and Prevention
COP	Country Operational Plan
CPT	Cotrimoxazole Preventive Therapy
DOTS	Directly Observed Treatment, Short-course
DTC	Diagnostic Testing and Counseling
EDARP	Eastern Deanery AIDS Relief Program
FY	Fiscal Year
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
G8	Group of 8 [countries]
HBC	High [TB] Burden Country
HHS	US Department of Health and Human Services
HIV	Human Immunodeficiency Virus
IPT	Isoniazid Preventive Therapy
MDR-TB	Multidrug-Resistant Tuberculosis
NLTP	National Leprosy and Tuberculosis Program
OGAC	Office of the US Global AIDS Coordinator
PEPFAR	The US President's Emergency Plan for AIDS Relief
PLWHA	People Living With HIV/AIDS
SS+	Sputum Smear Positive
TB	Tuberculosis
UN	United Nations
US	United States
USAID	United States Agency for International Development
USG	United States Government
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
XDR-TB	Extensively Drug-Resistant TB

Methodology

This report is the result of an analysis by RESULTS Educational Fund (REF) of TB-HIV activities supported by the US President's Emergency Plan For AIDS Relief (PEPFAR) since the first congressional appropriation for the initiative in January 2004. It includes an overall assessment of PEPFAR's TB-HIV activities and a summary of activities in four PEPFAR countries, including models developed and cross-disease impacts documented to date.

To conduct research and assessment for this summary, REF used the following methodology:

- ▶ Review and analysis of various reports and documents including PEPFAR's annual reports to Congress; annual Country Operational Plan guidances; other documents available on the website of the Office of the US Global AIDS Coordinator (OGAC); the World Health Organization's (WHO) Global Tuberculosis Control Report 2006 and 2007; and other relevant documents available from the WHO website.
- ▶ Review and analysis of TB-HIV-related presentations and abstracts from PEPFAR's 2006 HIV/AIDS Implementers' Meeting, Durban, South Africa, June 12-15, 2006.
- ▶ Discussions with officials at OGAC; the US Centers for Disease Control and Prevention (CDC) Global AIDS Program in Atlanta, Georgia, and the countries highlighted; the US Agency for International Development (USAID); and the WHO's Stop TB Department in Geneva, Switzerland.
- ▶ Discussions with implementers of PEPFAR-supported TB-HIV activities and national TB control program managers.

The US President's Emergency Plan for AIDS Relief has an enormous opportunity to prevent the reversal of progress in AIDS treatment scale up threatened by the burgeoning epidemic of drug-resistant TB. Given high rates of TB-HIV co-infection in PEPFAR focus countries, TB programs provide important entry points to access HIV testing, counseling and treatment.

Executive Summary

THE TUBERCULOSIS (TB) AND HIV/AIDS EPIDEMICS ARE INEXTRICABLY LINKED, as TB is the leading infectious killer of people living with HIV/AIDS (PLWHA). Africa is the global epicenter of TB-HIV co-infection, home to roughly 80 percent of TB cases among PLWHA. Since 1990, the number of new annual TB cases in Africa has more than tripled and the number of deaths per year has almost tripled. It is also the only continent where TB rates are increasing — at a dramatic 5 percent per year — driven by HIV/AIDS, poverty and weak health systems. Africa's TB burden has become so great that in August 2005, African Ministers of Health and the World Health Organization (WHO) declared TB a continent-wide health emergency.

Dangerous, drug-resistant forms of TB, including “extensively drug-resistant” or “XDR-” TB, threaten to undermine progress in reducing AIDS-related mortality. A 2006 outbreak of XDR-TB in KwaZulu-Natal, South Africa, among 53 patients resulted in death in all but one patient. Half died within 16 days of diagnosis. Half had never previously received TB treatment, meaning they acquired XDR-TB from someone else. All those tested were HIV-positive and 15 of the patients who died were on anti-retroviral (ARV) treatment for HIV, indicating that ARVs were not protective against this form of TB. The threat of XDR-TB moving beyond southern Africa to the rest of Africa could have dire consequences for the entire continent. In response, WHO has developed a 2007 plan to address drug-resistant TB globally (multidrug-resistant TB/MDR-TB and XDR-TB) including an estimate of resources needed annually to implement the plan.

The US President's Emergency Plan for AIDS Relief (PEPFAR) has an enormous opportunity to accelerate progress toward PEPFAR's goals, to prevent the reversal of progress in AIDS treatment scale up threatened by the burgeoning epidemic of drug-resistant TB in southern Africa,

and to lead the way for the donor community by significantly expanding its TB-HIV investments and taking to scale the models it has developed for the benefit of coordinated TB-HIV activities.

While PEPFAR's efforts to address TB-HIV have been valuable in a number of countries, the actual level of investment in its 15 focus countries (12 of which are located in sub-Saharan Africa) has been limited to date, though considerable increase is planned for fiscal year (FY) 2007. In FY2004, its first year of funding, PEPFAR provided virtually no resources explicitly for TB-HIV activities. In FY2005, PEPFAR provided focus countries approximately US\$25.5 million under the TB-HIV program area, a mere 2 percent of PEPFAR's overall program budget (i.e., prevention, treatment and care budgets combined). In FY2006, TB-HIV funding for its 15 focus countries increased to US\$48.6 million, representing only 2.8 percent of PEPFAR's program budget. For FY2007, PEPFAR is expected to substantially increase TB-HIV funding to at least US\$120 million, or roughly 3 percent of the program budget. This increase in resources for TB-HIV provides an important jumpstart to taking coordinated activities to scale in all focus countries. Additional resources in FY2008 could help ensure success of this scale up.

Initial investments in coordinated TB-HIV activities by PEPFAR have yielded some noteworthy achievements, including important models that should now be taken to scale. PEPFAR efforts have helped to identify and develop a number of best practices, which, if adapted for local conditions and scaled up throughout all focus countries, could save additional lives and accelerate PEPFAR's progress toward its goals to provide anti-retroviral therapy (ART) to 2 million people, prevent 7 million new HIV infections, and care for 10 million people infected with or otherwise affected by HIV (commonly referred to as the 2-7-10 goals). Given high rates of TB-HIV co-infection in the 12 PEPFAR African focus countries, TB programs provide very important, yet still underutilized, entry points to access HIV testing, counseling and treatment. An estimated 36 percent of people with TB in PEPFAR focus countries are HIV-positive, and PEPFAR projects that between 2006 and 2008, nearly 900,000 HIV-positive adults will be treated for TB in its 15 focus countries. Many of these patients do not know their HIV status and many would be eligible for ART. In Kenya — where annual TB cases have increased 10-fold since the advent of AIDS — PEPFAR estimates that 100,000 additional PLWHA could access HIV care annually (with half of these eligible for ART) by routinely providing HIV testing and counseling to TB patients. In addition, more aggressive screening and treatment of TB within HIV programs would yield significant reductions in mortality in PLWHA.

This report describes TB-HIV activities in Ethiopia, Kenya, Rwanda and the United Republic of Tanzania. These programs demonstrate the large gains toward controlling both diseases that could be achieved through increased funding for TB-HIV activities. PEPFAR is well positioned to spearhead a major scale up of TB-HIV efforts in all of its focus countries by increasing resources for TB-HIV and more widely disseminating knowledge gained from its grantees on TB-HIV program coordination, operational research and impact data to support best practices. In addition, lessons learned from the implementation of TB-HIV activities could inform the efforts of other affected countries and the wider donor and global health communities.

This report recommends that the Office of the US Global AIDS Coordinator (OGAC) and the US government consider the following:

Recommendations to OGAC

1. Increase annual funding for TB-HIV activities to approximately 10 percent of PEPFAR's total program budget;
2. Require that all TB patients in focus countries be provided HIV testing and counseling services and referral for AIDS treatment and care as appropriate;
3. Require that TB screening and appropriate treatment — either preventive therapy or treatment for TB disease as needed — be provided to all PLWHA in focus countries in order to save lives and help achieve PEPFAR's goals;
4. As part of the “Three Ones,”^a continue to support the inclusion of TB-HIV indicators within national surveillance systems. Within PEPFAR, establish more comprehensive and outcome-focused TB-HIV program indicators/targets, to be required reporting by PEPFAR-supported countries, in order to reflect a more meaningful measure of impact;
5. Improve the management and dissemination of knowledge gained from PEPFAR-funded TB-HIV efforts to increase the replication of best practices by grantees and among other partners; and
6. As HIV/AIDS is often associated with sputum smear-negative TB, work with all focus countries to implement WHO's new algorithms for the diagnosis of TB in ambulatory and severely ill HIV-positive patients in order to improve diagnosis of smear-negative TB in PLWHA.

Recommendations for Increased Strategic US Investment in Global TB Control

7. Significantly increase international TB funding to US\$705 million in FY2008 as the US fair share of total resources needed to achieve the Global Plan to Stop TB 2015 targets and to support accelerated efforts for universal access to TB treatment by 2010, as called for in the Abuja Declaration from the African Union Special Summit on HIV/AIDS, TB and Malaria held in May 2006. The \$705 million includes \$450 million in bilateral funding and an estimated \$255 million as the TB-related portion of the US contribution to the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM).
8. Significantly increase funding to at least US\$350 million annually for research and development efforts around new TB drugs, diagnostics and a new vaccine, as a critical component of the US government response to TB and TB-HIV.

^a The Three Ones principles, endorsed by UNAIDS and key donors in April 2004, are: 1) one agreed HIV/AIDS Action Framework that provides the basis for coordinating the work of all partners; 2) one National AIDS Coordinating Authority, with a broad-based multisectoral mandate; and 3) one agreed country-level Monitoring and Evaluation system.

Box 1: The Burden of TB and TB-HIV within PEPFAR's 15 Focus Countries

PEPFAR's 15 focus countries bear a very high burden of TB and TB-HIV (see Appendix for TB-HIV data for focus as well as non-focus countries):

- ▶ While home to only 9 percent of the world's population, these countries comprise 21 percent of the global TB burden and 24 percent of the world's annual TB deaths.
- ▶ The TB incidence rate for the focus countries is 314 cases per 100,000 people — more than twice the global average.
- ▶ On average, 32% of those with TB disease in focus countries are HIV-positive (individual countries range from 3 to 70 percent), compared to a global average of 13 percent. For example, 70 percent of new adult TB cases are HIV-positive in Botswana, 58 percent in South Africa and 55 percent in Zambia.
- ▶ In 10 of the 15 focus countries, a third or more of PLWHA deaths are caused by TB. In Botswana, Mozambique, Namibia, South Africa and Zambia, half or more PLWHA deaths are caused by TB.
- ▶ Only 3 of the focus countries — Botswana, Namibia and South Africa — have achieved the global target of detecting 70 percent of TB cases through DOTS^b programs.
- ▶ Vietnam is the sole focus country to have achieved the global target of successfully treating 85 percent of sputum smear positive TB cases.

Source: *Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007.*
Geneva: WHO. WHO/JHM/TB/2007.376

^b DOTS is the lynchpin of the global Stop TB Strategy and comprises five elements: 1) political commitment to fight TB through adequate and sustained financing; 2) case detection through quality-assured bacteriology; 3) standardized treatment including directly observed therapy and patient support; 4) a reliable and well-managed supply chain of quality drugs; and 5) an effective system to monitor and evaluate programs and measure impact.

The rise of XDR-TB strongly underscores the importance of scaling up TB diagnosis and treatment for people living with HIV/AIDS, who are more vulnerable to infection and the development of active TB.

The TB-HIV Link

THE IMMUNE DEFICIENCY ASSOCIATED WITH AIDS greatly increases the likelihood of developing TB disease after a latent TB infection. TB is, in fact, a leading cause of death for people living with HIV/AIDS (PLWHA), responsible for an estimated 13 percent of AIDS mortality worldwide and a much higher proportion of AIDS deaths in some regions, particularly in Africa (WHO 2006a). Approximately one-third of the more than 40 million PLWHA worldwide are co-infected with TB — an estimated 15 million people (WHO 2006c).

While TB is prevalent in nearly all low- and middle-income countries, sub-Saharan Africa suffers the highest incidence and mortality rates (WHO 2007).^c Of the world's 22 high TB burden countries (HBCs),^d nine are in Africa.^e The resurgence of TB in Africa is being driven by HIV/AIDS and exacerbated by widespread poverty and weak health systems (Corbett et al. 2006). Since 1990, the incidence (i.e., the number of annual new cases) of TB in sub-Saharan Africa has more than tripled, and the annual number of deaths due to TB in the region has almost

^c The TB incidence rate in the WHO Africa region is 343 new cases annually per 100,000 population; the global average is 136. The TB mortality rate in the WHO Africa region is 74 TB deaths per 100,000 population; the global average is 24.

^d WHO has identified 22 high TB burden countries (HBCs), which, combined, contain 80% of the world's annual new TB cases.

^e The nine African HBCs are Nigeria, South Africa, Ethiopia, Kenya, Democratic Republic of Congo, United Republic of Tanzania, Uganda, Mozambique and Zimbabwe.

^f The 18 African countries are Botswana, Burundi, Cameroon, Central African Republic, Republic of Congo, Côte d'Ivoire, Democratic Republic of Congo, Ethiopia, Kenya, Lesotho, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Swaziland, Uganda and Zimbabwe.

tripled (WHO 2007). Eighteen African countries are now home to 75 percent of Africa's TB cases, where the average TB notification rate (i.e., the number of new TB cases notified per 100,000 people) doubled between 1990 and 2003 (Figure 1).^f In Kisumu, one of Kenya's most populous towns, a 1 percent increase in the prevalence of HIV was shown to lead to an increase in the TB notification rate of 18.7 per 100,000 people (Nunn et al. 2005). Africa's TB crisis led Africa's Ministers of Health and WHO to declare TB an emergency in Africa in August 2005.

A person with TB infection typically has a 10 percent lifetime chance of becoming sick with active TB disease; most latent TB infections are kept in check by healthy immune systems (WHO 2006d). However, for PLWHA who are co-infected with TB, the risk increases to 5 to 15 percent annually (WHO 2002). In addition, HIV is often associated with sputum smear-negative and extra-pulmonary forms of TB, which are more difficult to diagnose due to antiquated diagnostic tools and inadequate lab capacity — better diagnostic methods and tools are urgently needed.

TB accelerates the progression of HIV infection (WHO 2006c). If left untreated, TB typically brings death for PLWHA within weeks of diagnosis (Mukadi, Maher, and Harries 2001). Providing TB-HIV co-infected individuals a complete regimen of TB drugs to treat a standard TB case costs as little as US\$16^g and can extend life by several years, even in the absence of ART (Crofton, Horne and Miller 1999). Following successful treatment for TB and subsequent adherence to an ART regimen, the lives of PLWHA can be sustained for prolonged periods of time, thus reducing mortality. In areas where access to ART is limited, TB treatment can buy precious time to access ART, as well as prevention and care services. Moreover, providing ART to those co-infected with TB-HIV in sub-Saharan Africa has been found to be the most important supplement to TB control in preventing premature death and achieving the Millennium Development Goal targets for both HIV/AIDS and TB (Jones et al. 2000, cited in Nunn et al. 2005).

According to the Stop TB Partnership's *Global Plan to Stop TB 2006-2015*, the high rates of TB treatment interruption and transfers to other treatment centers are key reasons for the development of TB drug resistance in Africa (Stop TB Partnership & WHO 2006).^h The threat of drug resistant TB in Africa has been soundly demonstrated by the recent emergence of extensively drug-resistant TB (XDR-TB). XDR-TB is resistant to a number of both first- and second-line anti-TB drugs, and its rise strongly underscores the need to scale up TB diagnosis and treatment for PLWHA — those who are more vulnerable to infection and the development of active TB. In a widely publicized outbreak of XDR-TB in KwaZulu-Natal, South Africa, 52 of 53 XDR-TB patients died — half within 16 days of diagnosis (Gandhi et al. 2006a). Of the 44 patients from this cohort who were tested for HIV, all were found to be positive. Approximately 15 of the 44

^g The current cost of a full six-month supply of standard anti-TB drugs to treat one case, provided through the Global TB Drug Facility, is US\$16.

^h Drug-resistant TB or multidrug resistant TB (MDR-TB) is defined as being resistant to at least isoniazid and rifampin, two main first-line drugs used to treat TB. XDR-TB is defined as being resistant to at least isoniazid and rifampin, plus any drug from a class of drugs known as fluoroquinolones, and any of three injectable second-line TB drugs (i.e., amikacin, kanamycin or capreomycin), according to WHO.

Box 2: *Two Diseases, One Patient – TB/HIV control strategy towards 2015*

In 2005, the Stop TB Partnership released *Two Diseases, One Patient – TB/HIV control strategy towards 2015*, which recognizes TB as among the most important causes of morbidity and mortality of PLWHA (Stop TB Partnership 2006). Moreover, it includes four strategic activity areas to be undertaken by the global TB and HIV/AIDS communities. It holds that these efforts are necessary to reach Millennium Development Goal 6, which calls for halting and reversing the incidence of HIV/AIDS, malaria and TB by 2015. These strategic activities are:

- ▶ Scale up and expand implementation of collaborative TB/HIV activities¹
- ▶ Develop and coordinate implementation of the research necessary to improve the prevention, early diagnosis and rapid treatment of TB in PLWHA, and incorporate results into global policy
- ▶ Increase political and resource commitment to collaborative TB/HIV activities
- ▶ Contribute to strengthening health systems to deliver TB/HIV activities

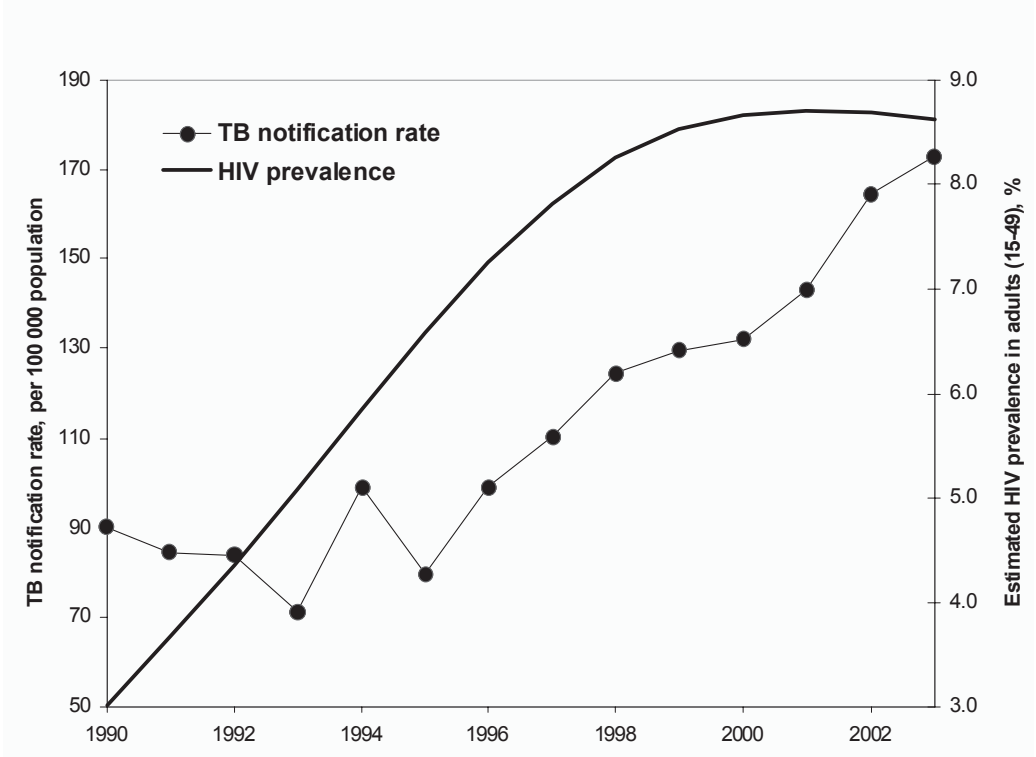
HIV-positive patients were on ART — indicating that ARVs do not provide any protection against this form of TB.

Drug-resistant TB in Africa is increasing and it jeopardizes progress made in both TB and HIV/AIDS control. According to Gandhi and colleagues, “Although antiretroviral therapy is likely to reduce HIV-associated morbidity and mortality as it becomes more widely available, any reduction is likely to be blunted if efforts are not taken to improve tuberculosis programmes concurrently” (2006b). It is important to note that drug resistance is entirely human-made and arises in the context of inadequate TB control (Gandhi et al. 2006b). The only way to prevent drug resistance is to ensure that all TB cases are identified and that patients complete the entire standard treatment regimen. In light of the recent XDR-TB outbreak in South Africa and reports of XDR-TB elsewhere in southern Africa, OGAC has disseminated special guidance to its focus countries to raise awareness as well as facilitate country planning. This is an important first step, but it must be part of an urgent, more comprehensive response.

¹ This bullet refers to WHO’s *Interim Policy on Collaborative TB/HIV Activities*, which defines activities related to three key areas: 1) establishing the mechanisms for TB/HIV collaboration; 2) decreasing the burden of TB among PLWHA; and 3) decreasing the burden of HIV/AIDS among TB patients. (See Box 3 for a listing of specific activities.)

Figure 1.

TB notification rate vs. HIV prevalence in 18 African countries^j



Source: WHO, Stop TB Department, Global TB Database, Geneva, Switzerland, personal communication/email, August 25, 2005.

^j Botswana, Burundi, Cameroon, Central African Republic, Republic of the Congo, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, Kenya, Lesotho, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Swaziland, Uganda, Zimbabwe

“We reaffirm the commitment we made at the Genoa Summit in 2001 to halt the spread of this disease. We will also support the Global Plan to Stop TB, 2006-2015, which aims to cut TB deaths in half by the year 2015 compared to 1990 levels, saving some 14 million lives over ten years, and call upon all donors and stakeholders to contribute to its effective implementation.”

—St. Petersburg G8 Summit Communiqué

TB-HIV in Geopolitical Context

WHILE HIV/AIDS HAS BEEN AT THE TOP of global health and political agendas for well over a decade, national and international leaders have only recently begun to recognize that a concerted, coordinated approach to HIV/AIDS and TB control is required to effectively combat both diseases. In the last few years, a series of technical and geopolitical events have raised TB’s prominence as one of the most prevalent infectious killers on the planet and the leading infectious killer of PLWHA. The following events and statements briefly describe the geopolitical context in which PEPFAR has begun to scale up TB-HIV efforts:

- ▶ January 2004 — WHO published “Recommendations of the Interim Policy on Collaborative TB/HIV Activities” in WHO’s *Weekly Epidemiological Record* (9 January 2004). The interim policy recognizes that “the HIV pandemic presents a massive challenge to the control of tuberculosis (TB) at all levels,” and that TB is “one of the most common causes of morbidity and one of the leading causes of mortality in people living with HIV/AIDS (PLWHA).”
- ▶ July 2004 — At the International AIDS Conference in Bangkok, Nelson Mandela declared, “We are all here because of our commitment to fighting AIDS. But we cannot win the battle against AIDS if we do not also fight TB. TB is too often a death sentence for people with AIDS. It does not have to be this way. We have known how to cure TB for more than 50 years. What we have lacked is the will and the resources to quickly diagnose people with TB and get them the treatment they need.”

- ▶ March 2005 — The Commission for Africa launched the report *Our Common Interest*, which called on international donors to contribute US\$250 million annually for collaborative TB and HIV programs to “ensure that all patients with TB are offered VCT [voluntary counseling and testing] and all HIV patients are tested and treated for TB.”
- ▶ July 2005 — At the Gleneagles Summit, the Group of 8 (G8) countries committed to help meet “the needs identified by the Stop TB Partnership,” and supported the “call for a high-level conference of Health Ministers for TB in 2006.”
- ▶ August 2005 — 46 of Africa’s Ministers of Health and WHO adopted a resolution declaring TB a continent-wide emergency, noting that TB kills 1,500 Africans each day, that Africa is the only continent where TB rates are increasing, and that TB rates have quadrupled in countries hit hardest by HIV/AIDS.
- ▶ January 2006 — At the World Economic Forum in Davos, Switzerland, the Stop TB Partnership launched *Actions for Life: The Global Plan to Stop TB 2006-2015*, a 10-year road map for reaching the Millennium Development Goal of “halting and reversing” the spread of TB by 2015. The Global Plan acknowledges that as the HIV pandemic continues to spread, “[t]he TB community must advocate for all efforts to mitigate the impact of HIV/AIDS and to promote HIV preventions and treatment as a vital component of the TB control strategy.” All six of the Global Plan’s regional scenarios for TB control (equivalent to WHO’s six epidemiological regions^k) identify TB-HIV collaborative activities as priority actions. At the Global Plan launch event, UK Chancellor of the Exchequer Gordon Brown lamented, “For far too long, world leaders have ignored the tuberculosis epidemic. . . . I hope that the G8 will make fighting tuberculosis a top priority.” Nigerian President Olusegun Obasanjo called on all African leaders to fight TB as a matter of priority. Entrepreneur and philanthropist Bill Gates announced a tripling of his foundation’s funding for the fight against TB over the next decade.
- ▶ May 2006 — At the Special Summit of the African Union on HIV/AIDS, Tuberculosis and Malaria in Abuja, Nigeria, African leaders met under the theme of “Universal Access to HIV/AIDS, Tuberculosis and Malaria Services by 2010” and adopted a resolution “[a]ppreciating the role of other sectors beyond health in the AIDS response and the need for a comprehensive and integrated approach that balances prevention, treatment, care and support for HIV/AIDS, tuberculosis, and malaria.”
- ▶ June 2006 — Delegations attending the United Nations General Assembly Special Session on HIV/AIDS committed to expanding capacity to deliver comprehensive HIV/AIDS services, in part through integrating AIDS interventions into tuberculosis programs.

^k The six geographic regions of WHO are Africa, the Americas, Eastern Mediterranean, Europe, South-East Asia and Western Pacific.

- ▶ July 2006 — At the St. Petersburg G8 Summit, during which infectious diseases featured prominently on the agenda, G8 leaders included the following statements within the communiqué:

“21. One-third of the world’s population is exposed to the risk of contracting TB, which claims about two million lives each year. In certain regions, it affects more people today than it did twenty years ago. We reaffirm the commitment we made at the Genoa Summit in 2001 to halt the spread of this disease. We will also support the Global Plan to Stop TB, 2006-2015, which aims to cut TB deaths in half by the year 2015 compared to 1990 levels, saving some 14 million lives over ten years, and call upon all donors and stakeholders to contribute to its effective implementation.

“22. We note with concern the rate of HIV/AIDS and tuberculosis co-infection and seek to promote unified coordination for activities in this regard.”

Utilizing TB programs as entry points for access to HIV testing, counseling and comprehensive services is likely one of the most efficient means of identifying patients eligible for ART and is, therefore, critical to reaching global HIV/AIDS treatment, prevention and care targets, including PEPFAR goals.

The Need for TB-HIV Coordination

WHILE THE HIGH LEVEL POLITICAL COMMITMENTS noted in the previous pages are significant, they must be followed by actions that strengthen and better coordinate TB and HIV efforts, thus maximizing the potential to save lives. Greater support for TB-HIV coordination across focus countries is critical to achieving PEPFAR's overall goals. Diagnosing TB early in PLWHA and providing appropriate treatment are key to reducing AIDS mortality. Such efforts can also buy precious time for PLWHA to access ART where challenges and delays in ART scale up exist. Utilizing TB programs as entry points for access to HIV testing, counseling and comprehensive services is likely one of the most efficient means of identifying patients eligible for ART (Nunn et al. 2005) and is, therefore, critical to reaching global HIV/AIDS treatment, prevention and care targets, including PEPFAR goals.

Globally, TB and HIV programs have traditionally functioned more or less independently, with little coordination even in areas where both diseases are prevalent. This is changing — at the end of 2003, 29 of the 41 countries with the highest TB-HIV burdens had national policies on TB-HIV collaboration (Stop TB Partnership 2006). However, progress in implementation varies greatly. At the end of the same year, only 13 of these countries provided ART for HIV-positive TB patients (Stop TB Partnership 2006). In addition, in countries where 1 percent or more of the adult population was infected with HIV, only 2 percent of people diagnosed with TB were tested for HIV (Stop TB Partnership 2006). The failure to recognize the benefits of TB-HIV coordination and invest appropriately has contributed to the slow response.

The aim of TB-HIV coordination is straightforward: to decrease the burden of TB and HIV in populations impacted by both diseases. To achieve this goal, PEPFAR should work to establish

mechanisms for coordination aimed at decreasing the burden of TB in those living with HIV/AIDS and the burden of HIV among patients with TB (see Box 3) (WHO 2004a). Coordinating TB and HIV activities does not require the creation of new institutions or a separate health program; instead, such activities can and should be integrated into existing national TB and HIV/AIDS programs, as well as incorporated into initiatives receiving bilateral and multilateral donor support.

TB-HIV collaboration also has important implications for diagnosis, treatment and prevention services. Given that PLWHA are more likely to develop active TB that is sputum smear-negative, appropriate diagnostic algorithms need to be applied while better diagnostics are urgently needed. Treatment for both TB and HIV must be appropriately coordinated because of the potentially adverse interactions between certain drugs. This reality justifies the urgent call for greater funding to support the development of new TB drugs. Programs should ultimately

Box 3: WHO's *Interim Policy on Collaborative TB/HIV Activities*

Objective 1: Establish the mechanisms for collaboration

- ▶ Set up a coordinating body for TB/HIV activities effective at all levels
- ▶ Conduct surveillance of HIV prevalence among tuberculosis patients
- ▶ Carry out joint TB/HIV planning
- ▶ Conduct monitoring and evaluation

Objective 2: Decrease the burden of TB in people living with HIV/AIDS

- ▶ Establish intensified tuberculosis case-finding
- ▶ Introduce isoniazid preventive therapy (IPT)¹
- ▶ Ensure tuberculosis infection control in health care and congregate settings

Objective 3: Decrease the burden of HIV in TB patients

- ▶ Provide HIV testing and counseling
- ▶ Introduce HIV prevention methods
- ▶ Introduce cotrimoxazole preventive therapy (CPT)^m
- ▶ Ensure HIV/AIDS care and support
- ▶ Introduce ART

¹ Administration of isoniazid, a first-line anti-TB drug, for persons with TB infection has been found to substantially reduce the risk that TB infection will progress to disease. IPT has been advocated since antibiotics effective against TB became available.

^m Cotrimoxazole, an antibiotic treatment commonly used by PLWHA to prevent against *Pneumocystis pneumonia*, has also been recognized to reduce morbidity and mortality in TB-HIV co-infected patients.

seek to provide a continuum of comprehensive prevention, treatment and support services for those affected by TB and HIV.

Finally, the TB-control infrastructure, which is already in place, yet under-resourced in nearly all African countries, can serve as a model for delivering ART. To reverse the HIV/AIDS epidemic requires all the elements outlined in WHO's Stop TB Strategy, including political commitment, standard case definitions, quality diagnostic services, standard treatment regimens with directly observed therapy, reliable drug procurement, and standardized recording, reporting and supervision (Nunn et al. 2005). Malawi provides an example of the relatively rapid pace with which a country can scale up access to ART through utilization of its TB control program. In 2004, a national plan to roll out ARVs required that all TB patients be offered HIV testing, with those testing positive then assessed for eligibility to receive ART. Employing the national TB program as a partner in this effort, Malawi plans to place 45,000 additional patients on ART each year from 2006 to 2010 (WHO 2006a).

An important aspect of effective TB-HIV coordination is ensuring that TB-HIV activities link to national TB-HIV strategic plans and TB- and AIDS-specific plans and programs overall. Activities in support of national TB-HIV efforts could include training of healthcare workers in diagnosis, treatment administration and management of TB-HIV cases, strengthening recording and reporting systems in line with national surveillance of TB-HIV co-infection, facilitating discussions between national AIDS and TB program managers and staff, and improving laboratory capacity for diagnosis of TB in HIV-infected patients.

Highlighted as best practices in PEPFAR's Second Annual Report to Congress, pilot projects in Nairobi, Kenya, provide an example of the effectiveness of TB-HIV coordination. These projects provided HIV testing and counseling to TB patients, resulting in increased identification of people with HIV and referral for ART (see Box 4). As this best practice shows, screening HIV/AIDS patients for TB breaks the chain of transmission for those with TB, drastically improves survival rates where carried out consistently, and provides an opportunity to administer IPT (Harries, Maher and Nunn 1997; DeCock and Chaisson 1999; Nachega et al. 2003). Conversely, TB patients should be screened for HIV as recommended by WHO, given that people infected with TB are not only more likely to be HIV-positive, but more likely to be open to voluntary HIV screening (WHO 2004b).

TB and HIV/AIDS programs have only recently begun moving towards providing coordinated TB-HIV services, so evidence for their cost effectiveness is limited. It is, however, being generated in various settings (WHO 2004b). Pilot projects in Malawi, South Africa and Zambia, for example, have shown that screening HIV/AIDS patients for TB can be done for little added time and cost, resulting in increased TB case finding (WHO 2004b). It is therefore critically important that evidence of the successes and challenges of TB-HIV coordination within PEPFAR be shared widely and used to inform the continued scale up of TB-HIV activities not only within PEPFAR, but for all TB and HIV initiatives.

Box 4: Best Practices

Kenya: Integration of HIV and TB diagnostic testing results in improved ART access

Excerpted from PEPFAR's Second Annual Report to Congress, p. 65

HIV and poverty drive the tuberculosis (TB) epidemic in Kenya, with a ten-fold increase in registered TB cases since 1987. In the eastern slums of Nairobi, an epicenter of the dual HIV/TB epidemic, the Eastern Deanery of the Nairobi Catholic Diocese has provided health care through seven clinics since the early 1990s. In 2001, a partnership between the Eastern Deanery AIDS Relief Program (EDARP), the Kenya National Leprosy and TB Program (NLTP) of the Ministry of Health, and HHS/CDC established integrated HIV and TB services in these clinics. Initially, TB patients were referred to freestanding counseling and testing centers; however, only one in eight patients referred for counseling and testing actually sought testing.

To improve uptake and better integrate the services, in 2003 physicians assistants began to provide diagnostic counseling and testing at the time of TB diagnosis. Despite this change in procedure, many TB patients were not tested for HIV. With Emergency Plan support, the program began in 2004 to routinely offer HIV testing and counseling to all outpatients believed to have TB. Nurses conducted the testing, using simple HIV rapid tests done in the presence of the patients.

Of 1,917 patients offered HIV testing and counseling over 19 months, 85% accepted during their initial clinic visit — and nearly all of those who came for follow-up due to active TB eventually accepted testing. The expansion of testing has accompanied the rapid expansion of care and antiretroviral treatment (ART) in the program, helping to identify patients who are eligible to start ART.

Lessons learned from this project have informed national policy and strategy, serving as a model for integrating TB and HIV services. The USG team estimates that offering testing to the 400,000 patients believed to have TB annually in Kenya can be expected to result in 300,000 accepting testing, potentially leading to 100,000 referrals for HIV care per year. The majority of these people would be eligible for ART. Manpower constraints in TB clinics have slowed the application of these lessons throughout the country, but they have informed the Kenya National Guidelines for HIV Testing

in Clinical Settings and established a best practice model that is now being duplicated around the country. Offering diagnostic testing for HIV and TB routinely at the first patient contact is more acceptable to patients, more efficient for staff, and results in better management of both diseases.

This advance is making a difference for people in the slums of Nairobi. Salome Majuma (name changed to protect her identity) is a woman in her early 40s who was diagnosed with HIV and TB in May 2004. At the time of diagnosis, she began her eight month course of TB treatment and cotrimoxazole prophylaxis to prevent other opportunistic infections. In February 2005 she began ART and visits the clinic monthly to collect her medications, provided with Emergency Plan support. Her tuberculosis is now cured and her health improved — offering a hopeful future.

While previous COP guidance has stated support for increased TB-HIV funding and activities within COPs, implementation of activities has been varied across focus and non-focus countries and overall funding has been low.

PEPFAR's Efforts to Fight TB-HIV: FY2007 Country Operational Plan Guidanceⁿ

SINCE PEPFAR WAS LAUNCHED IN 2004, the initiative has taken some important steps toward addressing the issue of TB-HIV. PEPFAR's FY2006 Country Operational Plan (COP) guidance called for a "significant increase in programming for TB-HIV activities," though the actual increase in TB-HIV program area activities was disappointing, from 2 percent in FY2005 to 2.8 percent in FY2006. The FY2007 COP guidance also states, "Addressing TB among persons living with HIV/AIDS is of high priority in the Emergency Plan" (PEPFAR 2006g). More concretely, the FY2007 COP guidance recommends that countries "continue to emphasize TB-HIV activities" within the context of the following four overarching TB-HIV goals (PEPFAR 2006g):

1. Provide HIV counseling and testing to all TB patients
2. Link all HIV-infected TB patients to HIV care and treatment, including ARV and cotrimoxazole therapy
3. Screen all HIV-infected persons for TB
4. Link all HIV-infected TB suspects to TB diagnosis and TB treatment using directly observed treatment, short-course (DOTS).

ⁿ Individual "Country Operational Plans" (COPs) outline activities to be implemented during the next fiscal year and are due to OGAC by the end of the US fiscal year, September 30. Instructed by a "COP guidance" prepared each year by OGAC to help countries submit their COPs, the COPs' review process takes several months with final COPs approved by January.

However, while previous COP guidance has stated support for increased TB-HIV funding and activities within COPs, implementation of activities has been varied across focus and non-focus countries and overall funding has been low.

The FY2007 COP guidance specifies what TB-HIV activities will be supported by PEPFAR, including “exams, clinical monitoring, related laboratory services, treatment and prevention of tuberculosis in HIV basic health care settings (including pharmaceuticals), as well as screening and referral for HIV testing, and clinical care related to TB clinical settings.” It also provides detailed direction to USG country teams on preparing the TB-HIV program area narrative for the overall COP (PEPFAR 2006g). For those countries including TB-HIV as part of their COPs, the following information is required:

Country Statistics

- ▶ Summary of TB incidence and prevalence of HIV in TB patients

Services

- ▶ Description of USG support to TB-HIV activities, building on the previous year’s successes and an explanation of how they contribute to achieving the overall TB-HIV goals
- ▶ Explanation of how program activities strengthen TB diagnostic capabilities for PLWHAs (e.g., smear microscopy services, quality assurance and support for national reference laboratories)
- ▶ Description of how activities address recording/reporting of patients with TB disease and HIV-infection referred to HIV care and treatment
- ▶ Explanation of the monitoring and evaluation of screening for active TB and referral for TB diagnosis and treatment of patients receiving HIV care

Referrals and Linkages

- ▶ Description of the level of integration between TB and HIV programs in the country and explanation of how program activities will strengthen the capacity of systems to manage and monitor patients with HIV infection and TB disease across multiple health care programs

Policy

- ▶ Description of the extent to which TB is a part of the national HIV strategic plan, including any national policies or legislation that address TB-HIV
- ▶ Description of any plans to address national level policy barriers, training, monitoring and evaluation, management and supervision, as well as other system strengthening

Other

- ▶ Description of any outstanding challenges and gaps that the program is facing

In addition, countries are required to report several targets, including numbers of (PEPFAR 2006h):

- ▶ Service outlets providing clinical prophylaxis and/or treatment for TB to HIV-infected individuals (diagnosed or presumed) in a palliative care setting;
- ▶ HIV-infected clients attending HIV care/treatment services that are receiving treatment for tuberculosis;
- ▶ HIV-infected clients given TB preventive therapy;
- ▶ Individuals trained to provide clinical prophylaxis and/or treatment for TB to HIV-infected individuals (diagnosed or presumed); and
- ▶ TB diagnostic tests performed at USG-supported laboratories.

Finally, additional instruction in the FY2007 COP guidance urges countries to “work with other international partners and programs (e.g., GFATM, World Bank, USAID, bilateral initiatives, etc.) to determine funding gaps in the area of TB-HIV” and to describe how they are coordinating with these partners (PEPFAR 2006g).

In terms of its collaboration with WHO, PEPFAR is supporting a US\$2 million, two-year joint WHO-Emergency Plan project in Ethiopia, Kenya and Rwanda. This program aims to provide HIV counseling and testing for all clients attending TB clinics, strengthen networks between TB and HIV/AIDS program areas, develop collaboration with TB programs to enhance provision of ART, and, in particular, promote adherence to treatment through innovative programs.

PEPFAR should continue to work with focus countries and other donor-funded initiatives to expand HIV/AIDS prevention, treatment and care services for all TB patients and ensure that every country develops and implements a strategy for achieving these goals.

Key Gaps in PEPFAR's TB-HIV Programming

THE FOLLOWING DESCRIBES IMPORTANT GAPS IN PEPFAR'S APPROACH TO TB-HIV, which, if addressed, could increase the number of lives saved and help PEPFAR reach its prevention, treatment and care goals.

PEPFAR spending for TB-HIV activities to date has not been sufficient to take activities to scale in all focus countries.

In FY2005, PEPFAR spent approximately 2 percent of its overall program budget on TB-HIV activities (captured specifically under the TB/HIV program area). This level increased to just 2.8 percent in FY2006, despite FY2006 COP guidance stating that "TB is a major killer of PLWHA and addressing this issue is an important part of meeting the Emergency Plan 2-7-10 goals. The percentage of funding in FY05 in the TB/HIV program area is 1.8%... Given the significance of the TB/HIV problem, this is a relatively low percentage. For FY06, there should be a significant increase in programming for TB-HIV activities" (PEPFAR 2005a). 2007 funding for TB-HIV is expected to jump to at least US\$120 million, though this represents roughly just 3 percent of PEPFAR's overall program budget. This increase is significant and an important start, but for scale up to be achieved, additional resources will need to be contributed in FY2008.

Access to HIV testing and counseling for TB patients and appropriate referral to AIDS treatment and care services is urged in the FY2007 COP guidance, but not required or universally available in all focus countries. This represents a missed opportunity to identify additional HIV-positive individuals.

According to WHO, 11 of the 12 African focus countries reported data on the number of TB patients tested for HIV (WHO 2007). Between 2004 and 2005, the number of TB patients tested from these countries totaled 111,285 (WHO 2007). This represents just under 7 percent of the total number of TB cases that should be tested for HIV from these countries combined (WHO 2007). PEPFAR should continue to work with focus countries and other donor-funded initiatives to expand HIV testing and counseling to all TB patients, increase access to appropriate referral for HIV/AIDS treatment and care services, and ensure that every country develops and implements a strategy for achieving these goals.

TB screening and provision of preventive therapy or treatment to all PLWHA is urged, but not required for all focus countries, which suggests that opportunities are being missed to reduce mortality of PLWHA due to TB.

The FY2007 COP guidance does not require that all PLWHA in focus countries be screened for TB. Additionally, if patients are found to be infected or with disease, they are not required to receive or be referred for appropriate TB preventive therapy or treatment. Ensuring TB screening and the provision of TB preventive therapy or treatment is critical given the opportunity to extend the lives of PLWHA.

Indicators and targets that OGAC requires focus countries to report do not address key areas that effectively measure impact on morbidity and mortality of TB-HIV co-infected patients.

The current COP guidance reporting requirements for focus countries (see section “PEPFAR’s Efforts to Fight TB-HIV: FY2007 Country Operational Plan Guidance”) are missing several key indicators/targets needed to effectively monitor and evaluate progress related to the implementation and impact of TB-HIV activities. These include the numbers of:

- ▶ TB patients tested for HIV and found to be HIV-positive
- ▶ HIV-positive TB patients receiving CPT or placed on ART
- ▶ PLWHA screened for TB
- ▶ HIV-positive TB patients referred to HIV care and support services during TB treatment
- ▶ Individuals trained to provide TB diagnostic services for PLWHA

Evidence of knowledge sharing across grantees on TB-HIV implementation is lacking, and public dissemination of data is limited.

While PEPFAR holds an annual meeting of program implementers, it is not clear to what extent OGAC manages and shares knowledge from grantees’ experiences implementing TB-HIV activities. There is also a dearth of publicly available data on operational research and outcomes from PEPFAR’s TB-HIV activities. Moreover, PEPFAR does not release disbursements data disaggregated by country or expenditure data for their recipients (Bernstein and Sessions, 2007). PEPFAR’s on-the-ground experiences in TB-HIV coordination can provide valuable lessons and best practices to grantees and other organizations seeking to support or implement TB-HIV activities.

The opportunities and benefits that PEPFAR could realize by scaling up TB-HIV activities would include reduced TB-related morbidity and mortality in PLWHA and increased HIV testing, access to ART and comprehensive HIV services linked to TB programs.

Recommendations

THE FOLLOWING RECOMMENDATIONS ON TB-HIV are offered for OGAC to consider. They are meant to provide thoughtful input on the opportunities and benefits that PEPFAR could realize by scaling up TB-HIV activities in its focus countries as a means of delivering on the initiative's main goals. These would include, in particular, reduced TB-related morbidity and mortality in PLWHA, increased HIV testing, and access to ART and comprehensive HIV services via links to TB programs. Additional recommendations relate to the need to expand overall USG support for efforts to address the TB and TB-HIV co-epidemics.

Recommendations to OGAC

1 Substantially increase annual funding for TB-HIV activities to approximately 10 percent of PEPFAR's total program budget.

Building on the major increase in funding planned for FY2007, OGAC should proactively engage USG in-country staff in strategizing around what is needed to increase TB-HIV activities and program coordination, and urge that greater priority be given to TB-HIV as a core component of COPs.

2 Require that all TB patients in focus countries be provided HIV testing and counseling services and referral for AIDS treatment and care as appropriate.

PEPFAR should work with focus countries and other donor-funded initiatives to expand access to HIV testing and counseling to all TB patients. In administrative areas with low HIV prevalence, PEPFAR should at least provide HIV testing and counseling to all TB patients in high-risk groups.

3 Require that TB screening and appropriate treatment — either preventive therapy or treatment for TB disease as needed — be provided to all PLWHA in focus countries.

All PLWHA in the 15 focus countries should be screened for TB and, if diagnosed with TB infection or disease, be provided or referred for either TB preventive therapy or treatment for disease as recommended by WHO.

4 As part of the “Three Ones,” continue to support the inclusion of TB-HIV indicators within national surveillance systems. Within PEPFAR, establish more comprehensive and outcome-focused TB-HIV indicators/targets, to be required reporting by PEPFAR-supported countries, in order to reflect a more meaningful measure of impact.

Given the importance of TB-HIV activities for delivering on PEPFAR goals, OGAC should require reporting of indicators/targets that directly link TB-HIV activities to clear impact in terms of case finding and number of lives saved through treatment. In addition to already required reporting targets, recommended indicators/targets should include the numbers of:

- ▶ TB patients tested for HIV and found to be HIV-positive
- ▶ HIV-positive TB patients receiving CPT or placed on ART
- ▶ PLWHA screened for TB
- ▶ HIV-positive TB patients referred to HIV care and support services during TB treatment
- ▶ Healthcare workers trained to provide TB diagnostic services for PLWHA

5 Improve the management and dissemination of knowledge gained from grantees on TB-HIV program coordination in order to increase learning and the expansion of best practices across grantees and among other partners. Also, publicly disseminate findings from TB-HIV operational research and analysis from indicator/target data.

OGAC should manage knowledge gained from experiences in TB-HIV implementation across grantees and publish TB-HIV indicator and target data from supported countries in its annual report to Congress. OGAC should also publish findings from its operational research on TB-HIV and outcomes from its collaboration with WHO in several focus countries in order to expand the limited body of knowledge available on TB-HIV coordination and implementation thus far.

6 Work with all focus countries to implement WHO’s new algorithms for the diagnosis of TB in ambulatory and severely ill HIV-positive patients.

Rates of sputum smear-negative pulmonary TB and extrapulmonary TB are increasing in areas where HIV is common. To improve the diagnosis and treatment of these forms of TB, WHO has published new algorithms for clinically diagnosing TB in patients co-infected with HIV (WHO 2006b). PEPFAR, in collaboration with WHO, should work with focus countries to implement these algorithms in order to diagnose PLWHA with TB disease and initiate treatment at the earliest possible stages.

Recommendations for Increased Strategic US Investment in Global TB Control

7 Significantly increase international TB funding to US\$705 billion in FY2008 as the US fair share of the resources needed to achieve the 2015 targets articulated in the Global Plan to Stop TB and to support accelerated efforts for universal access to TB treatment by 2010, as called for in the Abuja Declaration from the African Union Special Summit on HIV/AIDS, TB and Malaria held in May 2006. The \$705 million includes \$450 million in bilateral funding and an estimated \$255 million as the TB-related portion of the US contribution to GFATM.

Expanding access to effective DOTS TB treatment and treatment of drug-resistant TB in the 15 focus countries is essential to meeting PEPFAR's goals for prevention, treatment and care. In this context, PEPFAR and the USG overall should adopt a more comprehensive policy that supports not only targeted TB-HIV activities, but offers broader support for national TB programs to achieve the Global Plan targets and universal access to TB treatment by strengthening diagnostic and treatment capacity. In addition, the USG should significantly increase its annual funding for TB and TB-HIV efforts globally to complement PEPFAR's TB-HIV activities.

8 Significantly increase funding to US\$350 million annually for research and development efforts around new TB diagnostics, drugs and a vaccine.

New tools to diagnose, treat and prevent TB are urgently needed. Better diagnostics are critical to increase case detection and save lives. Sputum smear microscopy, the standard means of diagnosing TB, is over 100 years old and fails to reliably detect TB disease in PLWHA. In addition, more effective TB drugs that are compatible with ARVs and involve a significantly shorter treatment time are needed to ensure better patient adherence to treatment and to alleviate the burden of effort and time required of health workers to administer treatment and monitor adherence. Lastly, while a third of the world's population is infected with TB, no effective vaccine to protect against the most widespread form of TB exists. The USG should increase its funding for research and development of new tools suitable for detecting, treating and preventing TB in developing countries. Through better tools, TB-related mortality among PLWHA could be drastically reduced in PEPFAR countries and worldwide.

By increasing support for TB-HIV, implementing improved indicators and targets, and widely replicating lessons learned, PEPFAR could accelerate progress, save additional lives and demonstrate innovative leadership in the global response to HIV/AIDS.

Conclusion

OVER THE LAST SEVERAL YEARS, PEPFAR has provided modest yet important funding for TB-HIV activities as a part of its overall strategy. However, given that TB is the leading infectious killer of PLWHA and that XDR-TB presents a potentially grave threat to HIV/AIDS efforts, TB-HIV activities must ultimately be brought to scale. PEPFAR's increased support for TB-HIV in FY2007 constitutes a welcome step in this direction but must be part of a sustained response. Addressing TB is integral to the HIV/AIDS response and to PEPFAR's ability to reach its 2-7-10 goals, including treatment scale up and reductions in TB-related morbidity and mortality in PLWHA. Important lessons have been learned from PEPFAR's work on TB-HIV in several countries, which are highlighted in the next section. These programs demonstrate the impact of greater TB-HIV coordination on increasing case finding and treatment delivery and, as a result, on saving lives. Funding for TB-HIV activities should be increased to a level commensurate with the TB-HIV burden in focus countries, and OGAC should ensure that COPs place a higher priority on TB-HIV. By increasing support for TB-HIV, implementing improved indicators and targets, and widely replicating lessons learned, PEPFAR could accelerate progress, save additional lives and demonstrate innovative leadership in the global response to HIV/AIDS.

TB-HIV Highlights from PEPFAR-Supported Country Programs

ETHIOPIA

Current Country Data on TB (2005)

Population	77,431,000
Est. # of new TB cases	266,288
TB incidence rate	344 per 100,000 population
Est. # of TB deaths	56,490
% prevalence HIV in adult TB patients (15-49 yrs)	11
% TB deaths in HIV+ individuals	13
% DOTS population coverage	90
% DOTS detection	33
% DOTS treatment success	79 (2004)

Source: *Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007. Geneva: WHO. WHO/HTM/TB/2007.376*

WHO data from 2005 estimate that 11 percent of TB patients in Ethiopia are HIV-positive (WHO 2007), while the country's Ministry of Health (MOH) estimates that as many as half of TB patients are HIV-positive in the capital city of Addis Ababa (MOH 2005). Despite having a high prevalence of HIV, Ethiopia has begun making progress in expanding TB-HIV initiatives. These include: 1) endorsing collaborative TB-HIV activities in a national program manual and developing TB-HIV guidelines and training modules to be used nationwide; 2) implementing collaborative TB-HIV activities in 338 health care facilities as of October 2006; 3) training medical coordinators, general healthcare workers, health site administrators and hospital staff on collaborative TB-HIV activities in 115 hospitals; and 4) integrating efforts with non-governmental organizations and other programs to reach the poor.

Ethiopia received US\$48 million from PEPFAR in FY2004 to support a comprehensive HIV/AIDS prevention, treatment and care program. PEPFAR increased its support for Ethiopia to approximately \$83.7 million in FY2005 and \$123 million in FY2006 (PEPFAR 2006b). Despite the expansion of TB-HIV collaborative activities, funding for these efforts remains a relatively tiny proportion of the total budget for prevention, care and treatment, with only US\$570,750 (0.79%) contributed to TB-HIV activities in FY2005 and 2.3 percent in FY2006 (PEPFAR 2006f).

PEPFAR supports the following TB-HIV activities in Ethiopia (US Centers for Disease Control and Prevention 2006, personal communication):

- ▶ HIV testing for all TB patients, TB screening for all HIV-positive persons identified through voluntary counseling and testing (VCT) clinics, and provision of IPT in nine pilot sites based on the ProTEST model.^o
- ▶ Modification of an existing provider-initiated HIV testing and counseling curriculum developed by CDC for use in TB clinics. USG partners have used the curriculum to train staff from more than 215 TB clinics, and initial reports suggest that more than 80 percent of patients have accepted HIV testing when offered.
- ▶ Development of a national reference laboratory, including a state-of-the-art mycobacteriology laboratory.
- ▶ Provision of technical assistance to the TB and Leprosy Control Team for the revision of national TB guidelines, and support for Ministry staff to attend training and conferences related to TB-HIV. PEPFAR also supported the development of *TB-HIV Implementation Guidelines*, published in December 2005, which include guidance on a number of TB-HIV activities including IPT, CPT, and monitoring and evaluation of collaborative TB-HIV activities.
- ▶ With USAID support, implementation of TB-HIV activities in the workplace.
- ▶ Development of education and training materials for healthcare workers, patients and communities about the links between TB and HIV.
- ▶ Provision of funding directly from OGAC to WHO in Ethiopia to support:
 - o Development of a national TB-HIV Plan of Action, which targets the testing of 20,000 TB patients for HIV and the placing of 5,000 HIV-positive TB patients on CPT and/or ART over a two-year period.
 - o Implementation by six Regional Health Bureaus, comprising a total of 132 health facilities (both hospitals with ART services and public health centers), of TB-HIV collaborative activities, including: 1) provision of HIV testing and

^o The ProTEST model was developed by WHO to address TB in high-HIV settings. It uses HIV testing and counseling services as an entry point to deliver a comprehensive package of prevention, care and support services for TB-HIV patients (WHO 2004b).

counseling for all TB patients; 2) linking HIV-positive TB patients to HIV care and treatment including CPT and ART; 3) screening all HIV-positive individuals for TB; 4) linking all HIV-positive TB suspects to TB diagnosis and TB treatment; 5) provision of IPT to HIV-positive individuals without TB disease; and 6) strengthening referral links between the National Tuberculosis Control Program and National AIDS Program.

- o Expansion of TB-HIV collaborative activities over the next few years, training for ART scale up, and coordination of hospital-related and health center-related HIV efforts. With support from PEPFAR, WHO will continue to play a major role in ensuring coordination among implementing partners, adherence to national guidelines, strategies and training efforts, and standardization of monitoring and evaluation with the use of agreed-upon indicators and recording and reporting forms.
- ▶ Evaluation of optimal TB screening strategies among those newly identified as HIV-positive in an Addis Ababa clinic. At the Zewditu VCT clinic, a physician evaluates each HIV patient for TB symptoms, administering a physical examination, sputum smear, chest x-ray and sputum culture. As of May 2006, this project had enrolled approximately 450 patients newly diagnosed with HIV, and had identified 33 patients with tuberculosis. This facility also provides an onsite TB-HIV clinic, where a multi-disciplinary team of physicians, pharmacists, and laboratory and clinic staff discuss challenges in patient cases and cross-check register numbers. This team approach is meant to ensure quality patient care. Also as of May 2006, provider-initiated HIV testing of TB patients had been ongoing within the TB-HIV clinic for several months.

Box 5: TB-HIV Focus Partner: Fenote Tesfa Project

Excerpted from the fact sheet "US President's Emergency Plan for AIDS Relief Critical Interventions: Tuberculosis and HIV/AIDS"

In Ethiopia, Fenote Tesfa Project, a private sector program, provides employees with access to TB care and treatment at their company's clinic. Prior to the Fenote Tesfa Project, few Ethiopian parastatal clinics provided TB treatment. In October 2004, the Fenote Tesfa Project initiated a workplace HIV/TB program. Healthcare professionals now receive training on TB and HIV management in collaboration with the Ethiopian Ministry of Health. One beneficiary of the program explained: "When I was told that my problem is TB, I was thinking about the referrals and the expenses I may have to incur to go daily to a health center to get treatment. But [my doctor] told me that the service is available onsite at the clinic, and thanks to the [Fenote Tesfa] Project, I have already started taking my drug on the day I was diagnosed. I am following my course here at the workplace, receiving counseling by my own company medical doctor."

KENYA

Current Country Data on TB (2005)

Population	34,256,000
Est. # of new TB cases	219,582
TB incidence rate	641 per 100,000 population
Est. # of TB deaths	47,880
% prevalence HIV in adult TB patients (15-49 yrs)	28 (as high as 53 based on HIV surveillance within the national TB program)
% TB deaths in HIV+ individuals	32
% DOTS population coverage	100
% DOTS detection	43
% DOTS treatment success	80 (2004)

Source: *Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007.* Geneva: WHO. WHO/HTM/TB/2007.376

Kenya's TB epidemic is primarily driven by HIV/AIDS, making TB-HIV co-infection a significant health concern (Republic of Kenya Ministry of Health 2006). WHO estimates that 28 percent of the country's TB patients are HIV-positive (WHO 2007). More recent estimates by Kenya's National Leprosy and Tuberculosis Programme (NLTP) place HIV prevalence among TB patients even higher, at 53 percent (Chakaya, personal communication 2006). With such a high rate of TB-HIV co-infection, increases in TB incidence due to HIV can cancel out declines resulting from effective DOTS implementation. To address this growing problem, the government of Kenya established a national TB-HIV coordinating body in 2003. A primary task of this body has been the ongoing development of a system for monitoring and evaluating coordinated TB-HIV activities.

Kenya has made significant progress in TB-HIV program coordination in the last few years. In 2004, *Guidelines for HIV Testing in Clinical Settings* were developed, which created a standard policy to carry out routine HIV diagnostic testing and counseling (DTC)^p of all TB patients in order

^p DTC differs from voluntary counseling and testing (VCT) in that DTC is initiated by the provider and requires the patient to "opt out" of receiving it. VCT is typically initiated by the patient, with the provider playing a more passive role. Due to the provider being more proactive in administering counseling and testing, the DTC approach has been shown to be more effective than VCT in testing patients for HIV.

to significantly increase the number of HIV-positive patients being detected and referred for care. In 2005, tools to collect TB data were revised and disseminated, new TB-HIV guidelines were adopted locally, a new TB-HIV curriculum began being developed (completed in 2006), and province-/district-level TB-HIV steering committees were established. The NLTP also held two train-the-trainers sessions on TB-HIV in 2005 and 2006 (Sitienei 2006).

Kenya received about US\$92.5 million, \$143 million and \$208 million in fiscal years 2004, 2005 and 2006, respectively, to support a package of HIV/AIDS prevention, treatment and care activities (PEPFAR 2006c). In FY2005, 3.1 percent of the total country program budget was allocated for TB-HIV activities; in FY2006, this increased to 3.5 percent (PEPFAR 2006f).

PEPFAR is working with WHO to support Kenya's national plan for TB-HIV collaborative activities, which was put forward by the NLTP in March 2006. To increase the harmonization of efforts by various implementing partners, Kenya is proceeding with a strategy, supported by WHO technical assistance, that aims to offer DTC to all TB patients, followed by a package of HIV prevention and care services. To supplement this effort, TB case finding and treatment among PLWHA will be intensified. The country plan will allow Kenya to gain new ground in the fight against TB-HIV as it addresses the following key challenges:

- ▶ Increasing the budget line for collaborative TB-HIV activities
- ▶ Promoting TB-HIV collaboration at the local and regional levels, as ART centers have had difficulty working with the decentralized NLTP
- ▶ Coordinating the distribution of TB and HIV supplies
- ▶ Training healthcare workers to provide TB-HIV care, as such workers have been in staggeringly short supply

Results have so far been promising. In the second quarter of 2006, 59 percent of TB patients had been tested for HIV (up from 41 percent at the end of 2005), and over 80 percent of HIV-positive TB patients were placed on CPT — surpassing the NLTP goal of 80 percent. More progress must be made toward the goal of placing 80 percent of eligible HIV-positive TB patients on ART. Results so far are encouraging as 25 percent of eligible patients had access to ART in the second quarter of 2006 (Sitienei 2006).

Beyond country-level support to scale up collaborative TB-HIV activities, PEPFAR assists a handful of promising TB-HIV projects on the ground. These efforts could substantially expand access to ART for HIV-positive TB patients if replicated country-wide, with at least one project considered among PEPFAR's best practices. This project, headed by the Eastern Deanery AIDS Relief Program (EDARP) (see Box 4), has experienced a great deal of success since it began coordinating TB and HIV services and care in 2001. Since its initiation, the project has evolved from a modest effort among seven clinics to a sophisticated TB-HIV coordination program informing national policy in this area. The program has developed from a system of routine referrals of TB patients for off-site HIV testing and counseling to integrated care through DTC at the

time of TB diagnosis. With support from PEPFAR, in April 2004, EDARP broadened to include routine nurse-initiated DTC for all those suspected of having TB.

Another PEPFAR-sponsored program in Kenya seeks to scale up DTC at TB clinics in Nyanza Province in western Kenya, where HIV prevalence is more than double the national average. This partnership project between the NLTP and CDC began with a DTC pilot program at Nyanza General Hospital in 2004, which registered 1,001 TB patients and tested 56 percent of those for HIV. Of those tested, 81 percent were HIV-positive. Based on the success of this project in providing HIV testing and counseling to TB patients and in detecting new HIV cases, the project began scaling up in 2005. In that year, the DTC sites tested 6,478 TB patients for HIV and detected nearly 5,000 HIV-positive patients.

Kenya's successes with TB-HIV coordination have been strongly bolstered by PEPFAR's support of programs like those outlined above. These projects demonstrate the need for routine DTC for TB patients. The EDARP program was crucial in the development of Kenya's 2004 *Guidelines for HIV Testing in Clinical Settings*, which standardized routine DTC for TB patients.

RWANDA

Current Country Data on TB (2005)

Population	9,038,000
Est. # of new TB cases	32,627
TB incidence rate	361 per 100,000 population
Est. # of TB deaths	8,266
% prevalence HIV in adult TB patients (15-49 yrs)	16
% TB deaths in HIV+ individuals	21
% DOTS population coverage	100
% DOTS detection	29
% DOTS treatment success	77 (2004)

Source: *Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007. Geneva: WHO. WHO/HTM/TB/2007.376*

Although not among the top HIV prevalence countries in Africa, Rwanda faces particular challenges as it confronts its growing TB epidemic. WHO reported that, in 2002, 37 percent of new TB patients were also HIV-positive (WHO 2006a). By 2005, this had dipped to 12 percent (WHO 2007). However, more recent data from the Rwandan National TB Program from the first quarter of 2006 report that among the TB patients registered, over 30 percent were found to be HIV-positive, potentially signaling a resurgence (National Leprosy and Tuberculosis Control Programme 2006).

The Rwandan government has begun taking concrete steps to address its TB-HIV co-epidemic. In October 2005, the Rwandan Ministry of Health put forward the following priority areas for addressing TB-HIV:

A. Establishment of mechanisms for collaboration through: 1) a coordinating body for TB-HIV activities; 2) surveillance of HIV prevalence among TB patients; 3) joint TB-HIV planning; and 4) monitoring and evaluation of TB-HIV activities.

B. Focus on decreasing the burden of TB in people living with HIV/AIDS through: 1) intensified TB case-finding; and 2) effective TB infection control.

C. Focus on decreasing the burden of HIV in TB patients through: 1) routine HIV testing and counselling; 2) introduction of HIV prevention activities; 3) introduction of CPT; 4) HIV/AIDS care and support; and 5) provision of ART.

PEPFAR provided Rwanda a total of US\$57 million in FY2005 and \$72 million in FY2006 (PEPFAR 2006d). Funding for TB-HIV specific activities represented 1.3 percent of the country's program budget in FY2005 (PEPFAR 2006d) and 2.7 percent in FY2006 (PEPFAR 2006f). Part of this funding supports two model TB-HIV centers in the Gisenyi district, located northwest of the capital of Kigali. Activities conducted in the Gisenyi district, primarily at the Gisenyi District Hospital, are aimed at developing best practices for TB-HIV integrated care, evaluating methods for identifying HIV in TB patients as well as simple and effective methods for screening HIV-infected individuals for TB, and designing, implementing and assessing innovative programs for the care and treatment of TB-HIV co-infected patients. These activities have so far produced the following results:

- ▶ As a result of dedicated efforts to conduct HIV testing among TB patients, the proportion of registered TB patients with known HIV status rose from 61 percent in 2004 to 92 percent in 2005.
- ▶ During the last half of 2005 and the first quarter of 2006, of 206 newly registered TB patients, nearly half (99) were found to be HIV-positive with 71 starting CPT and 46 being initiated on ART.
- ▶ Through pilot-testing a simple TB screening questionnaire, 113 (25.5 percent) of 443 patients were found to be HIV-positive, of which 38 (33.6 percent) also had TB.
- ▶ The hospital demonstrated that the integration of TB and HIV activities was feasible in a rural setting, using existing infrastructure and a modest increase in resources.

UNITED REPUBLIC OF TANZANIA

Current Country Data on TB (2005)

Population	38,329,000
Est. # of new TB cases	131,078
TB incidence rate	342 per 100,000 population
Est. # of TB deaths	28,772
% prevalence HIV in adult TB patients (15-49 yrs)	29
% TB deaths in HIV+ individuals	33
<hr/>	
% DOTS population coverage	100
% DOTS detection	45
% DOTS treatment success	81 (2004)

Source: *Global Tuberculosis Control: Surveillance, Planning, Financing*. WHO Report 2007. Geneva: WHO. WHO/HTM/TB/2007.376

In 2005, 29 percent of new TB cases in Tanzania were co-infected with HIV (WHO 2007). Acknowledging the links between TB and HIV/AIDS, the Tanzanian government, with the support of the GFATM, has developed a joint TB-HIV training manual, trained 40 service providers and 22 TB coordinators from three regions in HIV testing and ART, and begun TB-HIV pilot projects in three districts (WHO 2006a).

In FY2004, PEPFAR's budget for Tanzania totaled US\$71 million, increasing to \$109 million in FY2005 and \$130 million in FY2006 (PEPFAR 2006e). Funding for TB-HIV activities in FY2005 stood at 1.1 percent of the total prevention, care and treatment budget (PEPFAR 2006e) and increased to 1.8 percent in FY2006 (PEPFAR 2006f). Given the FY2006 COP guidance's instructions to "significantly increase programming for TB/HIV activities," this increase is inordinately low.

PEPFAR has had some success in Tanzania, according to an early evaluation of HIV testing and counseling in TB programs. Of 526 new TB patients registered in three supported sites, 462 (88%) accepted HIV testing, of which 231 (50%) were found to be HIV-infected. Of the 231 HIV-infected individuals, 204 (88%) were referred to health care centers. However, only 62 (27%) received CPT and 6 (3%) were placed on ART. PEPFAR's experience in Tanzania thus far has shown that DTC in TB clinical settings is feasible and acceptable to patients and healthcare providers, and can be effective in identifying additional HIV-infected persons. However, linkages to care and treatment must be strengthened.

Appendix: TB-HIV Statistics for Countries Receiving PEPFAR Support

Table 1: PEPFAR focus countries

Country	Population, 2005	Estimated # of New TB Cases, 2005	Estimated Incidence Rate Per 100,000 2005 (All forms)	Estimated # of TB Deaths, 2005	% TB Deaths in HIV+ Individuals, 2005	% Est. HIV Prevalence in Adult TB Cases, 2004 (15-49 yrs)	% of All TB Cases Detected, 2005	% DOTS Treatment Success Rate, SS+, 2004
Botswana	1,764,926	11,551	654	1,547	61	70.0	83	65
Côte D'Ivoire	18,153,867	69,417	382	17,977	36	24.0	27	71
Ethiopia	77,430,702	266,288	344	56,490	24	11.0	46	79
Kenya	34,255,722	219,582	641	47,880	32	28.0	45	80
Mozambique	19,792,295	88,533	447	24,498	52	50.0	36	77
Namibia	2,031,252	14,164	697	1,561	49	56.0	99	68
Nigeria	131,529,669	371,642	283	99,938	32	19.0	33	73
Rwanda	9,037,690	32,627	361	8,266	32	16.0	21	77
South Africa	47,431,829	284,538	600	33,654	58	58.0	85	70
Tanzania	38,328,809	131,078	342	28,772	40	29.0	45	81
Uganda	28,816,229	106,285	369	26,094	24	30.0	37	70
Zambia	11,668,457	70,026	600	13,740	49	55.0	68	83
Vietnam	133,581,000	146,695	110	19,149	4	3.0	60	93
Guyana	327,000	1,050	321	191	15	13.0	56	72
Haiti	32,305,000	25,707	80	4,982	29	12.0	54	80
<i>Total</i>	<i>586,454,447</i>	<i>1,839,184</i>	<i>314</i>	<i>384,739</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>

Source: Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007. Geneva: WHO. WHO/HTM/TB/2007.376

Table 2: Countries receiving over US\$10 million per annum

Country	Population, 2005	Estimated # of New TB Cases, 2005	Estimated Incidence Rate Per 100,000 2005 (All forms)	Estimated # of TB Deaths, 2005	% TB Deaths in HIV+ Individuals, 2004	% Est. HIV Prevalence in Adult TB Cases, 2004 (15-49 yrs)	% of All TB Cases Detected, 2005	% DOTS Treatment Success Rate, SS+, 2004
Zimbabwe	13,009,534	78,187	601	16,967	59	60.0	63	54
Cambodia	14,071,014	71,130	506	12,281	15	6.0	61	91
India	1,103,370,802	1,851,661	168	322,322	6	5.2	58	86
Malawi	12,883,935	52,751	409	12,665	51	50.0	46	71
Russian Fed.	143,201,572	170,422	119	28,477	8	6.2	70	59
<i>Total</i>	<i>1,286,536,857</i>	<i>2,224,151</i>	<i>173</i>	<i>392,712</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>

Source: Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007. Geneva: WHO. WHO/HTM/TB/2007.376

Table 3: Countries receiving US\$5 to \$10 million per annum

Country	Population, 2005	Estimated # of New TB Cases, 2005	Estimated Incidence Rate Per 100,000 2005 (All forms)	Estimated # of TB Deaths, 2005	% TB Deaths in HIV+ Individuals, 2004	% Est. HIV Prevalence in Adult TB Cases, 2004 (15-49 Yrs)	% of All TB Cases Detected, 2005	% DOTS Treatment Success Rate, SS+, 2004
Angola	15,941,392	42,849	269	5,709	23	19.0	83	68
DR Congo	57,548,744	204,977	356	42,294	27	17.0	46	85
Ghana	22,112,805	45,328	205	10,721	19	12.0	26	72
Lesotho	1,794,769	12,489	696	1,926	58	64.0	83	69
Senegal	11,658,172	29,699	255	6,350	6	5.2	31	74
Swaziland	1,032,438	13,029	1,262	3,137	65	75.0	59	50
China	1,315,843,544	1,319,328	100	204,603	10	0.5	64	94
Indonesia	222,781,487	532,871	239	91,663	1	0.8	47	90
Nepal	27,132,629	48,842	180	6,305	1	3.1	47	90
Thailand	64,232,758	91,374	142	12,191	4	7.6	61	74
Ukraine	46,480,703	46,183	99	6,302	12	7.9	n/a	n/a
Dominican Rep.	8,894,907	8,053	91	1,274	11	6.3	57	80
Honduras	7,204,723	5,643	78	861	12	9.0	56	85
<i>Total</i>	<i>1,802,659,071</i>	<i>2,400,665</i>	<i>133</i>	<i>393,336</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>

Source: Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007. Geneva: WHO. WHO/HTM/TB/2007.376

Table 4: Countries receiving US\$1 to \$5 million per annum

Country	Population, 2005	Estimated # of New TB Cases, 2005	Estimated Incidence Rate Per 100,000 2005 (All forms)	Estimated # of TB Deaths, 2005	% TB Deaths in HIV+ Individuals, 2004	% Est. HIV Prevalence in Adult TB Cases, 2004 (15-49 Yrs)	% of All TB Cases Detected 2005	% DOTS Treatment Success Rate, SS+, 2004
Benin	8,438,853	7,416	88	1,404	13	9.9	42	83
Egypt	74,032,884	18,479	25	2,144	0	0.1	60	70
Eritrea	4,401,357	12,409	282	3,018	15	13.0	28	85
Guinea	9,402,098	22,175	236	4,857	21	8.0	30	72
Liberia	3,283,267	9,894	301	2,292	37	17.0	34	70
Madagascar	18,605,921	43,515	234	8,361	13	3.0	41	71
Mali	12,883,935	37,558	278	9,608	15	10.0	12	71
Sudan	36,232,945	82,694	228	23,608	14	9.0	33	77
Bangladesh	141,822,276	321,996	227	66,423	0	0.1	37	90
Burma	50,519,492	86,345	171	7,523	6	7.1	119	84
Laos	5,924,145	9,157	155	1,440	1	0.7	40	86
Papua New Guinea	5,887,138	14,689	250	2,725	3	9.7	76	65
Philippines	83,054,478	241,879	291	38,964	0	0.1	76	87
Kazakhstan	14,825,105	21,347	144	2,860	2	1.5	104	72
Tajikistan	6,506,980	12,854	198	2,471	0	0.8	42	84
Uzbekistan	26,593,123	30,173	113	4,148	1	1.2	66	78
Guatemala	12,599,059	9,797	78	1,623	9	5.2	33	85
Jamaica	2,650,713	196	7	29	12	9.0	46	46
Mexico	107,029,360	24,255	23	2,293	2	1.7	74	82
Nicaragua	5,486,685	3,166	58	417	2	1.4	57	87
Total	630,179,814	1,009,994	160	186,208	16	--	--	--

Source: Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007. Geneva: WHO. WHO/HTM/TB/2007.376

References

- Bernstein, M. and M. Sessions. A Trickle or a Flood: Commitments and Disbursement for HIV/AIDS from the Global Fund, PEPFAR, and the World Bank's Multi-Country AIDS Program (MAP). Center for Global Development and HIV/AIDS Monitor. March 5, 2007. http://www.cgdev.org/files/13029_file_cgd_hiv_monitor_disbursement_paper_final_mar_5_07.pdf (accessed March 19, 2007).
- Chakaya, J. Former National TB Program Manager of Kenya. Personal communication. October 12, 2006.
- Corbett, E.L., B. Marston, G. Churchyard, and K.M. DeCock. 2006. Tuberculosis in Sub-Saharan Africa: Opportunities, Challenges, and Changes in the Era of Antiretroviral Treatment. *The Lancet* 367 (9514):926–37.
- Crofton, J., N. Horne, and F. Miller. 1999. *Clinical Tuberculosis*. 2nd ed. London: Macmillan Education LTD.
- DeCock, K. and R. Chaisson. 1999. Will DOTS Do It? A Reappraisal of Tuberculosis Control in Countries with High Rates of HIV Infection. *International Journal of Tuberculosis and Lung Disease* 3:457–67.
- Gandhi, N.R., A. Moll, A. Willem Sturm, R. Pawinski, T. Govender, U. Lalloo, K. Zeller, J. Andrews, and G. Friedland. 2006a. Extensively drug-resistant tuberculosis as a cause of death in patients co-infected with tuberculosis and HIV in a rural area of South Africa. *The Lancet* 368 (9547): 1575-1580.
- Gandhi, N.R., A. Moll, R. Pawinski, U. Lalloo, A.W. Sturm, K. Zeller, J. Andrews, and G. Friedland. 2006b. High Prevalence and Mortality from Extensively-drug resistant (XDR) TB in TB/HIV Coinfected Patients in Rural South Africa. Presentation given at the XVI International AIDS Conference, Toronto, Canada.
- Harries A.D., D. Maher, and P. Nunn. 1997. Practical and Affordable Measures for Protection of Health Care Workers from Tuberculosis in Low-income Countries. *Bulletin of the World Health Organization* 75:477–89.
- Jones J. L., D.L. Hanson, M.S. Dworkin, and K.M. DeCock. HIV-associated tuberculosis in the era of highly active antiretroviral therapy. 2000. The Adult/Adolescent Spectrum of HIV Disease Group. *International Journal of Tuberculosis and Lung Disease* 4, 1026-1031.
- Ministry of Health, Government of Ethiopia. July 2005. *TB/HIV Implementation Guidelines*.
- Mukadi, Y.D., D. Maher, and A. Harries. 2001. Tuberculosis Case Fatality Rates in High HIV Prevalence Populations in Sub-Saharan Africa. *AIDS* 15 (2): 143–52.

Nachega J., J. Coetzee, T. Adendorff, R. Msandiwa, G.E. Gray, J.A. McIntyre, and R.E. Chaisson. 2003. Tuberculosis Active Case Finding in a Mother-to-child HIV Transmission Prevention Programme in Soweto, South Africa. *AIDS* 17 (9):1398–1400.

National Leprosy and Tuberculosis Control Programme, Epidemiological Reports, 2005, Q1 2006. Excerpted from “Integrating Tuberculosis and HIV Care in Rwanda, Experience at Gisenyi TB/HIV Model Center.” Presentation at the joint 2006 US President's Emergency Plan for AIDS Relief (PEPFAR) Annual Meeting and 2006 HIV/AIDS Implementers' Meeting in Durban, South Africa. June 12–15.

Nunn P., B. Williams, K. Floyd, C. Dye, G. Elzinga, and M. Raviglione. 2005. Tuberculosis control in the era of HIV. *Nature Reviews Immunology* 5, 819-826.

PEPFAR. 2005a. FY2006: Supplemental COP Guidance Resource Guide. Washington, DC: OGAC.

PEPFAR. 2005b. Fiscal Year 2005: Operational Plan; June 2005 Update.

<http://www.state.gov/documents/organization/58499.pdf> (accessed October 16, 2006).

PEPFAR. 2006a. Action Today, A Foundation for Tomorrow: The President's Emergency Plan for AIDS Relief; Second Annual Report to Congress. Washington, DC: OGAC.

PEPFAR. 2006b. Country Profile: Ethiopia. <http://www.state.gov/documents/organization/61620.pdf> (accessed October 16, 2006).

PEPFAR. 2006c. Country Profile: Kenya. <http://www.state.gov/s/gac/rl/profiles/2006/66362.htm> (accessed October 16, 2006).

PEPFAR. 2006d. Country Profile: Rwanda. <http://www.state.gov/s/gac/rl/profiles/2006/66366.htm> (accessed October 16, 2006).

PEPFAR. 2006e. Country Profile: Tanzania. <http://www.state.gov/s/gac/rl/profiles/2006/66368.htm> (accessed October 16, 2006).

PEPFAR. 2006f. Fiscal Year 2006: Operational Plan; April 2006 Update.

<http://www.state.gov/documents/organization/67687.pdf> (accessed October 16, 2006).

PEPFAR. 2006g. Fiscal Year 2007 Country Operational Plan Guidance. Washington, DC: OGAC.

PEPFAR. 2006h. FY2007: Supplemental COP Guidance Resource Guide. Washington, DC: OGAC.

Phillips, E., A. Njoroge, J. Odhiambo, N. Wambua, and L. Nganga. 2006. The Nurse as Initiator of Diagnostic Testing and Counseling for Tuberculosis Suspects in a Slum Environment. Presentation at the 2006 US President's Emergency Plan for AIDS Relief (PEPFAR) Annual Meeting and the 2006 HIV/AIDS Implementers' Meeting in Durban, South Africa. June 12–15.

- Republic of Kenya Ministry of Health. 2006. Proposal presented to WHO and the Office of the Global AIDS Coordinator (OGAC) for funding the TB/HIV collaborative activities by the National Leprosy and Tuberculosis Control Programme of the Ministry of Health, Kenya. March 31.
- Richter, C., L.F. Kox, J.V. Van Leeuwen, I. Mtoni, and A.H. Kolk. 1996. PCR Detection of Mycobacteremia in Tanzanian Patients with Extrapulmonary TB. *European Journal of Clinical Microbiology and Infectious Diseases* 15 (10):813–17.
- Sitienei, J. 2006. Scale up of collaborative TB/HIV activities in Kenya. Presentation at the 37th World Conference on Lung Health in Paris, France. October 31–November 4.
- Stop TB Partnership. 2006. Stop TB/HIV Working Group Strategic Plan, 2006–2015: Two Diseases, One Patient: TB-HIV Control Strategy Towards 2015. http://www.stoptb.org/wg/tb_hiv/assets/documents/TBHIV%20WG%20strategic%20plan2006-2015%20FINAL%20Jan%202006.pdf (accessed January 10, 2007).
- Stop TB Partnership and WHO. 2006. Global Plan to Stop TB 2006–2015. Geneva: WHO. WHO/HTM/STB/2006.35.
- US Centers for Disease Control and Prevention. Personal communication. May 31, 2006.
- WHO. 2002. A Strategic Framework to Decrease the Burden of TB/HIV. Geneva: WHO. WHO/CDS/TB/2002.296.
- WHO. 2004a. Interim Policy on Collaborative TB/HIV Activities. Geneva: WHO. WHO/HTM/TB/2004.330; WHO/HTM/HIV/2004.1.
- WHO. 2004b. Report of a “Lessons Learnt” Workshop on the Six ProTEST Pilot Projects in Malawi, South Africa, and Zambia, 3–6 February 2004. Geneva: WHO. WHO/HTM/TB/2004.336.
- WHO. 2006a. Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2006. Geneva: WHO. WHO/HTM/TB/2006.362.
- WHO. 2006b. Improving the diagnosis and treatment of smear-negative pulmonary and extrapulmonary tuberculosis among adults and adolescents: recommendations for HIV-prevalent and resource-constrained settings. http://www.who.int/tb/publications/2006/tbhiv_recommendations.pdf (accessed January 10, 2007).
- WHO. 2006c. Joint HIV/Tuberculosis Interventions. <http://www.who.int/hiv/topics/tb/tuberculosis/en/> (accessed October 15, 2006).
- WHO. 2006d. Tuberculosis Facts. http://www.who.int/tb/publications/2006/tb_factsheet_2006_1_en.pdf (accessed September 8, 2006).
- WHO. 2007. Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2007. Geneva: WHO. WHO/HTM/TB/2007.376.

RESULTS

750 First Street, NE
Suite 1040
Washington, DC 20002
202-783-4800
www.results.org